

Multilevel sound maps in telematic sound cartography. Some input towards the definition of the academic statute of Soundscape Studies.

Since their inception soundscape studies have constituted a *multidisciplinary* field of study. This multidisciplinary, however, can be interpreted in (at least) two ways. The first derives from the simple fact of the most varied disciplines acquiring the dominion of environmental sound phenomena, whatever their nature, as a topic to be investigated, with disciplinary aims that remain internal to the discipline itself. An example of this type of approach and process can be represented by the physics-based studies of particles that, through the technology of a large marine telescope consisting of a cubic kilometre of cabled survey towers off the coast of Capo Passero in Sicily, investigates the nature of the neutrino by monitoring the acoustic impact that this particle provokes in its collision with an atom of a water molecule.¹ Another example could be a literary criticism study that analyzes the occurrences of terms of acoustic reference in a text by Dino Buzzati in order to demonstrate the importance of the hearing paradigm in the poetics of this author.² The study of acoustic phenomena and references is instrumental in the study of the sub-atomic reality in one case, and for the definition of literary poetics in the other, while the same phenomena are not considered interesting *per se* beyond these specific points of view.

The second process, the one that leads from *multidisciplinary* to *interdisciplinarity* is decidedly more ambitious and is still far from having achieved a methodological definition and stability. It could be considered as an attempt to build a field of study that has as its object of study the sound of the environment *tout court*, and which makes use of *one* widely accepted method that accepts within itself contributions that come from various disciplines. This, parenthetically, was the Schaferian project for acoustic design *in nuce*:

I've often likened the soundscape to a huge unshaped symphony which is taking place around us constantly, and have asked the question: do we want to become its composers, deliberately forming and regulating it? This may sound as if the soundscape is a matter exclusively for musicians, it is certainly not for them alone; but neither is it a matter for acoustical engineers alone, nor is just a matter for sociologists and psychologists. We already know a lot about the physics of sound, and we know a lot about human reaction to sound, and composers know how to create exciting and beautiful collections of sounds. Now these various skills have to be put together. The Vancouver Soundscape, the book and these records, is as far as we know, the first comprehensive treatment of the acoustic environment which has attempted to concentrate on the middle ground where these various disciplines join. Our purpose has been to lay some of the foundations of a new science and art form which we have called "acoustic design". A city planner design streets, an architect design buildings, a gardener designs parks and gardens. Why shouldn't we design the soundscape?³

¹ G. Riccobene for the NEMO Collaboration, "Long-term measurements of acoustic background noise in very deep sea", Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 604, Issue 1-2, Supplement 1, June 2009, pp. 149-157, doi:10.1016/j.nima.2009.03.195

² F. Longhini e R. Pompili Suoni, rumori e silenzi nel romanzo di Dino Buzzati Il deserto dei tartari in AA.VV edited by Alessandro Peretti and Paolo Simonetti Atti del XXIV convegno nazionale dell'associazione italiana di acustica, AIA- Associazione Italiana di Acustica, Provincia Autonoma di Trento, 1996

³ R.M.Schafer, *On Acoustic Design*, 1971, the Vancouver Soundscape, 1973 Cambridge Streets Records, track 10

The following image taken from *Soundscape Journal* illustrates “process 1”, the multidisciplinary approach.⁴

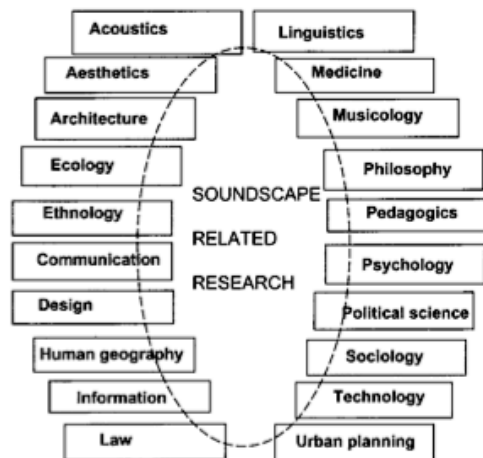


fig.1
H.Karlsson, 2000 (see note 4)

If, nevertheless, we want to propose a synthesis of the approaches to be found in current research on soundscapes, we can trace the existing literature to four main categories, whose relations are synthesized in Figure 2:

A) research relating to the field of environmental physics interested in the typological definition and the control of sound sources present in the environment; these could be defined as *sound object oriented* studies, not in the Schaferian sense of sound reality independent of the object and the process that generates it, but in the sense of the object as an acoustic phenomenon and its manifestations in the environment, with reference to the human subject.

B) research aimed at understanding the modalities in which environmental sound is produced, used and lived by living beings from a physiological, social and cultural point of view, research in which biology, ethology, psychology, anthropology and sociology constitute the disciplinary knowledge of reference. Although the human species is the evident and prevalent subject and recipient of this type of research, the scientific approach, and more importantly ecological thought, does not underestimate the same interest for human and plant species and, at least in part, such studies are developed by bioacoustics. In general we can define this category as oriented towards *sound perception* as subject, towards the living being, human or non-human, be it an individual or a group.

C) research interested in proposing new contexts for acoustic of acoustic space, anthropic or natural, or true and proper new socio-acoustic spaces, acting through planning, restoration, correction or innovation operations; such research involves the fields of architecture, town-planning and ecology, just as much as acoustic and electronic engineering and they all share a project interest that tends, albeit with somewhat differing aims, to modify reality, as well as proposing an interpretative model for it; such research and applications are aimed at structuring the form, the contexts and the conditions of acoustic communication. This might be defined as *poietic research*, oriented towards the construction of the context (*poietic, context-oriented*).

D) research in the aesthetic-artistic field (pure or applied) aimed at proposing new content and suggestions on the theme of listening regarding the soundscape and acoustic ecology. This might be defined as *poietic research-applications* aimed towards content (*poietic, content-oriented*).

⁴ H.Karlsson, *The Acoustic Environment as a Public Domain*, *Soundscape Journal*, Volume 1, Number 2, Winter 2000, p.13

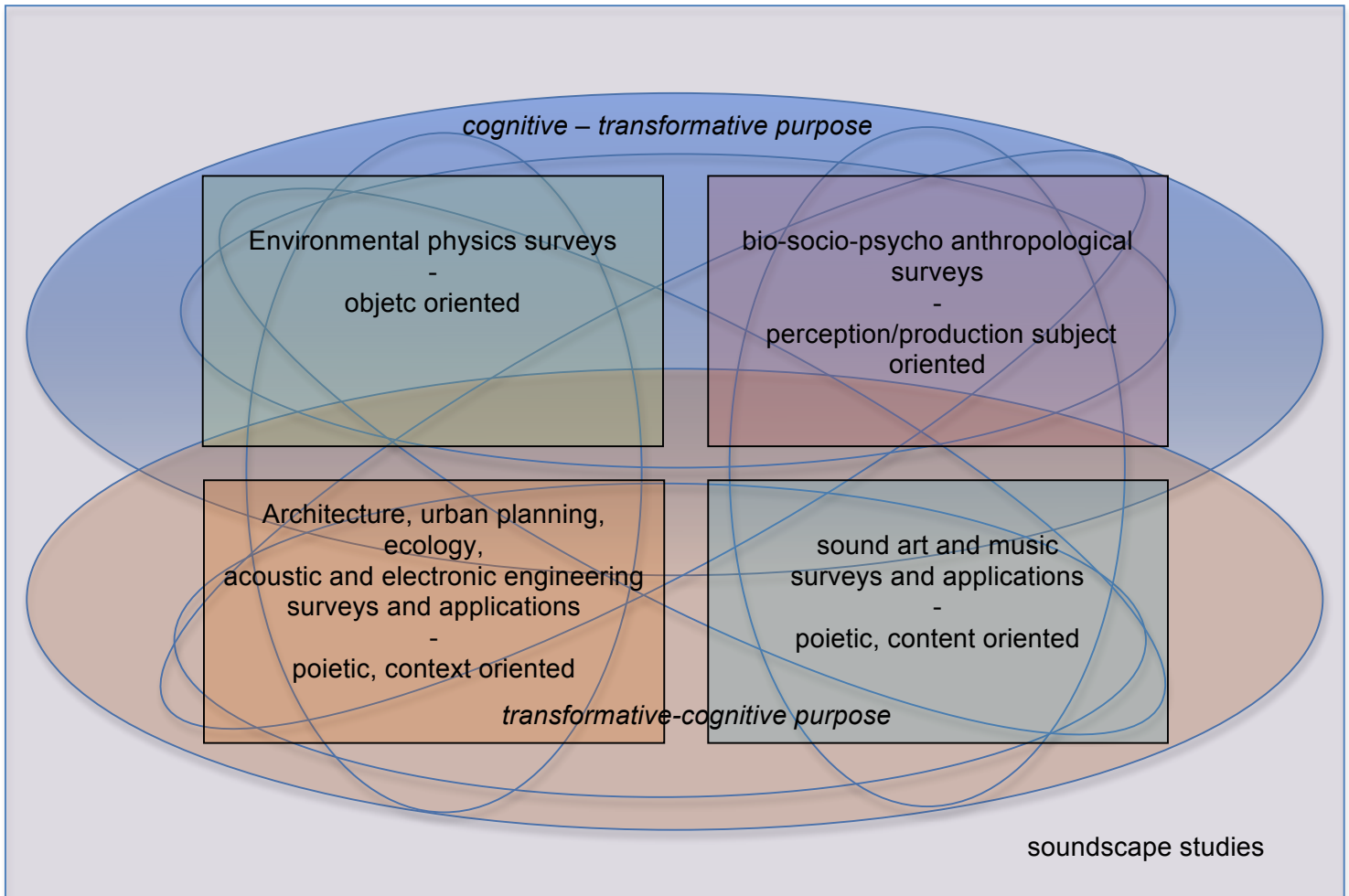


fig.2

Note how the sets of A and B share a *transformative-cognitive* end in that, according to a line of constructivist thought, there is no knowledge that does not transform reality, and it is through the cognitive act that for the observer reality becomes and is characterized for what it is.⁵ Sets C and D also share a *transformative-cognitive* end in that it is through transformation that reality is known.⁶ Furthermore, as can be seen, in each *poiesis* and *logos* that is considered, often they are both far from being hidden but are frequently more than manifest and alongside one another, as a declaration of the project or as a theoretical system of reference.

