

Art, Science, and Ideology in 19th-century Advertisement for Liebig's Extract of Meat

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Abstract: In this paper I discuss the practices of the production *Inventions of the 19th Century*, a piece of ephemera from the late 19th century belonging to the marketing campaign for Liebig's Extract of Meat. I approach my corpus from a socio-semiotic perspective, using the tools of Multimodal Discourse Analysis to show how meanings are encoded in the text. On the basis of this description I explore from the perspective of Critical Discourse Analysis (CDA) the discursive strategies employed by the producers of these texts to legitimize the ideology of progress and the new identities it involves. In consonance with the aims of CDA, the purpose of this paper is to promote a critical awareness among those who are assigned subaltern positions as passive interpreters of these texts and those who – often inadvertently – play key roles in institutions (educational, scientific, legal) that participate in the reproduction and legitimization of hegemonic discourses.

Keywords: *cultural studies of science, 19th century advertising, Liebig's company, critical discourse analysis, visual grammar.*

1. Introduction

For some time now, studies in the History and Philosophy of Science have turned their attention to 'the public image of science' (Schummer *et al.* 2007) and explored the connections between science and other social and cultural practices (Renn 2012, Daston & Galison 2007, Bensaude-Vincent & Simon 2012, Schummer & Spector 2003 and 2007, Hund & Pickering 2013, among others). Inextricably bound to the rise of modern subjectivities – and objectivities (Daston & Galison 2007) –, advertisements are particularly interesting cultural texts where to explore the emergence and consolidation of modern representations of science. The hybrid¹ nature of the *discourses of advertising* allows them to work intertextually in ideologically powerful ways;² the ideological power of advertisements increases as they become (in)/(con) fused with other discourses, playing on the audience's expectations about

both the properties of the product³ to affect their daily lives and about the value of the information provided by the advertisement. This second expectation plays a much more important role in cases where the main function of the advertisement is effaced by the fact that this information is offered as a gift, separately from the product.

In this paper I analyze the discursive practices of production of *Inventions of the 19th Century*, a set of six collectible lithographs published in Germany in 1891 by Liebig's Extract of Meat Company (LEMCO). These images are part of a complex, worldwide marketing campaign that involved the production of a remarkable amount of ephemera and was managed by agencies in Europe, the Americas, and Australia (Brock 1997, p. 230).

2. Theoretical Framework

The term 'discourse' begins its life in Romance languages as a metaphorical use of the participle of the Latin verb *discurrere*, which literally denotes the action of running in several directions, up and down. The theoretical development of 'discourse' seems to fulfill its etymological destiny – namely a lack of *destination*: it is something that runs or extends in different directions, branching out, expanding across a field (Anonymous 1994). This erratic movement would be an apt metaphor for the way in which the term 'discourse' has accumulated meanings, particularly after the 1960s, under the influence of socio-pragmatic approaches to communication.⁴

The semantic comings and goings of discourse(s) were both noticed and vindicated by Foucault (1963, p. 106) in a classical passage from *L'archéologie du savoir*:

Enfin au lieu de resserrer peu à peu la signification si flottante du mot "discours", je crois bien en avoir multiplié les sens: tantôt domaine général de tous les énoncés, tantôt groupe individualisable d'énoncés, tantôt pratique réglée rendant compte d'un certain nombre d'énoncés [...].

These three senses – discourse as the general realm of all the utterances, discourse as an individualizable group of utterances, and discourse as regulated practices – were reconceptualized and articulated by Fairclough (1992) in order to explore and explain the social and cultural effects of discourse, and constitute the core of Critical Discourse Analysis (CDA).

In CDA, social context and discourse stand in a dialectical relation: while social context is what actually gives place to discourse, discursive structures deal with or represent sections of society, which are themselves partly constructed by discourse (van Dijk 2002); *i.e.*, discourse both structures and is

structured by power relations, which are historically produced and interpreted and temporally and spatially situated (Zdenek & Johnstone 2008, Fairclough 1995, Wodak & Meyer 2009, Wodak 2001, among many others).

If discourses are conceptualized as that which at once allows and restricts what can be said, written, and thought within a given historical context (McHoul & Grace 1993, p. 40), the theoretical and methodological tools of CDA⁵ can be used to bring to light the artifactuality of scientific texts and practices, and show the strategies by means of which the discourses of science have achieved and consolidated their privileged status in Western culture.

The discourses of science can be particularly challenging in this sense, since the role of language in the production of scientific knowledge has been overshadowed by a focus on the successful representation of material objects, which may have contributed to the consolidation of scientific discourse as legitimizer of ‘truths’, suppressing awareness of language in the production of scientific knowledge, which appears to be ‘naturally’ authoritative (Bazerman 2005, p. 15).

