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Human Body Interaction

edited by Michele Zannoni, Roberto Montanari

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TOWARDS A RESPONSIBLE PERSPECTIVE IN DESIGN
FOR HUMAN BODY INTERACTION.
REVIEWING THE ITALIAN DEBATE OF THE EARLY 1970s
THROUGH THE DESIGNERS' WORDS

*Elena Formia**

In their investigation of interaction design as a frontier for experimenting the relationship between the human body and the machine through the perspective of Digital Technologies and Key Enabling Technologies, Michele Zannoni et al. (2021) identified three areas encompassing present and future trajectories in the Human Body Design research field: Homo Faber, “the creation and construction of tools;” Homo Saluber, “the incessant search for well-being;” and Homo Cogitans, “the environment based on the use of data and information systems.”

Such concepts, the outlined pathways, and the questions they instigate have inspired a research itinerary that generates further food for thought. What are the theoretical implications behind the identified categories? Is the concept of *homo* and *human* still the only cornerstone for the construction and reconstruction of an interpretation of the body-machine relationship? How have the design actors performed within a historical scenario characterized by the advent of digital technologies?

These questions give rise to the need to document, although in a just sketched form, how the Italian design cultures have witnessed, reacted, and at times contributed to define the interpretative models of that which Vittorio Marchis (2005) defined “a century of future,” namely a century (the Twentieth) marked by the accumulation of innovations and inventions. Can we identify an autonomous space for action for design and productive thinking (CELASCHI et al., 2020) within the alchemy of knowledge, processes, and learning models to systematically investigate in order to understand the complex interactions between the body, machines, humans, technology, and the digital world?

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A possible incipit. *Annus mirabilis 1970: Signs of change*

In 1970, Alessandro Mendini was appointed editor of the architecture and design magazine *Casabella*, which progressively became a dominant platform for the discussion of radical design, affirming a critical and ideological stance against consumer society and the role of professionals within it. An institutional magazine founded in 1928, it became – under his directorship (issue 349, 1970 to issue 412, 1976) – a part of the “radical media,” attracting many of the most influential figures of the time. In the meantime, other professional trade journals (such as *Domus*, in *Argomenti e immagini di design*, born in 1970, and *Progettare inpiù*) became advocates of the “new wave” of radical design (ROSSI, 2014); while the more “conformist” – evoking Ambasz’s definition in 1972 – magazines (*Abitare*, *Ottagono*, *Interni*, and *Casa Vogue*) lived a period of growth and consolidation (FORMIA, 2017).

In the same year, Tomás Maldonado, the head of the ULM School of Design until 1967, published *La speranza progettuale: ambiente e società*, or *Design, Nature and Revolution: Toward a Critical Ecology*, a brief but dense, speculative, and frequently quoted portrait of the environmental crisis, practically rationalistic and contextually anchored to a radical reform of socio-political systems. The book was conceived during his time at Princeton University (1967-1970), but strictly linked to the work done together with Gui Bonsiepe, who dedicated an issue of the ULM magazine to “environmental design” on the occasion of Maldonado’s departure (WARMBURG, 2017). The political dimension of the concept of “concrete utopia” presented in the book denotes, according to Simon Sadler (2013), a form of “general, vague, left-leaning ‘critical consciousness’ as a sufficient ‘praxis.’” (p. 49)

Italian design élites shared an interest in the environmental field, albeit from differing perspectives, in the First International Biennial of Global Design Methodology, *Le forme dell’ambiente umano* [The Forms of Human Environment], held in 1970 in Rimini. The event’s influence on design culture is almost unknown. It was organized by the Pio Manzù International Research Centre (a non-governmental research organization of the United Nations, established in 1969 by Gerardo

Filiberto Dasi) and documented in the magazine *Strutture Ambientali*. The event consisted of ten days of talks, round tables, and exhibitions attracting institutional representatives and leading figures of the professional, critical, and academic world. Coordinated by a managing committee of international caliber – including Giulio Carlo Argan, Luciano Anceschi, Gillo Dorfles, Franco Ferratotti, Maldonado, and Bruno Munari – the event gave also space and shape to cybernetics theories as well as forms of interaction between human and computers (FORMIA, 2019).¹

