

# Two preambles to a new role of scientific museums in society. UN Transforming our world. The 2030 Agenda for Sustainable Development

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## ABSTRACT

The role and importance of scientific museums are well-known, but only staff members do really know that, while very few people are aware of this. Now is the time to create an incisive cultural strategy able to increase awareness and to inform politicians, public administrations, all stakeholders and, above all, the public that our museums, are unique and irreplaceable structures able to help guide national economic, social, health and cultural policies towards a different lifestyle aimed at real sustainability. Our communication must reach the nerve centres of society and the whole nation. It is necessary that we move out of our workplaces and speak with strong, incisive, professional words, useful to society and easily understood by all. Scientific museums will increasingly have to assume the responsibility of helping human beings in the Anthropocene to become conscious of their limitless power and, finally, to transform this awareness into accountability. Here I try to begin a line of reasoning to lay the foundations for a road map, aimed at a full inclusion of our scientific museums into society and into all issues related to the future of humanity and the planet. The goals of the 2030 Agenda perfectly match the work, philosophy, goals, tasks and activities that express the reason of our scientific museums. For ten goals of the Agenda, are extracted key words and concepts that are definitely priorities for us, all absolutely in line with our activities. These are 10 strong points on which scientific museums already do quite a bit and can do more and better, 10 strong points to be at the forefront for society. If we figure out how to get involved and do our part for all these goals, we will be able to perform a truly epochal action and strongly contribute to the realization of all the remaining goals.

Key words:

scientific museums, society, UN Agenda 2030 goals.

## RIASSUNTO

*Due preamboli per un nuovo ruolo sociale dei musei scientifici.*

*Trasformare il nostro mondo. L'Agenda 2030 per lo sviluppo sostenibile*

È noto lo scopo e l'importanza dei musei scientifici, istituzioni dedicate alla conservazione, alla ricerca e alla comunicazione, ma questo purtroppo è noto prevalentemente a noi addetti ai lavori mentre pochissime persone ne sono consapevoli. Questo è il momento adatto per creare una strategia culturale incisiva in grado di aumentare la consapevolezza generale e di informare politici, pubbliche amministrazioni, i nostri stakeholder e, soprattutto, i nostri pubblici – tutti – che i nostri musei sono strutture uniche e insostituibili in grado di interpretare lo stato dell'ambiente, di includere e di contribuire a indirizzare le politiche economiche, sociali, sanitarie e culturali nazionali verso uno stile di vita diverso rivolto a una reale sostenibilità. La nostra comunicazione deve raggiungere i centri nevralgici della società, comuni, province, regioni, governi, scuole, università, pubblico – in breve, dell'intera nazione. È necessario uscire all'aperto e parlare con parole forti, incisive, professionali, utili alla società e facilmente comprensibili da tutti. I musei scientifici devono sempre più assumersi la responsabilità di aiutare gli esseri umani nell'Antropocene a prendere coscienza del loro potere illimitato e a trasformare questa consapevolezza in responsabilità. Mi piace qui iniziare un ragionamento per gettare le basi di una road map, volta alla piena inclusione dei nostri musei scientifici nella società e in tutte le questioni legate al futuro dell'umanità e del Pianeta. Gli obiettivi dell'Agenda 2030 si sposano perfettamente con il lavoro, la filosofia, gli obiettivi, i compiti e le attività che esprimono il motivo dell'esistenza dei nostri musei scientifici. Per dieci obiettivi dell'Agenda sono stati estratti parole chiave e concetti che sono sicuramente prioritari per noi, tutti assolutamente in linea con le nostre attività. Sono dieci punti di forza su cui i musei scientifici già lavorano molto e possono fare di più e meglio, dieci punti di forza per essere all'avanguardia per la società. Se saremo in grado di fare la nostra parte su questi primi dieci punti prioritari, avremo realizzato una azione epocale e avremo contribuito alla realizzazione dei rimanenti obiettivi.