The origins of this philosophical blindness to the relation between nature, truth, and reality⁶ can be traced back to the writings of the philosophers of classical antiquity. Hadot (2006) explores the semantic closeness between *alêtheia* and *phusis*, and shows how early interpretations of the allegories associated with these terms make it possible to understand *phusis* as the ‘meaning’ (as opposed to the letter) of a text. As Hadot (2006, p. 49) points out, we can find an analogous semantic shift in Latin, “where the word ‘res’, meaning ‘thing’ or ‘Reality’, can in some contexts mean the true signification of a word”. These particular textual relations that only philosophers seemed able to enjoy were questioned by deconstructivist analyses, which challenged the “pretensions of philosophy” (Lloyd 1986) showing that such seemingly direct engagement with meaning is illusory.

3. Corpus and methodology

I collected my corpus from digital databases between 2013 and 2014. It comprises the six lithographs that make up the set *Inventions of the 19th Century*, originally published in 1896, themselves part of a collection of more than 1900 sets (usually consisting of 6 or 12 images) published intermittently between the mid-1860s and the mid-1970s, and running up to three million copies. The images were produced by the French company Romanet/Lith. Parisienne with a state of the art technique known as *chemical paint*, using the *Lithotint* process patented in 1840, which allowed for a wider range of hues as

well as more vivid colors (Castro *et al.* 2004, p. 674). They address a wide variety of subjects of cultural or educational interest, and were offered at no charge with the purchase of a jar of Liebig's Extract of Meat in several European countries.

For my analysis I broadly adapt Fairclough's (1995, 1995a) model of Critical Discourse Analysis (CDA), which explores the connection between language and hegemonic ideologies (Zdenek & Johnstone 2008, p. 28; Fairclough 1995, p. 54), in order to identify the different discursive threads that make up their texture (Jäger 2001, p. 35), revealing and problematizing strategies of legitimization that would otherwise remain obscured.

Methodologically, a critical discourse analysis must account for the fact that an interpretation is itself a cultural product, and as such it will depend partly on the skills and biases of the discourse analyst (Wodak & Meyer 2009). To expose this bias to the reader, a critical discourse analysis must be firmly based on a systematic descriptive foundation, which can function as a point of reference to which it will constantly return as the text is explored within increasingly wide intertextual networks. Following the methodological procedures of CDA, I have used for the descriptive foundation for my analysis the tools of systemic-functional linguistics (SFL) – adapted to visual texts by Kress & van Leeuwen (1996, 2006). In SFL, texts are believed to simultaneously encode three different but inter-related meanings: ideational, interpersonal, and textual, known as the *metafunctions of language*. On the *ideational* level, we represent the experiential (real or otherwise) world. Texts also function *interpersonally*, expressing two kinds of relational meanings: a relation between the producer of the text and the represented entities or events, and a power relation between the producer and the intended audience.⁷ The *textual* dimension of meaning is realized by means of choices in the composition and material support of the text. These elements enhance and relate representational and relational meanings by organizing information in coherent and cohesive complexes, which – placed within a specific context of culture – point the audience towards the intended semiotic realization of the meaning potential of the text.

It is worth pointing out that this perspective departs from the denotational orientation of traditional semantics-based analyses of *language*. Instead it focuses on how a *text* (scientific or otherwise) *re-presents* not just (real or imaginary) entities,⁸ but also appraisals of these entities and power relationships between the producer and the audience of the text, and organizes these dimensions in ways that can naturalize these entities, appraisals and relationships. Such meanings are encoded at the lexico-grammatical level but depend for their interpretation on contextual factors of culture and situation.

I will develop my analysis in three stages: context, textual analysis, and discussion. The context places my corpus within Liebig's branding strategies.

The textual analysis describes the chromes on Kress & van Leeuwen's (1996, 2006)⁹ Visual Grammar (VG), in order to show how the designers of the images construed their potential meaning. The Discussion focuses on the strategies by means of which the producers of the images facilitate desired interpretations and hinder resistant readings of the text. On the basis of my analysis, in the Conclusion I discuss some ideological implications of the discourses of *Inventions of the 19th Century*.

4. Socio-historical context

Throughout his lifetime, Justus von Liebig took particular care to cultivate his *authority* as a public figure on several fronts. Not only did he disseminate his research and inventions within the scientific community through prestigious scientific journals, but he also created his own spaces for publication, particularly the *Annalen der Chemie* (known as *Liebig's Annalen*) which he edited between 1832 and 1873, the year of his death (Blondel-Mégrelis 2007). He established commercial collaborations with German and foreign (particularly British) investors, was hired as a government consultant in Europe and abroad, and made a special effort to reach the general public (Brock 1997).

In his laboratory at Giessen – which not surprisingly was featured as a trading card in the collection *Chemistes Célèbres* of 1929 – he trained and collaborated with students from all over Europe (Finlay 1992, Jackson 2008), some of whom became his business partners and others his competitors, particularly in the production of ‘meat teas’ (Brock 1997, Finlay 1992).

