Dwelling and Working in Extreme Southern Circumpolarity: The Antarctica as Locality and Reflexivity

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Abstract

The territory of the Antarctica and the human presence there represent a *total and complex phenomenon,* that is: multidimensional and interconnected. The different ways of dwelling and working in the Antarctica imply a dynamic process of continuous production of new geo-cultural images, texts and discourses. To live and work in the Antarctica suppose a life strategy, conditioned by the *extreme cold,* the *isolation* and the *inaccessibility*, where all people involved feel (perhaps unconsciously) part of that total phenomenon.

A creative strategy to dwell and work in the Antarctica implies to develop and build a new trajectory of extreme southern identity in terms of territory, geographic and cultural features, together with the globalization process and the global environmental concerns: cultural landscapes are also present in the White Continent.

So that to dwell and to work in the Antarctica deal with adaptation, social practices in everyday life, and representations of reality, where the extreme cold is a restriction but also an opportunity and challenge to conciliate tradition, innovation, as well as creativity.

The emergent concept of *Antarctic social identity* is closely related to other concepts like "mission", "heroism", "founding spirit" (*homo conditor*), "adventure" or "risk", always present along the time in the ways of inhabiting the White Continent and other extreme environments.

It means that a sort of *emotional geography* is present, like a *founding representational myth*, linked to the "historic missions". Consequently, the Antarctica works as a metaphor of purity, wilderness and virginity, being still nowadays the *Terra Incognita Australis,* a sort of metaphysic sanctuary, a pristine confine of the planet.

1. Introduction

The area of Antarctica is approximately 5.4 million square miles (14 million square kilometers). Called as "white continent", "white desert", "*terra incognita*", "last boundary on earth", "last untouched land on earth", there is also an *imaginary Antarctica* as a fruit of an aesthetic, poetic and utopian approach (cf del Acebo Ibáñez & Costa, 2010). In any case, all ways to refer to it reflects its geographical uniqueness.

In relation to its population, there are not indigenous communities, but both permanent and summer-only staffed research stations. In strict sense there is no resident population because the staff is periodically replaced, also in the so called "permanent" stations or bases. During winter the average population is between 900-1,000 inhabitants, while in summer the average is approx. 3,000-4,000 inhabitants. The largest station is McMurdo (USA) which during summer has a population of approx. 1,000, while other large stations only have between 40-80 inhabitants during that season (i.e. Marambio –Argentina, and Casey –Australia-).

The Antarctica is a unique ecosystem with lots of implications in terms of natural environment, international relations and socio-cultural issues, being the less altered continent by the human activity, perhaps because of its strict "restrictions": *geographic isolation* and *physical inaccessibility*. A continent of extremes, Antarctica is the highest, coldest and windiest of the Earth.

Map 1: *Distances between Antarctica and nearest continents*
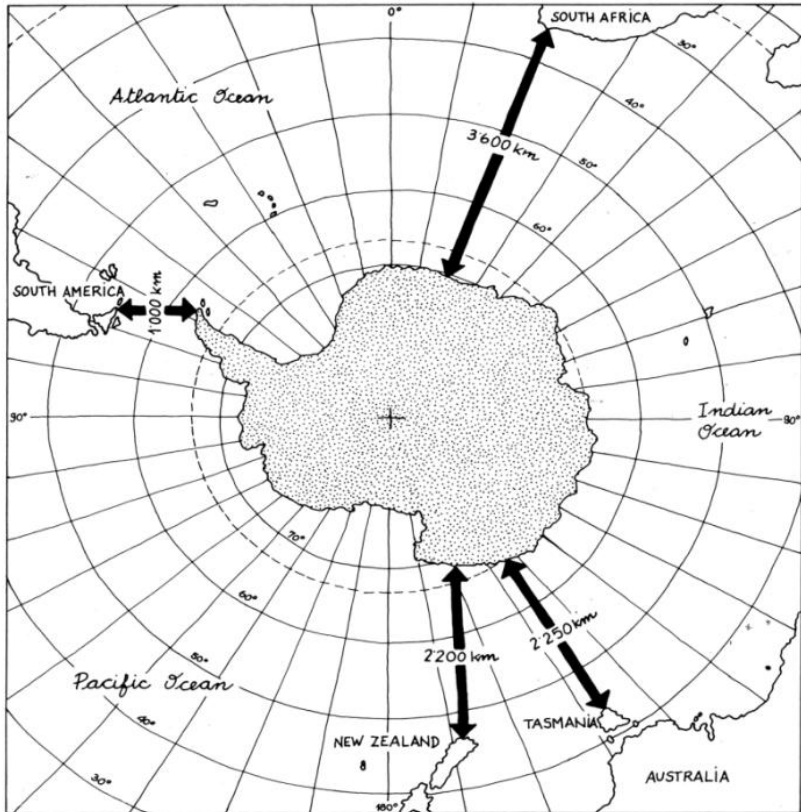
Source: Galimberti (1991)

The population is integrated by mainly scientists and researchers, but also military personnel of different countries linked with sovereignty claims. Consequently, the inhabited settlements can be classified as: i) *permanent* settlements; ii) *summer* settlements; iii) *temporary* settlements, and iv) *inactive* settlements. Each station is an independent small community, satellite communicated with the out world, where important scientific and monitoring programs are operated.