This essay starts from a temporal (the early 1970s) and contextual (the mediating space represented by magazines, exhibitions, conferences, and temporary events) definition to reflect on the Italian cultural debate through the words of those actors involved in combining design challenges with paradigmatic changes concerning the human-nature-artificial-technology relationship. Some of the factors affecting the general context were: the increasing popularity (in Italy) of systems theory and cybernetics applied transversally to different areas of knowledge, especially thanks to the interaction with the US culture and counterculture, from future studies to Stewart Brand, passing through the active role of Aurelio Peccei (PERUCCIO, 2014); the rise of a shared interest in the impacts of human actions on natural ecosystems, manifested by both the ecological current and the politically-based environmentalist movements (FALLAN, 2014; 2019); the development of a manufacturing culture of excellence (e.g. the Olivetti Programma 101 was the first-ever desktop calculator, developed between 1962 and 1964); the close connection between design, utopias, freedom, and cultural policies, with implications on professionals' commitment, participation, and social responsibility (DELLAPIANA, 2020).

Proposal for an anthology through four perspectives

By referencing the writings of four actors belonging to the research world of the 1970s, the text hereinafter provides a possible basis to interpret the interaction between design cultures, the body and technology, in an attempt to find roots, touch-points and shared perspectives. The essay does not simply set

out to contextualize the works presented. It intends to extrapolate four points of view that, on different levels, seem to have oriented a discussion that has broadly developed in the following two decades, when graphic design, communication design, and user analysis skills would expand to the field of software, allowing designers to enter the human computer interaction sector (FORMIA & PERUCCIO, 2021), in parallel with the consolidation of key concepts and logics such as “cyberspace” (MARCHIS, 2005, p. 298), “digital revolution”, dematerialization, and “gamification” (BARICCO, 2018).

Nevertheless, the presented periodization does not overlook a reasoning on the deep roots of such relationship (CELASCHI, 2016; CASONI & CELASCHI, 2020), as claimed by Beatriz Colomina and Mark Wigley (2016) in the short but intense book *Are we human? Notes on archeology of design*, in which the authors see the need for body redesign and modification as an anthropological constant in the history of mankind. Their transversal notes on 20th century modern design interpreted in the light of the overlap with medicine, health, and personal care, are quite interesting. The authors wrote:

For the Eames, as for Le Corbusier, the designer is a surgeon. In the course of an interview, Charles Eames said: ‘The preoccupation with self-expression is no more appropriate to the world of art than it is to the world of surgery’. [...] The modern body housed by modern architecture was not a single body but a multiplicity of bodies. The body was no longer a stable point of reference around which an architecture could be built. Architects like Le Corbusier and his colleagues actively redesigned the body with their architecture rather than housing it or symbolizing it. (COLOMINA & WIGLEY, 2016, p. 118)

By saying this, they meant not only the body in its physical dimension, but even in its psychological form, thus agreeing with the newborn psychoanalysis and psychiatry theories. In the meantime, the close link between design, body, and machine was strongly affected by the human-centered design approach, pioneeringly launched in the era of modernism, but theoretically established in the years of the Western economic boom, with a growing focus on consumer demands.

Nonetheless, as mentioned in the introduction, signs of change may be identified in the 1970s. The excerpts from the

texts quoted hereinafter focus on the topic of the body as the object and subject of design, but also show a growing interest in new technologies and the relationship between humans and computers, without ignoring the advent of a groundbreaking ontological approach that questioned responsibilities towards the Planet, also by criticizing the technocratic pragmatism.

The excerpts state – also through explicit cross-references – four perspectives that are, in turn, able to provide food for thought and topics that are still open today.