Parole chiave:

musei scientifici, società, obiettivi dell'Agenda 2030 delle Nazioni Unite.

The role and importance of scientific museums, institutions committed to research, conservation and public engagement, are well-known, but only staff members do really know that, while very few people are aware of this.

A scientific museum is often a place to take children to have fun and, in some cases, to learn something with a disregard for the immense potential offered by the institution,

With only a few fortunate exceptions, scientific museums continue to have a poor life, and too often they muddle along in a careless indifference on the part of politicians and the administrations that govern them, while directors, curators, technicians and workers passionately study, create, communicate and conserve.

I often reread some pages written by Antonio Carrucio (1884) in the late nineteenth century, by Sandro Ruffo (1973) in the 1970s and by a recent Italian "gang band" (Andreone et al., 2014) that published an extensive paper a few years ago, discussing Italian scientific museums on the edge of collapse, and a following Letter to Nature (Andreone et al., 2015) on the same subject. The same words, same considerations, same sad commiserations.

Therefore, something is not working, something must be wrong. Who has erred? When and why? There is no more time to procrastinate about this state of affairs. This is no longer the time to continue working with great passion but in silence, amidst a thousand difficulties and general indifference.

## A DIFFERENT BUT "TRADITIONAL" IDEA OF SCIENTIFIC MUSEUM

The many severe environmental, economic and even health crises affecting our lives today provide us with the best opportunity to demonstrate what the scientific museum can and must give to society.

This is an epochal moment to create an incisive cultural strategy able to increase awareness and to inform politicians, public administrations, all stakeholders and above all the public – everyone – that our museums, managed with discernment, are unique and irreplaceable structures able to communicate science, its method and its problems, to interpret the state of the environment, to include and to help guide national economic, social, health and cultural policies towards a different lifestyle aimed at real sustainability. And we must do this with humility and coherence, but with the maximum authority of which we are capable.

We must communicate of course, but not only to us and among us museum professionals; our communication must reach the nerve centres of society, municipalities, provinces, regions, governments, schools and universities, the public, – in short, the whole nation. It is necessary that we move out of our workplaces and speak with strong, incisive, professional words, useful to society and easily understood by all.

## THE ANTHROPOCENE AND SCIENTIFIC MUSEUMS

There is much work to be done. However, it must be done now in this moment of planetary crisis, in this new geological era that has been called the Anthropocene and which generates mammoth questions about humanity and its living environment.

The very concept of the Anthropocene emphatically urges us to consider our species as a small evolutionary event immersed in an immense spiral of deep geological time. This is certainly a strong idea that demonstrates the need to reconsider with extreme humility our place in nature, the place of a species that has, in such a short time, become a very powerful selective force capable of upsetting, in the blink of an eye, ecosystems formed over hundreds of millions of years of evolution. Everything underlying this concept – perhaps arriving too late in the development of human society – emphasizes the enormous transformative power achieved by humankind and an awareness that allows us to intelligently renegotiate our relationship with the planet's biodiversity and with terrestrial ecosystems. The culture of nature, scientific knowledge of the state of the environment and knowledge of the evolutionary mechanisms and processes that have produced the species to which we belong will perhaps be the most suitable tool to make us all aware of the dramatic impact that the most incredible evolutionary novelty of the human apomorphies, intelligence, has had on the planet. Scientific museums will increasingly have to assume the responsibility of helping human beings in the Anthropocene to become conscious of their limitless power and, finally, to transform this awareness into accountability.

Scientific museums offer society, in a synthetic manner, a unique mass of facts about the complexity of the problem. This gives anyone the possibility to form an independent opinion and consequently to decide on their lifestyle, convinced about what they do and not obliged by laws or regulations that are not understood and often poorly tolerated.

Scientific museums must paint a picture that is as honest as possible concerning the historical interface between natural evolution and cultural evolution. This means involving the public and making it engage in a dialogue with objects, concepts, facts and experiences that help to create a widespread culture of nature, a culture of the environment – in short, a culture of life – essential in this time of profound socio-economic and today also health crises.