Mapa 2: *Antarctic stations*
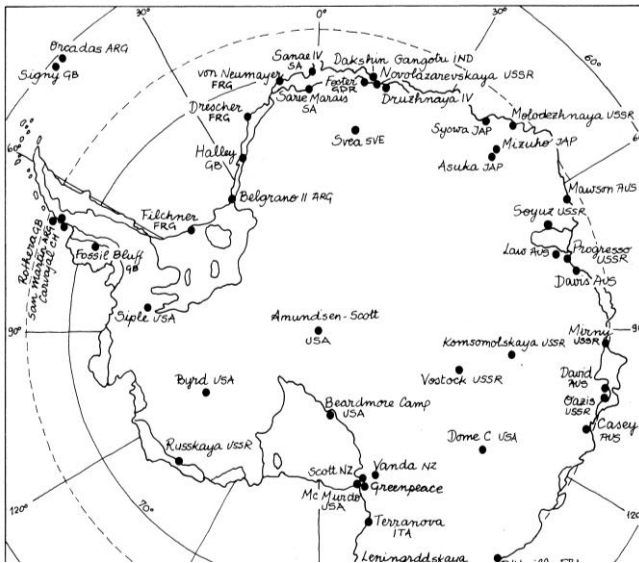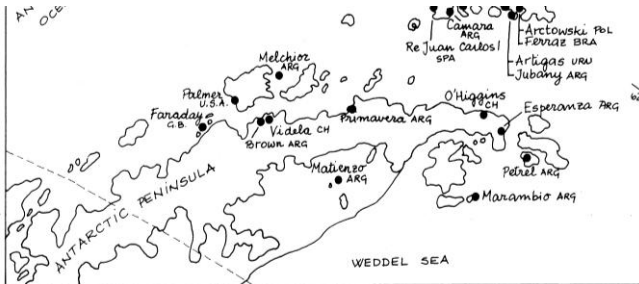
Source: Galimberti (1991)

The Antarctic population is mainly adult men aged between 25- 40 years old; women, increasingly incorporated, represent approx. the 20% of the total Antarctic population. In some bases there are family groups with children, with a small school and church like in *"Esperanza"* station (Argentina) and the Chilean *"Villa de las Estrellas",* a small polar community at Marsh station. They are potentially very small local communities, but they are not permanent, staying just for one or two years once they are selected.

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A creative strategy to dwell and work in the Antarctica implies to develop and build a new trajectory of extreme southern identity in terms of territory, geographic and cultural features, together with the globalization process and the global environmental concerns: cultural landscapes are also present in the White Continent.

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The case of this continent with very low population density living under extreme environmental conditions implies the lack of human comfort, a very difficult access and -closely related to this- its remoteness. That is why we need to go beyond the original concept of environment, which has centered predominantly on its physical and natural specification as "ecological system", and then favor the emphasis of the anthropological and socio-cultural -and also philosophical- components, which are inextricably integrated into any traditional concept of environment (cf del Acebo Ibáñez & Costa, 2010: 257).

If the conception of the environment is reduced as a mere "ecological system" (*environmentalism*), the answer to the question of what is "*the Extreme*" changes (cf del Acebo Ibáñez, 2018, unpublished).

2. Theoretical fundamentals

There are different and many ways to approach to this total phenomenon, and we have applied some of them in different researches and studies we have run, namely:

• *Rootedness theory* (del Acebo Ibáñez, Giddens) -considers the rooted dwelling as a multi-dimensional and total phenomenon (M. Mauss), that is

the attachment of man to the territory tends to emerge as a complete spatial-socio-cultural and historic phenomenon (cf del Acebo Ibáñez, 2014).

- *Human Ecology* (Chombart de Lauwe, Hawley) -the *community* as a collective answer to the habitat, an adaptation of the human to the living *milieu.*

- *Neo-Ecological School* (D. Erpicun) -self-critique of the Human Ecology, introducing the *individual consciousness,* so the environment is seen as *interiorized milieu,* a territory with shared meanings.

- *Environmental Sociology* (Alvira Martín; Boff; Brailovsky & Foguelman; Catton Jr; del Acebo Ibáñez, Di Pace, Dunlap, Faucheux & Nöel, Järvelä, & Wilenius, Leff, Redclift & Benton, Redclift & Woodgate).

- *Environmental Psychology* (Aragonés & Amérigo, Baum & Burnes, Bruun & Schnack,Canter,Davidson & Freudenburg, De Young, Dynes, Fisher & Nasar, Lévy-Leboyer,López Alonso, Proshansky, Proshansky & Fabian, Rosenthal et al., Sommer, Schultz et al.

- *Formal Sociology* (G. Simmel) -the relation between the characteristics of space/territory that impact in the social relations (E. del Acebo Ibáñez, A. Paasi, T. Watsuji, Bell et al., Droseltis & Vignoles), and viceversa (Colin M. Harris, I.B. Campbell et al.).

- *Proxemics* (Hall, 1973; Lécuyer; Palinkas, P. Suedfeld & Steel -1995a) - how near or far in term of space are the actors.

- *Existentialist Sociology* – re-reading of the Existentialist Philosophy (M. Heidegger, S. Weil, O.F. Bollnow, E. Tiryakian, E.del Acebo Ibáñez), and the fact of the human being as dweller and founder of the territory where he lives.

- *Sociology of everyday life and dwelling* in Southern and Northern circumpolar regions (del Acebo Ibáñez; Bjarnasson & Gunnlaugsson; Gunnlaugsson; Pyykkönen; Pyykkönen & Luomala) –national, historic, and socio-cultural phenomena that occur in a given territory as a *total semantic field* (Lefèbvre), -everyday life that implies a "social text" with many readings and possibilities (M. Castells, G. Lukács, H. Lefèbvre, P.H. Chombart de Lauwe, Jean Remy, L. Voyé; Ágnes Héller/School of Budapest, based in Lukács and husserlian category of *Lebenswelt.*

- *Sociology of the body and emotions* (L. Blackman, L. & M. Featherstone, A. Carrillo Canán, R. de Sousa, C.E. Osgood et al., A. Scribano; E. del Acebo

Ibáñez) –how the extreme environment/climate impact in the subject's body and emotions.