The proposal is based on the review of canonical and cutting-edge journals; methodologically, it forms part of a field of study that has rediscovered, through the concept of “mediation” (LEES-MAFFEI, 2009; DALLA MURA & VINTI, 2014), the role of institutions, awards, exhibitions, and magazines in design history. It is in these contexts that pioneering concepts are expressed and thoughts materialize at the same time as the debate is taking root, thus revealing the most advanced frontiers of experimentation and research.

Anthology 1. *The body as a tool*²

From: “Global Tools – Body Group. Report by Andrea Branzi, Gaetano Pesce, Alessandro Mendini, Franco Raggi, Ettore Sottsass, Jr. 8 October 1974”, in *Global Tools Bulletin*, issue 2 Body/Corpo, 1974.³

The human body [is] analyzed prior to the definition of functional ends, prior to the action of cultural filters, prior to constraints inside the rigidity of systems.

The body [is interpreted] as a primary tool. In conventional learning processes (ways through which to systematize experience through notions), the body is seen as impediment or in any case as a factor that can be overlooked, whose awareness of use can be neglected. The body in religion is experienced as a fault, while freeing ourselves of its physical nature becomes a goal.

In the process of de-intellectualized actions we can see the body as a tool, apart from a specific culture of the body, simulating and retracing the process that leads progressively from discovery to recognition, to purposed and non-purposed use of one's body.

The cognitive result is not predictable, but can be determined a posteriori, after the operations; for example, cognitive processes of

greater awareness can be triggered regarding the use and the purposed possibilities of one's body, through a negative use of that body.

Anthology 2. *Ubiquitous intelligence and extended reality*

From: Silvio Ceccato, "Utopia, futurologia e scienza. L'utopia e l'uomo del futuro" [Utopia, futurology, and science. Utopia and the man of the future], in *in. Argomenti e immagini di design*, year II, issue 1, January-February 1971, p. 75.⁴

Everything will be communicated everywhere, at decreasing costs and increasing speeds. In this way, even the populations that have been independent for millennia shall gather and meld, traditions will dissipate, and the mind will come out discombobulated. Is this massification or individualization? I believe that both sides will benefit, at least when given the choice, in that if everyone receives common information, people may choose the portion they prefer and thus develop their uniqueness on its basis. I shall now touch on a topic I care about, as it responds to one of my expectations or even advice. Humans of the future will, or can, do things out of pleasure that they once did out of duty: this expands the spectrum of their freedom and reduces that of their needs. We owe this to automation and new communication tools – the former replacing us in certain tasks, the latter allowing us not to move but still take part in the things we are interested in. This implies that we may still perform the activities in which automation has replaced us, but optionally and whenever we enjoy performing them. Such activities may include occasional cooking, grocery shopping, sewing, washing clothes, traveling, working the land or gardening, etc. Manual operations may remain the same, but it is the attitude towards them that has changed: an antithesis between work and play, economy and gratuitousness.⁵

Anthology 3. *Programming*

From: Leonardo Mosso, "Presentazione dei gruppi, 1° Biennale Internazionale di metodologia globale della progettazione 'Le forme dell'ambiente umano', 20-30 Settembre 1970, Rimini, Guida Programmatica" [Presentation of the groups, First International Biennial of Global Design Methodology, 'The Forms of Human Environment', September 20-30, 1970, Rimini, Programmatic Guide], in *Strutture Ambientali*, issue 4-5, 1971, pp. 28-29.⁶

Our research and in general the research on programming theory as structural self-programming of the Cybernetics Research Center of the University of Turin lie in this alternative framework of popular self-awareness for the development of a common design language. Local programming is thus a special moment of the human design process carried out directly and without mandate by the dwellers of a certain area and following a specific rejection of the mandate for culture and design. Yet, to be fully alternative, the tools of such self-programming can only blossom from the refoundation of all human sciences that – based on a negation of the origins and of their academic reality and their confirmation of authority and support to the elite – may produce the tools and knowledge not only at everyone’s service but that may – by nature – be used above all by those most exploited. In modern society and at all stages of human cohabitation, such a global revolution is no longer a moral imperative deriving from the demand that all men shall live as equals but has become a non-deferrable historical imperative and a matter of survival. In fact, the mechanisms of the elite class of men exploiting men or – though with different ramifications – men exploiting nature has led the artificial setting of humans to rest in last-chance conditions: those immediately preceding the ecological catastrophe.⁷

