SISSA – International School for Advanced Studies Journal of Science Communication
ISSN 1824 – 2049 http://jcom.sissa.it/

Focus

Birth of a science centre. Italian phenomenology

Paola Rodari

In May 2004 the Balì Museum, Planetarium and interactive science museum, was opened to the public in Italy: 35 hands-on exhibits designed according to the interactive tradition of the Exploratorium in San Francisco, an astronomic observatory for educational activities, a Planetarium with 70 places. With a total investment of about three million euros, about two thirds of which were spent on restructuring the splendid eighteenth-century villa in which it is housed, the undertaking may be considered a small one in comparison with other European science centres. Three million euros: perhaps enough to cover the cost of only the splendid circular access ramp to the brand-new Cosmocaixa in Barcelona, an investment of one hundred million euros. But the interesting aspect of the story of the Balì Museum (but also of other Italian stories, as we shall see) lies in the fact that this lively and advanced science centre stands in the bucolic region of the Marches, next to a small town of only 800 inhabitants (Saltara, in the Province of Pesaro and Urbino), in a municipal territory that has a total of 5000.
Whereas in Italy the projects for science centres comparable with the Catalan one, for example projects for Rome and Turin, never get off the ground, smaller ones are opening in small and medium-sized towns: why is this? And what does the unusual location of the centres entail for science communication in Italy? This Focus does not claim to tell the whole truth about Italian interactive museums, but it does offer some phenomenological cues to open a debate on the cultural, economic and political premises that favour their lives.

Science centres as forerunners

From the pioneering interactive experiences of the Deutsches Museum in Munich (1925), the Children's Gallery at the Science Museum in London (1931), and the Palais de la Découverte in Paris (1937), to the more mature and paradigmatic experiences of the Exploratorium in San Francisco (1969) or of the Cité des Sciences et de l'Industrie in Paris (1985), science centres (like the great national museums of science and technology before them) tend to be created in places that play a central role in the development strategy of a nation, because they carry out a mission as forerunners of culture. Banners of progress and innovation, hinge points of scientific and technological acculturation, science centres are also – starting from the strongly democratic reflections of Jean Perrin, in pre-war France, and of Frank Oppenheimer in the United States after the bomb – the driving forces for the formation of a new class of scientifically aware citizens, guaranteeing their participation in progress.

"If people feel they understand the world around them, or, probably, even if they have the conviction that they could understand it if they wanted to, then and only then are they also able to feel that they can make a difference through their decisions and activities. Without this connection people usually live with the sense of being eternally pushed around by alien events and forces. I believe that the Exploratorium does help create or renew this conviction for very many people and that, especially for young people, it builds a desire to understand. (....) The conveying to our visitors a sense that they can understand the things that are going on around them may be one of the more important things we do. This sense can then so readily extend to all aspects of people's lives. The intellectual apathy that I am told now exists among young people may have come about because these youths have never been convincingly taught the wonder of understanding or learned that when one does understand, then each person, as an individual or as a member of a group, can feel that they can make a difference."[1]

On account of their nature as cultural forerunners, of the effects which are hoped to be profound and long-lasting and, last but not least, of the vast amount of investments necessary, science centres (whether they began as such, or were the results of the "interactivisation" of traditional museums, such as the Science Museum and the Natural History Museum in London) have grown, at least at the start of their history, if not in the capitals of countries and in big cities, in the regional capitals or in highly industrialised cities.

The Italian pioneers

Where in our country did the seed of hands-on science take root, the idea of the museum as a laboratory for everyone?[2]

In 1985 the physicist Paolo Budinich, who had already contributed to the creation of the international scientific pole at Trieste (starting with the foundation of the UNESCO International Centre for Theoretical Physics in 1964)[3], taking advantage of the opportunity offered by a series of events to promote the city in Paris, laid the basis for the first Italian science centre, the "Immaginario Scientifico" which, after having been a temporary exhibition in the French capital, became a permanent fixture in Trieste in 1987.

Thanks to his far-sightedness, his travels abroad and his friendship with Richard Gregory, perceptologist and founder of the first British science centre independent of traditional museums, the Exploratory Science Centre in Bristol, Paolo Budinich enabled Italy to be the first country in Europe, after Great Britain, to assimilate the cultural necessity of science centres.