To be able to act in this sense, the first step must be an awareness on our part that we are working in scientific museums, remembering that all of us have become museologists without following a specific school, arriving to this calling from different experiences and situations which by different routes have led us to this work. Let us exploit our diversified origins and our spe-

cializations and reinvent a more welcoming scientific museum suitable for the new Anthropocene era. Let us identify a new overall vision and a common path to follow together, shared by our many audiences in the most disparate manners but all working for the future of humanity on earth. We must do this in a resounding way but always in tune with the pressing expectations of all people and the obvious necessity for the development of civilization and the life of each one of us. It will be a difficult task, there is no denying this, and it must be undertaken with absolute preparation and with a totally clear purpose. However, it must be undertaken, even at the cost of sacrificing something in the initial stages.

## A NEW ORGANIZATIONAL STRATEGY AND A NEW VISION FOR SCIENTIFIC MUSEUMS

At this point, I would like to begin a line of reasoning to lay the foundations for a general, solid and feasible road map, aimed at a full inclusion of our scientific museums into society and into all issues related to the future of humanity and the planet. It is necessary to reason in a concrete manner but with full preparation, with few words and many facts. We must exploit every situation suitable for the involvement of our institutions, and where these situations are not clear we must create them ourselves, being aware of our strengths and our potentials. We must then communicate them to all with great authority, with all the means available to us, also with new ones we must seek. Two things, to begin.

- Let us give content and concreteness to an unequivocal and functional management commitment, finally including scientific museums in the National System of Museums. Let us activate policies bringing our scientific museums to an equal status with the national "humanistic" museums, policies however that identify the complementarity but especially the substantial differences between an art or archaeology museum and a science museum. Hence, it will be necessary to identify and define a concrete regulatory strategy for everything relating to the organization, management, personnel and funding of a complex set of heterogeneous administrative and ownership situations, proposing new and original organizational forms.
- Let us activate and bring to fruition an eventual and complete census and mapping of the existing scientific museums, systematizing and executing a national project as done by the Italian Association of Scientific Museums (ANMS) for the naturalistic heritage with the CollMap project.

This congress can be the appropriate place to initiate a discussion on a first series of objectives useful for a revival of Italian scientific museums.

Therefore, I propose, in order:

1. An impactful communication phase designed to make everyone understand why and how the museum works for the good of society (accountability by all for our future). A real press campaign to increase the awareness of all media, possibly shared with a pool of public and private entities, also involving local administrations and businesses.
2. A plan for a national communication strategy on the main science topics, structured with a coordinated program of museum installations, exhibitions, meetings, discussions and events in order to activate an economy of scale, involving MIUR (Ministero istruzione, università e ricerca), MATTM (Ministero ambiente, tutela del territorio e mare), MIBACT (Ministero beni e attività culturali e turismo), CNR (Consiglio Nazionale delle Ricerche), national research institutes and private companies.
3. A structured partnership with primary and secondary school teachers according to an innovative plan to address and support school education by implementing what has already been masterfully prepared by GEMS, the educational working group of the ANMS. With MIUR and Education Departments.
4. A partnership with universities for the complete realization of the University's Third Mission.
5. The creation of a national school of scientific museology with MIUR and MIBACT.
6. The realization of innovative forms of accessibility to scientific culture for all audience types to encourage participation, inclusion and accountability for the planet's future.
7. Empowerment and coordination of conservation of the tangible and intangible heritage and of museum scientific research through the creation of a diffuse institute of biodiversity research, spread throughout Italy, also with the task of working for the sharing and management of the big data of biodiversity, aimed at a primary commitment of naturalistic museums within the European DiSSCo project (Distributed System of Scientific Collections).
8. A plan for the digitization of biological and abiological collections.