From: Leonardo Mosso, “Tema generale di lavoro del gruppo: nuova ecologia, programmazione territoriale come equilibrio di autogestione nel sistema ecologico uomo-ambiente” [General topic of the group’s work: new ecology, territorial planning as a balance of self-management in the man-environment ecological system], Allestimento di Bruno Munari, struttura di Leonardo Mosso [Setup by Bruno Munari; structure by Leonardo Mosso]. Coordinatore [Coordinator] Leonardo Mosso.⁸

In an idea of new ecology, thus new politics, in which everyone has the same decision-making power, the variability and orientation of stochastic constraint laws are determined by common choices. Within such laws of probability and in accordance with the predetermined constraints of all processing cases, the infinite possibilities of individual choices may perfectly correspond to individual vocations, though harmonically included in the common inclination. The calculator thus seems – when it is managed in a shared and democratic way – the only tool able to dominate the enormous complexities

*of individual and common demands, memorize them, and compare them to find compatibility: a true self-programming instrument.*⁹

Anthology 4. *Anthropocene and responsibility*

From: Gui Bonsiepe, "Ecologia e Progettazione Industriale" [Ecology and industrial design], in *Futuribili*, year V, issue 39, October 1971, pp. 25-36.¹⁰

*We must add to the six definitions mentioned among the goals of industrial design a tendency, recorded at the end of the past decade: industrial design as a means of fighting environmental deterioration and improving our quality of life. At this point, we should ask ourselves whether or not industrial design has reached a turning point and if we can reconcile the six aforementioned goals with the aim of an environmentally oriented design. [...] In such a system, man's main goal will be to create positive feedback to oppose the currently prevailing negative feedback. Yet, to set up a relationship with nature distinguished by the positive feedback we must create and spread ecological awareness. [...] That which we proudly call a 'scientific and technological revolution' has intruded into our Earth's ecosystem rashly and without worrying too much about the future. [...] Every futurology that contemplates the technocratic view is a sort of applied utopia. Yet, technocratic utopia lacks the most important ingredient of the utopian philosophy: hope as a motivational and dynamic force in speculations on the future. Technocratic utopia is thus hopeless: a utopia lacking utopia. [...] If we interpret this statement as an invitation to technological abstinence, we should assign it a different meaning: the new technology of post-industrial society should be based on ecological principles, thus must be an eco-friendly technology with positive feedback rather than a negative one, as occurs today.*¹¹

Discussing design, the body, technology, and the future

Reading the excerpts contributes – although in part – to defining thoughts that are not antithetic, but not even complementary: the texts deal with different ways of viewing design in relation to new media, information-digital technologies, and the environmental crisis.

In the first interpretation offered by the Global Tools collective – which was related to the counterculture and climate of protest of the time – the body, which is detached from the functionalistic dependence on the artifactual world, becomes a subject of study and primary tool in itself. It is so that a reflection on the anthropological nature of body-related design is reinstated. Such rediscovery occurs through a rigorous and equally arbitrary process of “inventorization” of its parts, its movements, its positions, its limits, and the multitude of experiences related to it. In this sense, the aim is to create unexpected relationships between bodies, objects, and environments, until the decomposition of the design outcome. From an operational perspective, the actions of the “body” workgroup include the design of objects with limited functions or even malfunctioning, to initiate an investigation leading to a sort of inverse ergonomics or eccentric design anthropology. The standard concepts of use and function are thus overturned and the bodies – disassembled in parts and according to primary needs – become tools in themselves. This paves the way for new fields of investigation and interpretative categories of the body, such as construction (“the body as tool”), theory (“the body as container of the mind”), survival (“the body as energy”), and communication (“the body as transmitter and receiver”).