In the same years another physicist, Vittorio Silvestrini, was at work to create the Città della Scienza in Naples, an undertaking with great scope and originality, conceived not only as a grand interactive museum, but also as a centre for promoting new local development (because it is located at Bagnoli, on the remains of what was once the great Neapolitan industrial district) and a different model of development for the whole nation. The City of Science, anticipated by the Remote Future temporary exhibitions (first edition 1987), inaugurated its first section in 1996, and since then it has been operating as a large museum, but also as an incubator for firms and a continuous training centre.

Also in the late Eighties, the Minister for the University and Scientific Research, Antonio Ruberti, promoted a law for the diffusion of scientific culture, law 113/1991, which until the present day is the only law which, albeit with limited finances, supports temporary and permanent events of scientific communication. Ruberti not only supported the creation of new structures but, through his law and the launch of the Science Culture Week, he promoted and supported a host of activities which spread throughout the country, from micro-exhibitions promoted by schools to large conventions in the historic seats of Italian culture, to informal teaching workshops.[4]

However, this first period of growth of new kinds of museums was followed by one of stagnation, or rather of a different growth, at times laboured, at times minimalist. Alongside the enthusiasm of more or less short-lived activities (though certainly not as regards their cultural significance), only one fair-sized permanent undertaking was opened, the "Città dei bambini" in Genoa (1997), an interactive museum created on one hand under the guidance of the Cité des Sciences in Paris and, on the other, as a cultural initiative of a group of university professors of the National Institute for the Physics of Matter. This project managed to see the light thanks to a fortunate circumstance: the International Exhibition "Christopher Columbus: the ship and the sea" was held in Genoa in 1992, with the result that the district of the Old Port was redesigned by the architect Renzo Piano as a highly qualified area from the point of view of both town planning and culture.

In the meantime the Immaginario Scientifico in Trieste offered a rich range of activities for schools and for the general public, but it did not succeed in becoming the great science centre that Paolo Budinich had dreamed of. Only the Città della Scienza in Naples reached the hoped-for dimensions, making it a reference centre on both a national and European scale. The dimensions, the originality of the project and the value of the collaborations and actions carried out soon brought the science centre to the attention of the international community, and the Città della Scienza became a member of the management committee of the ECSITE (European Collaborative for Science and Technology Exhibitions), the largest and most vital European association of science centres and scientific exhibitions.

Apart from that, in Italy, in the last twenty years only small centres have appeared, in small and medium-size towns. Why?

A stunted, or perhaps only a different growth

As regards the success of the Neapolitan project, we refer to the recent book by Pietro Greco[5], which reconstructs its meaning and history. Naples is perhaps an exceptional case, in which the far-sightedness, the clear intentions and the abilities of the promoters (especially Silvestrini) succeeded in stirring up the political sphere at the highest levels, and were thus able to collect all the necessary resources.

Instead, in other large Italian cities, this combination of intentions and financing did not come about. Faced with the appearance of projects for science centres with the ambition of growing to European dimensions, instead of coming together the different forces in the towns were divided, funds seemed unreachable; the result was paralysis.

An emblematic example is Turin, where the Region and the Province skilfully and enthusiastically promoted various projects, none of which succeeded in achieving the critical dimension and in becoming reality. Even in Rome, projects never got beyond the stage of the feasibility study. Sometimes there is talk of a project in Milan for the Bicocca area, sometimes of a project in Rome for the Tor Vergata area (respectively the location of the cities' second universities), but they remain only ideas.

Is it only because of the amount of finances necessary? Or is it because still not everyone believes in the usefulness of science centres?[6]

Certainly the competition between internal lobbies in the cities prevents the creation of a single front, necessary to realise projects with these dimensions; in other European countries, on the other hand, local pride creates fronts extended to regional, or even national, level, so that even highly demanding undertakings become possible. In fact, if we look at Spain, which started the race to create science centres in the Eighties, a bit later than Italy, instead of being an obstacle, competition among the regions and the big cities has been a catalyst, producing positive reactions in politicians, cultural operators and sponsors. Strong local alliances, depending on the growth and prestige of the territory involved and competing with the neighbouring ones, have led to the creation of about ten centres, including two colossal ones: the Ciutat de les Arts i de les Ciencies in Valencia (http://www.cac.es) a gigantic complex including a science museum, a Planetarium, a water park and a house of the arts and music) and, a few hundred kilometres away, the Cosmocaixa in Barcelona (www.lacaixa.es/cosmocaixa/), totally financed by the "Caixa", that is the Foundation that combines the two main Catalan banks.

