Uncovering information systems in the work of Teresa Burga

Elisa Arca and José-Carlos Mariátegui

Art instead of being an object made by one person is a process set in motion by a group of people. Art's socialised. It isn't someone saying something, but people doing things, giving everyone (including those involved) the opportunity to have experiences they would not otherwise have had.

John Cage (*A Year from Monday*)

Abstract

Teresa Burga (Iquitos, 1935) has developed, since the sixties, a pioneering work in information-based arts. However, her work has only in the last decade been studied in depth from a perspective that has revalued her contribution to conceptual art and, to a lesser extent, her experiments in art and technology. This paper describes some of her most relevant artistic projects and examines the connections between Burga's conceptual and technological-based art and her former day-to-day work at the Customs office, in the context of the Peruvian state's computerization process. In most of the research about Teresa Burga's art practice, her work at the Customs office is overlooked and only mentioned to justify her retirement from the Peruvian art scene since the early eighties. We argue that the work performed by Burga in the government, and in particular at the Customs office, serves as a fundamental source for understanding the strong but surreptitious link of her work with systems and technology, more specifically her interest on computing, organizations and society.

Keywords

Latin American Art, Technology-based Art, Systems Art, Management information systems.

1. Introduction

This paper aims to analyze the work of Teresa Burga, as a multimedia artist whose conceptual works from the late 1960s and 1970s position herself as a pioneer of media art, information-based art, and multimedia installations; it also traces her work at the National Customs Superintendency of Peru, a government office where she designed one of the first information systems implemented in the country. Burga was until a decade ago, a relatively unstudied artist, however she gained international visibility after a retrospective of her seminal multimedia and information-based works was presented at the gallery of the Instituto Cultural Peruano-Norteamericano (ICPNA), Lima, in 2010 and at the Württembergischer Kunstverein Stuttgart in 2011, and by resounding at major international venues such as the 12th Istanbul Biennale (2011) and 56th Venice Biennale (2015).

Teresa Burga was born in 1935 in the Amazonian city of Iquitos. In 1953, Burga moved to Lima where she started studies of architecture in 1955 at the National University of Engineering. Two years later, in 1957, Burga abandoned her studies of architecture and joined the School of Art at the Catholic University of Peru (SACUP). She later pointed out her uncomfortability at the SACUP due to the lack of artistic freedom since the school was focused in traditional painting and some sculpture[1]. After finishing her degree, Burga became a member of the "Arte Nuevo" group (1966-1968)[2], which introduced neo avant-garde trends in Peru, such as Pop Art, Op Art and early forms of Conceptual Art.

In 1968, Burga obtained a Fulbright Scholarship to study a Master's degree in Fine Arts at the School of the Art Institute of Chicago (SAIC), where she graduated in 1970. SAIC's study program at that time was going through important changes which allowed her to experiment with a diversity of materials and techniques that she later incorporated into her projects. Among the documents found in Burga's archive, located at the Lima Art Museum (MALI), there are written notes on basic electronic principles taken from hobbyist magazines popularized in the sixties such as *Electronic Illustrated*. The documents aforementioned are an evidence of both the type of hobbyist literature available at the time, as well as Burga's curiosity on the use of technology. SAIC's environment fostered the exploration of new ideas and techniques, which allowed Burga to conceive several conceptual projects, such as *Work*

[1] Teresa Burga in interview with the authors September 2017.

[2] "Arte Nuevo" group was formed by Luis Arias Vera, Gloria Gómez-Sánchez, Teresa Burga, Jaime Dávila, Víctor Delfín, Emilio Hernández Saavedra, José Tang, Armando Varela and Luis Zevallos Hetzel, with the intellectual patronage of art critic Juan Acha.

that Disappears When the Spectator Tries to Approach It (1970)[3] and *Sail Boat that Permits to Compute Its Disintegration when Placed in the Water* (1970)[4].

After finishing her studies in Chicago, Burga received several offers to teach abroad but the Peruvian government demanded her to return back, arguing that her artistic expertise was required. However, the reality she found in Peru was different from what she was offered while still outside the country. Burga remembers visiting SINAMOS (the National System for Support to Social Mobilization, the organism where she was supposed to start working) and being told that what she was doing was not art. Indeed, what Burga found in Peru back in mid-1971, was the beginning of Juan Velasco Alvarado's Revolutionary Government of the Armed Forces, a socialist military regime characterized by particular aesthetic tendencies. Velasco, through SINAMOS, started innovative projects that promoted new dynamics fostering people's art and culture; however, manifestations that were not aligned to the aesthetic inclinations promoted by the regime were simply not considered as art. Eventually, Burga needed to work for a living and found a job at the Customs office as we will discuss later (chapter 3).

2. Structures and information in *Autorretrato* and *Perfil de la mujer peruana*

Most of Burga's conceptual works are based on dissecting a problem or topic and building it as information structures; in this way, the artist seeks to organise the information that she was able to collect as well as to establish alternative forms to operationalise such information through a series of carefully created artefacts. Two landmark media installations that illustrate such work process will be reviewed: *Autorretrato.Estructura.Informe.9.6.72* (1972) and *Perfil de la mujer peruana* (1980).

2.1. *Autorretrato.Estructura.Informe.9.6.72* (1972)

Autorretrato.Estructura.Informe 9.6.72 [Self-portrait. Structure. Report. 9.6.72] was an installation presented in 1972 at the ICPNA gallery in Lima. The installation, originally conceived while studying at the SAIC[5], was based on the dissection Burga's own body data

[3] Recently this work was produced for the first time and presented as an installation in Burga's solo exhibition "Estructuras de aire" at the Museo de Arte Latinoamericano (MALBA), Buenos Aires in 2015 and at Barbara Thumm Gallery, Berlin in 2017.
[4] This project has not been materialized.
[5] Burga mentions that Ray Yoshida, one of her teachers at the School of the Art Institute of Chicago, praised this work. Teresa Burga, interviewed by the authors, September 2017.

through a series of medical examinations done on the same day (June 9, 1972). The installation was divided into three parts: “Face Report”, “Blood Report” and “Heart Report”. The setting in the gallery space aimed to provide a depersonalized and scientific approach to her own identity (**Fig.1**).

Figure 1. Exhibition view of *Self-portrait. Structure. Report. 9.6.72.* at Centro Cultural de España, Lima, 2007

In “Face report” one front and two side view photographs were printed on graph paper in which the different parts of her face were meticulously measured and annotated. Such annotations aimed at establishing relationships between all the elements of her portrait. As part of the “Face Report”, a series of line drawings emulates a topographical view on 1:1 scale of her face’s front view (**Fig.2**). The transformation of Burga’s face into topographical information could be depicted as producing a "transparent and controllable" object (Borgmann 2000, 191). "Face report" is particularly forceful in the way it shows how the quantification (of a human being) leads to its "domestication". Thus, the self is transformed, by the means of measurements and drawings, into a social and cultural phenomenon (**Fig.3**).