Beppe Finessi (2009) proposed to interpret the focus of Alessandro Mendini – the group leader – on the human body along three main trajectories: designing with the body, designing for the body, and designing bodies, thus anticipating in “these [...] bubbling years of fiery gestures, [...] the very best premonitory signs of the lustres to come, in which the body would receive more, softer and lighter attention, more strictly functional.” (p. 278) It is therefore not surprising how there was a widespread and renewed attention to the body as a privileged subject-object of design. The anthropological exploration is paired with a gradual attention towards the augmented sensory dimension of design that looks at the relationship with the artifactual world as “a genetic mutation that the rise of new media has produced [...] in society. [...] While the perception of modern humans was analytical, mechanical, that of current humans is synthetic, electronic, auditory.” (BRANZI, 2006, pp. 106-107). In the same years, experiments focused on forms of “sensitive

skins,” as proven by the *Dressing Design* clothing system presented by Archizoom and published in issue 373 of *Casabella*, January 1973, or the prototypes by Nanni Strada and Clicio T. Castelli, published in issue 387 of *Casabella*, March 1974, that consider accessories as meaningful prosthetics to sharpen sensory dimensions, later developed with the rise of the so-called wearable technologies.

Oppositely, perhaps only apparently, there was an interest in emerging IT, as the second text testifies. Its use fascinated designers and intellectuals interested in design cultures, in a game of references and associations. As the great international and national corporations (Univac, IBM, Olivetti) developed the first PCs, the topic of programming languages also attracted attention in the form of an exciting stargate to the future, creating strong connections between cybernetics and futurology. A recent MIT study investigated the relationships in the fields of cybernetics, IT, systems thinking, design, and counterculture in the USA (TURNER, 2006). It resulted in the *Social Graph of Cybernetics* (DUBBERLY & PANGARO, 2015), whose aim was to prove that “Cybernetics is ‘deeply inter-twined’ (to borrow Nelson’s magical phrase) with the early development of personal computers, the 1960’s counterculture, and the rise of the design methods movement, which has enjoyed a recent rebranding as ‘design thinking’.” it is not surprising to read about cross-references between the *Whole Earth Catalog* and the writings of Richard Buckminster Fuller, with references to Christopher Alexander’s *Notes on the Synthesis of Form*, Herbert Simon’s *Sciences of the Artificial*, Ludwig von Bertalanffy’s *General Systems Yearbook*, Norbert Wiener’s *The Human Use of Human Beings*, and to the classics dealing with design and cybernetics including works by John Chris Jones, Victor Papanek, Ross Ashby, Warren McCulloch, Nicholas Negroponte, Lawrence Halprin, Gyorgy Polyá, and George Miller.

The implications on the Italian culture are instead less known. Despite the repeatedly documented intersection between Stewart Brand’s *Whole Earth Catalog* and the Global Tools experience, other episodes prove the emerging theoretical attention towards such topics, but also a desire for applied experimentation especially in temporary or exhibition contexts. The 1970 Rimini Biennale episode is emblematic (FORMIA, 2019),

and the third quotation is related to that context. In particular, the workgroup focused on “Territorial planning as the balancing element in self-management of the human-environment ecological system” presented the preliminary outcomes of the research that led to the “global automatic design model for self-programming of communities:” a “cybernetic system for local planning and for the control of complex forms in art, architecture, and urban design” developed by Leonardo Mosso with Laura Castagno and the CNR (Italian Research Council). This was a methodological and practical approach led by Mosso, the only Italian at the *International IEEE Conference on Systems, Networks and Computers* of Mexico City in 1972.

While, on one hand, the value of the body is rediscovered and, on the other hand, there is a realization of the potential of new IT and digital technologies, we deem it necessary to introduce a third and final dimension that perhaps harmonizes both visions: the growing ecological awareness developing in design culture, in parallel with the consciousness of human social responsibilities towards the environment. It was a moment of great open-mindedness in which the link between systems theory, complexity theory, cybernetics, and ecology seems to anticipate the concept of Anthropocene, introduced in 2000 by Paul Crutzen. As documented in the fourth text, the human being becomes part of a system, molds reality beyond the artificial, has generative and organizational powers. Systems theory and political theory are complementary approaches to studying the destiny of nature and society.