The differing attention and propensity towards the qualitative and quantitative given that is identifiable in this series of disciplinary applications does not seem only to distinguish and characterize the fields themselves, but also, often, it constructs a barrier that impedes a real interdisciplinarity, if not even the constitution of a soundscape studies' *own disciplinarity*.

As is known, to the sciences that are founded on calculus, on numerical control and on logical inference, the name "hard sciences" has been associated, while other sciences, that are based above all on analyses of the qualitative type as well as on logical inference the term "soft sciences" has been associated.

The features of scientificity linked to the principles of numerical control (measurability), to the reproducibility of the experiment, and to inferences of the logical-formal type, for a long time, and to a certain extent still today have conferred to the so called hard sciences (physical-mathematical) an aura of aristocratic superiority with regard to the "other" sciences, biological sciences for example, and even more so with regard to human sciences (soft sciences).

⁵ With regard to the multifarious and vast literature of the so-called constructivist thought, see for example, E. von Glasensferd *Introduzione al costruttivismo radicale* in (various authors) *La realtà inventata. Contributi al costruttivismo* edited by P.Watzlawick, Feltrinelli, Milan 1988, H.Maturana, F.J.Varela *Autopoiesi e Cognizione. La realizzazione del vivente*. Marsilio, Venezia 1985, F.Neresini, P.Vidali *Costruire realtà. Comunicare, pensare e convivere come sistemi*, Quattroventi, Urbino, 1988

⁶ See in this regard the constructivist position that is traced back to GiambattistaVico, according to whom, "Human truth is what man knows, constructing it with his actions and shaping it through them," in the interpretation of E. von Glasensferd cited in the previous note.

Nevertheless, the appearance of some problems to an extent uncomfortable and embarrassing from the epistemological point of view in the field of quantitative physics, relative physics and in formal logic, linked to the principles of recursivity and to the inclusion of the observer in the processes of scientific description and observation, have brought about a crisis in the principles of observation, of stability and of independence between the domains of the observed, of the observer and of observation, on which the conceptual edifice of classical epistemology was indeed based, in other words modern science's vision of the world.⁷ Contemporary epistemology has therefore shown how much the thematization of analogous problems and their relative solutions are a merit of philosophical disciplines such as hermeneutics and the philosophy of language,⁸ disciplines that have to a large extent dominated on the philosophical scene throughout the twentieth century, from its beginnings. What is important here is that such as they are, these disciplines exist outside of the confines of hard science.

Then, thanks to the emergence of the theory of argumentation, and to a certain extent to the unexpected return on the scene of philosophical debate of an interest for the rhetoric studies, the influence of rhetorical archetypes in the context of scientific reasoning has been brought to light together with the importance for inferential ends of arguments that are not strictly deductive, inductive, abductive, but are pertinent to the ethical and aesthetic domains of the observer.⁹ This change has contributed to what today is defined as "epistemological liberalization" in which the problem of the superiority and the hierarchy in the sciences is substituted by the problem of the agreement between various disciplines involved in the process of knowing the world.¹⁰ A famous aphorism of Heinz von Foerster, aimed at valorizing through the notion of complexity the heuristic efforts of soft sciences, states: "Hard sciences enjoy success because they deal with soft problems; soft sciences struggle to move forward because they deal with hard problems."¹¹

In the light of this "epistemological liberalization", the qualitative–quantitative dichotomy is no longer sufficient in marking the confines between "hard" and "soft" sciences and therefore the scientific status of the latter truly does not suffer from any supposed "methodological inferiority".

As for Soundscape Studies, from the end of the 1960s up to the end of the '70s we saw considerable impulse thanks to the work of M. Southworth¹² and, especially, R.M. Schafer,¹³ through which the theme of environmental sound and the existence of soundscapes was put forward with strength and originality, proposing some research methodology that was definitely to influence subsequent research; in the '80s and '90s there was a decisive turn with the Repertory of Sound Effects proposed by a multidisciplinary team at the CRESSON,¹⁴ which took care to redefine a descriptive vocabulary that was of the qualitative type and was useful both as support to the measuring approach and as a flexible interpretative instrument; subsequently, despite the fact that various studies in various parts of the world continued to produce interesting results, in general we can say that there was a sort of slowing down with regard to unificatory methodological proposals. Certainly a great quantity of studies was produced and many of them were of considerable merit. A very interesting example was proposed by Albert Mayr with his "quadrangular" model that hinged on the permutation of the top-down flow between the space, time, sound and actors elements.¹⁵ Nevertheless, under the interdisciplinary profile in soundscape studies we are still far from being able to make reference to a common paradigm, to a substantial

⁷ P. Vidali *La ragione osservativa. Per una teoria dell'autoosservazione sistemica*, in various authors *La ragione possibile*, edited by G. Barbieri, P. Vidali, Feltrinelli, Milan 1988

⁸ "The twentieth century has brought a strong theory into the field, the theory according to which it is not reality that is the object of our knowledge and our descriptions, but it is always the link between reality and language: the being that can be understood, is language. Thus Gadamer expresses himself exemplarily, demonstrating that we can only measure ourselves with a languagized reality (but then does this attribute make sense? What is a reality that is not languagized?)" P. Vidali *Misure della realtà Perché la realtà è descrivibile matematicamente?* (2001), <http://www.paolovidali.it/testi.htm> p.8

⁹ Cfr. various authors edited by A. Cattani, P. Cantù, I. Testa, P. Vidali, *La svolta argomentativa. 50 anni dopo Perelman e Toulmin*. Loffredo editore, Napoli 2009

¹⁰ "Once again it becomes understandable why the regularity of science fascinates and seduces our theory of knowledge: it is the mirror in which we see the generative nature of our intellect at work. It is the mirror in which we understand that language is our reality in and understandable form: the new problem then becomes another. Not why this language is so fertile or why natural language has not produced a science at the same level. The new problem is if, how and why different languages, as natural languages are different, arithmetic and quantitative physics are translatable. Even in the political, or moral sense, there is in any case a gain. The problem of an excellence becomes the problem of an agreement. P. Vidali, (2001) p11

¹¹ H. von Foerster, *Sistemi che osservano*, edited by M. Ceruti e U. Telfner, Astrolabio, Roma 1987, p. 207 (translated from Italian).

¹² Southworth M., "The Sonic Environment of Cities," in *Environment and Behaviour*, vol. 1, 1969, pp. 49--70

¹³ R.M. Schafer *The Soundscape. Our sonic environment and the tuning of the world*, Knopf ed., New York 1977

¹⁴ Cfr. various authors, edited by J.F. Augoyard H. Torgue, *Repertorio degli effetti sonori* Ricordi LIM, Milano 2004

¹⁵ A. Mayr, *Place(s) <-> Sound(s) <-> Time(s) <-> Actor(s)* manuscript and oral communication at the day of study dedicated to Sciences & Soundscape, Catania, Istituto Nazionale di Geologia e Vulcanologia, 5 December 2009 edited by SSRG onlus

and shared methodology that can be adopted in the most diverse cases by place, time and phenomenology, even although (not by chance) this is precisely the fulcrum towards which some coordinated actions of considerable weight and commitment are moving.¹⁶

At the same time we can also say that some particular intuitions contained in the research proposals of the World Soundscape Project have unfortunately not been pursued further.