As part of his campaign, von Liebig also forged somewhat unexpected partnerships with female writers from different European countries, commissioning a series of cookbooks that emphasized the need for the ‘scientific’ approach to cookery von Liebig himself promoted in other writings. Beyond extolling the properties of the Extract of Meat, the authors frequently referred to von Liebig's scientific ideas, especially those published in non-academic periodicals. A case in point is Marie Taylor's *Letters to a young housekeeper*, of 1892, a title and a genre that evoke von Liebig's (1859) own *Familiar letters on Chemistry*. Taylor¹⁰ referred to him as a popularizer of science and as an innovative scientist,¹¹ strategically placing both the *product* and the *celebrity* in the homes of a new generation of ‘young housekeepers’¹².

Even the struggle to quash competition was an opportunity to increase the company's prestige. Between the mid-19th century and the early 20th century LEMCO filed a series of lawsuits against rival companies that attempted to use Liebig's name on their own versions of the Extract of Meat: “Extractum carnis Liebig”, “Baron Liebig's Extract”, and even “Liebig's Extract of

Meat” are mentioned by Finlay (1993, p. 413). The company’s efforts on the legal front were mostly unsuccessful (Brock 1997, pp. 231ff; Finlay 1992, pp. 412ff), and it gave the company a wide coverage in the press and these incidents were used to support the company’s insistence that the authenticity of the product was ensured only by the facsimile of his signature (Brock 1997, p. 232) – not just on the label itself¹³ but also in other promotional texts published by the company.¹⁴ We will discuss these processes in depth in a later section of this paper.

Branding management has received increasing attention in the past few years (Villagra & López 2013, Balmer 2010, Roper & Davies 2007, among many others). The demands of globalized markets and the nature of competition in global contexts require careful planning, since the aim of the corporate brand is to express the multiple aspects that constitute the identity of the company. The corporate brand works on several levels, each one involving different stakeholders: it differentiates the company from its competitors, it integrates employees by sharing a corporate identity, and it helps outside stakeholders to relate to the company by providing information about its commitments and business practices (Villagra & López 2013).

Product branding, however, is not another *Invention of the 19th century*;¹⁵ nor were trading cards produced with lithographic techniques an innovation of LEMCO’s. In fact, we even find a colored manuscript facsimile across a black and white label in advertisements for other products around the time our images were published.¹⁶ The *authority* of Liebig’s signature on the product label draws its strength from a particular network of interconnected discourses woven to a great extent by von Liebig himself and produced by a well-oiled cultural apparatus. A key piece in this machinery is the emergence in the late 18th century of modern celebrity culture and its consolidation in the 19th century.

In his book on Lord Byron and the emergence of the Romantic cult of personality, Mole (2007, p. 1) defines celebrity as “a cultural apparatus consisting of three elements: an individual, an industry and an audience”. The industry provides the technology needed for the production and distribution of a commodity. The celebrity’s work is (re)produced by a primary industry and distributed by secondary industries that target a massive and heterogeneous audience that responds to celebrity, even though once unleashed this response cannot be completely controlled by either the individual or the industry. In the case of Justus von Liebig, we see an individual who was also a key player in the industry that produced and distributed his work, allowing him to control to a large extent the making of his own celebrity. By the time the trading cards were published, not only Liebig’s Extract of Meat but also Justus von Liebig were (literally) *household* names, linked in such a way that each one served to increase the popularity and prestige of the other.



Figure 1. Inventions of the 19th Century, 1896. (Source: <https://www.flickr.com/photos/44841559@N03/5257634028>, without copyright).

5. Textual analysis

To develop my analysis I will focus on the common visual elements in the six lithographs that make up the set *Inventions of the 19th Century* (Fig. 1). Beyond the obvious fact that they share the same thematic field, the visual space in all six images is organized in two distinct *clusters* or groupings of functionally related items, spatially distributed so as to define a specific region of the page (Baldry & Thibault 2006, cited in Bateman 2008, p. 53). I will call Clus-

ter 1 the representation of the invention in question and Cluster 2 the framing items and the verbal elements of the image.

5.1 Representational structure

The ideational meanings of an image are expressed by means of the visual equivalent of clauses, whose three basic elements are *Processes* (represented actions and events – roughly equivalent to verbs); *Participants* (the people, objects or other represented entities that take part in the Processes, in verbal language expressed in nominal clusters as subjects or objects); and *Circumstances* (the setting against which they take place in verbal language traditionally expressed in adverbial clusters). Processes are classified as *narrative* when they express a dynamic relation of ‘doing’ or ‘happening’ (Jewitt & Oyama 2008, p. 141) or *conceptual* when they express static relations of identity or class.