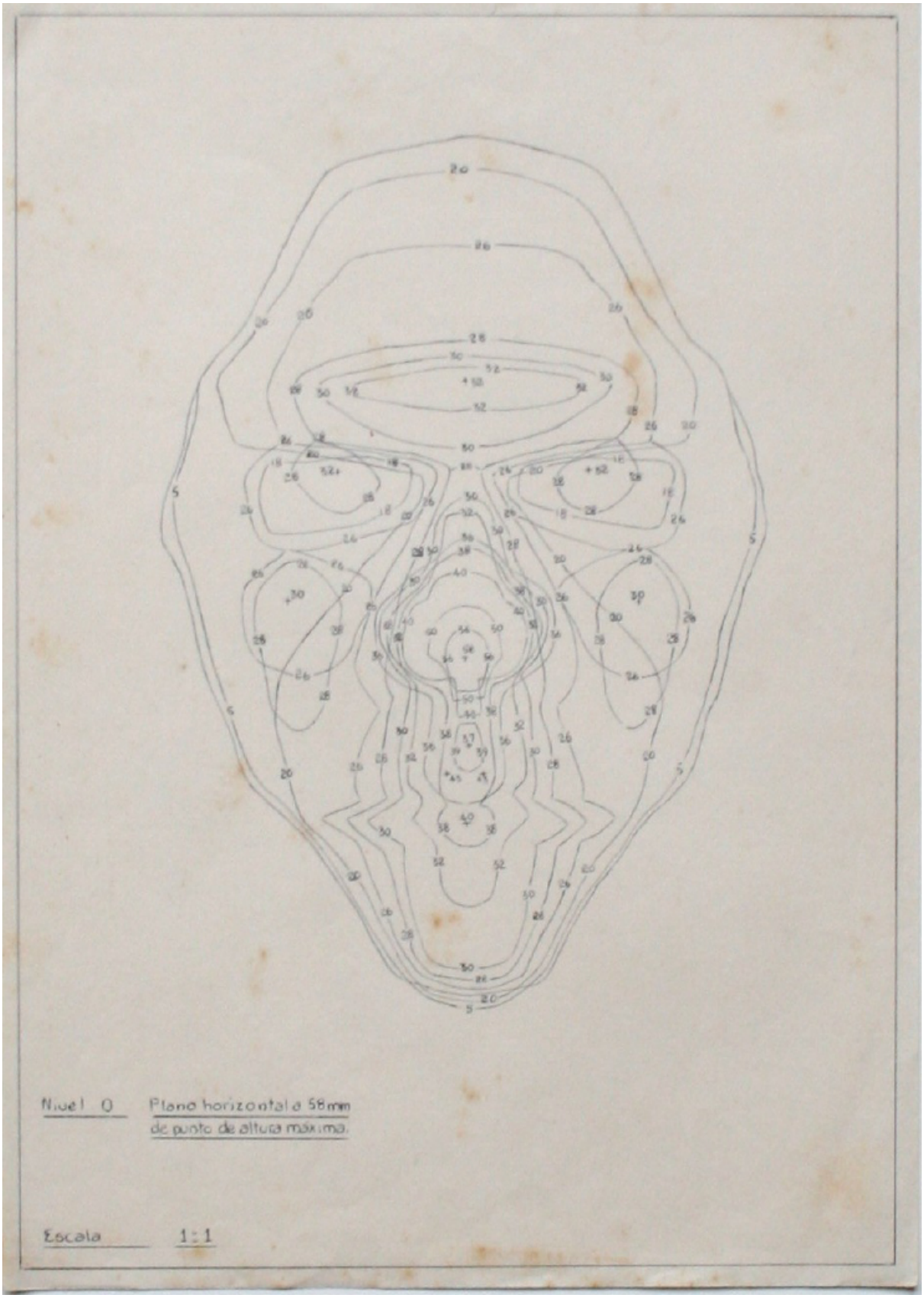


Figure 2. Sketches for *Face Report*, from *Self-portrait. Structure. Report. 9.6.72.*

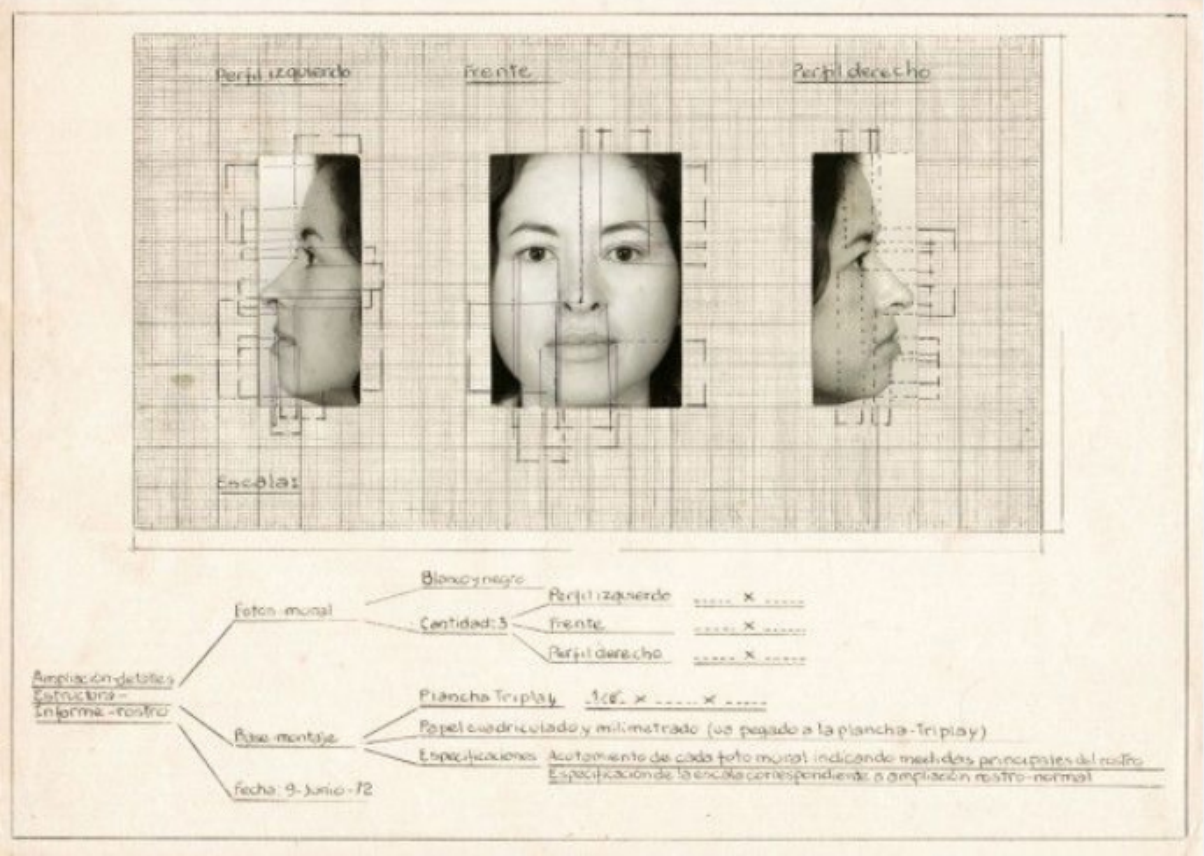


Figure 3. ***Face Report*** **(detail), from** ***Self-portrait. Structure. Report. 9.6.72.***

