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Future scenarios in jewellery: sustainability, innovations and challenges for the body at the Jewellery Museum

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Future scenarios in jewellery: sustainability, innovation and challenges for the body at the Jewellery Museum

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Jewelry has always been a middle ground between art, craftsmanship, fashion, and design. Objects with ambiguous boundaries and contrasting values, capable of encompassing the most unbridled luxury exhibited with precious materials, and the most conceptual avant-garde, the result of experimentation between form, material, and function. Multiple languages converge in jewelry and, more and more frequently, technical and formal choices are the answer to the evolution of products and processes, of the development of the economy and, consequently, of the competitiveness of companies or designers. The paper aims to define the evolutionary scenarios in relation to formal and technical innovations in the goldsmith's panorama. First, the context of interest is described. The future of jewelry holds together the past and the present and reworks them in a new way and in relation to the challenges of the contemporary. It does so through multifaceted expressions from different contexts that challenge traditional disciplinary fences. Secondly, three areas of interest in this heterogeneous context are identified and their peculiarities defined: sustainability, experimentation and technological crafts, and challenges for the body. Finally, for each category, contemporary case studies are examined, glimmers of a typically Italian manufacturing, design and creative excellence, protagonists of the Future Room of the Jewellery Museum in Vicenza, the first museum in Italy entirely dedicated to jewellery.

I gioielli sono sempre stati una terra di mezzo tra arte, artigianato, moda e design. Nel gioiello confluiscono molteplici linguaggi e, sempre più frequentemente le scelte tecniche e formali sono la risposta all'evoluzione dei prodotti e dei processi, dello sviluppo dell'economia e, di conseguenza, della competitività delle aziende o dei designer. Il contributo ha l'obiettivo di definire gli scenari evolutivi in relazione alle innovazioni formali e tecniche nel panorama orafico. Il primo luogo viene descritto il contesto di interesse. Il futuro del gioiello tiene insieme il passato e il presente e li rielabora in modo nuovo e in relazione alle sfide del contemporaneo. Lo fa attraverso espressioni poliedriche provenienti da contesti differenti e che sfidano i recinti disciplinari tradizionali. In secondo luogo, vengono identificate tre aree di interesse in tale contesto eterogeneo e ne vengono definite le peculiarità: la sostenibilità, le sperimentazioni e gli innesti tecnologici, e le sfide per il corpo. In ultimo, per ogni categoria, sono presi in esame casi studio contemporanei, bagliori di un'eccellenza manifatturiera, progettuale e creativa tipicamente italiana, protagonisti della sala Futuro del Museo del Gioiello di Vicenza, il primo museo in Italia interamente dedicato al Gioiello.

Keywords: *jewellery design, innovation, cross-fertilization, Vicenza Jewellery Museum*
Parole chiave: *design del gioiello, innovazione, Museo del Gioiello, multidisciplinarietà*

▪ *From the Straight Line to the Fragment*

From Prehistory to the 20th century, the time of jewellery was a linear, sequential and deductive time, marked by the preciousness of materials and social symbolism. The 20th century was marked by changes that disrupted all spheres of human endeavor. With the revolutions of the 20th century came the disappearance of absolutisms, grand narratives and ideologies: the conception of history as a unitary linear flow gave way to relativism, to the coexistence of several stories, as in a choral tale. The optimistic belief that the world can be explained through the application of unitary principles is replaced by the uncertainty of partial truths. In this dimension lacking organic unity, even the jewel finds a relevant key to interpretation in the form of the fragment¹. In the past, jewellery had a more or less univocal meaning, represented as a straight line, and its value was linked to the uniqueness of the craftsmanship, the preciousness of the material, and the symbolic representation of beauty as well as of power, wealth and social prestige. The present time with its disintegrating force reduces the order of the straight line of the traditional jewel into a dimension of multiple points. In this fragmented hybrid galaxy, traversed by different trajectories and connections, the jewel presents itself in its formal and value multiplicity². Contemporary jewellery is in fact founded on the co-presence of different values, where the nobility of metals and stones and the exclusivity of production processes is no longer a sufficient condition to determine the value of an object and to justify, if not on a lexical level, the difference between a jewel and a non-jewel. There is no longer a directly proportional relationship between material and value. The value of the material has been placed side by side with that of the design idea, communication and marketing, as well as craftsmanship and creativity. The democratic exposure of jewellery to new spheres and a new type of public does not coincide with a renunciation of quality but is rather the response to an awareness of a revolution taking place. The change in consumers, their habits and tastes has introduced new visions and new ways of understanding preciousness. From the preciousness of craftsmanship to the authorship of art jewellery, from the ornamental value of fashion jewellery to the celebration of the design idea. Pluralism thus becomes the key to understand the irreducible fragmentary nature of contemporary jewellery which, like most other sectors, has opened up to multiplicity, resulting in a melting pot of proposals where it is not easy to move and find one's bearings. In fact, jewellery is ontologically balanced, poised not only between contrasting times, such as the eternal and the ephemeral, and between different value universes, from the tangible and quantifiable to the intangible and subjective, but also between heterogeneous contexts and disciplines, such as art, fashion, design and craftsmanship. The multiform nature of jewellery mirrors our society, with its multilingualism and the contamination of different and coexisting lifestyles. So what about the future?