In a small town

At Saltara the idea of a science centre was formed around 1997. The then Mayor, Claudio Uguccioni, was keen on astronomy. A splendid eighteenth-century villa was lying abandoned in the territory of the town; there were no furnishings or collections of any kind inside, but its structure and surroundings were splendid. Its eighteenth-century appearance hides a history rooted in the fourteenth century and, in the sixteenth century, the noble Negusanti family used to observe the stars from astronomical towers that have now disappeared.

The need to give a purpose, rooted in history, to a fine building and the personal hobby of the Mayor were joined by the awareness of the role that a scientific museum can play, both in promoting the cultural development of a territory and in attracting qualified tourism, which in the case of the Balì was potentially enormous, due to its position close to a densely populated part of the Adriatic coast. The project for an interactive museum in the Villa del Balì was realised in less than a decade. The necessary funds were obtained: the Region of the Marches acted as intermediary for European structural funds (Objective 2, sub-objective 5b, channels for tourism and culture), while the Fondazione Cassa di Risparmio (Savings Bank) of Fano, the Province of Fano and the Municipality of Saltara itself all participated. People with the necessary skills in planning and science communication were recruited thanks to the involvement of the Interdepartmental Centre for Teaching Research of the University of Trieste. The Balì Museum was opened in May 2004 with a respectable area of 2500 square metres and,

in just a year, it had had 40,000 visitors, nearly ten times the inhabitants of the town (http://www.museodelbali.org).

Why at Saltara and not in Rome? Claudio Uguccioni, now chairman of the Balì Museum Foundation, suggests an explanation. In big cities the funds for culture are already completely absorbed by the large institutions traditionally present in the territory (theatres and opera houses, the large history and art museums, archaeological areas, etc.). In a country like Italy, with such a rich historic and cultural heritage, the funds for culture are never really sufficient and, in big cities, new projects often come up against historic necessities, with needs always at the limit of survival.

In small towns, on the other hand, there are growth margins for funds intended for culture, and new projects arouse the interest of potential sponsors and supporters, because they offer occasions to be seen and to promote their own activities, and also because they indicate new opportunities for the development and conversion of areas that have been left behind or, vice versa, which are just emerging.

A fundamental contribution to the venture at Saltara came from a bank foundation and was decisive also for the continuity of the life of the centre; this is not an isolated case in Italy, quite the opposite. Since the allocation of funds to scientific communication ventures is relatively new and less rooted in the Country, competing with the more traditional activities of safeguarding and promoting the historic, archaeological and artistic heritage, the support provided by the banks at this time is a condition *sine qua non* for most of the promotion of science culture in Italy.

And so we can begin to see some of the ingredients that allowed the birth of interactive museums in small Italian towns: the greater ease of combining different political viewpoints, less competition with large cultural undertakings, the availability of banks and other sponsors.

Leonardo Alfonsi (promoter and organiser of the Festival of Science in Perugia, whom we shall meet later) adds another: he says that, in small and medium-size towns, the contact between the person who has an idea and the political and administrative counterpart in the local authorities is easier, more direct, and does not require the intermediation of lobbies or other institutions. In this way the ideas grow more quickly, people's intentions are clearer, the processes are simpler.

Another, last ingredient is perhaps less evident, but we shall meet it again: the presence of a fine building, such as the Villa del Balì, and the need to imagine a suitable cultural project.

Destination science

In fact we encounter the importance of a place to be "saved" in many of the stories linked with the birth of new Italian interactive centres.

At San Gemini, in Umbria, the Geolab was created in 1999, realised by Paco Lanciano, a physician and scientific journalist who has produced a great many temporary and permanent exhibitions in Italy. A church had been restored by the Municipality; a prestigious container, but it was empty: what could it be used for? Today it hosts an interactive exhibition concerning the hydrogeological aspects of the area, also opening a general window on the science of the earth.

Also in the Province of Terni, the Museo Laboratorio dell'Appennino Umbro opened in 2001, bringing science to the sixteenth-century fortress of Polino.

At Pietraroja (in Campania, in the Province of Benevento), a building of 2000 square metres was erected which was to have been used as a centre for the elderly. The solution did not seem convincing, while in the same area there was Ciro, the fossil of a *Scipionyx samniticus*, dating back to 113 million years ago, which had the great scientific merit of revealing the structure of the internal organs of the dinosaur. Once again it was Paco Lanciano who completed the project of a Paleolab, an interactive museum which opened in 2005 (http://www.fotonotizie.com/paleolab/).

Again in Benevento, the Province held a competition for the creation of an interactive natural science museum in another historic building, soon to be opened; likewise, the Province of Ascoli Piceno is working on the construction of an interactive science centre in a splendid sixteenth-century building, formerly an old paper mill.