How may we act on the inborn interdependence distinguishing the world of living beings? Design can, in short, exert a technical power to improve reality, it can affect the human-environment relationship, and can provide answers by reinventing the complex cohabitation with the world of machines and technology. These principles underlying the interaction between body, technologies and design are elaborated in a specific historical moment in which the global crisis is combined with a desire for an involvement of the professionals in response to a new type of complexity in mass society. Topicality of them is an evidence, however, the changes of the very idea of society, culture, technologies, and knowledge processes, is giving rise to new paradigms. The main one that marks a clear evolution concerns

the human dimension of the body with implications on notions such as cyborg, posthuman, more-than-human, useless bodies. A perspective that reverses points of view: the prerogative of human body interaction is now under discussion since the idea of human itself is no more universal. Using Laura Forlano's words, in commenting the *Arendtian Lexicon*,

In decentering the human condition in the field of design, such concepts make space not only for the consideration of our complex relations, networks, and assemblages with technology and things but also for the ways in which we coexist with natural environment. In coexisting with technologies as well as with the natural environment, it is beneficial to think of how [...] we might draw on practices of maintenance, repair, and care for making and remaking lives and worlds. (FORLANO, 2021, p. 295)

Notes

¹ Most of the work presented involved the combination of three interdisciplinary research groups, which had been established in 1968 and revolved around "Free Time and Environmental Structures," "Regional Planning as the Equilibrium of Self-Management in the Ecological System Between Mankind and Environment," and "Organization and Communication in the Operational Space." Two installations were emblematic: the Univac 1108 computer, or an "electronic processor" that interacted with the public based on their hobbies, while another computer played music and a "mechanized museum" by Herbert Ohl involved the audience in an immersive space; a system of self-organization and co-design of territories and collective spaces, presented by an Italian group working on "Regional Planning" led by Leonardo Mosso.

² The titles and keywords provided at the beginning of each excerpt have been selected by the author to guide the readers and the subsequently provided interpretations. The texts are in English. The version in Italian, original or translated, is proposed in the notes.

³ In January 1973, the cover of *Casabella* announced the foundation of Global Tools, a cultural experiment organized in the form of workshops, that would last until 1975 and involve a network of actors from Florence, Milan, and Naples. Its main mission was to create a research, teaching, and education program separated from the institutional circle and focused on "the use of natural and artificial material; the development of individual and group activities" as well as the use of "information and communication technology, and survival techniques." Such collective operated in 5 workgroups (Communication, Body, Construction, Survival, and Theory). It was indeed *Casabella* that served as the communication platform for the subjects involved in the Global Tool network. For a full description of the experience, see: Valerio Borgonuovo, Silvia Franceschini, *Global Tools 1973-1975*, Salt, Istanbul 2015.

⁴ Silvio Ceccato, an Italian linguist and philosopher. In the early 1950s, he approached the world of cybernetics by contributing to the research of the Scuola Operativa Italiana sulla Modellizzazione dell'attività Mentale e il Rapporto con il Linguaggio (Italian school of modeling of mental activity and the relationship with language). The basis of such research was the identification of three mechanisms: attention, memory, and the correlation between the respective results. Within a decade, he completed three projects: an automatic translator, a prototype of a mental calculator called Adamo II, and a machine able to perceive, classify, and semanticize the surroundings. In the mid-'60s, the research of the cybernetics and language activity center gradually faded, and Ceccato began an intense publication activity. His works include: *Un tecnico fra i filosofi* (2 vols.), Marsilio, Padova 1964 and 1966; *Cibernetica per tutti* (2 vols.), Feltrinelli, Milano 1968 and 1970; *Il maestro inverosimile. Prime esperienze* and *Il maestro inverosimile. Seconde esperienze*, Bompiani, Milano 1971 and 1972; *Il gioco del Teocono*, All'Insegna del Pesce d'Oro, Milano 1971; *La mente vista da un cibernetico*, ERI, Torino 1972.