▪ *From Fragment to Network*

The revolution that marked the transition from an “analogue” to a digital age has produced a global fluidification of the system: with the spread of digital technologies, the distinction between diverse fields is less and less defined, and production paradigms tend to merge and contaminate each other.

We are moving towards a liquid³, trans-territorial and trans-disciplinary dimension, made of cross-references and connections. Already Italo Calvino, in *Six Memos for the Next Millennium*, not only indicated multiplicity among the six values at the basis of literature for the new millennium⁴, but described the novel of the future as a great network, in which different knowledge and heterogeneous codes would be able to generate a new and multifaceted vision of reality. This value anticipated the characteristics that will be intrinsic to the Internet and to the structure of inextricable complexity of contemporaneity, a “system of systems”, made up of integrated links and heterogeneous coexisting elements that substantiate everything⁵. In the fluidity of the contemporary, the boundaries between disciplinary knowledge are not rigid, but allow for continuous crossings and take the form of spaces of contamination and mediation⁶. The disciplines, in fact, today take the form of a complex intersection⁷ between several systems⁸: the various empirical sciences can be traced back to conceptual entities, each consisting of parts in a relationship of mutual dependence, which end up intersecting with one another⁹. The result is a hybridization to generate innovative solutions: knowledge transfer is an indispensable practice for the production of the new. This hybridization between heterogeneous fields, which is increasingly being used, has produced leaps in innovation across different sectors. Even the world of jewellery is more and more configured as a discipline substantiated by the interweaving of complex trajectories, made up of thematic references, methodological borrowings and appropriations from different and distant fields, in order to generate renewal. The use of new materials and technologies, for example, constitutes a crucial incipit for innovation, for the evolution of products and processes, for the development of the economy and, consequently, for the competitiveness of companies. The success of companies in the jewellery sector depends to a large extent on their ability to generate new and produce innovation, to invest in research and the integration of new materials and technologies in products, processes, or services, or to transfer new meaning to traditional manufacturing.

▪ *The Future of Jewellery*

In a linear conception of time¹⁰, the future is the part that has not yet taken place. In the relativistic conception¹¹ is instead the part where all the events that have not yet happened are to be found: it is the opposite of the past and the

present. In the jewellery scene, on the other hand, the future is what holds the past and the present together. The future looks to tradition with an eye to contemporary challenges and takes shape in multifaceted expressions from different contexts that challenge traditional disciplinary fences¹². The jewellery sector is increasingly taking shape as a pluralistic and heterogeneous organism, in which physical and intangible products, cultural capital and human resources are integrated. Jewellery, as the result of processes of integration between different methodologies and spheres, contributes to providing a reinterpretation of the cultural changes that substantiate contemporaneity and, using different languages, is capable of producing narratives that attribute meaning to the relationship between references, materials, technologies, products and processes¹³. In today's context, in order to meet contemporary challenges and generate innovation, contaminations are increasingly daring, the sectors involved are growing in number and require specialized skills. Border territories¹⁴, aimed at the most daring research and experimentation, arise from the intersection and integration of highly heterogeneous and specialized fields, ranging from medicine to aeronautics, from biology to cosmetics. It is precisely these exchanges that produce the sap for creativity and innovation. Today's designers, who are called upon to move in increasingly complex and multi-layered contexts and to mediate between polarities, diversities and contrasts, share a propensity for a high degree of flexibility, which combines the contamination of knowledge, as well as the need for practical experimentation and an evolved vision of applied technology. This practice, aimed at researching and defining novel scenarios, implies a particular ability to create daring forcings that aim to challenge and move the limits imposed by traditional paradigms, such as matter, languages and processes. Qualitative exploratory research of the jewellery context led to the identification of three macro categories, in particular through three actions:

- SCAN as direct, observation, desk research and semi-structured interviews with designers, artists, goldsmiths and jewellery companies;
- ANALYSE as selection of the case studies more interesting in terms of relevance, impact in the category and innovation;
- APPLY as connection of all the information to define the characteristics of the future trajectories of jewellery.

Moreover, the case studies are presented in an order that is not intended to highlight the state of diffusion, commercialization, or the product development process, but to enhance the existence of certain avant-garde sectors, generated by contamination and integration between fashion and other fields. In this heterogeneous context, three main areas of interest emerge, made tangible by the jewellery on display in the Future Room of the Vicenza Jewellery Museum¹⁵ (*fig. 1*): precious sustainability, tradition turns into innovation, and jewellery challenges the body.



Fig. 1. Vicenza Jewellery Museum, Futuro Room, 2021 (Authors' photo).

▪ *Precious sustainability*

Among the trends for the future concerning the world of precious plays a crucial role the concept of sustainability. *Kalòs kai agathòs*, the Greeks said, meaning “beautiful is also good”, which in an absolute equation between the two terms, suggests that beauty cannot be separated from virtue. An ideal of perfection that is ancient but perfectly reflects the needs of today’s market and consumers. Sustainability has indeed become an increasingly sought-after value in jewellery¹⁶. It is expressed through the creations of Riccardo Dalisi made of ultra-poor materials, genuinely disinterested in the preciousness of the material and poetically molded into childlike shapes generated by naive materials such as tin brass or tin foil. Also Ivana Riggi deals with this topic: Life is a paper jewel with a double use, it can be a brooch or a necklace. Or Letizia Maggio with So Secret wants to overturn the concept of preciousness of a piece of jewellery, attributing to a butterfly or an insect the value otherwise assigned to a precious stone. The care in safeguarding resources also takes shape in the jewellery of Eleonora Fiori who, working and recovering vintage resins from the 1970s and 1980s, gives life to Spring in Tokyo, a metaphorical representation of the moment of the blossoming of the Cherry trees that occurs in Japan. A symbol of delicacy but also of rebirth, it recalls the explosion, dynamism and vibrations of spring. But sustainability also means considering the value of people, which, in the contemporary jewellery scene, finds full expression in craftsmanship and social inclusion, themes often addressed together. In fact, craftsmanship itself reflects the fundamental criteria of sustainability, placing a high value on the

time it takes to conceive and make a product, on technical experimentation, on the search for quality and perfection, and on passion for what one does. Some manufacturers collaborate with local communities, training and offering paid employment opportunities to vulnerable people who have been through difficult personal or social situations and enabling their reintegration through work. One of the brands most active in this is SeeMe. After 20 years of reporting on the condition of women in the Middle East and North Africa, Caterina Occhio created SeeMe, a training and employment center for women survivors of violence. SeeMe helps women, often single mothers, who have suffered violence and been marginalized by their communities by teaching them the art of goldsmithing according to ancient Tunisian techniques. By promoting the culture and traditions of their country, they at the same time secure a job that guarantees a future for themselves and their families. The Loving More Collection is an expression of all this. Inspired by an ancient Roman design in the Brado Museum in Tunis, it is entirely handmade in Tunisia and requires more than 20 hours of manual labour to be made to perfection. So, we are talking about aesthetic, production, material and conceptual quality - nowadays indispensable - but also sustainability, authenticity, truthfulness with respect to one's own traditions, and ties with the territory.