- *Psycho-sociology of mental representations* (López Alonso, Moscovici) of *space and time* in the Antarctica (L.A. Palinkas et al., J.S. Mocellin, P. Suedfeld, J.P. Bernadelz & M-E. Barbarito), and the existential time address to the biographical, historic and institutional times.

Departing from these theoretical frameworks many studies have highlighted phenomena and questions involved with the fact of inhabiting the extreme Southern circumpolar environments and their *inherent meaningful connectiveness* between territory, environment, climate and the human being (M.A. Cravalho, 1996; E. Leane. 1961; A. Elzinga, 2009; K. Weiss et al., 2007; C.M. Harris, 1991; I.B. Campbell et al., 1994; X. Winston Yan & E. England, 2001), as well as *attitudes and everyday behaviors*, with the consequent *inter-subjective relations* (L.L. Schmidt et al., 2005; Martin P. Paulus, 2009; Ron Roberts, 2011: Joanna Word, 1999; Greg Décamps & Elizabeth Rosnet, 2005; A. Peri, C. Scarlata & M. Barbarito, 2000; Wood, J. et al., 1999; Taylor, 1986; E. Gunderson, 1963).

Image 1: *McMurdo station (US)*
The McMurdo station has a harbour, landing strips on sea ice and shelf ice, and a helicopter pad.
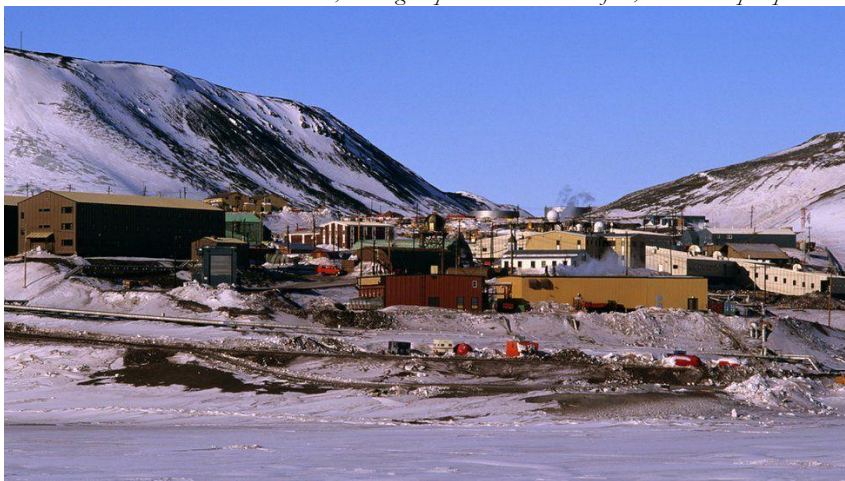
SOURCE: GETTY IMAGES ©

Image 2: *McMurdo coffee house (US)*

Source: PETER REJECK, NSF

Image 3: *Interiors of the Halley VI station (UK)*

Source: JAMES MORRIS-Image ©

3. Coping Strategies

When referring to *coping strategy* (cf Bærenholdt and Aarsæther 1998a: 27-36)*,* different authors try to capture local strategies that result from the processes of reflexivity. These *coping strategies* present –as different researchers agree, three dimensions, namely: i) *innovation*: to find new solutions and means to solve local problems; ii) *networking*: to increase interpersonal relations beyond every established functional activities (social, economic, technological) that are transcending the established limits of institutionalized social fields; and iii) *formation of identity:* confirming a sense of belonging built precisely as a consequence of facing the specific multidimensional features present in the Antarctic stations life: a way to inhabit, *to-be-in-the world* overcoming the strong environmental and climate conditions and creating senses of belonging and new representations of the extreme.

Psychological impacts

It is very well known that one of the main individual concerns is the *long duration* of the missions in *isolated* and *confine environments* (ICEs). In fact, this may cause important negative impacts in human performances, the individual health and well-being as well in the success of the mission of a whole (cf. L.A. Palinkas, J. Johnsson & J. Bosler, 1998).

These problems emerge according to: i) *the individual background* (physical, psychological, socio-cultural); ii) *the individual goals and values*, y iii) *the interaction network* in the given Antarctic station.

The main problems observed after many field studies run in the Antarctic stations by psychologists, sociologists and anthropologists in different isolated and confine environments (ICEs) in the Antarctic stations are: mild cognitive impairment, time-sense disturbances, sleep deprivation, psychosomatic problems, anger, depression, fatigue, conflict in the social relationships, among others.

Research developed with populations of both men and women that had dwelled and worked in Antarctic stations spending the whole winter (cf. L.A.Palinkas & Houseal, 2000; L.A. Palinkas, J. Johnsson & J. Bosler, 1998; etc.), showed that adaptation and performance are directly associated with: a) the *degree of challenge posed by the work performance,* b) the *characteristics or the human station* (the importance of the relation between the characteristics of the space and the type or social interactions that take

place there –according to Simmel's approach -1998; cf del Acebo Ibáñez, 1985- is again present), and c) the *harsh environment*.