In the case of “Heart report”, the information was provided through two signal analysis tests: an electrocardiogram and a phonocardiogram. Burga transforms these signals into an installation based on luminous fluctuations. In this work, developed during her time at the SAIC, the paralinguistic information (electrical activity of the heart) is transformed into electrical light emissions. However, unlike what happens in "Face report", the information transformation in "Heart report" cannot be apprehended by the viewer: the light fluctuations lack a shared symbolic knowledge to enable lay public’s comprehension.

Through the symbolic transformation of the three reports mentioned above, Burga showcased representational systems that coexist along with the devices created by her, aiming to decode information into new forms of visual representation. Such devices work under a “transposition” principle, a term, borrowed by Dorota Biczel –who has extensively written about Burga's work– from Friedrich Kittler (Kittler 1990) which refers to the translation of information from a source to new standards and materials. In Burga's case, according to Biczel (2014: 17), this principle works as a kind of resistance to biopolitical control. However, the transposition principle could also be seen as a way for Burga to dive into the vast array of possible combinations of information provided by scientific methods. In that sense,

Burga's work oscillates between a sort of resistance towards measuring herself (by means of creating incomprehensible symbolic knowledge) and a playful way of approaching systems of measurement, with which she probably felt close due to her uncompleted studies of architecture.

Figure 4. Invitation card to *Self-portrait. Structure. Report. 9.6.72.* at the Instituto Cultural Peruano Norteamericano (ICPNA), 1972

Although the installation was not intended to have an explicit reference to cybernetics, the invitation for the opening was a punch card on which a photograph of the artist and the event's information had been printed over (**Fig.4**). By the sixties, as Lubar mentions, "punch cards became not only a symbol for the computer, but a symbol of alienation. They stood for abstraction, oversimplification and dehumanization. The cards were, it seemed, a two-dimensional portrait of people, people abstracted into numbers that machines could use." (Lubar 1992, 44; MacBride 1967, 24). In Peru, unlike what happened in the United States, punch cards were mostly confined to computer facilities and corporate offices and did not represented a popular icon nor became a symbol of state or corporate control. Burga appropriated this recording device not so much to criticize computerization but, on the contrary, to turn it into a symbol of the depersonalization that operates in her artistic work. Nevertheless, this was not necessarily understood by the local press at that time, as one can read in the article published in *Correo* newspaper, entitled "Teresa Burga ¿Artista o computadora?" ('Teresa Burga. Artist or computer?') (S.H.E. 1972, 23) In the interview, the journalist suggested Burga's work was "limited" and that could be done by a computer. The idea of uniformity and calculation was inconceivable at that time to belong to the field of the artistic expression.

By late 1960s, the discussion on what we commonly refer today as the “quantified-self”, was already starting to impregnate the works of artists such as Juan Downey, a prominent Chilean artist working in the fields of video and interactive art, who conceived, in 1968, the project *Respiration Circulation (Self portrait).* Carla Machiavello describes it in the following terms: "In the drawings corresponding to the electronic sculpture titled *Respiration Circulation (Self portrait)*, of 1968, the installation’s two red balloons with shape of tires that enclosed an invisible speaker reproducing the heartbeats and breath of the artist, were represented as two human lungs, the sculpture’s cables literally turning into arteries, joining them like valves to a motored air compressor. In the sculpture, the balloons blew up and moved to the rhythm of the respiration and heartbeats of the artist, its movement being activated when a person approached the work and breathed on top of a sensitized plaque." (Machiavello 2010, 187-188). As in the case of Burga, the reference to the body as a system is also present in Downey’s project; hence, the possibility of converting a process into data and turn these data into sensory information which invites the participation of the spectator (in the case of Downey, into more active participation). In a radically different way, Martha Rosler demonstrates the violence of taking measurements of the female subject. In *Vital Statistics of a Citizen, Simply Obtained* (1977) is not the artist who is "quantified": what we see for approximately an hour of video documentation is a woman being measured by a group of physicians dedicated to administrative procedures in such an exhaustive manner that becomes absurd. It is perhaps the fact that Burga herself requested a precise laboratory analysis that brings her work closer to Downey than to Rosler. Her work can be read as one of the multiple ways in which Burga subverted pictorial exercises which were aimed at highlighting the artist’s subjectivity and singular identity.

What Burga does in her works is to extract new information about realities that we know little about. In her later work *Perfil de la mujer peruana* (1980) *–Profile of the Peruvian Woman–*, the methods for obtaining data came from the social sciences, continuing the studies started with *Autorretrato*, in a form of a collective self-portrait by the means of quantitative analysis.

2.2. *Perfil de la mujer peruana* (1980)

Perfil de la mujer peruana [Profile of the Peruvian woman] was a research and exhibition project developed by Teresa Burga along with the psychologist Marie-France Cathelat. Described by the authors as a "conceptual art proposal", the main input used was the data collected in an extensive survey that took place over eight weekends in fifteen districts of Lima in which 290 middle-class women, ranging between 25 and 29 years old, constituted a

population sample aimed at a psychosocial study. The results of the survey were structured through twelve main categories: physiological, sociological, affective, educational, cultural, religious, professional, economic, political, among others. In addition, both the survey and study were published as a book, also titled *Perfil de la mujer peruana* (Cathelat and Burga 1980-1981).

The survey's level of detail was unusual at that time[6]. A selection of the questions asked aimed at a better understanding of women's cultural consumption habits, as to depict their affective profile, political behaviour or opinions on sexuality. Some issues addressed in the survey remain a taboo even nowadays, such as woman's attitude towards abortion.