## SCIENTIFIC MUSEUMS, SUSTAINABILITY AND "TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT"

All of the above can be useful to better calibrate and systematize the very valid but disordered field of activity of scientific museums and their use for the good of society. A future characterized by strong accountability by individuals could favour a transformation towards a different lifestyle, which could condition and modify fundamental decisions in social, economic and environmental fields.

I wrote recently – in a lovely little volume on sustainability published by the ANMS and unfortunately still poorly publicized – that in the dramatic period we are now experiencing “The most significant paradigm to ensure the future of human civilization on earth is without doubt that of sustainability, which includes a large quantity of substantial meanings that merge and intersect in the social and economic fields, originating precisely from environmental fields”.

The goal of sustainable development was defined starting from the first UN conference on the environment and thereafter up to the publication of the Brundtland report (United Nations, 1987). It is a goal towards which every action of humanity must be aimed in the third millennium.

In recent years, the paradigm of sustainability has been transformed several times but now explicitly challenges to complexity and to many different disciplines. Sustainability was presented with incredible clarity and foresight by the United Nations in the recent document “Transforming Our World: The 2030 Agenda for Sustainable Development” (United Nations, 2015). The goals of the 2030 Agenda perfectly match – and seem to be written having in mind – the work, philosophy, goals, tasks and activities, old and new, that express the reason of our scientific museums.

Long before anyone had raised the question of a possible environmental crisis, the scientific museum seems to have been created specifically to carry out actions aimed at sustainability. For almost two centuries, this has been and continues to be its basic purpose, with the primary mission of uniting the activities of study and research and of transmission and sharing the complexity of scientific knowledge to all types of audiences. Well then, as the title of this note states, let us try to multiply tenfold the role of our scientific museums in society. Let us, scientific museums, become actors and main communicators of the goals of the 2030 Agenda. Let us reread, therefore, the titles of the goals of the United Nations document, today strongly adopted by

the new policies of the European Union and let us do so with the eyes of those who work in a scientific museum. Point by point, let us collect our thoughts and decide for ourselves whether these goals do not describe what is at the heart of a scientific museum’s aims. Certainly devised with different and heterogeneous means, times and languages but always based on the conservation, research, study and communication activities of a scientific museum and always aimed at a total openness towards society (Fig. 1).

## THE TEN PRIORITY FIELDS OF ACTION FOR SCIENTIFIC MUSEUMS

Here then are the titles of the goals of the 2030 Agenda, those dealing with issues and actions with clear connections with scientific museums. For each of them, I have extracted key words and concepts that are definitely priorities for us, all absolutely in line with our activities.

- **Life on Land (Goal 15).** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. Key words: biodiversity, conservation, terrestrial ecosystems, ecosystemic services, forests, afforestation, deforestation, wetlands, mountains, deserts and desertification, drought and floods, habitat loss, extinction, threatened species, genetic resources, protected fauna e flora, illegal traffic of animal e vegetal species, invasive species, biodiversity value, sustainably use of biodiversity and ecosystems
- **Life Below Water (Goal 14).** Conserve and sustainably use the oceans, seas and marine resources for sustainable development. Key words: conservation, marine pollution, marine biodiversity, oceanography, ecosystems, productivity, ocean acidification, harvesting and overfishing, illegal fishing, aquaculture, fish stocks, marine resources, costs, tourism, sustainable use of the sea.



Fig. 1. UN Agenda 2030 goals.