At the same time, and according to a study of more than 1,000 individuals that had also wintered in the Antarctica (Suedfeld, 1991; Taylor, 1986; Rosner et al., 2000; Peri et al., 1997)**,** it is shown that there are other three critic factors to get a positive performance while dwelling and working in the White Continent, namely: *a) expertise, b) stability* (mental health), and *c) sociability.*

Returning to the *total phenomenon approach,* once again we can see that the different variables mentioned in these studies are correlated in some way or another, i.e.: the degree of challenge posed by the work performance is related to the expertise of the inhabitants; the characteristics of space (the infrastructure and architectural design, such as places for leisure time, spaces for intimacy or privacy, and for social life and interaction) are closely related to stability and sociability; and all of them with the extreme environmental and cold weather conditions.

Nevertheless, as usual there are also "hidden variables", several times not mentioned, but always present, such as: i) *highly motivated and self-selected personnel*, who volunteer to dwell and work in these environments for long time, show high levels of psychological adaptation; ii) *individuals value-oriented* (in terms of science research, environmental needs, nation nal interests, climate global concerns, etc.) are in better conditions to overcome difficulties and obstacles created by isolation and harsh climate conditions (cf. E. del Acebo Ibáñez, 2010) ; iii) the existence of *some Antarctic areas more populated than others,* like the Antarctic Peninsula and the King George Island (South Shetland archipelago) where a large number of countries have stations, potentially communicated, diminishes the feeling of isolation (J.S. Mocellin, 1991; Martin Pauls et al., 2009: 1080-1088); iv) the *socio-cultural world of belonging* of the dwellers and workers (and their *Weltanschauungen* thereoff), which include non manifest aspects of culture such as values, representations of reality, beliefs, etc.

Adaptation and the results of bio-medical analysis also deal with a *social* and *cultural perspective*, when speaking about long Antarctic winter stays (cf. Palinkas et al., 1995b y 1995c; Palinkas & Suedfeld, 2008), which means that the relation subject-extreme environment is also interfered by social factors like social class, gender, occupation, types of leadership present in the group, together with non manifest aspects of culture such as

values, norms, representations of reality and beliefs (cf Wood et al. 1999; Steel, 1997; del Acebo Ibáñez et al., 2014).

Image 4: Marambio station (Argentina)

Source: Marambio Foundation

According to several studies, three main factors are described by the winterers as being difficult with which to cope, namely:

1. *Prolonged isolation*, which implies the separation from primary groups (family and close friends) for all members of the expedition (Zuniga, 1962). As Taylor & Brown (1994) state, the principal consequences of this isolation are loneliness, lack of social and affective relations, and loss of usual social rules.

2. *Confinement* in isolated small groups, which implies the lack of privacy, and this permanent presence of others within this relatively crowded space are cause of social conflicts (Stokols, 1987). The *Proxemics* approach –as mentioned above- makes interesting insights to this respect (E.T. Hall, R. Lécuyer, L.A. Palinkas & P. Suedfeld).

3. *Occupation,* that refers to individual and group work, but also to leisure activities and collective tasks. Nevertheless
-as Rivolier (1989) states- the inhabitants of the Antarctica during the winter stay have to deal with periods of under-occupation, but also with

times of high levels of work. During winter, leisure may be an efficient way of adjusting to the extreme conditions, but it may also be seen by some winterers as a source of frustration because activities are limited.

As a consequence of these stress factors, psychological reactions are expected to appear in subjects living in such extreme environment, as many studies state (Greg Décamps & Elisabeth Rosnet, 2005; Gunderson, 1974; Nardini, Herrmann, & Rasmussen, 1962; Strange & Youngman, 1971; Natani and Shurley, 1974).

Bechtel & Berning (1991) describe how the performance of those working and dwelling in the Antarctica declines during the third quarter of a mission in such an isolated and confined environment, regardless the total duration of the mission itself. Precisely, the *third-quarter phenomenon* implies that this is the isolation period when the most discomfort winterers reported.

According to Rivolier (1989), psychopathological reactions such as schizophreniform troubles, psychasthenic-obsessional, or paranoid reactions are very rarely reported (less than 2% of the winterers). Cazes & Bachelard (2001) confirmed this percentage in an unpublished French report. Anyway, although very rare, these reactions are severe enough considering the impact they have on the others members of the crew and on the achievement of the established mission. The size of the group, the harsh environmental winter conditions and the consequent isolation and confinement make a worst impact to the subjects' mood and the group performances.

Strange and Klein (1973) revealed clusters of symptoms that were described in terms of depression, hostility, sleeping difficulties, and a decrease in cognitive efficiency. Within each of these clusters, psychological and physiological symptoms are associated with one another.

The psychological discomfort and the events that occur during the winter do not affect all members of the group equally (Wood, Lugg, Hysong & Harm, 1999). Inter-individual differences, such as personality and the position of the winterer at the base (researchers or support personnel), are not inconsiderable when understanding the appearance of stress reactions. A previous study run at French sub-Antarctic bases revealed differences of adaptation between these different groups of winterers but also between those who were wintering for the first time and those who had already wintered in the Antarctica (Décamps & Rosnet, 2005). The data that have actually been collected by the bases from the

other nations who are members of the Scientific Committee for Antarctic Research (Italy, Argentina, and Australia) will also allow us to draw more informed conclusions concerning cross-cultural differences in participants' reactions toward stress.

Furthermore, the diachronic approach of the stress reactions is of great interest for understanding the way how the winterers adapt to the stressful environmental conditions of polar wintering.

Cazes and Bachelard (2001) reported compensation between physical symptoms and the hostility that appears in interpersonal relations. However, Mocellin and Suedfeld (1991) conclude that the polar experience was not generally aversive and stressful.