Figure 5. *Profile of the Peruvian Woman (1980-1981)* at the Primer Coloquio de Arte No-objetual y Arte Urbano, Medellin, Colombia, 1981

Perfil de la mujer peruana was first exhibited at the gallery of the Banco Continental, in 1981. Within the framework of the exhibition Peruvian art critic Juan Acha gave a series of

[6] It is relevant to mention that during those decades the first socio-cultural and psychosocial studies to the growing number of middle-class in Lima and emigrants coming from other cities of Peru were starting to be developed.

lectures. In addition, part of the exhibition was shown and discussed during the First Colloquium of Non-objectual Art and Urban Art, in Medellin, Colombia (18th to 21st May 1981), in which other important Latin American artists such as Beatriz González, Lygia Clark, Marta Minujín and Leopoldo Maler were also present (**Fig.5**).

In a letter to Burga and Cathelat dated July 26th, 1980, Juan Acha stressed the fact that it was important to emphasize the "artistic" significance within their proposal: "As for the setup in the gallery [...] Here is where the quid of Conceptual Art lies, as it should allow to differentiate the work from mere anthropological and sociological statistics. The combination of texts and figures, the [connection between] statistics and dynamic [elements], would give life and relevance to the project. I understand that you both will need to develop a kind of panorama or script, along with all the museographic details, as soon as you know where it will be exhibited."[7] (Acha 1980) It seems that Burga and Cathelat were, by the time, already working in a museographic form that included more, "dynamic elements". In the exhibition space, figures extracted from the survey co-existed along with the aforementioned branch diagrams, next to sculptural objects that translated the data into information that appealed to the senses. It is worth noting how the press made reference to the exhibition, with expressions such as: "a survey is being carried out in Lima, within the modality of conceptual art" (El Comercio 1980, 27). "Conceptual art" was thus perceived, to a certain extent, as an approach or even a methodology of work.

Burga “spatialize” and materialize the diagrams by developing three-dimensional works and, by doing so, the installation becomes a sort of didactical tool. For example, a system of tied ropes and knots emulated a Quipu –an ancient pre-Columbian accounting system– where its knots represented the number of women practicing occupations in relation to their different professions. To represent the degree of education, Burga produced a large, one-meter long, brain-shaped puzzle (**Fig. 6 and 7**). The physiological profile which showed the mean body dimensions from the women surveyed was also represented by using a mannequin.

[7] Text in Spanish: “En cuanto a la presentación en galería [...] Aquí estaría el quid del asunto del Arte Conceptual, para diferenciarlo de la mera estadística antropológica y sociológica. La combinación de textos y figuras, lo estadístico y lo dinámico darían vida e interés al proyecto. Entiendo que tendrán que desarrollar una especie de panorama o libreto con los detalles museográficos cuando sepan donde van a exponerlo." (Juan Acha, letter to Teresa Burga and Marie-France Cathelat, July 26, 1980)

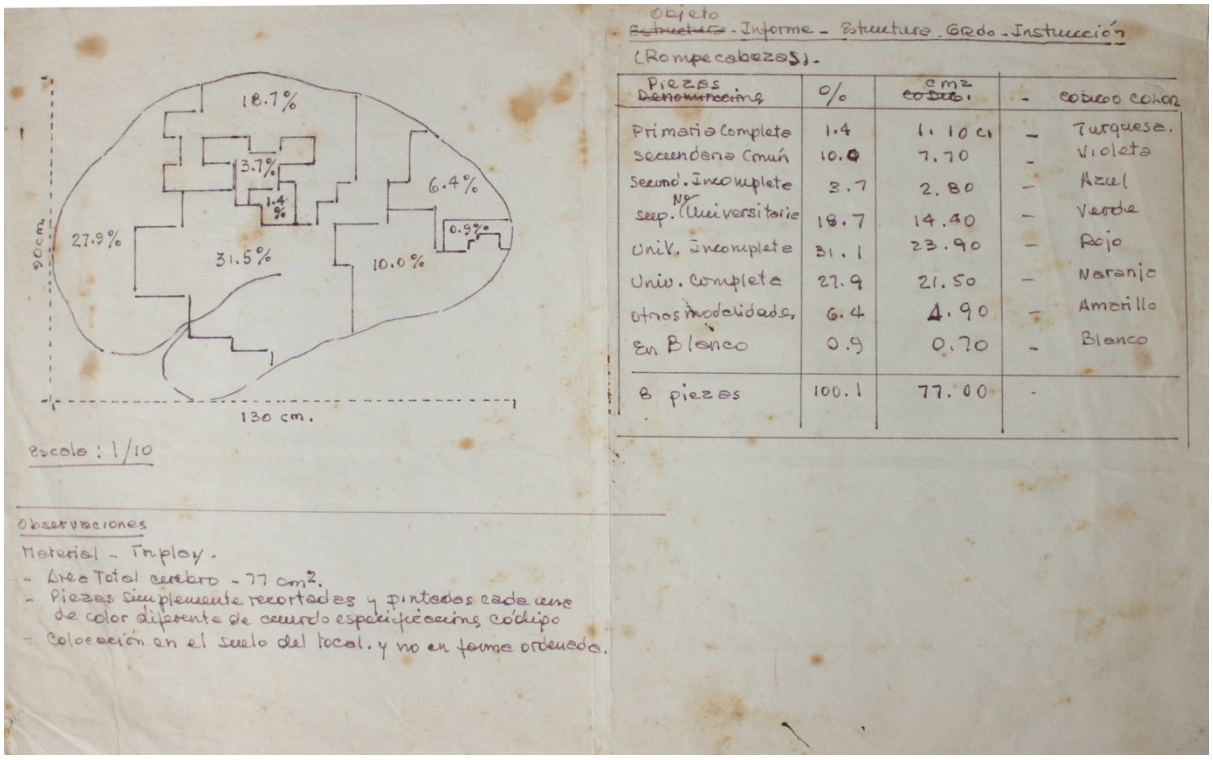


Figure 6. Sketch for *Perfil de la mujer peruana* ("Level of education")