In Cluster 1, the Woman and the Invention are involved in a narrative process that can be transcoded as ‘*the Woman is operating/using the Invention*’. Ideationally, the narrative process can be identified by the vector, formed by the Woman’s arms, that joins both participants. The larger size of the Woman indicates that she is the main participant (the ‘subject’ of the action). The Woman’s gaze constitutes another vector that joins the participants, introducing interpersonal meanings by directing the viewer’s attention to the Invention as an important element in the representation. Circumstances of accompaniment are present in the by-products or parts of the Inventions that surround the Woman, while locative Circumstances set the scene in a space where we could expect to find the Invention in use. This space is itself set against the backdrop of an industrial landscape where elements related to the practical application of the Invention occupy a prominent place.¹⁷

Conceptual processes are represented by pictorial or abstract patterns whose meanings are construed by their symbolic value (Kress & van Leeuwen 2006, p. 70; Jewitt & Oyama 2008, p. 144), with participants represented “in terms of their more generalized and more or less stable and timeless essence, in terms of class, or structure or meaning” (Kress & van Leeuwen 2006, p. 79). There are two main Conceptual processes in my corpus, both of which can be classified as symbolic-suggestive, *i.e.* referring to what the only represented participant in the process means or is. The first symbolic process connects the product icon – the jar of Liebig’s Extract of Meat – with the product itself (Cluster 2). The meaning potential of this process must be considered in relation with the socio-cultural context of the images discussed earlier in this paper.

The second symbolic-suggestive process (Cluster 1) concerns the symbolic meaning of the Woman. The intended audience of this text can be ex-

pected to successfully identify the image as a trope,¹⁸ since the main participant is not – as would be expected in the industrial world of this narrative – a (male) scientist carrying out an experiment, or a (male) technician operating a piece of machinery, but rather a neoclassical representation of a goddess-like figure. This discordance between the central and marginal elements in the picture strongly suggests the need for a symbolic interpretation, which the target audience would be expected to decode. Unlike icons, which physically resemble the objects they represent, “symbolic signifiers bear an arbitrary, yet socially accepted, association to the signified” (Conradie 2001, p. 296). Therefore the viewers must appeal to their knowledge of other cultural texts to correctly identify the non-represented participant in the process. I will come back to this symbol when discussing the ideological implications of the corpus. For now it is enough to point out that this particular representation was a well-known symbol in 19th-century Western cultural imagery, a combination of the Christian and classical symbols of wisdom, “aspects of *Sapientia*, who, from the sixteenth century onwards, loses her biblical character and is almost always represented under the features of the goddess of wisdom” (Warner 2010, p. 69).

5.2 Relational structure

The relational structure of a text contains elements by means of which its producers establish interpersonal relations with the audience that function both to ascertain their authority before their intended audience and to engage them with the message (Bateman 2008, p. 41).¹⁹

In visual texts, interpersonal meanings are described by considering four dimensions: contact, social distance, interaction, and balance of power. In our images, the Woman does not make *eye contact* with the viewer; the world represented in the image can be considered as an offer of information, for the viewer to ponder over and eventually assess it.²⁰ Interpersonal meanings are introduced in this way since, as detached observers of the representation, we are expected to accept the information offered by the images. *Social distance* between the Represented Participants (RP) and the viewer is realized by the choice of frame: in our images the lack of closeness between the viewer and the RP is expressed by showing the whole figure of the Woman, surrounded by other elements, placing her in a public space, where we can contemplate her at a distance. The degree of *involvement* between the producer/viewer (the Interactive Participants in the text) and the RP (Kress & van Leeuwen 2006, p. 144) is expressed by means of the horizontal angle: in our images, the Woman is shown from a slightly oblique angle, indicating detachment. The *balance of power* is expressed by the vertical angle; in our images we see

the Woman from a slightly lower position, which suggests that the balance of power favors the main represented participant.

Other strategies allow image producers to control the degree of credibility of the message, namely viewpoint and modality. *Viewpoint* expresses the degree of ‘objectivity’ of the message – *i.e.* to what extent the intended viewer would interpret the representation as showing ‘the way things are’. This is visually achieved by attempting to neutralize distortions that come with perspective: we can identify in the images a directly frontal angle, indicating an ‘objective’ attitude. *Modality* “has to do with the different ways in which a language user can intrude on her message, expressing attitudes and judgments of various kinds” (Eggins 2004, p. 172). The underlying principle here is that statements that are considered absolute truths within a community do not need modalization,²¹ on the contrary, its presence indicates an effort on the part of the producer to express certainty or doubt, introducing interpersonal meanings by attempting to align the reader/viewer with certain positions.²² Color saturation, color modulation, tonality, detail, depth, and contextualization are ways in which modality is strategically controlled in visual texts. Within the limits of the technologies of image-making at the time of production, modalization is expressed by departing from what we could see with the naked eye (p. 158). Not surprisingly, in Cluster 1 modalization is much higher in the case of the main represented participant, which is the only imaginary entity depicted in the chromes. The jar of Liebig’s Extract of Meat is also a highly modalized image, reproducing the off-white color of the ceramic container, the greyish label with black and red lettering on top of which there is von Liebig’s signature in blue. The bright colors and detail in the plaque also suggest modalization, whereas the frontal viewpoint strengthens even further the idea that the product is part of the viewer’s world (Kress & van Leeuwen 2006, p. 136).