Most of the time, the stress reactions and the behavioral responses of the winterers are useful, as suggested by Palinkas (1992), who described *long-term positive effects of wintering-over*. Most of the reactions are not the expression of an inability to cope with stressors and should be considered as the normal reactions of the winterers. Décamps (2005) proposed to name the different regroupings of stress reactions that appear during the winter-over as *the adaptive reactions*.

So, and as we mentioned above, it can be stated that *the third quarter of the exposure to an extreme environment* is the period when most participants will report the most discomfort, as Bechtel and Berning (1991) stated. Other studies continued with this hypothesis (Palinkas et al., 1995; Palmai, 1963; Rohrer, 1961). Sandal (2000) confirmed this finding by observing a decrease of well-being and optimism in the second half of the stay. She also reported an increase of aggressive behaviors and observed that this phenomenon may influence coping strategies. The object of that research article is to study the evolution of the different categories of stress reactions during a winter-over by analyzing data collected with an observation grid. Moreover, changes should also be observed concerning the social, physical, and occupational reactions. Referring to Gunderson's (1963) classification (stability, compatibility, and ability) and to Rivolier (1974), Cazes, Rivolier, Taylor & McCormick (1989) they proposed that the *psychological adaptation* should be observed through four categories, namely:

a) *thymic reactions* (mood variations, anxiety, negative or pessimistic feelings, boredom lack of self-confidence or self-esteem, decision-making difficulties, oversensitivity, hyperactivity);

b) *social reactions* (verbal or physical aggressiveness, fear of being misunderstood or underestimated, increasing independency on others, irritability, distrust, self-centeredness, over-dramatization of incidents;

c) *somatic reactions* (sleep disturbances, loss or increase of appetite, loss of weight, stomach or abdominal pain, headaches, fatigue, back pain, alcohol and/or drug abuse;

d) *the occupational reactions* (overinvestment in work, lack of interest for leisure activities, lack of concentration difficulties and inability to complete any task, under-involvement and less participation in expedition and leisure activities.

The Adaptability Questionnaire (ADQ) proposed by Cazes et al. (1989) to study psychological adaptation is based on these four categories. Rivolier (1992) named the difficulties encountered by the polar workers *winter-over mental syndrome*. Nevertheless, in all cases the conditions seem to get back to normality only many months after the re-entry (P. Cenni, 1997).

In sum, as many studies conclude, environmental factors associated with high latitudes (cold, darkness, altitude) appear to represent a positive influence on mood and behavior during the first half of winter-stay and a negative influence during the last half of winter-stay. However, latitude is also associated with *social* (isolation, confinement) and *physical* (cold, darkness) *environmental stressors*.

Men and women who winter-over at scientific research stations often exhibit a complex of psycho-physiological symptoms in response to these stressors. However, this experience also appears to provide *long-term health benefits*. In fact, it is argued that the psychological symptoms are themselves part of the process of coping and do not necessarily represent an inability to adapt to the extreme environment.

Coping is viewed –as Lawrence A. Palinkas states- as a process of negotiation leading to a compromise between individual and group needs. The cultural systems of Antarctic research stations are both a product of this negotiation and a set of normative and pragmatic rules regulating this process. Further, this process fosters the acquisition of new strategies or resources for coping with subsequent stressful experiences, as a sort of socialization process that helps to better overcome problems in different areas and moments.

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4. Towards a Reflexive South

In different approaches to the Arctic issues, some authors speak about the "reflexive North" (i.e. Aarsæther & Bærenholdt, n/d) to stimulate the discourse on local level development. This is can be related so some of the theoretical fundamentals mentioned at the beginning of this work, mainly those which highlight the circumpolarity as a *total -multidimensional and interdependent, phenomenon* where the relation between territory, inhabitants, social relations, socio-cultural issues and environmental conditions are inextricably united. Integration reinforced by roots, community attachment, meanings, values, beliefs and representations of reality.

Consequently perhaps it is also possible (and necessary) to speak in terms of *"reflexive" extreme regions* (cf. Lash, 1994), what in a way represents a revisit to the invitation that the philosopher Bachelard does when he refers to the "*interiorization of the exteriority*" and the "*exteriorization of the interiority*", the crossing of which is the angle stone for that "reflexivity". More than an individual property, reflexivity is a communitarian one dealing with identity.

Reflexivity is not related to local development in strict sense, but - as different authors state (cf Castells, 1976, 1998; del Acebo Ibáñez, 2000,

2007, 2010)- is related to the ways that a given local community emerges as *meaningful responses* to globalization and individualization. That is, a revisit to the rootedness phenomenon.

To really understand the new ways of inhabiting the Antarctica represents a real challenge because those ways, coming from the global issues, show a sort of paradox: while this globalization process bombards in different ways the local community phenomenon all over the world, the attempts to inhabit the Antarctica face the need to reinforce a *locality* approach to survive over all its restrictions and climate obstacles. In fact, the Antarctic life shows new routines and adaptive strategies where new forms of localities and identities are established in a process of institutionalization (del Acebo Ibáñez, 2018, unpublished). As we have already pointed out in another place (del Acebo Ibáñez, 2017) we can see many of the dimensions mentioned in the following figure:

Figure1: *Extreme Winter. Between exteriority and interiority*

Source: E. del Acebo Ibáñez (2010)
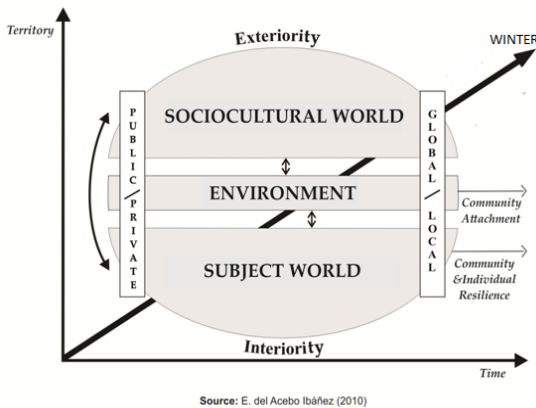
This phenomenon is not new, as it has been developed during long time in northern population and communities, presenting two dimensions or meanings, namely:

a) *structural reflexivity*, which involves a process of change of social structures through social practices, and

b) *self-reflexivity*, which refers to the process where social actors consider their own social practice, questioning also the meaning and importance of those processes of change (Lash 1994: 115).

It must be said that "reflexivity" is not mainly and primarily an individual property, but a *communitarian* one (cf. Lash, 1994). That is why those who participate and contribute to the construction of this reflexivity are not only who winter-over in the Antarctic stations, but also the inhabitants living in near socio-cultural areas, proximity that must be read in terms of shared geography, climate, environmental concerns or nationality. In this sense we have been developing during the last fifteen years comparative studies of inhabitants of different Argentine cities and from other countries (Reykjavík, Jyväskjlä) about their representations, perceptions, attitudes, and behaviors in relation to the White Continent (del Acebo Ibáñez, Gunnlaugsson & Pyykkönen, 2014).

In a comparative research we devoted to young inhabitants aged 15–25 of the Patagonian city of San Carlos de Bariloche and the city of Buenos Aires (del Acebo Ibánez & Costa, *Polar Record,* 2010) the data collected brought us to these conclusions:

- Antarctica tends to be seen as the *Terra Incognita*. The high percentage of subjects that do not answer or say that they do not know the Antarctic issue can be summed up as a predominant 'couldn't-care-less', indifference many young people demonstrate with respect to the continent.
- The *imaginary Antarctica*, as a fruit of an *aesthetic, poetic, and utopian vision* is present among people with a lower level of consumerism-orientated life, low *anomie* level and a high grade of *potential participation*, that is, individuals endowed with sufficient energy to experience concepts in which Antarctica rises as a metaphor of beauty, mystery, purity, virginity, and the last shelter.
- Conversely, a *more pragmatic and conflict-aimed vision* of Antarctica is to be found in a higher ratio among young people with the highest socio-economic level (SEL).

5. Antarctica, in Search of an Identity

As Friedman affirms (1995: 86), "the practice of identity is about identification of an existential world, the attribution of meaning to the world, to objects, persons and relations. This practice identifies the self as it identifies the world."

Although shared meanings and identities have been constructed at first by national-level processes, the feasible Antarctic identity is based

both at space and time basis as it happens in every circumpolar national identity, but together with a founding and in some sense heroic attitudes.

The complexity of the Antarctica is not only in terms of Ecology, natural and social sciences and other scientific fields, but also because of its convergence of aesthetics and ethics, reality and poetry, virginity and pollution, conservation and potential depredatory behaviors, together with national and international approaches.

This is one of the reasons why the concept **"**Antarctic social identity" mentioned by different authors (cf. Ron Roberts, 2011; Wheeler, 1999) is so important. In fact, this identity is closely related to concepts we have already mentioned, like "mission", "heroism", "founding spirit" (*homo conditor*), "adventure" or "risk", always present along the time in the ways of inhabiting the White Continent.

This is also present in the people that usually work sailing in the Southern Atlantic and Pacific Oceans, close to the Antarctica. We have developed a research project to this respect
on board the Oceanographic Navy *"Puerto Deseado",* Argentine unique ship which operates with a jointly civilian and military crew in scientific campaigns organized by both the Argentina's National Science and Technology Research Council and the Naval Hydrography Service (del Acebo Ibáñez, 2011). The Southern Atlantic Ocean and its islands represent an important area close to the Antarctica where many people work every single day of the year, showing a maritime identity with some convergences with the above mentioned Antarctic identity (sense of heroism, sense of risk and adventure, team spirit, harsh climate conditions) (see *Anexus* with parts of interviews run to military and scientific crew on board an oceanographic Argentine ship during the 2011 scientific campaign in the nearby of the Antarctica).

Antarctic "spatialities"
The Antarctic space, including of course the stations, is not totally homogeneous as there are heterogeneous cultural spatialities constitutive of the polar south (Collins & Stevens, 2007; del Acebo Ibáñez, 2018).

As Collins & Stevens state, while Antarctic spaces are given meaning in the imagination and represented and contested through discourse, grasping their complex spatiality requires understanding the concrete materiality which people have produced there, and the ways in

which this spatial materiality is interlinked with social processes and meanings.

Built environments are "secreted" by specific social formations, which design, construct and assign social activities to them. Built spaces are also crucial to the production and reproduction of a given social formation; they can give it cohesion and continuity. This was clearly stated by Georg Simmel (1985) in his studies about the characteristics of the space that influence the social interactions, and the characteristics of those interactions that influence the space (cf del Acebo Ibáñez, 1985). Lefebvre (1991) notes that any "social existence" that fails to produce its own space would be a strange entity, a kind of abstraction unable to escape from the ideological or even the "cultural" realm with a feeble degree of reality.