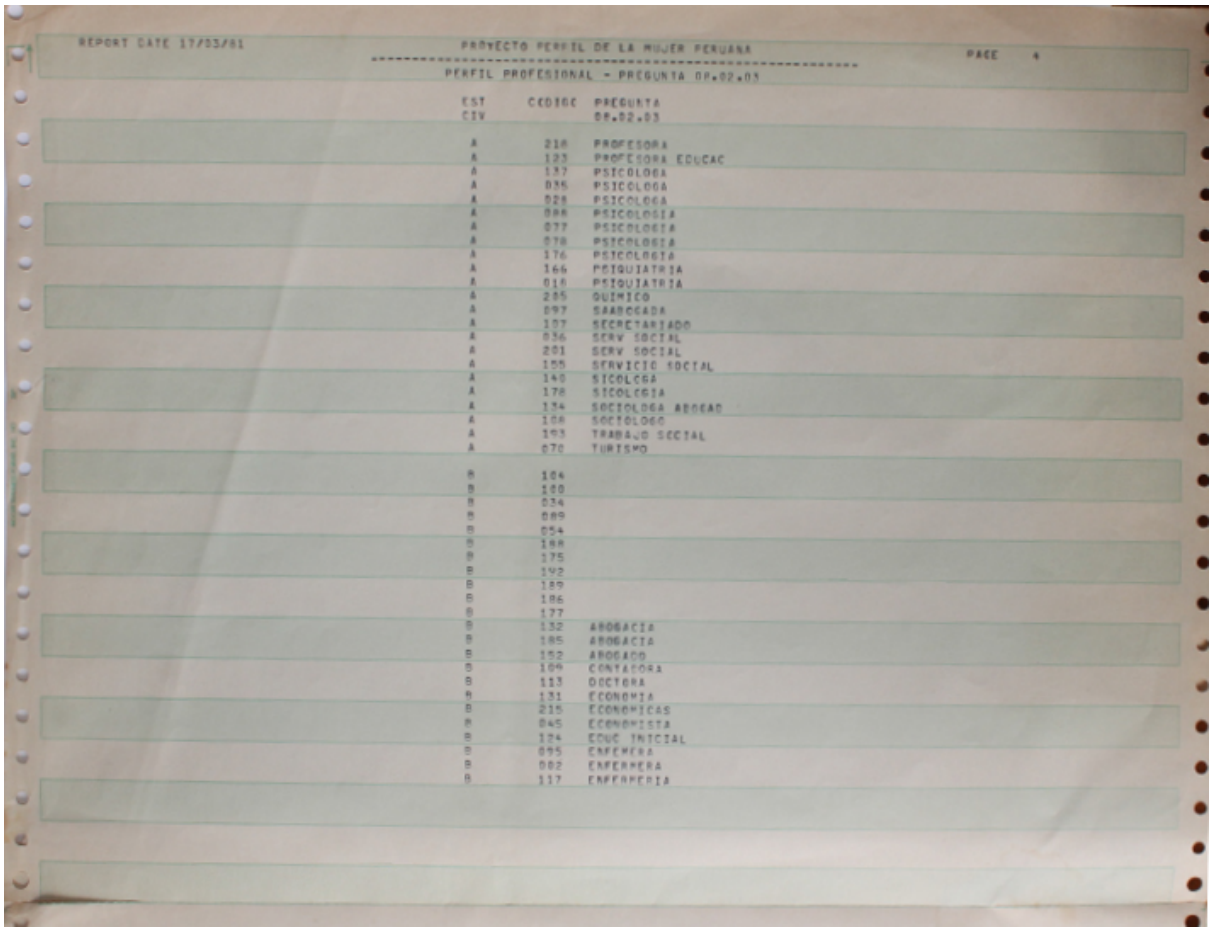
Figure 7. *Profile of the Peruvian Woman. Proposition II,* at 80m^2 gallery, Lima, 2017

Unlike *Autorretrato*, the project *Perfil de la mujer peruana* required a wide set of collaborators: independent specialists and associates of both government and academic institutions, helped in the preparation, data collection and processing of information. It is particularly important to mention the collaborations necessary for the processing operation as it reveals the type of uses given to computers in Peru in the late 1970s and early 1980s (**Fig. 8**). The information processing was done using Wang computers[8] which provided a guarantee of both objectivity and, above all, confidentiality. In the questionnaire given to the participants one could read: "You will find a set of questions related to ten different aspects of the female experience, the answers you give to this questionnaire are absolutely anonymous and will be processed by Computers."[9] It is worth mentioning that the use of computers for processing surveys was a novelty at that time in Peru. As a matter of fact, the first computerised national census, developed by a local team of computer programmers and statisticians, would be done a few months later. Moreover, Fernando Belaunde Terry, who had just been re-elected as president of Peru after the military coup lost power, was present during the opening of the exhibition. *El Peruano*, the state-owned newspaper, reported that: "The Head of State, who was accompanied by his wife Violeta Correa de Belaunde, said [with regards to the exhibition] that in our country new and fruitful strands are being opened to pursue a research that deepens the study of our population. In that sense, he highlighted the importance of the forthcoming National Population and Housing Census to be held on July 12 of this year [1981]." (El Peruano 1981) On the other hand, in another newspaper, it was mentioned that the president pointed out the ways in which the computer helped him getting to better understand his wife. This gender-biased comment may seem anecdotic but, in a way, reflects how computerization was seen as a "powerful" and "helpful" tool.

If in the case of *Autorretrato*, the allusion to computerization was revealed through seemingly authorial marks –linked to the scientific and objective nature of computer-based systems– while in *Perfil de la mujer peruana*, the computer process is implicit. The survey's calculations were entrusted to specialized laboratories within both the Catholic and the Cayetano Heredia universities. Nevertheless, in *Perfil de la mujer peruana*, the emphasis was on the transformation of survey-based information into an exhibition space, which may reveal a strong interest in the social relevance of the experiment rather than a reflection on the means of data gathering.

[8] The company that represented the brand in Peru, EFYASA (Esteban Fantapié y Asociados) was founded by Esteban Fantappie, a former Chief of the "Statistics and IBM Machines Section" at the Peruvian Air Force.

[9] "Usted encontrará un conjunto de preguntas relacionadas con diez aspectos distintos de la vivencia femenina. Las respuestas que usted dé a este cuestionario son absolutamente anónimas y serán procesadas por Computadoras".


REPORT DATE 17/03/81 PROYECTO PERFIL DE LA MUJER PERUANA PAGE 4

PERFIL PROFESIONAL - PREGUNTA OP.02.03

EST CIV	CODIGO	PREGUNTA OP.02.03
A	210	PROFESORA
A	123	PROFESORA EDUCAC
A	137	PSICOLOGA
A	035	PSICOLOGA
A	028	PSICOLOGA
A	098	PSICOLOGIA
A	077	PSICOLOGIA
A	078	PSICOLOGIA
A	176	PSICOLOGIA
A	166	PSIQUIATRIA
A	016	PSIQUIATRIA
A	235	QUIMICO
A	097	SAABOGADA
A	107	SECRETARIADO
A	036	SERV SOCIAL
A	201	SERV SOCIAL
A	155	SERVICIO SOCIAL
A	140	SICOLOGA
A	178	SICOLOGIA
A	134	SOCIOLOGA ABOGAD
A	108	SOCIOLOGO
A	193	TRABAJO SOCIAL
A	070	TURISMO
B	184	
B	150	
B	074	
B	089	
B	054	
B	168	
B	175	
B	192	
B	189	
B	186	
B	177	
B	132	ABOGACIA
B	185	ABOGACIA
B	152	ABOGADO
B	109	CONTADORA
B	113	DOCTORA
B	131	ECONOMIA
B	215	ECONOMICAS
B	045	ECONOMISTA
B	124	EDUC INICIAL
B	095	ENFERMERA
B	082	ENFERMERA
B	117	ENFERMERIA