Kress & van Leeuwen (2006, p. 165) define *coding orientations* as “sets of abstract principles which inform the way in which texts are coded by specific social groups, or within specific institutional contexts”. The coding orientation of an image can be technological (where effectiveness is the dominant principle), sensory (with dominance of the pleasure principle), abstract (reduction to essential qualities of the thing represented), and common-sense naturalistic (the dominant orientation in our society). The use of color and detail (the presence of ornaments and banners, for instance) allows us to classify the images as pleasure-oriented or sensory. I will comment on the implications of this coding orientation in the Discussion section of this paper.

5.3 Compositional structure

Texture adds a further dimension to the way in which representational and interactive meanings are connected, and it is analyzed in terms of three dimensions: salience, information value, and framing.

In Cluster 1, the Woman is the most *salient* element, both in terms of size and color, making her the central element of the composition. The marginal elements are organized in a top/bottom distribution, dividing the space in two distinct areas to which Kress & van Leeuwen (2006, p. 187) assign the *information value* of Ideal (“the idealized or generalized essence of the information”) and Real (more ‘down to earth’ or practical information). In our images, the top area portrays the changes to the landscape brought about by the new technology: smoke, factory chimneys and flying objects in an urban setting, telephone posts in a rural landscape, a zeppelin model hanging from the workshop ceiling. The bottom half shows the objects related to the new technology: elements used to produce it, blueprints, and other objects associated with it.

This arrangement is also signaled by several vertical *vectors* that connect the bottom and top sections of Cluster 1, such as chimneys, a standing lamp, and telephone posts. The upper section portrays the “‘promise of the product’, the status of glamour it can bestow on its users, or the sensory fulfillment it can bring” (Kress & van Leeuwen 2006, p. 186), whereas the lower section shows elements that belong to the Invention as parts or applications. This direct connection prepares the viewers to accept as positive and perhaps even inevitable the new world that the future has in store.²³

Cluster 2 shows a left-right organization: in Visual Grammar, the left is the side of ‘the Given’, information that the reader/viewer is supposed to know, whereas the right shows ‘the New’, what the reader is supposed to learn from the text. The fact that the company emblem appears on the left suggests that its value is self-evident, something already accepted by the audience, whereas the Invention (represented by its name) is the information offered by the image, something which the viewer must pay special attention to and eventually assess it. The strong frames of the textual elements in the images (found in the product label and in the name of the invention) are indications that they are separate units of information, whereas the Given-New arrangement (the name of the company on the left and the name of the invention on the right) suggests that in some way the product advertised is already known to the viewer, that it logically ‘comes before’ the invention.

The producers also deployed several resources to connect Clusters 1 and 2 in a single, cohesive text, creating the perception that the conceptual elements in Cluster 2 overlap the narrative elements in Cluster 1, which are thus displaced to a lower rank. Moreover, the product appears both in the area of

the Real (along the vertical axis) and in the area of the Given (along the horizontal axis), which together with its salience stresses its relative importance. This relation is further emphasized by the placement of the product to the left of the image, making it ‘heavier’ in relation to the rest of the image. Along the vertical axis, the top area is reserved for the narrative process – the use(s) of the invention – which occupies the space of “the ideologically foregrounded part of the message” (*ibid.*, p. 187), with the bottom devoted to the abstract and textual elements, the real, tangible elements of the image.

The Woman’s gaze forms an oblique vertical vector, echoed by the vector formed by her arms, directing the viewer’s attention to objects related to each Invention and connecting different elements of the invention (rays of light and the plate in the case of photography, or the blueprints and the model in the case of the submarine). These vectors act as deictic devices, guiding the viewer towards a specific reading of the narrative, displacing the central message from what the Woman is doing with the Inventions to the fact that she is showing them to the viewer and indicating that the Invention somehow comes ‘from above’. The Eastern motifs in the decorated bands enhance cohesion and add ideational and interpersonal meanings (van Leeuwen 2011) by alluding to a mythical or exotic setting.²⁴

Compositionally, the producers deployed several visual resources to create a hierarchy of importance between the represented elements. Ideationally, the viewers are invited to focus their attention on the two most salient elements, the Woman and the Product, while the Inventions appear in a secondary role, even though they are the thematic *subject* of the set. Interpersonally, however, the fact that this goddess-like character offers the technologies represented to the viewer strengthens the idea that these items are highly valuable, guiding the addressee towards the expected positive reaction to the offer, *i.e.* acceptance of the information/object offered as ‘true’.