An exemplary case is that of the pitch map proposed in the Five Village Soundscape.¹⁷

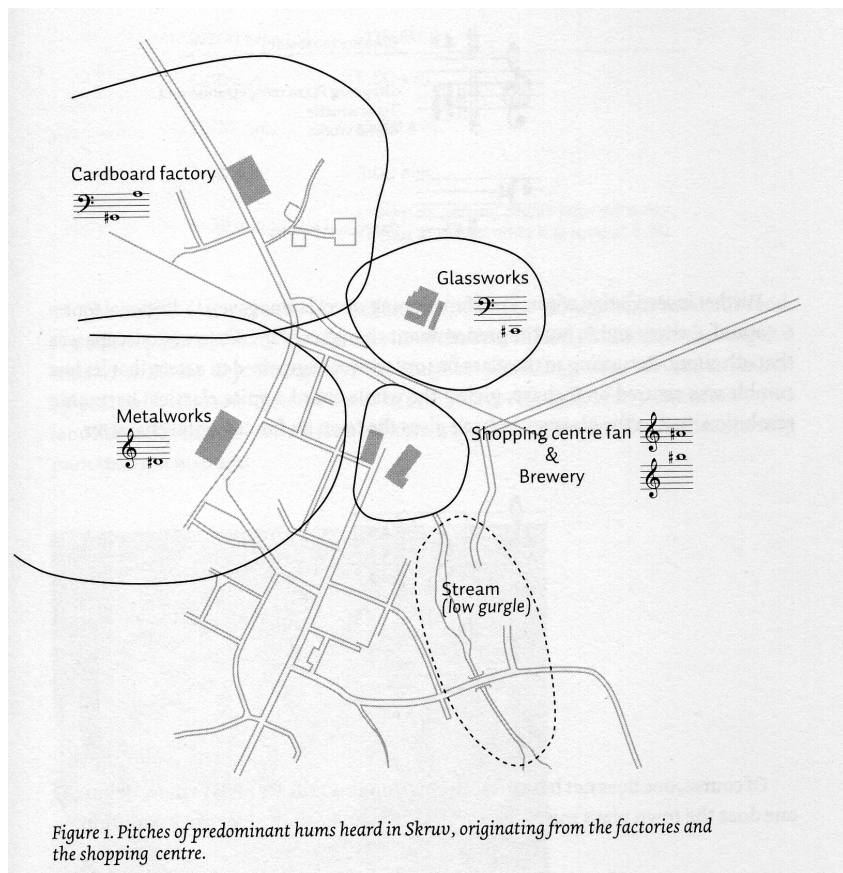


fig.3 (see note 17, p. 305)

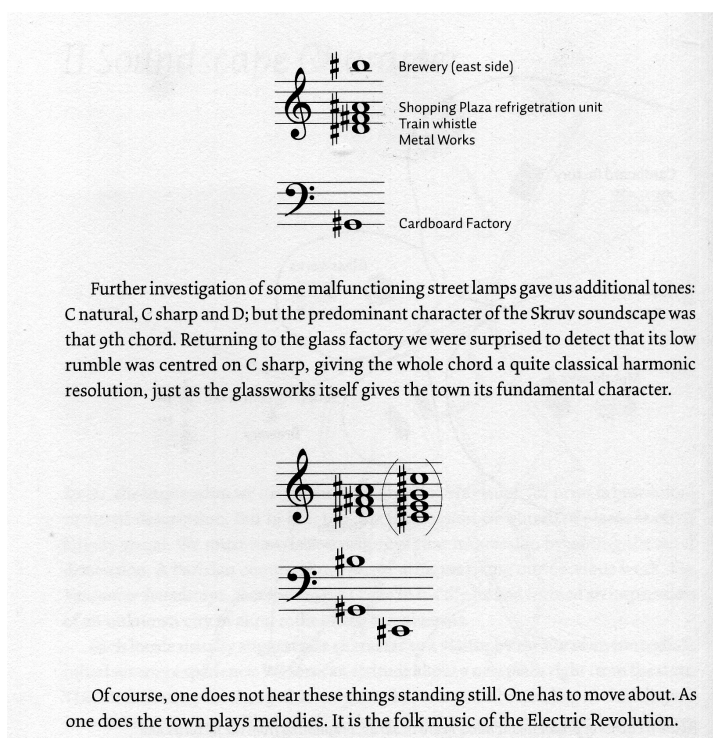


fig.4 (see note 17, p. 306)

¹⁶ COST-Action TD0804 Soundscape of European Cities and Landscapes project <http://www.soundscape-cost.org>

¹⁷ R.M. Schafer (edited by) Five Village Soundscape, first edition A.R.C. Publications, Vancouver 1977 second revised edition TAMK University of Applied Sciences, Tampere,

R.M. Schafer's intuition consisted of considering the emerging frequency in the so-called "keynote sounds" like the note of a potential chord built by the sum, in the listener's memory, of the various keynote sounds present in a particular area or settlement. Today, in light of some studies on time design, once again led by Albert Mayr,¹⁸ we can add, if we want to privilege the diachronic/melodic sense more than the vertical/harmonic sense, that such sounds might be listened to as the notes in a *cantus firmus* with particularly wide-ranging values, the concatenation of which is provided by the movement of the listener within the area considered. The next and decisive step proposed by Schafer is to consider the eventual harmonic function deriving from the bringing together of these chord-like sets (or the modal tensions deriving from these interval sequences). As is known various semantic aspects have been associated with the harmonic functions and scalar-interval sequences (tension-relaxation, darkness-brilliance, etc.) which contribute, together with the timbric, rhythmic aspects, etc. to constitute important aspects of the emotive atmosphere of a musical passage, so why not, *mutatis, mutandis*, to the acoustic atmosphere of a physical place? The example of pitch is particularly interesting because it constitutes the example of a case in which the analysis of the quantitative data (the determination of the dominant height in a complex sound signal, expressible in Hertz) determines, according to this interpretation, an effect on the qualitative plane (semantic interpretation of the vertical or horizontal concatenation of the heights). All this, please note, is represented in a map.

The sound map here and in other cases,¹⁸ is proposed as an interpretative spatial instrument, syn-optic and syn-aural. It allows us, through the illusion of reproduction, to see and to listen to *contemporaneously* that which in a territory is given to us as an experience which is purely diachronic.

An interesting aspect of the proliferation of studies and work in the context of Soundscape Studies and acoustic ecology derives from the fact that, alongside the work carried out and developed in the academic field in various universities throughout the world, there is an equally ubiquitous proliferation of sites, web pages and initiatives that in various ways are concerned with Soundscapes, often proposing online their own sound map that is linked to a particular city or geographical area and even, in some cases, linked to the entirety of planet earth itself.

A quick search provides us with just some of these sites:

<http://www.abc.net.au/innovation/sidetracks/map.htm>

<http://www.aporee.org>

<http://www.bbc.co.uk/worldservice/specialreports/saveoursounds/index.shtml>

<http://www.cincocidades.com/en/soundmap/>

<http://www.firenzesoundmap.org>

<http://www.geograffiti.com/>

<http://www.guardian.co.uk/society/interactive/2010/apr/26/caledonian-road-sound-map>

<http://www.hear-the-world.com>

<http://www.inukjuaksoundmap.com/>

<http://locusonus.org/soundmap/024>

<http://www.mappasonora.it/>

<http://www.montrealsoundmap.com>

<http://www.opensoundneworleans.com>

<http://www.sonicwonders.org>

<http://sonorapuliae.altervista.org/soundmap.html>

<http://soundaroundyou.com>

<http://sounds.bl.uk/uksoundmap>

<http://www.soundmap.co.uk/>

<http://www.soundseeker.org>

<http://www.ssrq.it/agorafonia.html>

<http://www.stoparchitects.com/terrasound/soundtrack/>

<http://torontosoundmap.com/>

Even a superficial look at these shows that together with the application of institutional research, characterized by a top-down approach, there is also spontaneous, non-institutional research,

¹⁸ Various authors edited by, A.Mayr, A.Colimberti, G.Montagano, *L'ascolto del tempo. Musiche inudibili e ambiente ritmico*, mp2 Editore, Firenze, 1995

characterized by a bottom-up approach; what is important is that the telematic digital map seems to be an essential point of reference for anyone involved in any way today with Soundscapes. With regard to this, Ben Tausig proposes cataloguing currently available telematic maps within 5 categories¹⁹:

1) *Collaborative Documentary*

A type of map to which anyone can contribute with any type of recording carried out *in loco* and with geographical references provided.

2) *Composition/Artwork*

A type of map created for musical-compositional, or more generally artistic and aesthetic purposes, which can be accompanied by an interface for the execution-recording of arranged samples, or which is able to offer visions that are syn-optic, syn-aural, unusual and suggestive. Such maps are not always open to contributions from users.

3) *Consumer Empowerment*

The purpose of this type of map is to provide referential groundings for considerations that are useful to the user, whether he or she intends to, for example, buy a house or simple seeks to investigate the socio-acoustic features of an area. It is based on the contribution of recordings, notes and judgements made by the user.

4) *Preservation*

These maps designate sites to be protected or rehabilitated on the basis of the presence of unique or particularly relevant sound phenomena.

5) *Policy Data*

A type of map relating to monitoring and control strategies against acoustic pollution and for acoustic zoning.

What we consider to be relevant here, apart from the type of category into which a sound map can be catalogued, is the fact that generally in the instrument of the geographical map, even before it becomes a sound map, the qualitative and quantitative data should co-exist together with a shared cognitive and planning purpose.