- **Climate Action (Goal 13).** Take urgent action to combat climate change and its impacts. Key words: climate change, resilience, natural disasters, scientific research, education and awareness climate change mitigation, adaptation, impact reduction, early warning
- **Good Health and Well-Being (Goal 3).** Ensure healthy lives and promote wellbeing for all at all ages. Key words: mortality, epidemics, parasites, microorganisms, virus, AIDS, tuberculosis, malaria, tropical diseases, hepatitis, infectious diseases, mental health, drug abuse, alcohol, tobacco, traffic injuries, family planning, sexual and reproductive health care, medicines and vaccines, illnesses, deaths, hazardous chemicals, air, water and soil pollution and contamination, public health.
- **Responsible Consumption and Production (Goal 12).** Ensure sustainable consumption and production patterns. Key words: management and use of natural resources, food waste, recycling, reuse, consumption and production, pollution, consumption impact on nature, sustainable tourism, fossil fuel, environmental impact.
- **Clean Water and Sanitation (Goal 6).** Ensure availability and sustainable management of water and sanitation for all. Key words: access to drinking water, sanitation and hygiene, water quality, pollution, water scarcity, rivers, lakes, aquifers, wetlands, water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse, water management.
- **Affordable and Clean Energy (Goal 7).** Ensure access to affordable, reliable, sustainable and modern energy for all. Key words: research, energy services, renewable energy, energy efficiency, clean energy, fossil fuel technology.
- **Zero Hunger (Goal 2).** End hunger, achieve food security and improved nutrition and promote sustainable agriculture. Key words: nutrition, food, poverty, malnutrition, health, agriculture, productivity, crop production, biodiversity, microorganisms, insects, fungi, bacteria, virus, farmers, pastoralists, fishers, fishery, parasites, resilience, genetic bank, biological control, climate change, extreme weather, drought, flooding and other disasters.
- **Sustainable Cities and Communities (Goal 11).** Make cities and human settlements inclusive, safe, resilient and sustainable. Key words: pollution, transport systems, human settlements, housing, health, urbanization, participation, integration, inclusion, multiculturalism, disasters, environmental impact, air quality, waste management, water related disasters, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, cultural and natural heritage. And, at last but not least,
- **Quality Education (Goal 4).** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Key words: here there is certainly no need for key words. There is everything.

These are 10 strong points on which scientific museums already do quite a bit and can do more and better, 10 strong points to be at the forefront for society. If we figure out how to get involved and do our part for all these goals, we will be able to perform a truly epochal action and strongly contribute to the realization of the remaining, more general goals:

- to end poverty in all its forms everywhere in the world (Goal 1),
- to reduce inequalities within and among nations (Goal 10),
- to achieve gender equality (Goal 5),
- to promote sustained, inclusive and sustainable economic growth work, full and productive employment and decent work for all (Goal 8),
- to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (Goal 9),
- to promote peaceful and inclusive societies, provide access to justice for all and build effective, accountable and inclusive institutions at all levels (Goal 16),
- and, finally, strengthen the means of implementation and revitalize the global partnership
- for sustainable development (Goal 17).

## ARE THESE JUST DREAMS?

No, absolutely not. Let us work concretely and open ourselves up to these ten targets, ten fields of activity which are already ours and which today become indispensable for all our scientific museums interacting and working in synergy with and for society each and every day. All this to plan and realize the new road map of the Italian Scientific Museum System. A radical transformation that will likely make it necessary to revisit the statutory contents of the glorious Italian Association of Scientific Museums, with the search for a new overall vision, a more structured leadership and a solid operation.

## REFERENCES

- ANDREONE F., BARTOLOZZI L., BOANO G., BOERO F., BOLOGNA M., BON M. et al., 2014. Italian natural history museums on the verge of collapse. *ZooKeys*, 456: 139-146.
- ANDREONE F., BARTOLOZZI L., BOANO G., BOERO F., BOLOGNA M., BON M. et al., 2015. Natural history: save Italy's museums. *Nature*, 515: 271.
- CARRUCCIO A., 1884. Prolusione al corso di Zoologia letta il dì 26 novembre 1883. *Lo Spallanzani*, (2) 13(1-2): 1-19.
- RUFFO S., 1973. Perché l'ANMS. *Bollettino Ufficiale dell'ANMS*, 1(1).
- UNITED NATION, 2015. *Transforming our world : the 2030 Agenda for Sustainable Development*. General Assembly, 21 October 2015, A/RES/70/1 (<https://www.refworld.org/docid/57b6e3e44.html>).