We apologise to our readers for the many other centres that are experiencing a similar history and which we are unable to mention for lack of space, however from this incomplete panorama it clearly appears that there is an important new phenomenon, even though it is made up of lots of little stories: the local administrations of small towns all over Italy are investing their resources, time and effort to acquire

additional resources, in a new, shared awareness that interactive science museums are an indispensable element for the development of their territory.

Why? What use are these centres, in their opinion?

The first answer that all administrators give is that these centres support the schools, which are notorious in Italy for their delays and serious shortcomings in matters of scientific education, especially when understood in the modern sense, as the acquisition of reasoning capacities and experimental abilities-

Secondly, the success of the festival of science and of temporary exhibitions (the latter hosted above all in large towns) has spread and strengthened the idea that, in the sector of hands-on science, fun and cultural growth go hand in hand: an interactive museum is at the same time a tourist attraction and a permanent education workshop at everyone's disposal.

Instead, few administrators yet speak of the possible role that these structures could play, as mentioned in the quotation from Oppenheimer with which we opened, in offering spaces for the discussion of the topical themes of sustainable progress, from environmental themes to health and biotechnologies. The idea of the museum as an "Agorà", of the museum as a theatre for the participation and construction of a scientific body of citizens, is still the prerogative of big centres, and it has hardly put in an appearance in Italy, coming from the experiences of the large science centres in Europe (with the exception of the Città della Scienza which participated, as a European science centre, in the birth of this new communication dimension).[7].

A museum for schools, a museum for cultural tourism. This is the context in which administrations see the possibility of saving more or less important scientific collections, either in their own possession or belonging to private citizens, shifting them from dusty cases where no one ever sees them to structures that are more alive, more widely publicised.

The scientists' role

This is the case of the Museum of Planetary Science, opened at Prato, in Tuscany, in 2005: an important collection of minerals (acquired from a private collector) and of meteorites (belonging to the Tuscan Geophysical Institute) has found a home in a modern exhibition area. The new museum is run by the Fondazione Prato Ricerche (which has absorbed the Institute), which manages the territory's seismic network and is active in the study of meteorites and of fine-dust pollution. The structure is owned by the Province, which is the main financer. The scientific promoter was Giovanni Pratesi, researcher and President of the Natural History Museum in Florence.

After having sung the praises of the local administrations, when they succeed in finding the opportunities for producing innovative projects amidst the jungle of notices and laws, it is now time to stress the role of the scientists, which in most cases has proved to be decisive in the birth of Italian science centres. Certainly thanks to their greater awareness of the strength of scientific culture, perhaps also because they are used to working with countries, such as the United States or Great Britain, where the experience of science centres is so widespread, many Italian researchers have made a fundamental contribution to sowing the seeds of the public enjoyment of science.

Like Paolo Budinich, Vittorio Silvestrini is a physicist. And another physicist is Roberto Battiston, who has promoted temporary interactive exhibitions in Perugia (realised in collaboration with Vittorio Zanetti[8], physicist, and Pietro Cerreta, physicist), an experience which converged in an independent project for an interactive museum of acoustics (involving Andrea Frova, physicist), and finally resulted in the POST – Perugia Officina della Scienza e della Tecnica, which opened in December 2003 thanks also to the contribution made by the already mentioned Leonardo Alfonsi, physicist to the project.

Pietro Cerreta, who teaches physics in a secondary school, was also one of the principal means of diffusion in Italy of the San Francisco experience[9], and, after twenty years' experience in producing itinerant hands-on exhibitions in close collaboration with the world of the school, in 2005 he inaugurated the science centre at Calitri, in the Province of Avellino (http://www.scienzaviva.it/).

The astrophysicist Attilio Ferrari is the leader of the project "Apriticielo", a Planetarium and Museum of astronomy and space physics, which will open to the public in autumn 2006 in a new building next to the domes of the Astronomic Observatory in Turin (http://www.planetarioditorino.it/). Another astrophysicist is Franco Pacini, who is working on the realisation of a Star Tower, a Planetarium and

science centre, for the moment still on the drawing board, to be housed in a nineteenth-century tower at the Observatory of Arcetri, in the hills overlooking Florence.