▪ *Tradition turns into innovation*

The second scenario concerns research and technological grafts. Formal, material, chromatic and production experiments highlight a fluid exchange between the excellence of tradition and the wonder of innovation. A journey through dreamlike worlds in which Ilenia Corti Vernissage's jewellery is immersed, handmade and characterized by the use of brightly coloured enamels and stones. Colourful insects and animals are portrayed in three-dimensional snapshots to be worn on the body as a tribute to Nature and the Universe. Colour is also the subject of research into its decomposition, as in the case of Perseus, designed by Odo Fioravanti starting from a physical phenomenon that has been reproduced on the silver pendant: the image of a coloured object in the fire of a parabolic mirror deforms and expands, filling the entire surface of the mirror with colour. According to the myth of Perseus, in fact, the Greek demigod killed Medusa using his shield as a mirror. The journey continues through traditional materials that find their cue to give life to formally contemporary creations. Marina and Susanna Sent belong to a family that has worked for generations in the glass industry in Murano, the small island home of the artistic glassmaking tradition. In 1993, Marina and Susanna Sent, strengthened by their knowledge of workmanship and production processes acquired through experience in their father's company, which specialized in glass decoration but was strongly tied to traditional forms, set up their business. The two sisters instead propose glass in

multiple contemporary expressions. Amidst bubbles sometimes replicated in simple and neat necklaces, at other times modulated to form accessories somewhere between jewellery and clothing, there are also colourful proposals for urban tribes or bracelets that look like the result of surgical sections of multi-coloured trunks. On the contrary, research can range into industrial processes that blend with the imperfection of craftsmanship or with intervention and interaction with the end user. RosAria by Joe Velluto, for example, is a rosary made of pluriball, or recyclable polyethylene. When the worshipper is praying, he slides the rosary with his fingers towards the cross, pushing down the air module at the end of each prayer. The task is finished when he reaches the cross and all the bubbles are deprived of the air that filled them. The concept of a mass industrial product of poor quality is transposed onto the sacred symbol of eternity to such an extent that it becomes a disposable object: spirituality becomes serial and temporal where man performs a decisive action. In Cristian Visentin's Bangle bracelet, on the other hand, each piece has a common element which is the borosilicate glass tube that is then individually cut and deformed by the skillful hand of the glassblower, making the jewel unique and unrepeatable. Everything is expressed in perfect minimalism, an expression of purity and essentiality in which industry and craftsmanship, transparency and lightness coexist. And it is precisely the characteristics of the materials that drive the search for alternative ones to those of the goldsmith tradition: more or less rigid, more or less light, more or less precious. Emma Francesconi exploits the lightness of the material, titanium, to make sinuous and soft interlacements of screws, washers and bolts. Fascinated and attracted by these elements found on the shelves of hardware stores, she interlocks them until she creates a mesh, which she has patented, that consists of an elementary module of two screws, whose head diameter remains inside a washer, locked with self-locking nuts. These three elements are the basis of her work but, depending on the lengths, diameters and densities, they give rise to jewellery with heterogeneous features. Light and pop instead is the soft resin proposal for the Fish Design collection by Gaetano Pesce who, since 1995, has confirmed his pioneering use of resin as a material to create unique design pieces. Spaghetti rolled around the finger or wrist or plastic ribbons that seem to be moulded onto the body are the iconic visualization of Gaetano Pesce's research. Again resin is explored by Emanuela Ferrero for Corsari Jewels. The soft bracelet of the Jolly collection inspired by the spirit of Iris Apfel combines elements in an extravagant, fun, elegant, unconventional, surprising, colourful and original way. Experimentation not only with materials but also with innovative production techniques that become the tool for generating new forms or reinterpreting the more traditional ones. Twenty years after its first patent¹⁷ 3D printing made a comeback in 2005 thanks to the RepRap project¹⁸, but 2012 saw the real boom - still ongoing - with the interest of many companies, the consequent increase in supply and the increased accessibility of the technology thanks to lower costs¹⁹. Prices have dropped so much that the 3D printer market