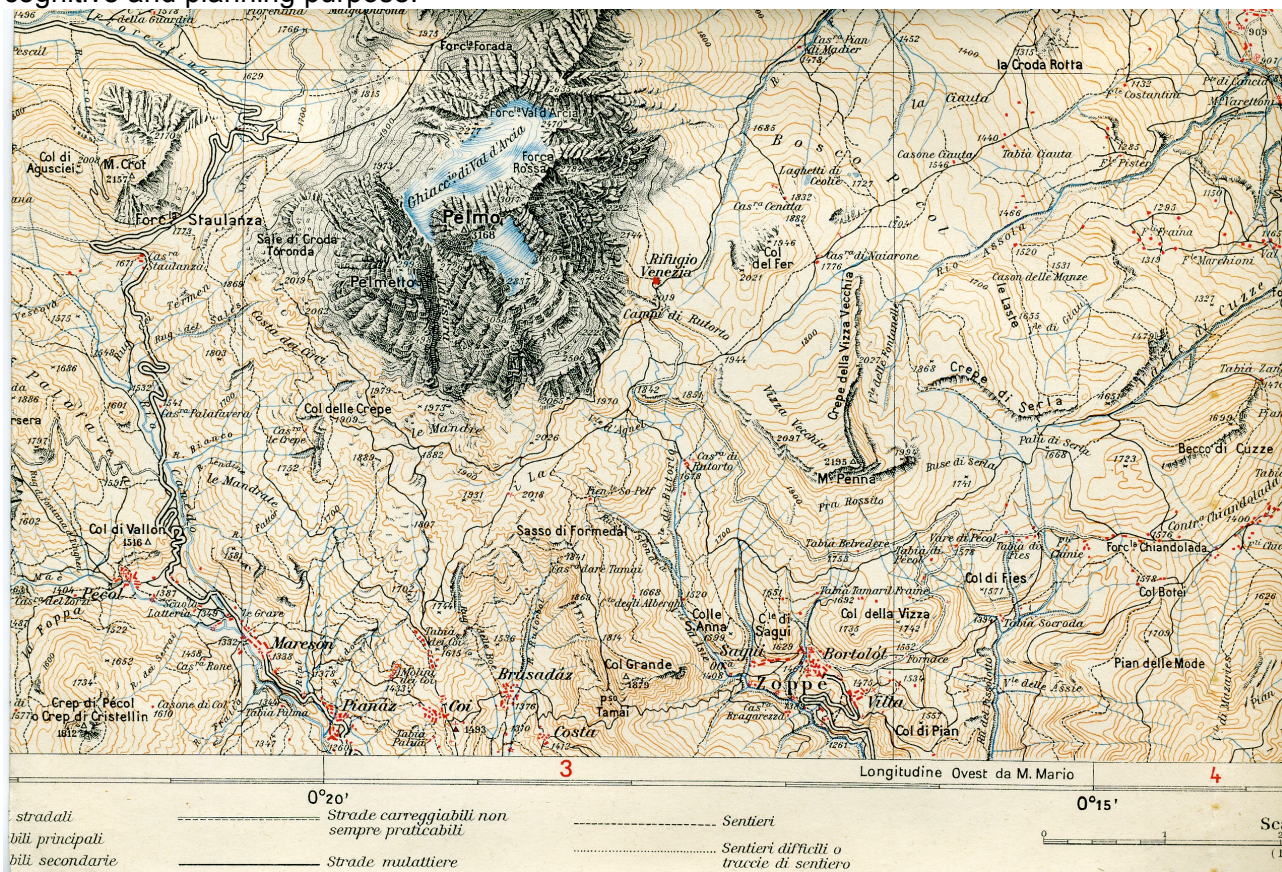


FIG. 5 Touring Club Italiano Map of the tourist areas of Italy. Cortina d'Ampezzo and the Cadorine Dolomites Detail. (monte Pelmo)

¹⁹ <http://www.weirdvibrations.com/2010/01/10/atlas-sound-a-typology-of-sound-maps/>

In ordinary geographical, topographical, road maps, etc., we are more than used to seeing graphical representations of mountains, rivers, lakes, etc., accompanied by numbers that express measurements of height, lati-longitudinal degrees in the grid of coordinates, road distances, together with the presence of some symbolic icons coded in legends, such as particular buildings, railways, water sources, etc. We are used to thinking that the map represents the territory in the most comprehensive way possible. We are less used to thinking that the map as well as representing the territory might be equally useful as an instrument for controlling it, for dividing boundaries and properties, etc. This possibility comes to mind as a vague suspicion when, for example, we look at the borders of African states that follow the shapes of abstract, irregular polygons that have little or nothing to do with the representation of the territory *as it is*, rather than with the completely human will (necessity?) to establish borders and frontiers.



fig.6

It is then that we realize that the nature of cartography is doubly connected with both science and with power.²⁰ For this simple reason it appears to be interesting to consider how we represent the world in two dimensions, and even more interesting if this representation, as happens in the case of sound maps, attempts to represent a landscape that elsewhere is defined as *immaterial*, for example the Soundscape. According to Massimo Quaini, in order to understand fully the nature of the map, it is necessary to extend the concept of representation along two opposite lines – the full map and the empty map, and in order to do this he makes use of two metaphors borrowed from the work of Lewis Carroll.²¹

Carroll considered the map in his own way, i.e. in a paradoxical way, on two occasions. In 1876 in the second “fit” of *The Hunting of the Snark*,²² evoking the empty map, the map that represents the sea without any trace at all of terrestrial forms, and therefore with no use of signs. In its essentiality and purity it is a “perfect map”: with the marine space the terrestrial surface is reduced to one surface, a flat one. The second occasion occurred in his last novel, *Sylvie and Bruno Concluded*,²³ in 1893. Here Carroll develops the idea of a map in the opposite direction: the map is no longer empty but is too *full*, because in seeking to contain all geographical reality (the territory) it has to adopt the scale of 1:1. “Have you used it?” asks one the protagonists of the novel in surprise. “It has never been spread out yet,” replies the mysterious German traveller, “the farmers objected: they said it would cover the whole country, and shut out the sunlight! So we now use the country itself, as its own map, and I assure you it does nearly as well.” In both directions the map seems to reach the point of negating itself,

²⁰ Cfr. various authors *Maps: Beyond the Artifact*, Lo squaderno, Explorations in Space and Society No. 15 - marzo 2010, www.losquaderno.net

²¹ M.Quaini *Il mondo come rappresentazione*, Galleria Paolo Vitolo, Milano 1992

²² *ibid.* cit L.Carrol *Caccia allo Snualo*, Pordenone 1985

²³ *ibid.* cit. L.Carrol *Sylvie e Bruno*, Milano 1978

renouncing its cognitive function: in the first case out of a lack of information and in the second out of an excess. [...] In the first case the non-map is accepted: the sailors of *The Hunting of the Snark* discover that the “strange” conventions of “old Mercator” are useless for them and that the “best” map is the empty map that has eliminated all the “shapes” (the promontories and the islands, “strange” conventional signs). Cartographical conventions are of no use in this new voyage in search of the indecipherable monster, of the unknown, i.e. they are of no use in moving in the space of the discovery. Discovery implies empty spaces, the white spaces on the map that have always fascinated the geographer–explorer: to know the world is to pass through the smooth surface of the map and to trace a new map, richer, fuller. [...] Umberto Eco, with regard to semiotic research, admits, [it] “Is not like a sea voyage, where the wake of the boat disappears as soon as it passes, but is like terrestrial exploration, where the tracks of vehicles and footsteps and the pathways through a forest, actually begin to modify the landscape itself, and from that moment onwards they are part of it, like ecological variations.”²⁴ The rectilinear wake that disappears and which leaves no trace is the symbol of the empty map and of the knowledge that sustains it: a noble and abstract knowledge that cannot do without the other knowledge, humble and “anciliary”, more terrestrial and land based.²⁵ In the second case, the full map, the map is not accepted, indeed the farmers are opposed to it, because in covering the territory it would shut out the sun and eliminate their work. Even the cartographers realize at this point that it is a mistake to use the territory itself as a cartographic image.

The empty map expresses in some measure the quintessence of the map itself: its pure geometry, the Cartesian image of coordinates, the abstract grid, the frame. From the point of view of sound this abstract image is comparable to the Cagean empty window of silence in *4'33"*²⁶, which is filled from time to time with contingent sound, or open projections of the possible. The metaphor of the empty map and Cage's celebrated piece are effective metaphors because they are able to express the conditions of *giving oneself* to the event, the auroral character, of discovery that accompanies this *giving oneself*. The full map, from the sound point of view might instead be represented by real-time recording and simultaneous transmission of every audible sound, in the place in which the recording takes place, a recursive link that gives rise to feed-back, the Larsen effect, saturation, the collapse of the description due the signal being overloaded. This last idea leads us in its turn to another Cagean work, *0'00"* for performer and amplified sound ambient, in which Cage ten years later carries out a variation on the previous piece, where the actions (any) of the performer are performed programmatically on the edge of feed-back, therefore on the edge of acoustic collapse (anyway without provoking it).²⁷ From a behavioural indication of listening and of performance that tends towards nothing and the void, to total redundancy.