It is time that the complexities of these spatialities of Antarctic colonization are given critical attention. Colonial spatialities, as Jacobs (1961) argues, are not simply a matter of geopolitics, representations, or inhabited buildings; rather, "they exist in the 'opaque' intersections between representational practices, the built forms and a range of other axes of power". It is these spatial intersections – how the various cultural technologies of buildings, texts, laws, and geopolitics combine into powerful Antarctic spatialities (Collins & Stevens, 2007).

This is also reinforced through the museums that the Antarctic has. In fact, Argentina maintains museums there and exhibitions supported by the Argentine Antarctic Institute and the National Naval Museum, allowing the rescuing of memory (Carlos Vairo et al., 2007). What is more, there is *historical Archaeology* which includes the search, localization, classification, conservation, restoration and maintenance of sites, artifacts, and historic buildings; these recovered elements become part of the museological activity.

This is the case of the *"MUSEOANTAR" Argentine Program*: it fulfills the commitment taken on by the Argentine Republic as a country member of the Antarctic Treaty, so safeguard the heritage of the Antarctic continent within the geographical area of its influence. Following the regulations of the Antarctic Treaty, Argentina through this Program has collaborated intensively in the protection of different international monuments in the Antarctica, such as: two shacks built by the South Pole Swedish expedition (1902 and 1903) in Snow Hill Island and Hope Bay (the shack in Snow Hill was declared Historical National Monument by the Argentine government in 1965; one shack made of stone on Paulet Island

built in 1903 by the Norwegian Carl. A. Larsen (cf Vairo, 2007). The need to protect the heritage of the Antarctica was emphasized by the Antarctic Treaty parties in Bonn during 1991 at the *XVI Antarctic Treaty Consultative Meeting*, when it was distinguished the development of the MUSEOANTAR Argentine program as an example to be followed by the Antarctic community.

Image 5: *Esperanza Station (Argentine permanent base)*

Source: DNA

Image 6: *Marambio Station (Arg.)*

Source: DNA

Image 7: *San Martín Station (Arg.)*

:...

Image 8: *Orcadas Base (Argentina)*

Identity is of course close related to local development, but also to the fact that those local communities emerge as *meaningful responses* to globalization and individualization (cf Castells, 1976, 1998; del Acebo Ibáñez, 1993, 1996, 2000, 2006, 2010)

To really understand the new ways of inhabiting the Antarctica represents a challenge because they are coming from the globalization

process, representing a sort of paradox: while these process are bombarding in different ways the local community phenomenon all over the world, the attempts to inhabit the Antarctica need to reinforce this *locality* approach to survive over all its restrictions and climate obstacles.

The Antarctic life shows *new routines* and *adaptive strategies* where new forms of localities and identities are established in a process of institutionalization.

It means that a sort of *emotional geography* emerges (cf. Ron Roberts, 2011), like a *founding representational myth*, linked to the "historic missions". It means that Antarctica works as a metaphor of purity, wilderness and virginity, being still nowadays the *Terra Incognita Australis,* a sort of metaphysic sanctuary, a pristine confine of the planet.

As the existentialist German philosopher Martin Heidegger (1955) states, *"…the human being does not dwell because he/she builds; instead, he/she builds because previously dwells",* we believe that the Antarctica is inhabitable not only because of the developing technologies, but mainly because of the human being's nature as *homo conditor* and dweller: heroism, fights, dreams, feats, which is all related to *adventure*. High mountains, oceans and the extreme winter appear as mirrors of the soul. Hence, these are "the roots for the primeval fight, the gallantry and heroism that protect us when we feel overwhelmed by the *extrinsic immensity*" (Bachelard, 1993: 285s). In other words, the dialectic between the vast extension of the world and the vast extension of the human mind, solved within a growing, existential synthesis. The fact is that, for Simmel (1999: 24), any adventurer "always believes that he is safe", while Bachelard (1993:287) affirms that this is because the greatness of the human being is fed by the greatness of the world.

When facing the elements –the sea, the mountain, the cold weather, humans are joyfully *alone*. This is so because –as Bachelard warns us, we are facing a loneliness ideal so necessary for the cosmic challenge psychology (cf. E. del Acebo Ibáñez, 2004-2005).

ANNEXE:

"Research project on board the Argentine Oceanographic Navy 'Puerto Deseado' during the 2010-2011 scientific campaign in the Southern Atlantic Ocean, near to the Antarctica"

The Southern Atlantic Ocean and its islands represent an important area close to the Antarctica where many people is working every single day of the year. For this reason we develop a research project on board the Oceanographic Navy "Puerto Deseado", Argentine unique ship which operates with a jointly civilian and military crew in scientific campaigns organized by both the Argentina's National Science and Technology Research Council and the Naval Hydrography Service.

With 76 meters in length, and a 13 meters beam, she displaces 2,400 metric tons at 14 knots, this ship is apt at sailing in polar zones. Scientific activities constitute her working frame, with both national and foreign institutions. In 1982, during the conflict in Southern Atlantic, she participated as a hospital ship.

We left the Port of Ushuaia on April 8th, 2010, at 08:45, with a wind intensity of 8 knots and a temperature of 10º C. After crossing the Beagle channel coast, "Les Éclaireurs" lighthouse, the Ushuaia bay, the Drake Passage and the Cape Horn meridian zone, the wind-tempest intensity was 35-40 knots and increasing, with a barometrical pressure of 963 Hpc, reaching a lower pressure centre.

When the wind-tempest intensity decreased, we started to interview some members of the crew. The result of the research and the techniques applied (participant observation and semi-structured interviews) shows the sense of mission of their job (being military, scientists or common worker), the team spirit, the sense of community, the openness to Nature, the deep respect to the ocean, the importance of "adventure", the seamen tradition, the privilege to sail and work in the Southern Ocean.