6. Discussion

Our analysis of how the representational, relational, and compositional elements function *textually* in our corpus showed how the producers of the images achieved an *effect of truth* by controlling choices on each of the dimensions of meaning. To explore how our images work *intertextually*, we followed the clues provided by the icons and symbols (Conradie 2001) and found in our text traces of other discourses (Fairclough 1995, p. 61), related to the company icon, the main represented element in Cluster 2, and the symbolic of the Woman, the central represented element in Cluster 1. In this section I intend to explore in more depth the *cultural work* that this text is

doing (Matheson 2005, p. 36), discussing the strategies used to naturalize the ideologies embedded in the images, and offering at the same time a resistant reading of the text.

6.1 Displacement of key participants

By excluding from the images the actual participants in the practices of production and use of scientific-technological knowledge in a gender and class specific environment, the producers avoid unwanted associations with the darker aspects of scientific-technological progress of which the addressees of LEMCO's advertisements were certainly aware.²⁵

These results are consistent with Schummer & Spector's (2007) insightful discussion of several examples of such conflicted reactions in art, and their analysis of how industrial landscapes were construed as innocuous, by *placing* "industrial sites harmoniously into natural landscapes or towns" (Schummer & Spector 2007, p. 20) and *displacing* from the mind of the viewer any unwanted associations.

6.2. Appeal to normative cultural texts

Inventions of the 19th Century strategically articulates the myths of the past with an equally mythical future, reinforcing both the allusion and the illusion of the message, developing a narrative that seems to take place in the timeless setting characteristic of classical myths, fairy tales, or science fiction. By resorting to a layout usually found in illustrations in children's literature increasingly popular at the time, the producers cast a veil of innocence on the practices and ideologies that the images promote, articulating them – as Westfahl (2000) convincingly argues – with the new beliefs that shape the emergent paradigm, represented in the futuristic landscapes of the lithographs.

Depictions of heroic or godlike figures also function culturally as normative texts, representing ideal traits associated with gender. As these representations became increasingly embedded in the social imagery, the ideals they conveyed – particularly those related to women – became naturalized and were confused with religious truths or scientific facts (Wiesner-Hanks 2001, p. 83). This misplaced Woman, however, might also be interpreted to represent a more prosaic displacement. As Wiesner-Hanks (*ibid.*, pp. 55ff) argues, women are also absent from the capitalist traditional classification of economic activities. Like the actual work and circumstances of the social actors the Woman is meant to replace, this goddess that brings us the fruits of man's reflection also displaces from the mind of the viewer the work of actual women pejoratively referred to as 'housework'. The ideological consolidation of capitalism depended on the ability of mediators of these discours-

es, and women played a central role in this sense, not only as housekeepers but also as popularizers of science. In the 19th century, scientific writing itself was a gendered practice (Lightman 2006) in more than one way: firstly, in terms of intended audience and style – whereas male authors wrote mainly for other scientists, using a ‘scientific’ style, female writers wrote for a non-scientific audience and used a more informal style called with didactic purposes but also with regards to the use of illustrations: female authors favored visually attractive images whereas their male counterparts preferred more abstract illustrations. Lightman (2006, 2000) traces to this distinction the origin of what he calls (following Myers 1990) the “narrative of natural history”, characteristic of texts of scientific popularization which exploded – as did other gendered genres such as the novel – at a time when mass printing technologies converged with an ever-increasing female audience interested not only in the scientific advances themselves, but also in their religious, social, and moral implications. I have already mentioned von Liebig’s collaboration with female writers within the context of the marketing of Liebig’s Extract of Meat. This intertextual network can be extended to include other texts related to an explicit ideological agenda about the expected gender roles in the late 19th century. It is interesting to see how women became the objects of these normative discourses, particularly in the more intimate, more accessible, and hence less ‘scientific’ epistolary genre.

In the context of the changing gender identities of the 19th century, and in the narrower context of the many texts produced within Liebig’s Co. marketing campaign, the female figure at the center of the chromes, the protagonist of the narrative, becomes a ‘domestic goddess’, and her offering “to the intelligent housewife and cook” (Young 1893, pp. VIII) is the promise of liberation from the burdens of housework – freeing time that might be used to pursue what was already becoming a stereotypical gendered practice, *shopping*.²⁶

6.3 Advertising in the age of the technical reproduction of art

The ethereal quality of the backgrounds, the exotic decorations, and the mythical character that dominates the images, envelop the viewer in an aesthetic experience that is “the true index of successful social hegemony” (Eagleton 1988, p. 330). The Woman’s offer of the *artificial* fruits of scientific-technological knowledge veils the *artifactual* statute not only of the advertised product but also of the *advertisement* itself: the fact that also this pleasure is ‘brought to us by our sponsor’, embodied in the name and the signature of Justus von Liebig. The material support of the images contributes to the impression of a forward movement, propelling the viewer towards the future, the new age of the mechanical reproduction of art whose potential

and dangers Benjamin (1968) foresaw so clearly. Aesthetic pleasure was brought into every home by the hand of the Extract of Meat, making not only health but also beauty available to everyone – or at least to anyone who bought the product, since proof of purchase was required to obtain the chromes (Brock 2007).