From the embryo of an idea dating back to 1987, Apriticielo aims to be a museum created by scientists and run by scientists. These are the features that characterise this project, in the words of Ferrari himself:

- "A project promoted and developed by scientists actively engaged in research, in collaboration with experts in science communication;
- which makes possible the experience of science next to a scientific institution, with the aim of stimulating curiosity in science;
- the project will be owned and run by a scientific institution, while technical and financial support will be provided by the financing bodies;
- the shows in the planetarium and the animations will be developed and presented by post-graduate research fellows, trained by experts in science communication, who may also continue their research activity at the Astronomic Observatory."[10]

According to Attilio Ferrari, in Italy, despite the long years that have passed since the educational reform carried out by Giovanni Gentile, which relegated science to the status of a subject of poor intellectual value, scientific culture is still seen by most people as a poor relation of culture. If grand projects do not succeed in getting off the ground, they say, it is because the finances allotted to the diffusion of scientific culture are still not comparable in size to those allotted to other cultural enterprises. There is still a lot to be done before politicians and administrators give the right value, also in terms of the amounts of investments, to research, communication and scientific education.

Open problems

Apriticielo has all the cards to be fully included in that international cultural movement that goes by the name Public Understanding of Current Research [11]. The idea of science communication as a transfer from someone who knows to someone who does not know (an idea that pervaded the experience of the Public Understanding of Science) is being replaced by more and more complex models of science communication. Those who operate in museums and science centres are paying more attention to the search for methods that are not "top-down", but which create a dialogue of communication, whether it is a question of planning events and workshops or of setting up new exhibitions. At the same time they are looking for a way of proposing to the public not only established, standard science (as occurs in hands-on museums of the traditional type, where, for example, phenomena with an optic or mechanical base are shown, etc.), but also science in the making, the research that is being done today in laboratories all over the world.

This means on the one hand showing science in its methods of production rather than in its final results, and on the other presenting also its most controversial themes, the most uncertain results that are also being discussed in the scientific community. As a guarantee of the vitality of the museum and the quality of its contents, the nearness to research centres is a decisive factor from the point of view of the Public Understanding of Current Research.

The fragmentary and minimalist development of many Italian science centres, while on the one hand being the sign of a profound cultural change, with a potential widespread geographic impact, on the other hand may give rise to situations even quite far from research centres, with the risk of their gradual cultural fading and difficulty of renewal in the future.

A possible solution, indeed perhaps the only possible one, lies in the ability to create operative networks (of exchange, training, co-production…) between local bodies, museum structures, research centres, both within the territory itself and at national level, so that even the smallest structures can benefit from the cultural riches of a country in which scientific research is nevertheless decidedly present and of good quality, and to be supported by large interactive or historic-scientific museum centres.

The second risk of this scattered growth of Italian interactive museums may be summed up in the metaphor of the "cathedral in the desert". As her diploma work for a Master's degree in Science Communication at the SISSA in Trieste[12] Daniela Cipolloni has investigated the way the Balì Museum is perceived by the inhabitants of the Municipality of Saltara where it is located. Though proud of their science centre, so beautiful and original and visited by many outsiders, the inhabitants of the town still

do not feel that the museum, like scientific culture in general, belongs to them too. They seem to say, "Yes, it's very fine, but it's not for us. What do we gain from it?"

Apart from the massive presence of schools in the territory (an objective easily achieved by all Italian science centres) and the presence of tourists, these centres risk not succeeding in forming a real relationship with their own fellow-citizens, especially the adults.

If in a large city like Paris, invaded by tourists, many of whom with sophisticated tastes in culture, one may perhaps disregard the many citizens who remain extraneous to the capital's most advanced cultural proposals and, vice versa, the undertaking of involving the whole city is certainly a very difficult one, small towns may try more easily, following a stronger social need, to involve all the local residents in their proposals. Indeed, if this were not to happen, the greatest potential of this unusual flourishing of interactive centres would be lost: their distribution throughout the country.

The last problem we want to discuss (though we know we have omitted many others, including some important ones) concerns the future of these structures.

As we have seen, somehow or other, in many parts of Italy, the means have been found for creating small and not so small science centres, mostly achieved with completely local resources, within the respective regions. The already mentioned Ruberti law, now updated with the 6/2000 version, is no longer sufficient, either to support the host of ventures for valorising scientific culture that are organised every year in Italy, or to contribute to the expenses for the routine administration of all these structures that already exist or that are still to appear.

The precious Italian historic scientific collections, which we have not considered in this discussion, would at the same time require attention, also in terms of funds, since those they do receive are insufficient for needs, even just to preserve them.

The danger is of finding oneself in situation that is in some aspects similar to the one in Great Britain, where National Lottery funds have allowed the formation and growth of a large number of structures, many of which are now in serious financial difficulty.