Interview 1: Lieutenant Commander, 2nd Commandant of "Puerto Deseado" ship

"[…] In the Navy, they always say that a ship is a "piece of iron". However, when you are on board her, that *iron* gets alive –and you are somewhat involved, affectionate with that way of living, sharing your life with it, and your NCOs. Finally, you become fond of the ship in spite of

her movements. At times, she treats us badly but, eventually, you become attached to her […]".

Interview 2: Lieutenant commander, Commandant of "Puerto Deseado" ship

"[…] A Commandant is the person absolutely responsible for all and everything happening on board. It could even be possible to compare him to a family man. Actually, his task lies in the management of working people. At time, when I talk to the crew, I insist on the virtues of team working where all of us assess different aspects, all of us participate. Of course, in today's life, thanks to a good attitude, you can become either a hierarchical leader or a spontaneous leader. When we consider what History is, it is quite clear that the sea has been the force leading humans to discoveries, inspirations, and adventures. So, if you analyze those discoveries, the campaigns of those great seamen who, obviously, made history you understand that their deepest inspiration, their deepest desire was leaving the land behind and setting sail, rushing to that unknown world that was a world for adventure –and keeps being so […]."

Interview 3: Lieutenant commander, Commanding officer of the Hydrographical Ships Association.

"[…] As far as activities aboard boats are concerned, you are in the right position to assess all and every man's tasks –moreover, when you are on board a smaller ship: there, team work is absolutely fundamental. And that does not only concern the man who is on guard on the bridge. If machines do not work, ship does not move on. If the oven does not work, crew cannot eat. If the radio is mute, you cannot communicate. A well integrated working team in harmony –well, these are not only people who work under a hierarchical relationship –this team becomes as a second family for you.

When you are on board ship you haven't any other place to go… so, in case of any accident, averages, anything on board, you know that your own life depends on the ship. In other words, if some situations are risky, risk is due to both aspects pertaining to the mere mean you are sailing on –that is, first, the ship. Then, the sea.

Inasmuch as you live here, you have to deal with some tasks that, at times, could be quite risky. For instance, you have to anchor –well, this includes really strong tensions. You have to moor –well, there have been many accidents all around the world. And an accident involving a mooring rope could signify an amputated leg, a broken arm. Indeed, such accidents do happen. For example, the place we are now, this part of the Atlantic Ocean called Argentine Sea, well the winds cause heavily rough waves[…]."

Interview 4: Lieutenant commander (Ret), Captain / Oceanographer

"[…] As far as I am concerned, ocean is an adventure world. A world wherein you are amazed, well: wondering and waiting for wonders. Not everything has been solved down there –so, if this not an adventure world, what is it?

Ocean is a world wherein humans keep being astonished, and this is most important. As I've just said: not everything has been solved down here. I should say, this is a place where humans cannot mature –if, for you, "maturing" means enjoying so much experience that you don't believe in anything else, now. Indeed, oceans are a world wherein humans can afford to keep being immature…Even though I am 80, I know there are still things to see and discover down there. Oceans are just that: they're life, a life that keeps amazing us.

Well, I really don't know whether you have to live so safely – because life includes most beautiful things but, at times, "the end" is the cost you have to pay for the most beautiful things, i.e. problems, diseases… so is life. And ocean is just like that: the possibility to be unsure. Being amazed is just as I said before: you are not only open to something beautiful but you are not sure to be safe.

I sail since I was a baby: yeah, I've on board one photo where I'm sucking my dummy… From then on, so many things happened. I really don't remember when I set sail for the first time, and I don't remember when I read my first adventure story… I grew up with Salgari, with Jules Verne, with Jack London, with Melville. Moby Dick… I was astonished, not only with adventures, but also with the study of characters, of human profiles…

Adventure has been a part of my life since a very long time –and still is. I didn't construct it over time: over time I have incorporated it, with

some variations, with other orientations. But I keep dreaming with adventure. Life is adventure. You do not rehearse life, you live, period. Love and adventure are parts of a same aspect, I think. No rehearsal, you live. And if you are afraid, you don't live. No mercy for shyness in love, and no mercy for fear in adventure. That's it. […]".

Interview 5: Dr. in Biology from the National University of Buenos Aires, Head of the 2010-2011 Campaign.

"[…] What we are studying now is the whole Patagonia-Austral area, included into a zoo-geographical Argentine Province, the Magellan area covering from the Tierra del Fuego Island, the Santa Cruz Province, and the south of the Chubut Province up to the Gulf of St. George to the North. Waters are cold indeed –these are sub Antarctic waters –and really Antarctic ones as regards the Tierra del Fuego Island. So, such cold waters cause the fauna living there to be most diverse.
An interesting aspect of scientific research lies in the fact that you have to deal with strong challenges. You ask you something and you have to find the answer. At times, you reach the answer through different ways. However, when you get it, I think that's an immense satisfaction. […]".

Interview 6: Coastguard, Head of General Detail .

"[…] Vocation is just fundamental for a service man. This is so because this is what you want to do, and enjoy doing –and this is why we shall put our work before our family life, our homes: our passion lies in flying the flag in the high seas.
        My maternal grandfather was on the merchant navy. It is so str ange –when you are a child, to find out that some people are so happy to live far from home, to know sea ports all around the world… and the stories he told me –I was so interested… I think that "my marine part" came from him to me.
        If there exists something dramatic is to be on deck, at night – knowing that within miles and miles around you there isn't anything, you only see the moon and millions of stars…Those are unique experiences so few people can enjoy […]".

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