is no longer just for industry but also for individual users, digital artisans who, with the new technologies of desktop manufacturing, can transform themselves from creators to entrepreneurs and directly manage the entire production process online with obvious benefits in terms of time and cost²⁰. Beatrice Rossato's High R-Evolution analyses of the most common types of traditional chains, enlarges, redesigns them in 3D and defines their surface resolution: the texture of each module grows and decreases progressively, in a circle. Everything is then 3D printed, alluding to the evolution of the machine and parallel to that of the craftsmanship, expressed by the chain. There are no welds, no joints, except for the opening that allows the necklace to be worn in different ways. Resolution, evolution and revolution. Elements that we find also in Maison 203 or .bijouets jewellery. Claudia Rignanese for PROGOL3D® also works on the possibilities of creating connections already in the digital version, considerably reducing the time spent on processing. The Windswept bracelet is inspired by simple chemical bonds in which incomplete atoms find stability only by sharing neutrons. In fact, triangular wheels rest on a vertex and only find stability in the complete jewel. The bracelet also features an internal joint that gives movement and follows that of the body and, thanks to 3D printing, it can be printed already immaculate without the need for further processing. From 3D printing to laser cutting, Paolo Ulian's Global Bracelet was created for the Dutch company CHP and is made of polished steel sheet. The bracelet is the result of two laser-cut halves that are then joined with micro-welds in the middle. Its initial shape can be modified in various ways, to make it flatter, more spherical or asymmetrical, making the material "precariousness" a plus. In the examples just mentioned, technology is a productive drive, a characterizing element of the processes but, in the jewellery panorama, it has also become the protagonist in the product in its fusion with aesthetics, a magic graft to be combined with art and design. Thousands of faceted gold elements frame twenty revolutionary gems in D'Orica's Living Jewellery necklace: they are formed from transparent solar cells that emulate photosynthesis, the power of nature, through a magenta dye encased in crystal glass. These brilliant cells are elaborately connected through micro-galleries in the gold frames to transfer the energy needed to power an intelligent micro-circuit hidden in the gold flower, the beating heart of the jewellery, which enables the necklace to glow. Rosalba Balsamo's Around The Sound project, on the other hand, stems from her desire to create a piece of jewellery that goes beyond its merely aesthetic value thanks to a happy marriage with the world of technology. Thanks to the support of the startup alab.tech, Rosalba Balsamo creates earrings that incorporate wireless earphones demonstrating a keen spirit of observation of the contemporary and a tireless desire to find solutions to worlds that use completely different languages: design, art and new technologies. Technology in processes, in products, but also in services. Manuganda, for example, creates an intangible twin of Twist with the digital passport. The preciousness of the jewel lies in its innovative, open, infinite form, with its dual

function - ring or ear-cuff - which enhances its adaptability to the body, but also in its ability to transit from the world of ideas to that of matter and then back again to an abstract reality. The material jewel coexists alongside its “digital twin”: if the former represents structural, stylistic and affective longevity, the purpose of the latter lies in guarding, preserving a wealth of information that would otherwise be lost in the ever-increasing quantity of objects inhabiting the present. Identified through a unique serial number, the jewellery uses blockchain-based technologies²¹ thanks to which it is possible to have a guarantee of the uniqueness, traceability and origin of the jewel, recording all stages of its “life”.