Through these extreme poles we move through qualitative, quantitative, quail–quantitative descriptions. The history of cartography proceeds from the empty map through very approximate graphical descriptions, or descriptions equipped with a summary level of precision between the spatial ratios represented, towards the full map, or towards the map equipped with ever greater resolution, thus from chorography to topography, from the grand mapping of the territory of a state, to regional and town maps, then reaching the detail of GPS satellite cartography. In a certain sense this progressive conquest of detail, in moving from the approximation of the analogue, diegetic gesture, and the silent world this gesture leads to, is echoed by the increase in sound intensity, that accompanies the technological history of the industrial revolution and the electronic revolution. With regard to this noisy revolution, the result of sound recording and amplified diffusion, both schizophonic and iso-phonic, represent nothing less than the sound dumping of the map onto the territory itself. Looking at the history of cartography one realizes just how much the (quantitative) acquisition of numerical data is at the very origins, as much as a conquest that can be dated only in the Enlightenment. At the birth of cartography what was given prominence was

²⁴ *ibid.* cit. U.Eco, *Trattato di semiotica generale* 1978

²⁵ *ibid.* cit. “The reference here is to the distinction between scientific paradigm and research or semiotic paradigm developed by C. Ginzburg (...). Cfr. G. Pomata, “Il paradigma ancillare e la ragione dominante”, in *Il Mulino*, 268, Bologna, March–April 1980 pp.263-266

²⁶ J.Cage *4'33"* (*or any length of time*) 1952, First version: in *Source* No.2 (July 1967) pp.46-55. Reprinted: Edition Peters 6777a © 1993 by Henmar Press. Second version: Edition Peters 6777 © 1960 by Henmar Press

²⁷ J.Cage *0'00"* (*4'33" No.2*) 1962, Edition Peters 6796 © 1962 by Henmar Press.

<http://www.johncage.info/workscage/000.html> “The score consists of one sentence: “In a situation provided with maximum amplification (no feedback), perform a disciplined action.” A day later Cage added some instructions, like allowing interruptions of the action, not repeating the same action in another performance or that the action should not be the performance of a musical composition.”

the iconic description of the territory intended as a narrative, a description that therefore had a strong diegetic and temporal component, deeply analogue.

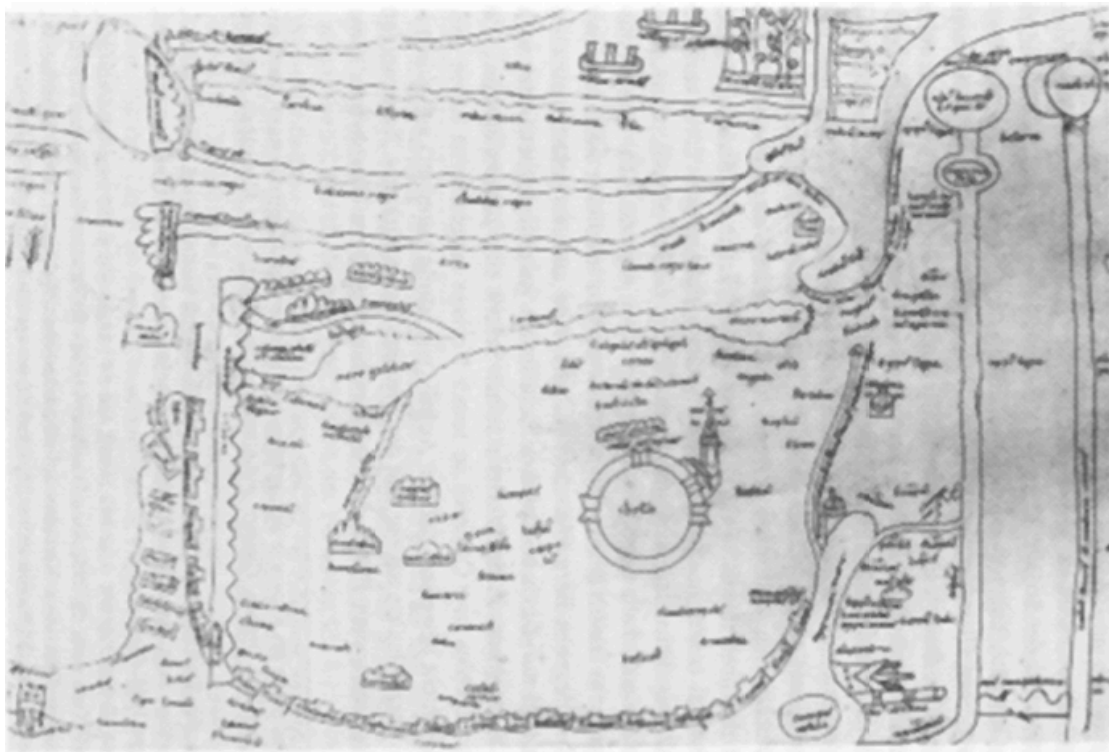
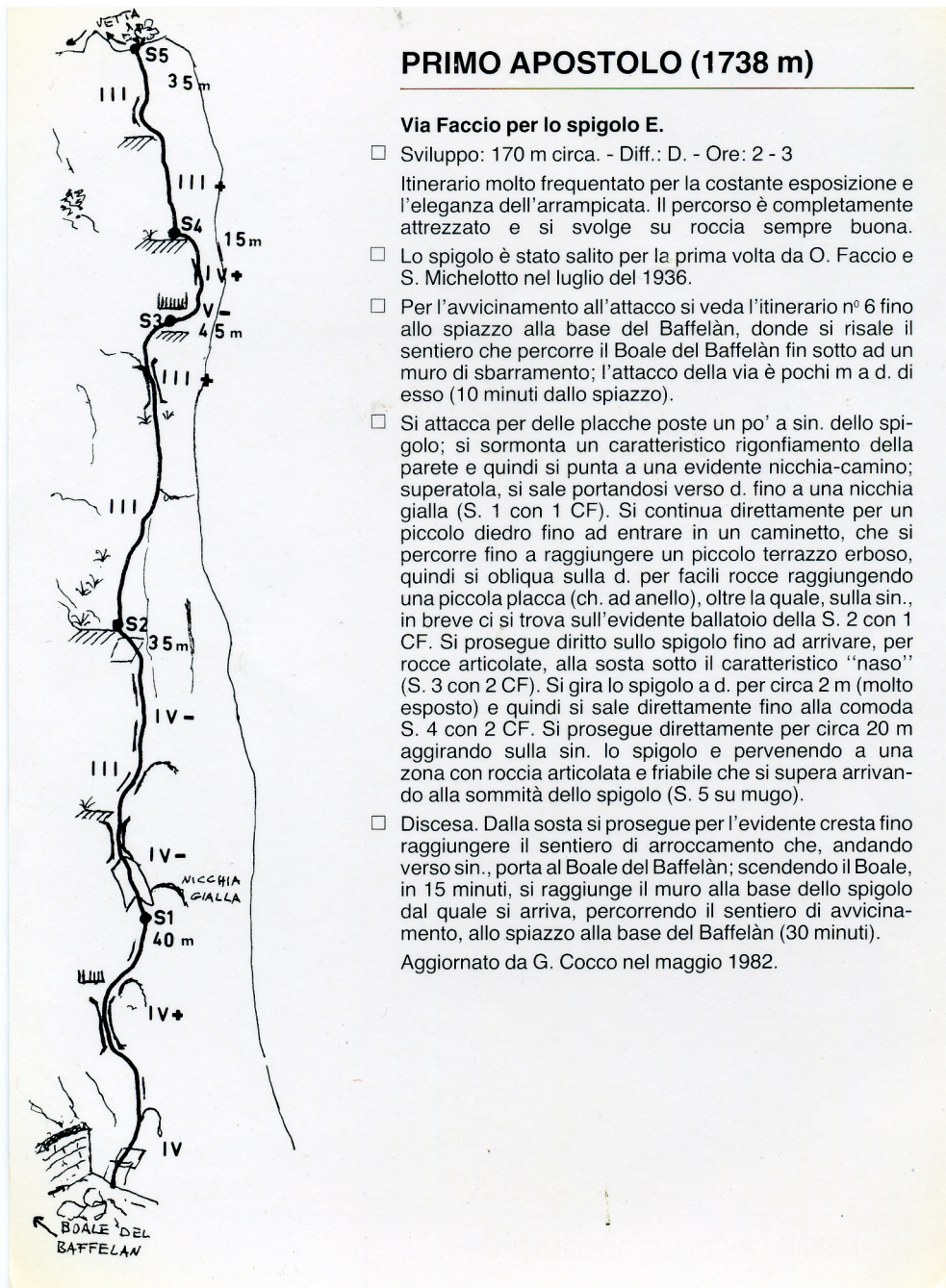


fig.7
*Palästina-Karte aus einer Hieronymus-Handschrift (um 1150),
London, British Library, Add. Ms. 10049, f. 64v;*

Thus medieval maps according to M.De Certeau²⁸ were above all stories of journeys, pilgrimages in which what was represented were the significant stages of the route itself: a church to pray in, an inn as a point of refreshment, etc. This is a type of map in which the route, the action carried out by the subject is prevalent with regard to the itinerary, the scheme. The story, the journey, the diegesis, is akin to the temporal dimension, a dimension that appears to be precisely an essential feature of the acoustic experience. Gradually as the analytic dimension, the aerial vision, the measure and the scale progress in the course of cartographic history, the subject is gradually expelled from the representation. The analogy ceases to be narrative and becomes an objectivising, impersonal view. And gradually as this proceeds towards the full map, this objectivising route that corresponds to the aerial vision, there appear also the first measurements expressed as numerical data. We can observe how mountains are represented from a cartographical point of view, and it seems that it is precisely this shift in tracing the narrative that includes the memory, the presence of the subject, up to the subject's expulsion, coincides with the adoption of the aerial perspective: the frontal perspective vision, which still today distinguishes the maps used by mountaineers for their climbing routes, maintains traces of the route as narrative, expressed in the levels of climbing difficulty, in the types of rock conformations met (ridge, dihedral, slab, roof, crack, chimney, etc.), in the number of *rope lengths* used.