Neither can one expect, in Italy or in the rest of the world, that science centres (or museums in general) should support themselves like private profit companies: the costs of educational research and of the projects for including and dialoguing with the townspeople necessarily produce a balance that is always in the red.

Once again it is Claudio Uguccioni who puts forward an unassuming proposal. A law of 1999, promoted by the then Minister, Walter Veltroni, granted important tax facilitations to amateur sports societies, recognising their value with respect to education and social integration. Why not do the same for cultural associations and foundations, most of which are formed by local bodies and public institutions, which have been or will be created to run Italian science museums?

Translated by Quickline

Notes and references

[1] *The Exploratorium*, Frank Oppenheimer 1912-1985, Special issue. March 1985

[2] In Italy there was (and still is) a very rich historic scientific heritage, superior, as in the case of the architectural and artistic heritage, to that of most other countries. This heritage is embodied in a great many collections scattered all over the country and in a few great institutions, first and foremost the "Leonardo da Vinci" National Museum of Science and Technology in Milan (http://www.museoscienza.org) and the Institute and Museum of History of Science in Florence (http://www.imss.fi.it). We shall omit this national treasure and the affairs linked with it, not because they are of marginal importance, but only to enable us to concentrate on the theme of this focus. Concerning Italy's scientific museum heritage, see for example: E. Reale, *I musei scientifici in Italia*, Franco Angeli, Milan 2002; M. Bozzo, *I luoghi della scienza. Guida ai musei e alle raccolte scientifiche in Italia*, Di Rienzo Editore 2005.

[3] Various authors, *From a vision to a system, International Foundation Trieste for the Progress and the Freedom of Sciences*, Trieste 1996.

[4] Another inevitable flaw of this article is that it disregards the original and widespread action, as promoters of interactive (but only temporary) exhibitions, of research institutes or trade associations such as the National Institute of Nuclear Physics, the National Institute of Physics of Matter, the Italian Physics Society, the Italian Astronomy Society, the Italian Mathematics Union, the Italian Chemistry Society, the Association for Teaching Physics. All these bodies have made an enormous contribution to bring science into the centre of Italian cultural life.

[5] P. Greco, *La Città della scienza. Storia di un sogno a Bagnoli*, Bollati Boringhieri 2006.

[6] At the moment, only one grand Italian project seems sure to arrive at the finishing line: that is the MUSE – the Science Museum in Trento, with an architectural design by Renzo Piano, while the feasibility plan and cultural project are already defined. This too is a case with exceptional features; once again the far-sightedness and capabilities of the director Michele Lanzinger and his collaborators have combined with the favourable economic conditions of the Autonomous Province of Trento. In the background, an important experience in teaching research at the University Institute of Physics, in the person of Vittorio Zanetti, whom we shall have occasion to mention again.

[7] On this point see: J. Simon and J. Durant (eds.), *Public Participation in Science*, Science Museum, London, 1995; and, by Italian authors: L. Amodio, A. Buffardi and L. Savonardo, *La cultura Interattiva*, Oxiana edizioni, 2005; P. Rodari, *"Il visitatore al potere. Il dibattito contemporaneo sul ruolo dei musei della scienza"*, In: La stella nova, Nico Pitrelli and Giancarlo Sturloni (eds.), proceedings of the Third Annual Meeting on Science Communication, Forlì 2-4 December 2004; Polimetrica 2005; P. Rodari, *"La missione culturale dei musei scientifici interattivi"*, in: I quaderni de le scienze dell'uomo, editoriale il Ponte, n. 6 November 2005.

[8] Vittorio Zanetti, a lecturer in physics at the University of Trento, was the first, in Italy, to work on the physics of toys, an amusing and unusual way of enabling people to discover even quite complicated phenomena, hidden by the childish appearance of springs, balancing puppets, and other toys everyone knows (http://www-toys.science.unitn.it/toys/it-html/intro.html).

[9] P. Cerreta (ed.) *Gli esperimenti dell'Exploratorium*, Zanichelli, 1996.

[10] A. Ferrari, *Il progetto Apriticielo*, verbal presentation at the ECSITE Annual Meeting, Barcelona 2004.

[11] D. Chittenden, G. Farmelo, B. Lewenstein (eds), *Creating connection*, Altamira Press, 2004.

[12] D. Cipolloni, *Fuori dal museo. Quale impatto del science centre Villa del Balì nella realtà locale di Saltara*, Jcom, in press.