⁵ "Si comunicherà di tutto e dappertutto, con costi decrescenti e velocità crescenti. In tal modo anche civiltà che per millenni avevano proceduto indipendenti si sommano, si incrociano, le tradizioni si sgretolano e la mente ne esce scombusolata.

Massificazione od individualizzazione? Io credo che ne escano rafforzate entrambe, almeno come fatto di scelta, in quanto se tutti potranno ricevere certe informazioni in comune, ognuno potrà scegliendo avvalersi, nella grande ricchezza, di quanto gli sia più congeniale e sviluppare con questo la propria originalità.

Toccherei ora un punto che mi è caro in quanto risponde ad una mia attesa e quindi anche ad un mio consiglio.

L'uomo del futuro farà, o dovrebbe fare, per piacere non poche cose che prima faceva per dovere, ampliando così l'ambito della libertà e restringendo quello della necessità. Lo dobbiamo sia all'automazione sia anch'esso ai nuovi mezzi di comunicazione, la prima che ci sostituisce in certe mansioni, i secondi che ci permettono di non spostarci, partecipando egualmente a ciò che ci interessa. Ne consegue che le attività in cui siamo stati sostituiti saranno ancora eseguite facoltativamente, quanto appunto ci faccia piacere; e già si nota come in questa categoria possa rientrare un saltuario cucinare, fare le spese (shopping), far di cucito, lavare, viaggiare, darsi ad operare di campagna o di giardino, ecc. ecc.

Le operazioni manuali possono restare le stesse, ma diverso è l'atteggiamento nel quale si inquadrano, per esempio, con l'antitesi fra gioco e lavoro, fra economia e gratuità."

⁶ Leonardo Mosso studied architecture at the Politecnico di Torino. From 1955 to 1958, he worked at the Alvar Aalto studio of Helsinki. From 1961 to 1986, he was a professor at the Politecnico di Torino. In 1970, he founded together with Laura Castagno the Centro Studi di Cibernetica Ambientale e Architettura Programmata and the Centro Studi Aaltiani of Turin, later renamed Istituto Alvar Aalto.

⁷ "In tale quadro alternativo di sviluppo dell'autocoscienza popolare per la formazione di un linguaggio progettuale comune a tutti gli uomini si situano i nostri studi, si situano gli studi di teoria generale della programmazione come autoprogrammazione strutturale del Centro Studi di Cibernetica dell'Univer-

sità di Torino. La programmazione territoriale è quindi un momento particolare del processo di progettazione umana operata direttamente e senza deleghe dagli abitanti di un certo territorio e ciò conseguentemente ad un preciso rifiuto della delega di cultura e di progettazione. Ma gli strumenti di tale autoprogrammazione, appunto per essere completamente alternativi, possono nascere soltanto dalla rifondazione di tutte le scienze dell'uomo che, partendo da una negazione della propria origine e della propria realtà accademica, nonché della propria conferma autoritaria e di consulenza alle élite del potere, facciano uscire da sé gli strumenti e le conoscenze che si mettano non solo al servizio di tutti ma che, per loro natura, possano essere utilizzati da tutti ed in primo luogo dai maggiormente sfruttati.

Tale rivoluzione globale, a tutti i livelli della convivenza umana, nella società odierna non è più soltanto un imperativo morale derivante dall'esigenza che tutti gli uomini possano vivere come uguali, è divenuto un imperativo storico e di sopravvivenza indilazionabile. Infatti la logica dello sfruttamento sia elitario dell'uomo sull'uomo sia, ancora elitario seppure con diverse articolazioni, dell'uomo sulla natura, ha portato l'ambiente artificiale dell'uomo in condizioni ultime, le condizioni immediatamente precedenti alla catastrofe ecologica."