²⁸ M.de Certeau, *L'invenzione del quotidiano*, Edizioni Lavoro, Rome, 2001 pp.173-192



PRIMO APOSTOLO (1738 m)

Via Faccio per lo spigolo E.

- Sviluppo: 170 m circa. - Diff.: D. - Ore: 2 - 3
Itinerario molto frequentato per la costante esposizione e l'eleganza dell'arrampicata. Il percorso è completamente attrezzato e si svolge su roccia sempre buona.
 - Lo spigolo è stato salito per la prima volta da O. Faccio e S. Michelotto nel luglio del 1936.
 - Per l'avvicinamento all'attacco si veda l'itinerario n° 6 fino allo spiazzo alla base del Baffelàn, donde si risale il sentiero che percorre il Boale del Baffelàn fin sotto ad un muro di sbarramento; l'attacco della via è pochi m a d. di esso (10 minuti dallo spiazzo).
 - Si attacca per delle placche poste un po' a sin. dello spigolo; si sormonta un caratteristico rigonfiamento della parete e quindi si punta a una evidente nicchia-camino; superatola, si sale portandosi verso d. fino a una nicchia gialla (S. 1 con 1 CF). Si continua direttamente per un piccolo diedro fino ad entrare in un caminetto, che si percorre fino a raggiungere un piccolo terrazzo erboso, quindi si obliqua sulla d. per facili rocce raggiungendo una piccola placca (ch. ad anello), oltre la quale, sulla sin., in breve ci si trova sull'evidente ballatoio della S. 2 con 1 CF. Si prosegue dritto sullo spigolo fino ad arrivare, per rocce articolate, alla sosta sotto il caratteristico "naso" (S. 3 con 2 CF). Si gira lo spigolo a d. per circa 2 m (molto esposto) e quindi si sale direttamente fino alla comoda S. 4 con 2 CF. Si prosegue direttamente per circa 20 m aggirando sulla sin. lo spigolo e pervenendo a una zona con roccia articolata e friabile che si supera arrivando alla sommità dello spigolo (S. 5 su mugò).
 - Discesa. Dalla sosta si prosegue per l'evidente cresta fino raggiungere il sentiero di arroccamento che, andando verso sin., porta al Boale del Baffelàn; scendendo il Boale, in 15 minuti, si raggiunge il muro alla base dello spigolo dal quale si arriva, percorrendo il sentiero di avvicinamento, allo spiazzo alla base del Baffelàn (30 minuti).
- Aggiornato da G. Cocco nel maggio 1982.

fig.8
rear of card 10,

taken from *20 itinerari scelti sul Pasubio e Piccole Dolomiti*
Scuola di Alpinismo "Piccole Dolomiti" Schio (Vi) CAI - GAM Lanerossi

In the aerial perspective on the other hand, the subject and his or her experience are therefore lost, of the climb there remains nothing but the number that expresses the altimetry achieved by the climber and then a bluish colour if the route is on ice. Analogously, sound cartography is a type of cartography that is essentially aerial, which proposes the unreal paradox of an aerial listening, as though in truth listening could be taken for the aerial view, not so different from the image provided by the satellite. The paradox is resolved only in moving down into detail, into local listening.

On the one hand we might wonder if this proliferation of telematic sound cartography is not hiding yet another surreptitious affirmation of the dominance of the retinal²⁹ paradigm, or the substantial impoverishment of cognitive processes that are not based on visual description. On the other hand

²⁹ Cfr R.Barbanti, Crisi e persistenza del modello retinico occidentale. Elementi per la definizione di un nuovo paradigma acustico, in various authors edited by A.Mayr Musica e suoni dell'ambiente, Clueb, Bologna, 2001 pp. 41-70

the principal limit of the visual representation of sound phenomena regards the incapacity of the syn-optic vision to represent the development of the sound itself in the temporal dominion. If we look at some of the first examples of sound cartography we find some very interesting issues from the point of view of taxonomic representation, such as for example qualitative maps and isobel maps:

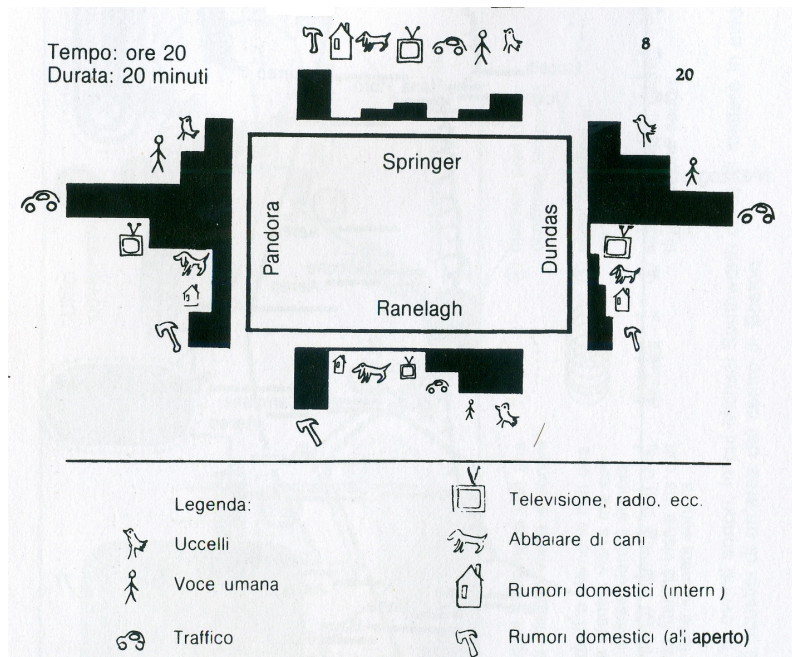


FIG. 9 R.M. Schafer, 1977 p. 267 detail

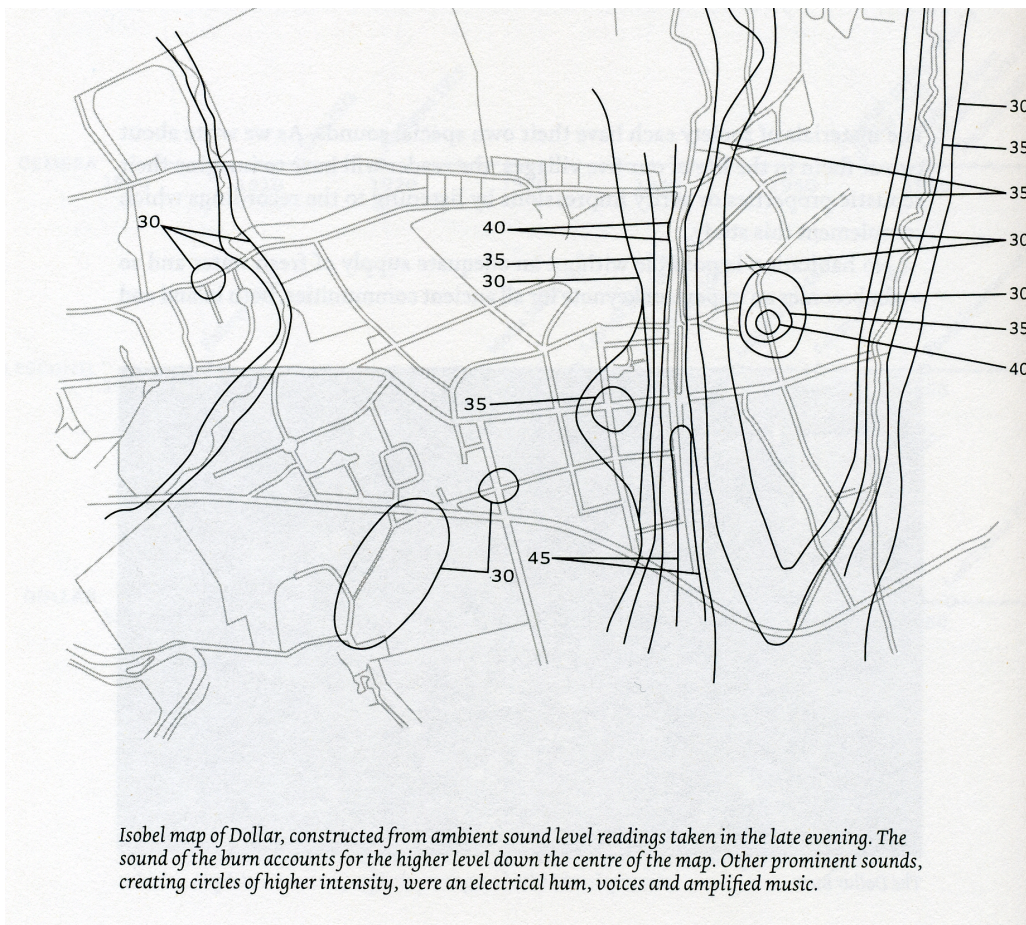


FIG. 10 R.M. Schafer 1977b (see note 17) p. 342 detail

Nevertheless, inevitably we feel the unease deriving from the absence of the temporal representation, the limit of static representation.