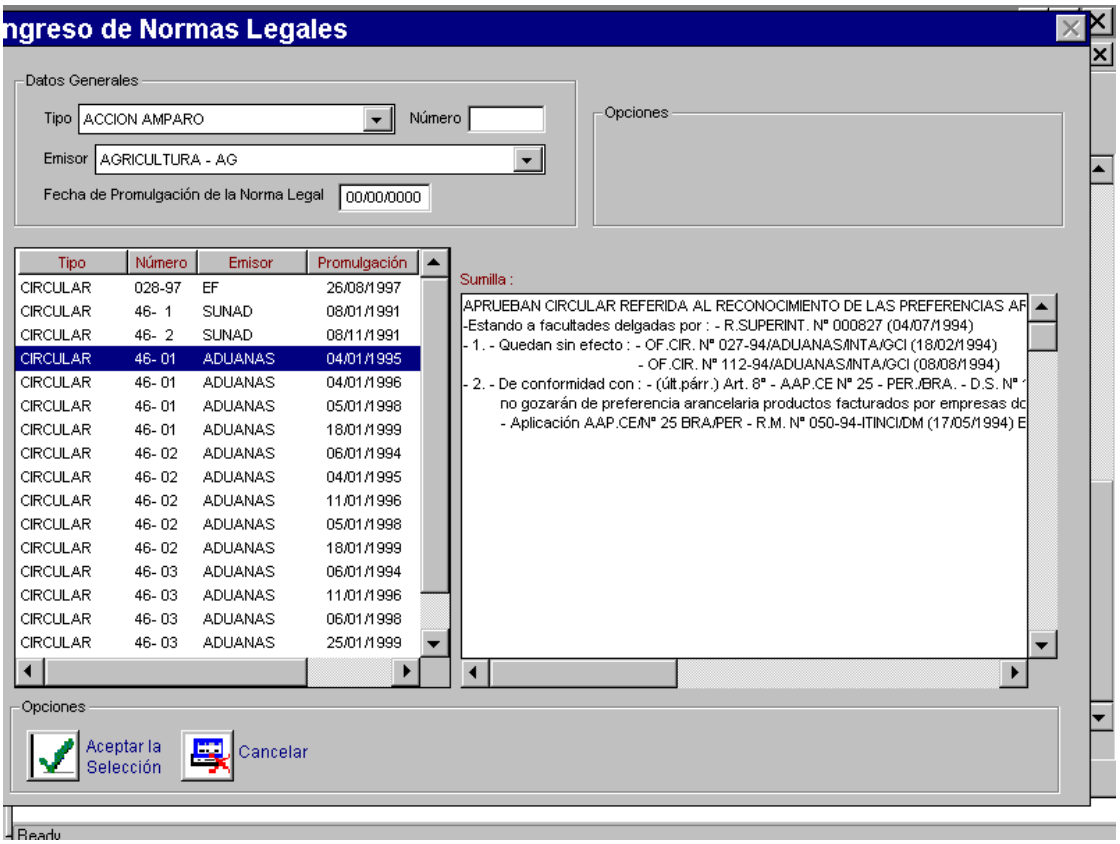
Figure 8. Dot matrix printer sheets with the results of the work done for *Profile of the Peruvian Woman (1980-1981)*

Perhaps the most important element to highlight in *Perfil de la mujer peruana* is the process through which Burga operates, consisting of three major stages: the extraction of data, organization of information and the creation of information visualisation devices. Such process was already present in *Autorretrato* and will also be used by Burga on her work at the Customs office.

3. From bureaucracy to technology: the case of SIGLA

Before explaining the work pursued by Teresa Burga at the Customs office, it is worth mentioning briefly the international, regional and local contexts regarding information technology during the 1970s which portrayed important innovations such as the world's first general microprocessor –the Intel 4004– as well as the first personal computers. The period was also marked by development of the C language at AT&T Bell Laboratories and the first

communication protocols for connecting computers together, later known as the Internet. It was the epoch of large-scale implementations of management information systems, in which companies such as IBM were one-stop suppliers for hardware, software and services, a thrice combination that purposively designed programs for specific industries. In Peru the first computer, an IBM 1620 arrived at the National University of Engineering in 1962 and during those years the first courses given were on Operational Research. As we had mentioned earlier, the socialist Revolutionary Government of the Armed Forces (1968-1975) represented a time for innovative policies and social reforms, mainly in education, agriculture, land property and industrial enterprises. The information regarding the use of computers and cybernetics in that period is still quite limited and poorly documented. However, we know that during that period, the Government developed mathematical models for analysing the cost benefit impact of the educational reform as well as some modelling for efficiency of agricultural production. Young Peruvian engineers who took part on these projects, such as Francsico Sagasti and Fausto Valdevediano, later worked at SIGMA (Science in General Management Ltd), the consultancy founded by Stafford Beer in England. Beer is well known for his involvement with the socialist government of Salvador Allende in Chile, introducing computer systems for management and organizational practices, such as the project Cybersyn (1971–1973) (Ossa and Rivera 2008, Medina 2011). During 1971 and 1972, some other prominent Latin-American intellectuals and social scientists such as Amílcar Herrera, Darcy Ribeiro and Oscar Vasavsky also helped the Peruvian military coup, in particular SINAMOS and the National Planning Institute (Instituto Nacional de Planificación) to work on cybernetic models for projects associated to the educational reform being carried out (Ribeiro and Gomes 1992). Though there are still few evidences of information systems used for specific technobureaucratic routines (such as accounting or statistics), the system developed by Teresa Burga for the National Customs Superintendency of Peru may illustrate one of the first successful implementations on management information systems in the country.



Figures 9.1. and 9.2. SIGLA (Customs' Legal Management Information Systems)

Sistema de Información de Gestión Legal Aduanera

As we mentioned earlier, Burga's work in Peru was not easy to understand for many reasons. First, in a conservative society –as it was the case of Lima– the idea of women working in the field of art was neglected. In addition, since she was not a scientist nor an engineer, her interest in topics on technology and information –traditionally a male domain– were also ignored and even questioned[10]. Gradually, Burga, who at SAIC was habituated to work and collaborate among artists and technicians, find herself alone and neglected from the establishment.

During that time, the Peruvian Ministry of Treasury –from which the Customs Office was a dependency– developed the first governmental information system. At that time, the Customs Office faced the problem of organising the vast and diverse number of customs-related legislations that were passed throughout the decades. Burga was hired as a consultant for the Customs office; her job was to structure a system that allowed customs-related laws to be handled in an efficient way. As in many other types of information systems management jobs, her main task was to organise such large and diverse number of legislations within a system that will enable the different stakeholders to use the information.