▪ *Jewellery challenges the body*

Lastly, an immersion in a world of jewellery that challenges the body and seeks new surfaces to adorn and emphasize by daring with oversize dimensions, drawing inspiration from ancient armour or intervening with unusual parts of the body such as the face to alter its shape or make emotions tangible. Some of these jewels tend to emphasize the human body as if they were literally an underlining of it: they are lines or wireframes that follow the body, representing an evanescent offset of it²². The line of Blumerandfriends is the perfect example of an ornament for the body and its movement. Through rectilinear forms, set against the pneumatic joints of the body itself, the metamorphic relationships of the joints are emphasized and enhanced, becoming synonymous with beauty. In contrast, Paola Volpi with the Armour Collection, consisting of double phalanx rings and a plate for the back of the hand, protects the human body. Inspired by the 16th century armour painted by Paolo Uccello, it moulds the metal in relation to the body, giving shape to the warrior spirit of the wearer but at the same time highlighting the need to have a barrier, a shield capable of preserving the body. But jewellery today does not only clothe the body but changes its features, transforming faces into grimaces, modifying features and exploring new foundations of a physiognomy that itself becomes ornamentation. Like a new frontier of cosmetic surgery made of pulling and deforming objects so honest that they remain visible, indeed obvious. This is the case of Love Cage, designed and made by Niccolò Umattino: a mask inspired by dental technology and linked to a concept of voluntary body modification. It is an accessory that can transform oneself and the way one is perceived by others. Don't cry over spilt milk by Deyse Cottini still works on the face. It is a proverb that becomes a tangible object, a mask that becomes jewellery. The stain that forms on the ground when milk falls is the beginning and becomes a sign to be worn; the soft lines run across the face and draw its emotions, between milk and tears flowing from the eyes. While the cotton thread makes the glints of light of the watery substances graphic, the supporting structure of

the gold jewel underlines the importance of the act of showing one's fragility, which becomes precious and poetic.

▪ *Conclusion*

The paper focuses on the futures of jewellery, highlighting the ability jewellery to reinterpret past and present and to link them in a future perspective. In particular, three categories identified through the three actions exploratory research are analyzed: precious sustainability, tradition turns into innovation and jewellery challenges the body. In the first, the analyzed examples present the jewel as a manifesto of sustainability as beauty. This occurs both in the choice of materials, coming from waste or from certified and sustainable supply chains, and in the collaboration with local communities. The narrative of jewellery becomes an indispensable vehicle of contemporary and strong messages that bring with them a social and environmental attention. The second category investigates the reinterpretation of the symbols, practices and techniques of the goldsmith tradition through the introduction of innovative technologies. Through jewellery, the designer manages to mix together handmade techniques with machine-made work, as well as traditional rituals with contemporary languages, generating innovation. Finally, the third category presents jewellery in relation to the body, in a constant communication between ornament and adorned person. There is a formal and material exploration of the body that introduces innovative uses of the object, as well as new poetics related to the practice of wearing it. A journey steeped in inspiration, research, lightning and suggestions to outline the future scenarios of jewellery.

• FOOTNOTES

¹ CAPPELLIERI 2016.

² CAPPELLIERI 2021.

³ BAUMAN 2000

⁴ On 6 June 1984, Italo Calvino was invited by Harvard University to give a lecture series, which, however, did not take place due to the death of the writer in September 1985. The theme he chose was the new millennium and how to deal with it. He thus decided to propose six key words – “lightness”, “rapidity”, “exactitude”, “visibility”, “multiplicity” and “coherence” - each linked to a fundamental literary value to be carried into the new century. The order of the six terms chosen by Calvino reflects the hierarchical importance the author attaches to each of them.

⁵ GADDA 2007.

⁶ LOZUPONE 2015.

⁷ S. PIRROCARO, *Design e Complessità*, in BERTOLA, MANZINI 2004, pp. 71-88.

⁸ VON BERTALANFFY 1971.

⁹ TESTA 2019.

¹⁰ MAURO 2018.

¹¹ EINSTEIN 1920.

¹² TENUTA 2021.

¹³ TESTA 2019.

¹⁴ CONTI 2012.

¹⁵ The Museo del Gioiello in Vicenza is the first museum in Italy entirely dedicated to jewellery. The selection of jewellery on display in the Sala Futuro was curated by Alba Cappellieri and Livia Tenuta, authors of the article and respectively Director and Curatorial Coordinator of the Jewellery Museum.

¹⁶ TENUTA 2021.

¹⁷ The first patent on 3D printing was obtained in 1986 by Charles Hull, who founded 3D Systems, one of the most important companies in the field.

¹⁸ RepRap was founded in 2005 by Dr. Adrian Bowyer, Senior Lecturer in mechanical engineering at the University of Bath, with the aim of producing an auto replicating device that would give anyone with a small amount of money the ability to have a small manufacturing system.

¹⁹ TENUTA 2019.

²⁰ CAPPELLIERI, DEL CURTO, TENUTA 2014, p. 15.

²¹ The blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a commercial network.

²² FIORAVANTI 2013.

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