Sound cartography therefore introduces forcefully the temporal problematic into a form of representation that is traditionally static (graphical–photographical). Some studies on the temporality of vision on the one hand show us how it is not completely true that the perception of an image has real instantaneity and atemporality.³⁰ In front of a painting, for example, we focus in the first instant on determined parts and subsequently on others, depending on habits acquired (for example reading left to right for languages deriving from Greek and Latin) and other gestalt characteristics. On the other hand, some research on mnemonic processing of the listening process,³¹ *in fieri* and *a posteriori*, show that the perception of sound, or at least its re-evocation (determining in the cognitive process), is not always and necessarily obliged to reproduce its process *in time*. We are able, for example, to evoke a sort of *instant formal summary*, a sort of momentary impression, fully comprehensive of the experience of listening to a musical passage or even a symphony, of its various parts and movements. Despite the fact that these considerations impose greater caution in asserting a clear division between paradigms of vision and listening, the planes of spatial and temporal perception remain difficult to consider commensurable from the point of view of their reciprocal extensions: the temporality of static vision is consumed in a few instants, and the type of memory, of momentary mental representation, does not make up for the detail description of the diachronic complexity of the arts of time (or of sound phenomena in general). If therefore we take as given, for reasons of simplicity, the incompatibility between the static synchrony of vision and the dynamic diachrony of sound–temporal phenomena, we can nevertheless attribute the lack of efficacy of iconic representation on the sound map to the fact that we continue to make reference to an idea of a map that has a graphic and photographic origin. If instead of taking painting and photography as a conceptual reference we were to refer to the cinematographic model of the moving image, we could re-confer an equilibrium among the perceptive paradigms of listening and vision that we traditionally consider to be such opposites. For this reason the recent telematic development and access to GPS technology, permit a significant revolution in this sense that allows us to widen the category of the sound map and to organize it according to some various typologies that are technologically differentiated, so that we have:

- deferred and static telematic sound maps. “Cinema” is essentially a re-production of something that has taken place or has been simulated, a rigid reproposal of a past fictional or real event. In this sense we could cite the digital simulations, *Soundtransit*³² as forms of deferred and static telematic sound maps, where the passage is not on the spatial continuum, but is suggested by discreet, point-to-point, shifts.
- deferred and dynamic telematic sound maps. Reproduction, animation and navigation are performable dynamically: the user simulates his or her movement in the spatial continuum with the consequent modification of the soundscape: *Agorafonia*, *Kronotopo*.³³
- static sound maps in real time. Here we refer to the present continuous, to the relation between the here and now of each location and fruition on the telematic sound map, the model of television as a live broadcast replaces the cinema and we have the so called “open mics”, open microphones placed here and there in various parts of the world that offer us an acoustic report, like the webcam model: *LocusSonus*.³⁴
- dynamic sound maps in real time. A further step is to move from the static form of representation in real time to the dynamic form, the possibility of navigating on the map, in the spatial continuum through a network of static open mics (with the consequent perspective of a hypercabled world) or on the basis of a structure of a mobile network provided by soundwalkers equipped with smart-phones: *RadioAporee*.³⁵

The possibility of an articulation between spatial-temporal continuity and discontinuity offered by the telematic sound maps described above represent the current state of evolution in the capacity

³⁰ Cfr. R. Arnheim, *Arte e percezione visiva*, Feltrinelli, Milan, 1992 (first published 1954)

³¹ M.L. Serafine, *Music As Cognition: The Development of Thought in Sound*. New York, Columbia University Press, 1988

³² <http://turbulence.org/soundtransit/book/>

³³ <http://www.ssr.it/agorafonia.html>,
<http://www.pierpaololeo.it/mapping/Filmato111.swf>

³⁴ <http://locusonus.org/soundmap/033/>

³⁵ <http://aporee.org/maps/>

to represent the sound environment and to localize it, use it, study it, control it, at a distance. We have this technological potential and power, and we have this mass of sounds, recorded or transmitted in real time, but nevertheless there seems to be a lack of an equally ductile capacity to *describe* and *interpret* the acoustic phenomenon in a language that delivers its potential wealth of meanings to the acoustic community of the network. What is probably the most considerable heuristic effort in terms of descriptive and interpretative capacity dates to the mid 1980s, the CRESSON Sound Effects Repertory. Recently, however, there are the beginnings of a movement in the ambit of research on sound cartography of the concept that comes from geography and town-planning of the “multilayer”, or the “multilevel”.³⁶ “Multilevel” description lends itself well to the telematic medium having been developed in the informatics context of architectural drawing applications. The possibility of superimposing on the map different levels of description seems theoretically to be able to interact well with the possibility of a description that if not yet interdisciplinary, is at least multidisciplinary. And nevertheless the cross-referenced reading of various layers can suggest a direction for research that is born, in this case, as interdisciplinary, thus suggesting implicitly in an extensional manner, the indication of a method.

Examples of these layers, which can be superimposed on the map itself, may consist of:

-phonometric data:

- sound pressure
- sound spectrums and sonograms
- coefficients of directivity and divergence, etc.

-Schaferian categories:

- taxonomy of Keynote sound;
- taxonomy of Sound mark;
- taxonomy of Sound Signal; etc.

-Schaferian taxonomy of sounds by poetic category:

- sounds of anthropic origin,
- technology, (mechanical, electrical),
- sounds from the animal world,
- sounds from the plant world,
- sounds from the mineral world,
- sounds from the world of atmospheric agents; etc.

-Schaefferian categories³⁷:

- grain;
- mass;
- gesture;
- texture; etc.

- presence of specific Sound Effects³⁸:

- metaboles;
- ubiquity;
- hyperlocalization; etc.

- taxonomy by morphological aspects of the landscape:

- seascape, coastal, mountain, desert, urban, rural, primitive forest, etc.

- taxonomy by climatic differentiation;

- taxonomy by cultural distinction of human groups;

³⁶ Cfr.: Luca A. Ludovico, Davide A. Mauro, *Sound and the city: multi-layer representation and navigation of audio scenarios*, Proceedings of the SMC 2009 - 6th Sound and Music Computing Conference, 23-25 July 2009, Porto – Portugal;

M.Ranguoussi, S.M. Potirakis, I.Paraskevas, N.A. Tatlas, *On the development and use of sound maps for environmental monitoring*, Audio Engineering Society, Convention Paper 8113, presented at the 128th Convention 2010 May 22–25 London, UK

³⁷ Pierre Schaeffer, *Traité des objets musicaux*, Le Seuil, Paris, France, 1966.

³⁸ See note 13

- taxonomy of sounds that have disappeared, in extinction, to be preserved;
- taxonomy of sounds having appeared recently in the soundscape;
- taxonomy of sounds by temporal aspects:
 - length;
 - rhythm;
 - cyclicity;
 - irregularity; etc.
- taxonomy by psychological and semantic aspects;
- sound diaries and emotional considerations, free. (tender map)³⁹

This set remains open and can be subject to further categorizations that correspond to the emergence of new or other interpretative criteria.

The sound map as a *locative* medium is able today to offer ample possibilities for disciplinary intersections, it is enough to think of the possibility of describing the same sound phenomenon under several profiles, directly and easily accessible, of offering comparative possibilities that up until now were unthought of, thanks to the sharing of sound database cataloguing criteria and tagging together with streaming in real time. Adequately catalogued databases could offer possibilities for new research based on a transversal reading of the layers that are superimposed on the map like levels of reading the sound reality.