⁸ Typewritten text stored at the Biblioteca Centrale di Architettura of the Politecnico di Torino.

⁹ "In una ipotesi di nuova ecologia e quindi di nuova politica, in cui tutti hanno uguale potere di decisione effettiva, la variabilità e l'orientamento delle leggi probabilistiche dei vincoli, sono determinate dalle scelte comuni.

All'interno di tale legge di probabilità e nel rispetto dei vincoli predeterminati tutte le casistiche di elaborazione quindi le infinite possibilità di scelte singole possono corrispondere perfettamente alle vocazioni individuali, armonicamente inserite nella vocazione comune.

Lo strumento calcolatore appare allora, quando si è gestito popolarmente e democraticamente l'unico strumento in grado di dominare l'enorme complessità delle esigenze individuali e comuni, tenere memoria e confrontarle nella compatibilità reciproca: quindi essere uno strumento reale di autoprogrammazione."

¹⁰ Gui Bonsiepe studied at the Hochschule für Gestaltung of Ulm, where he later taught at. After the school shut down he emigrated to South America, where he focused his research mainly on interaction and information design. In parallel, he concentrated on the critique of the relationship between the Western world and the "third world," as he defined it in his 1971 text. His major works are included in collections such as *Dall'oggetto all'interfaccia. Mutazioni del design* (original ed. 1993; Italian ed. 1995). His article in *Futuribili* denotes emerging attention to an ecological approach in the design field. The journal was published in November 1967. The Gruppo Futuribili Italia collective branched from the IREA (Institute of applied research and economics), an organization established in Rome in 1963 whose president was Pietro Ferraro, who also became the director of *Futuribili*. In the early 1970s, the journal sparked, in part, the terminology and philosophical debate on the ways of viewing the future more related to the academic world than the political world. Its authors included exponents of Italian design cultures such as Giulio Carlo Argan and Leonardo Benevolo (issue 9-10, 1969 and issue 44, 1972), who took part in the construction of the future as

a moral obligation, as proposed by Ferraro. Design topics are also dealt with in the monographs on “the future of Italian art and natural heritage” (issue 30-31, 1971) and on “the city of humans” (issue 56-57, 1973).

¹¹ “Alle sei definizioni citate degli obiettivi del disegno industriale dobbiamo infatti aggiungere ancora una tendenza, a partire dalla fine dell’ultimo decennio: mi riferisco al disegno industriale come mezzo per combattere il deterioramento ambientale e per migliorare la qualità di vita del nostro ambiente. A questo punto dovremmo riproporci la domanda se il disegno industriale non sia giunto ad una svolta e si possano conciliare i sei obiettivi ricordati con l’obiettivo di una progettazione ecologicamente impegnata.

[...] In questo sistema il compito principale dell’uomo consisterà nel creare un *feed-back* positivo in opposizione al *feed-back* negativo oggi prevalente.

Ma, per instaurare un rapporto con la natura caratterizzato da *feed-back* positivo, abbiamo bisogno di creare e diffondere una coscienza ecologica.

[...] Quella che noi chiamiamo orgogliosamente “rivoluzione scientifica e tecnologica” si è intromessa nell’ecosistema terrestre senza molto preoccuparsi del futuro e piuttosto avventatamente.

[...] Ogni futurologia che contempra l’istanza tecnocratica è una specie di utopia applicata. Ma l’utopia tecnocratica manca dell’ingrediente più importante tra le componenti del pensiero utopistico: la speranza come forza motivazionale e dinamica nelle speculazioni sul futuro. L’utopia tecnocratica è quindi una utopia senza speranza, un’utopia senza utopia.

[...] Se noi interpretiamo questa affermazione come un invito all’astensione tecnologica, dovremmo dargli questo significato: la nuova tecnologia della società postindustriale dovrebbe essere basata su fondamenti ecologici, essere cioè una tecnologia ecologicamente appropriata, una tecnologia con *feed-back* positivo anziché negativo, come accade oggi.”

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