Thanks to her background as a conceptual artist along with her former training as an architect, Burga had a great capacity to organise information and detect common elements or problems and to bring them together as logical information structures. The system conceived by Burga allowed the definition of variables (entities) that could be accessed by different users which also provided a way to validate if a law was repealed or was still valid. Essential to the system was the creation of a set of variables and terms –what today is commonly known as *schemas* or *ontologies*– which provided semantic and functional meaning for the different types its users.

Burga conceptually developed a system called SIGLA (Customs' Legal Management Information Systems or Sistema de Información de Gestión Legal Aduanera, in Spanish) (**Figure 9.1. and 9.2.**). The system was not only built to verify laws (norms, decrees, ministerial resolutions, among others) by their number or date, but also included a taxonomy that was used to categorize and concatenate topics in different ways and sorting the results by date, text and a series of other specific classifications that benefited the day-to-day operations at the Customs Office as well as third parties.

[10] Teresa Burga, interviewed by the authors, September 2017.

SIGLA had three different versions, developed by Teresa Burga and her team. During the merge of Customs Office with the Revenue Office, SIGLA was replaced by a system brought by the Revenue Office.

However, we may say that what Burga did at the Customs Office is somewhat similar to the work she did as a conceptual artist. Burga's own creative sensitivity was based mostly in structuring information by depicting relationships between concepts. Such structures tended to become of practical use during the 1970s and 1980s in terms of what is called a systemic approach to information systems, in which the design process required a detailed examination of the choices to be made, the ramifications of possible choices and the logical analysis and identification of factors affected by a choice among available options to determine the optimum sequences in which information should be structured (Liston and Schoene 1971). Burga's technobureaucratic practice was abstract and difficult to de-codify; however, in the realm of technical concretion –as it was the case of the information systems implemented at the Customs Office– such abstraction was necessary.

4. Burga's Diagrams: from visual structures to computable information

Information is the raw material for Teresa Burga's works. In the case of *Autorretrato*, the information is based on medical readings, and, in the case of *Perfil de la mujer peruana*, it uses methods belonging to social sciences and statistics. However, in both cases, Burga seeks exhaustiveness by providing a large number of data sources and organising it through the means of visual structures and schemas.

Those visual structures and schemas are the point of departure for Burga's analysis of information at different levels: social, political, artistic and cultural. Jack Burnham, in an article titled "Systems Esthetics" published in Artforum in 1968, describes the transition from "an object-oriented to a systems-oriented culture", in a moment in which "the automated state power resides less in the control of the traditional symbols of wealth than in information." (Burnham 1968, 31). At that time, suspicions on governmental surreptitious data accumulation practices were just starting to become palpable. As Dorota Biczel notes, such suspicion and fear also penetrated the artistic sphere. This could be seen in lay public's attitude towards conceptual and new media art. She argues, following Edward A. Shanken, that: "within that array, no categorical boundaries existed yet between what would later become canonized as Conceptual art and a variety of experiments with new media and

information technologies that soon after would be dismissed due to the fear of spectacle and total social control." (Biczel 2014, 3).

The distinctive characteristic of Burga's work in comparison to other artists who also worked in mixed media art forms and cybernetics, is based on the way she placed structures inherent to cybernetic processes right at the centre of her artistic practice. The diagrams created for both *Autorretrato* and *Perfil de la mujer peruana*, were an intermediate step between data extraction and the presentation of information through visualizations. Although they were shown as artworks, Burga's diagrams were also used to organize the information of the different parts and stages of her work, hence, they may be also seen as a tool for pre-visualising the work. This was evident in *Collage as a sketch for Self-portrait.Structure.Report. 9.6.72* where some of its schemes were used as exhibition pieces; not only because the schemes showed how the final form of the work would be, but also because it helped to explain the artist's work processes.

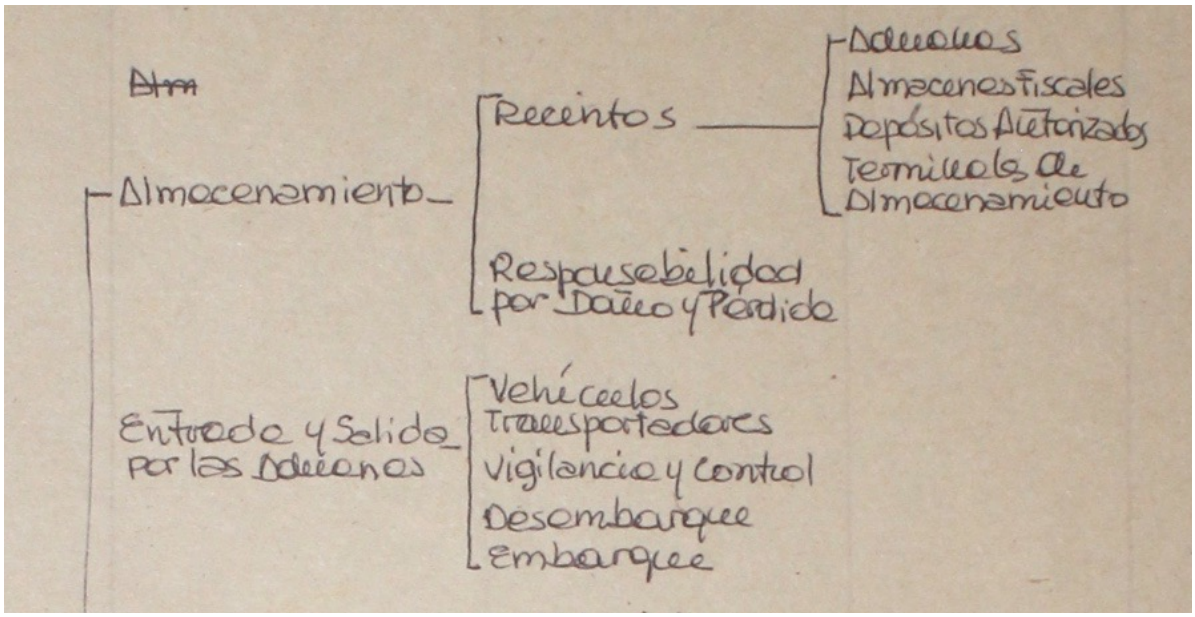


Figure 10.1. Structures typology of taxable commodities (detail)