7. Conclusions

In this paper I analyzed the discursive strategies employed by the producers of *Inventions of the 19th Century* to legitimize claims about the properties of Liebig's Extract of Meat. By considering my corpus within a thick intertextual web, involving deeply embedded cultural texts, the emergent discourses of science, and the penetration potential of the new technologies of mass communication converge, my analysis showed how the producers of LEMCO's advertisements *re-produce* the values of the consumer society. I found that these values are encoded in the symbolic elements of the images, which refer the viewer to two gendered sources of legitimization: the Woman and the Scientist. Confined to the tiny island of Cluster 1 like a modern day Miranda, the Woman is accepted literally as that which must be looked at (Block de Behar 1995) – compositionally, as the most salient element in the image; ideationally, as the main actor in a setting where traditionally male knowledge and practices are enacted; interpersonally, embodying the female power to conciliate the narrative and epistemic conflicts in the text. Superposed to the narrative, a prosperous Scientist authorizes with his signature both the fantastic stories of the brave industrial world told by the images and the value of a product that condenses more than the nutritional properties of beef.

A critical reading of *Inventions* can break the spell, bringing into the picture the extensive areas of fertile land in Uruguay no longer devoted to agriculture, the slaughtered animals, the rural workers that flocked to Fray Bentos in search of work at LEMCO, the *other* actors involved in the actual practices of production Liebig's Extract of Meat that provided the raw materials and the base of the meat extract, which was then packaged and marketed in Europe. The irony behind this other face of LEMCO's texts is not lost on Hund & Pickering (2013, pp. 55-56), who point out that the jar of Liebig's Extract of Meat also condenses

the entire history of colonialism, including legitimising contracts, 'civilising' labour, ridiculing minstrelisation or reactions to resistance – in this manner disclosing the concomitant effects of consumerism for the affected others: defraudation, exploitation, degradation, and violence.

The advertisements for Liebig's Extract of Meat allowed us to see how products related to new technologies and applied sciences can be portrayed as embodying the three dimensions that for Chiapello and Fairclough (2002) provide an ideological justification for capitalism, namely its contribution to liberation, security, and the common good. Our analysis revealed how the complicity between art, science, and capitalism *took place* in the discourses of advertising, consolidating the ideology of progress. By strategically manipulating the representational, relational, and compositional meanings of the text, and by weaving a thick intertextual web around them, the producers of *Inventions of the 19th Century* reconciled the central beliefs behind the ideology of progress: the power of women and the authority of men, the 'impure' nature of Chemistry (Bensaude-Vincent & Simon 2012) and the 'contaminated' discourses of advertising (Amalanci 2012, p. 210), obliterating by a discursive sleight of hand all traces of complicity between art, science, and ideology.²⁷

Notes

- ¹ The genre has been characterized as "weak" (Matheson 2005, p. 4), "restless" (Cook 1996, p. 178), "contaminated" (Amalanci 2012, p. 210), "parasitic" (Cook 1995, p. 21), and "coexistent" (Koll-Stobbe 1994, p. 386).
- ² Even though function (selling a product) has traditionally been considered the distinguishing feature of advertisements, studying the discourses of advertising requires a more complex, situated approach that accounts for the processes of production, distribution, and reception of advertisements as well as for the particular combination of modes – visual, verbal, audiovisual, *etc.* – through which the message is conveyed. Such an approach considers advertisements as a discourse type where users, contexts, and materials are interconnected (Cook 1994).
- ³ "This expectation of a transparent recording arises not only for the nature of the products themselves – products that very directly and potentially profoundly affect our daily lives in terms of our work, health, communication, and information-accessing capability – but also from the rhetorical stance assumed by the marketers themselves: we expect to receive objective information, to be educated, to be empowered." (Blakely 2011, p. 688)
- ⁴ Including linguistics, cultural studies, literary theory, psychology, and sociology (Blommaert 2005).
- ⁵ As Fairclough (1995, p. 54) points out, "Calling the approach 'critical' is a recognition that [...] connections between the use of language and the exercise of power are often not clear to people, yet appear on closer examination to be vitally important to the workings of power."
- ⁶ It would exceed the scope of my paper to go into this question with the depth it deserves; the reader can find an erudite discussion of the history of our conception of Nature in Hadot 2006.