To all effects sound maps constitute devices for augmented reality, which can be seen and considered both as an increase in the possibilities for the fruition of reality itself and in some ways, in part, as their reduction. The map, indeed, changes our way of perceiving the world, including the world of sound, and it offers us the possibility of syn-optic–syn-aural fruition, a-topical, in which present and past are potentially available in the same manner. The telematic sound map, nevertheless, in inventing a new world of representation, at the same time potentially leads us away from the represented world. The fruition of sound *in situ* is clearly an unreproducible experience and, we might add, is widely impoverished through “packaged” listening at the computer work station: very little is left of any Soundscape once it is compressed and squeezed through the loudspeakers incorporated in a laptop or desktop computer. Now that augmented reality environment-devices (personal computers, cellphones, palm-held devices, satellite navigators, etc) are becoming ever more the principal interface through which we experience the world, if for no other reason than the many hours we spend in front of their small or large monitors and connected bi-aurally to their headphone outputs, the simulation and the restitution of audiovisual sequences translated or not translated in time and in space can doubtlessly result in an impoverishment of sound experience and of experience in general. Once immersive multimedial systems (created for military training) move on to industrial production, to the entertainment industry, and are consigned to the process of consumption, our “tele-augmented” existence in the network and in the global “here and now” could without a doubt prove itself to be, from some points of view, “tele-diminished” in the “local here and now”.

Naturally, from the social point of view we can already record reactions against this tendency towards this pervasive involvement *in* tele-augmented reality. Particularly significant it seems to me is the case of the Italian mountaineer and explorer Fraco Michieli who has theorized a programmatic “inverse exploration” in the practice of crossing a territory without the assistance not only of digital georeference devices, but even of the more traditional paper maps and orientation systems such as magnetic compasses and altimeters:

There is a dilemma that man has carried within himself since ancient times: if Arianna hadn't had that famous thread to hold in her hand, would she have found her way out of the Minotaur's labyrinth anyway? Perhaps the question continues to stimulate curiosity,

³⁹ Cfr. A.Radicchi, *Sull'immagine sonora della città. La creazione di paesaggi sonori nella città contemporanea*. PhD thesis, Università degli Studi di Firenze, Facoltà di Architettura | DUPT 2010, see also <http://www.firenzesoundmap.org>

but not enough to want to experiment in truth the possibility of an affirmative answer. It's best to hold on firmly to the thread – the rope passed through the spit, the route laid out by the GPS, the itinerary dictated by the signposts, the persistent signal of the cellphone, [...] – and to believe rather in the no: “Getting out of the labyrinth without a guide can happen by chance, but not because reality already has in itself guidelines that are only apparently invisible. Therefore it's not advisable to take the risk.” Similar questions are instead so fascinating for some of us to make us simply forget about the existence of those little idols that today function as Arianna's thread. Unfortunately, we have to explain that we're setting off to cross the wild mountains without maps, or watches, or any instrument for orientation and for telecommunications, and to insist that it really is like that, otherwise we can't imagine what sort of adventure we're talking about.⁴⁰

[...] At the end of the adventure we find ourselves having carried out a true and proper “inverse exploration”: we haven't given names to unknown mountains, but we've taken names away from mountains that already had one; we haven't removed the last “white spot” on the map, but we've recreated one where people thought it no longer existed; we haven't accomplished a “first”, but we have shown how any of us can go into those same mountains, and live them again as though no one had seen them before.

Is this really an attitude of discovery? If we establish where what is known as “absolute” exploration has brought us, the exploration of exalted conquest up to the present day, and that is to irresponsible consumption of every resource that has been discovered and attained, to the point where perhaps the future of life on earth has been put in question, we have to admit that the world has only been explored partially and superficially. Faced with this reflection, is there an “absolute” knowledge, enclosed in some archive of humanity's discoveries that is capable of spreading efficaciously out into the world despite the fact that its transmission occurs in a theoretical form? Or in the end is it only the lived knowledge that is kept alive in each person that counts? Which exploration of reality is more relevant for our existence, exploration consisting of data accumulated by specialized and decisional scientific elites, or the individual effort to understand the network of relations in which each of us is immersed?

I don't know if there are univocal answers; but the experience of wild territories and mountains has brought me to a conviction: sometimes it is useful to create a *tabula rasa* of the necessarily partial visions of those who have come before us. Restoring trust in our simple sensibility we discover that the possibilities for exploring multiply with the numbers of human beings who want to glean from reality that which habit hides from us. And this is a thing that can only be done through personal choices.⁴¹

In this inversion of perspective in Michieli's proposal we might accept the invitation to re-evaluate the purely experiential aspect from a cognitive point of view, of the experience *in situ*, a radical experience, to the point of abandoning the map and the instruments related to it. It is not by chance that one of the most interesting aspects of the research carried out by the World Soundscape Project is in my opinion to be found in the experiential aspects of that pioneering research, carried out with methods that today may seem decidedly “domestic” (e.g. the manual counting of vehicles during a 24-hour period), which today can be substituted scientifically, from a purely measuring point of view, by other methodologies and instrumentation. The fact of voluntarily undertaking in a direct way as acoustic observers particular cognitive tasks, often prolonged, in situations and at times of the day that are unusual with regard to our daily habits leads us to affirm that direct experience, on the territory, involves a level of awareness and emotional knowledge that in many cases cannot be reported, except minimally, through the form of an experiential summary. If we care about understanding and discovering the importance and the wealth of the Soundscape, the experiential approach *per se* proves to be extremely pertinent to communicative ends and as a method of knowing. The telematic sound map, in common with the entire destiny of cartography, moves globally in the direction of the full map, in covering the white spot, even if such “coverage” can have no “colonialist” heritage. The eventual fatuous bragging over having been the first to acoustically map a determined point, is decidedly less significant than the interest generated by a

⁴⁰ F.Michieli *Norvegia 2003 – 19 giorni nel labirinto*. http://www.intraisass.it/norvegia_2003.htm

⁴¹ F.Michieli, *Esploratori all'incontrario. Come inoltrarsi fra montagne note e restituire inesplorate ai posteri*. <http://www.intraisass.it/esploratori.htm>

point rich in superimposed layers of multifarious and varied descriptions. The inverse exploration proposed by Michieli moves in the direction of the empty map, towards its very abolition, towards reading the territory itself as a map. With the disappearance of aerial vision and listening, the subject is once again protagonist, the map becomes living memory and relation.

Among the various mythological images that the philosophical gesture of mapping leads to, Franco Farinelli⁴² traces the philosophical gesture of mapping to two important mythological images: the first is the myth of the death of Dionysius at the hands of the Titans and the recomposition on the *tabula* of the altar of his body that had been divided into seven parts by the brother of Apollo at Zeus's bidding. The tortured pieces of his body offer to the subject a vision from above of unity with regard to the parts, a body that in its arrangement of sectioned parts is no longer alive but is a corpse; from here the origin of an analytic *vision*, which in order to be able to see the separated parts, crystallizes (and therefore takes life from it) the mobility of the observed body (the territory) dividing it.⁴³ Thus the contemporaries condemn Anassimandro who provided us with the first representation of the earth in the ancient world, accusing him of impiety and arrogance: the aerial cartographic vision is sacrilege, *empia*, in that the man who created it has raised himself to the level of the gods, who only from Olympus can look on the earth from on high, and in this he commits the sin of presumption. There is an implicit leap, an increase in consciousness from the human towards the divine that recalls something of the Promethean myth. But Farinelli warns that the deeper reason regards the paralysis, the killing of something that is living, the earth with all its system of dynamic relations, transformed into something static, fixed: paper.⁴⁴ The second image belongs to the myth of the blinding of Polyphemus by Ulysses, in which the body of the sleeping Cyclops and the sharpened and carbonized stake are associated analogically with the horizontal and vertical dimensions of the Cartesian axes, the paper and the pencil of the geographer who draws space on the map. Through the stratagem, the astuteness manifested in the blinding, in the linguistic game (the name of Noman), hiding under the rams' bellies, we have the victory of human rationality over the irrationality of the monster. Coming out of the cave, out of the dark, animal world of instinct, derives from the violent gesture of blinding the monster: the superimposition of the vertical axis on the horizontal axis, the mark traced on the white paper.⁴⁵ Both of the mythological images, tragic, are at the basis of the ancestral conception of the map.

It is curious that even today the words *rationality* and *irrationality* are associated regularly – in the most diverse contexts according to circumstance and according to what is most convenient – with positive or negative values. For Michieli abandoning the map has the character of accepting the tortuous, irrational route and the positive rediscovery of the errant. To err itself becomes part of a new, a different logic. For the myth of Odysseus, it is reason that grants salvation to Ulysses and his surviving companions and thus the irrational has a negative connotation, representing bestiality and its paramount violence, which must be escaped.

The implicit challenge, in the context of Soundscape Studies, that is faced today by those who pursue the project of sound mapping could be the challenge of contributing towards the formulation of a new idea of rationality that includes the unforsakeable value of experience, and of the specifically emotive experience. This without relinquishing the analytical and scientific approach that scrutinizes qualitative and quantitative values, that considers the inferences of thought that allow relations between such values. The map, whether one intends to adopt it or to reject it, provides a model for this set of coexisting values, a model useful for the meeting of approaches to listening to the world, and for its signification.

⁴² F. Farinelli, *Geografia. Una introduzione ai modelli del mondo*, Einaudi, Torino, 2003

⁴³ *ibid* pp 8 and following

⁴⁴ *ibid* p 78

⁴⁵ *ibid.* pp 4-5