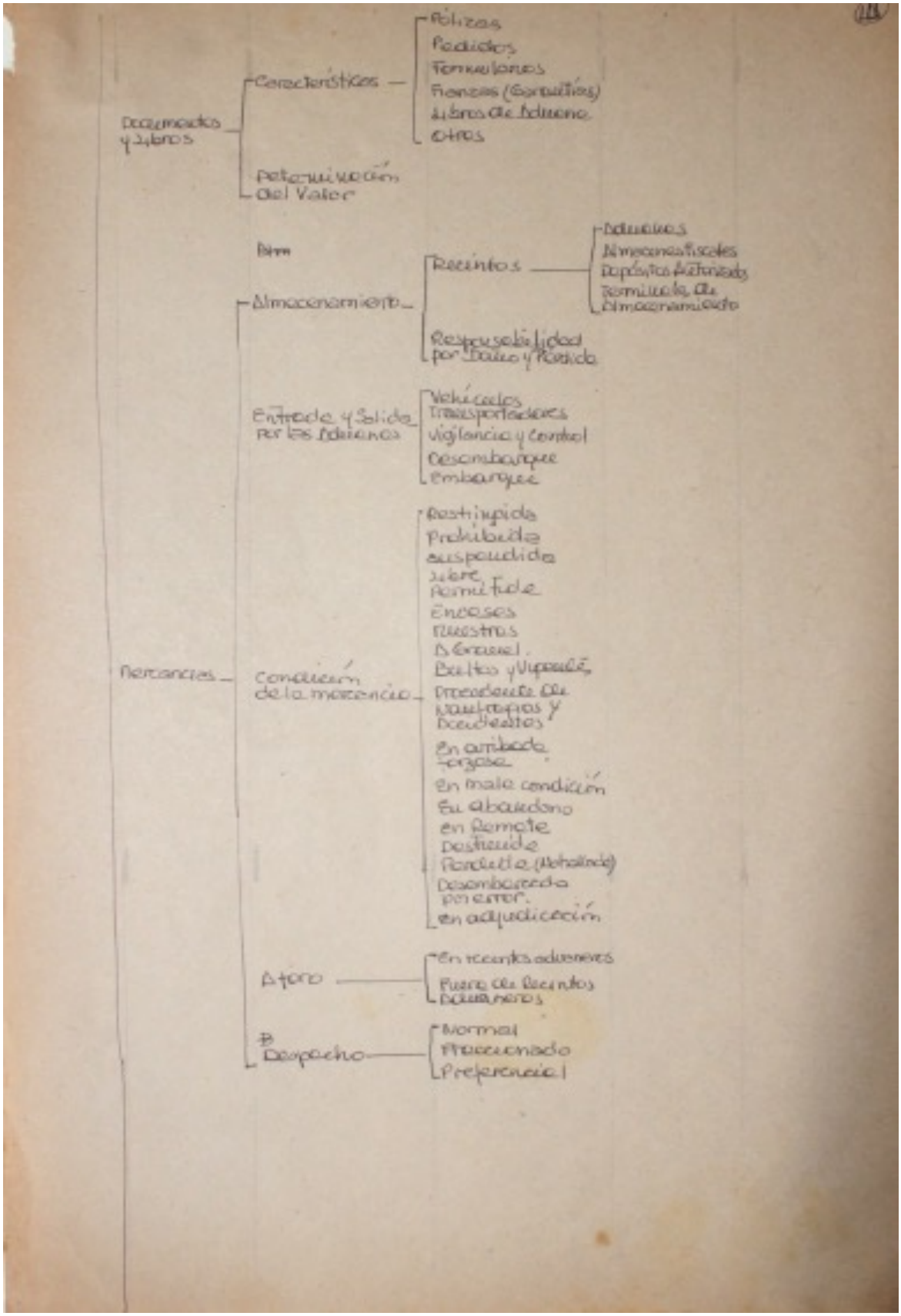


Figure 10.2. Structures typology of taxable commodities

Burga's diagrams are also relevant when looking at her work at the Customs office. Burga was initially hired to create visualizations of the organizational structure of what was formerly the Ministry of Treasury (nowadays called the Ministry of Economy and Finance). While studying the Customs office's organizational structure –a division within the Ministry– she focused on creating a system that would allow the organization and easy search of laws related to imports and exports. Such work took initially the form of visual representations, which are the documents that had been found in Burga's archive (**Figure 10.1. and 10.2**). Thus, a comparison between the diagrams made for her artistic exhibitions and the work done for the Customs office becomes inevitable. In both cases they have to be seen as a reflection of the methodology used, a trace of the artwork as a process rather than the actual "result". The diagrams made for the Customs office, would become the basis from which, subsequently, the SIGLA program would be created. The complex and detailed ramifications produced by Burga allowed the programmers to design the system. Burga's work at the Customs office is not very different from what she did years before for *Autorretrato* or *Perfil de la mujer peruana*: she revealed an inherent structure to produce information. In Borgmann's terms: "Information can be produced by structure imposed as well as by structure revealed or eloquence conveyed. Eventually the extraction of information from reality by means of structural devices not only covered the information gap but became a universal instrument that enhanced science, overtook art, and has come to capture everything." (Borgmann 1999, 74). However, as an end-user of the system she helped create, Burga was also confronted to a "black box": an information system or computer program that is governed by its own rules and procedures which are hidden to the end-user.

5. Conclusions: organism and organization revealed

Topics on information systems management are usually not associated formally to media art histories. Even when we look up at an artist's archives we tend to consider only documents directly related to their artistic endeavours, such as artworks, correspondence and other formal types of documentation. However, we tend to disdain other types of "unrelated documentation" that may potentially offer relevant connections with his or her other art practices, extending our study to include other disciplines. In the case of Teresa Burga, our aim was not only to give visibility to her pioneering work within the media art histories, but most importantly, to elucidate the fundamental importance of her non-artistic practice at the Customs Office.

Burga's pioneering work gets enriched by analysing her practice through the lens of information systems management. In the case of *Autorretrato*, the work depicts how the body can be divided into sets of information and the different "programming" rationale contained to analyse the different parts of the body. James Beniger in his acclaimed book *The Control Revolution* argued that "no human technology has more in common with all living things than do our capabilities to process information whether they be institutionalized in the formal structures and procedures of bureaucracy, input electronically to computer memory or photolithographed into the silicon wafers of microprocessors" (Beninger 1986, 59). Burga's *Autorretrato* brings a depiction of our complex organism into an organizational schema in which the "programming" contained in the control mechanisms used to prepare each of the three reports portrays the limitations associated with rendering living systems into logical schemas. Such discussion is still prevalent today, at a time when massive digitalization and big data provides more precise (and a wider spectrum) of both data analysis and advanced imaging and clinical diagnostics.

Taking into assessment the status of "Media Art Histories" as a meta-discipline, our contribution tries to reflect on the current state of the field within a broader set of practices, particularly within the field of study on information systems management. Few fields had been impacted by technology as its the case with bureaucracy and management studies, which comprise a significant source of information that takes into account the massive computerization and transformation during the last century as well as both the technological and economic origins of the information society.

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