- ⁷ Lexico-grammatical choices such as the use of technical jargon can invest the producer of a text with greater power in relation to the reader – this is particularly clear in the case of textbooks.
- ⁸ From a pragmatic perspective, we are not concerned with establishing the ontological status of the represented entities or establishing the truth-value of propositions; we are interested in showing how the producer of the text encodes indications to lead the reader/audience to interpret entities as more or less ‘real’, and statements as more or less ‘true’.
- ⁹ Different combinations of both approaches have been productively applied to the analysis of media discourses (Gregorio 2009, Wang 2014, among others).
- ¹⁰ Much of the evidence provided in Taylor’s (1892) book can be found in an article published in *Every Saturday* (Liebig 1869a), a slightly different version of which was published with the same title in the journal *The Lancet* (Liebig 1869b).
- ¹¹ “It was Liebig who first called public attention to the chemical process performed in every kitchen for the purpose of restoring the daily waste of the human body” (Taylor 1892, p. 6).
- ¹² “This may be the proper time to make you acquainted with the way Liebig himself had the meat extract used in his own household [...]” (Young 1892, p. 18)
- ¹³ Images of Liebig’s Extract of Meat jar and labels can be found in collector’s sites, such as [http://i.ebayimg.com/00/s/NjA0WDUwMA==/z/FVEAAMXQCgpRrHzm/\\$T2eC16RHJGEFFmd1NtCnBRrHzloY](http://i.ebayimg.com/00/s/NjA0WDUwMA==/z/FVEAAMXQCgpRrHzm/$T2eC16RHJGEFFmd1NtCnBRrHzloY) (accessed 3 Dec. 2015).
- ¹⁴ One of the cookery books commissioned by LEMCO expressly warned that “The Company’s Extract is the only kind ever guaranteed genuine by Baron Justus von Liebig, and to protect themselves, the public should see that every jar purchased bears the facsimile of Justus von Liebig’s signature, in blue, across the label” (Young 1893, p. vii).
- ¹⁵ Moore & Reid (2008: online) present compelling evidence that both information about quality and origin of the product was conveyed by brands long before the advent of capitalism.
- ¹⁶ Images can be found at <https://www.digitalcommonwealth.org/search/commonwealth:3b591d473> (accessed 3 Dec. 2015).
- ¹⁷ Setting is realized by portraying it in less detail than the participants and by using less saturated color, tending towards the same hue, and by making it lighter than the foreground “so that it acquires an ‘overexposed’, ethereal look” (Kress & van Leeuwen 2006, p. 72).
- ¹⁸ To ensure that an element will be successfully identified as a symbol, the producers must ensure that a ‘literal’ reading of the text would be perceived as inadequate (Forceville 2002, p. 64).
- ¹⁹ For instance, a preference for passive structures is a way in which present-day producers of scientific texts seek to increase their authority, giving their claims an air of ‘objectivity’. Producers might also attempt to make their text more appealing by (more or less implicitly) expressing attitudes towards the participants represented in the text (e.g., “The great Argentine author Jorge Luis Borges once said...”, “An immigrant attacked a student...”). As these examples show, power relations between producers and audience – the interactive participants (IP) in the discourse – are often mediated by the represented participants (RP) which lead the reader/viewer to identify with certain positions and to reject others.

- ²⁰ The producer could have chosen to represent the Woman as looking at the viewers, thus drawing them into the picture. This contact would be interpreted as a demand – requiring a response from the addressee. Interpersonal meanings are introduced on this contact level because offer and demand call for different expected responses from the audience: as is the case in verbal language, *grosso modo*, an offer calls for a yes/no statement (with acceptance as the expected response); a demand calls for a more committed reply.
- ²¹ ‘Water will certainly boil at 100°C’ and ‘Water will probably boil at 100°C’ are not likely linguistic occurrences in our culture.
- ²² Conversely, lack of modalization is used to present information as certain, and thus enhances the authority of the producer in relation to the viewer/reader.
- ²³ Objections to this rather immediate ideological relation have been raised by Bateman (2008, p. 45), among others.
- ²⁴ These decorations are commonly found in children’s storybooks of the 19th century.
- ²⁵ The cartoon of an Industrial Landscape from Punch, 3 July 1858, is a particularly striking example, see <http://www.bl.uk/learning/images/victorian/health/large103127.html> (accessed 3 Dec. 2015).
- ²⁶ As Lysack (2008, p. 6) points out in the Introduction to her work on the 19th century origin of gendered practices of consumption, “The material conditions of Victorian shopping were an effect of an expanded industrial and commercial age, including nineteenth-century developments in mass production and circulation, new practices in advertising, an increase in the flow of capital associated with imperial expansion, and the growth of the middle classes and their unprecedented access to expendable income. However, not only the profusion of goods but also the embodied and visual nature of the shopping experience were already changing by the 1830s, when such innovations as the wider availability of plate glass and the introduction of gas lighting were bringing shop windows to life.”
- ²⁷ I am deeply grateful to my referees for their invaluable input.

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