



## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

**Abstract**

In children's literature science and nature have traditionally played the role of a narrative device, a landscape background for the setting where to let speaking animal characters act. It is only since the 70s that the environmental issue has started to appear through the ecological problems, by dragging new visions and critical analyses into literature. The article analyzes the influences the scientific environmentalism had on the Italian literature between 1970 and 1980, when an ecological awareness starts to progressively develop within the country.

By adopting some rules belonging to *ecocriticism*, attention is being focused on those works which are the first ones to be inspired by the "thought-through-connection" notion of modern ecology and which find their first expressive and artistic paths in the narrative for children and young adults by identifying, in a connected way, the *crossovers* with the popularization of science and with the objectives of environmental education.

Through the narrative themes and the popularising writing – adopting the ecocritical statute as a reference guidance – the strategic problems relating to the ecological issue within the Italian *fiction* and *non fiction* are brought to the fore: the effects deriving from the aggression to Third World's resources, the need for science to radically change its own traditional point of view, the inseparable interrelation between environmental damage and social damage by paying special attention to the role played by information. It is therefore suggested that modern ecological thought has remarkably contributed to the general innovation of literature and publishing industry for children which has developed in the subsequent twenty-year period.

**Key words:** children's literature, fiction, non fiction, ecocriticism, popularisation of science; ecological thought; interdisciplinarity; prejudices.

**Zusammenfassung**

In der Kinder- und Jugendliteratur hatten die Wissenschaft und die Natur traditionsgemäß die Rolle eines erzählerischen Notbehelfs, eines landschaftlichen Hintergrunds für die Szenerie, vor dem sprechende Tierfiguren agieren. Erst in den 70er Jahren beginnt die Umweltfrage durch Umweltprobleme hervorgerufen aufzutauchen und bringt in die Literatur neue Visionen und kritische Betrachtungen ein. Der Artikel analysiert die Einflüsse des wissenschaftlichen Umweltschutzes innerhalb der italienischen Literatur zwischen 1970 und 1980, als im Land eine allmähliche Verbreitung des Umweltbewusstseins begann. Unter Anwendung einiger Maßstäbe des *Ecocriticism* wird die Aufmerksamkeit auf Werke, die sich als erste von „*Gedanken im Zusammenhang*“ mit der modernen Ökologie inspirieren lassen und welche die ersten expressiven und künstlerischen Wege in der Belletristik für Kinder- und Jugendliche beschreiten, gerichtet, wobei die *Cross-overs* mit der

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

populärwissenschaftliche Literatur und mit den Zielen der Umwelterziehung zusammenhängend ermittelt werden. Mit Hilfe von Erzählthemen und populärwissenschaftlichen Schriften sowie unter Anwendung des ökokritischen Ansatzes als Bezugsgröße werden die strategischen Probleme der Umweltfrage in der italienischen *Fiktion* und *Nichtfiktion* hervorgehoben: die Auswirkungen des Angriffs auf die Ressourcen der Dritten Welt, die Notwendigkeit, dass die Wissenschaft ihren traditionellen Standpunkt radikal ändern muss, die untrennbare Wechselbeziehung zwischen Umweltschaden und sozialem Schaden mit besonderem Augenmerk auf die Rolle der Information. Es wird daher die Hypothese aufgestellt, dass der moderne Umweltgedanke zur allgemeinen Innovation der Literatur und des Verlagswesens für Kinder- und Jugendliche, die in den darauf folgenden zwanzig Jahren ihre Entwicklung nahm, beträchtlich beitrug.

**Schlüsselwörter:** Kinder- und Jugendliteratur; Umwelterziehung; Ecocriticism; Populärwissenschaftliche Literatur; Umweltgedanke; Interdisziplinarität; Fiktion; Nichtfiktion; Vorurteile; Innovation.

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

**Scientific Thinking and Environmental Education as factors of innovation in Literature for Children****Introduction**

The representation of childhood and the search for an ideal relationship with nature find interesting examples on the basis of an explicit environmentalist message to children at the end of the Nineteenth century, in England and in the United States, due to associations striving for the protection of parks and wild animals (Rahn 1995). Influenced by the heritage of Rousseau's natural education, the writers belonging to this tradition were not particularly successful but they started to legitimise an environmentalist literature involving also great classics, such as those from the Victorian Age, during which colonialism had encouraged discussion on discoveries, explorations, pristine places, e.g. *The Jungle Book* by Rudyard Kipling or less exotic and cosier contexts, such as Kensington's gardens in the adventures of Peter Pan, or the *Secret Garden* by Frances H. Burnett.

As a matter of fact, the literature by authors from North European Countries seems to be the privileged framework for analysis, as if the feeling for nature had specific national narrative forms or if the narrativization of these Countries' national feeling were intimately linked to a certain way of perceiving nature. Paul Hazard's (1954) opinion on Andersen's fairy tales and on 'Nordic' literature as a whole is emblematic: the Danish writer proves to be a master in animating animals and objects until their deep voice can be heard clanging.

He provides enchanted paintings, letting the readers discover the 'fantastic dominions of snow and ice', thousands of nuances of the long and sleepy winters, with a range of colours which are not flaming but delicate and vague, and an imagination which is closer to dream, deeply linked with emotional life, with its uncertainties and doubts. The world of nature, meant as a dimension of the imaginative world, has always represented a place elsewhere where man can escape alienation and depersonalization but, as well, the background against which to develop initiation paths, a magical and fairy dimension dominated by fancy and animism which are typical of children's thinking.

But it will be with another Danish writer, Karin Michaelis, that the romantic feeling for nature will be translated into a real ecological pedagogic programme. Already in *The Green island* (1937), the story of a boy and of his fellow citizens who see their village covered with water because of a flooding being transformed into an island, she will introduce some fundamental issues: islanders are indeed compelled to talk together about *vital space*, and about agricultural holdings which should

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

have determined a sustainable development, compatible with respect for the environment. Especially the series of novels dedicated to her best known character – the young *Bibi* who, during her travels around Denmark both alone and together with her friends, devises strategies in order to improve the world and rediscover nature – introduces important topics, such as the relationship between tradition and innovation, the contact with nature as a way of expressing the most genuine side of oneself, the training value of travelling. Bibi finds an association for the protection of animals; she takes part in environmental movements of *avant-garde* schools attended by young people from all over the world near the Black Forest; she travels on mighty ships cracking the ice of the North Sea; when in Berlin she is hosted by Albert Einstein and, in the city, she finds out about the emergence of shopping malls and of new public transport means. The writer therefore appears to be extremely wise, in her novels, when weighing out on the one hand a childish vision of nature – seen as a dimension close to childhood, an almost magic and unspoiled place, mainly a rural one, onto which the popular point of view projects mighty fantastications – and, on the other hand, a modern and amazed look facing historical facts which, exactly in the Thirties, were changing the relationship between man and reality.

The nature covered through the large number of trips taken by Bibi brings to mind a sort of a geography handbook, a narrative scheme shared with other classics of literature for children and young adults, from *Sans famille* by Malot to *Cuore* by De Amicis and to *Nils Olgerssons underbara resa genom Sverige* by Lagerlöf. These are books whose approach is certainly a little strict but which have had the merit to provide their children-readers with an initial sense of national identity and of space, by progressively moving away from familiar contexts to gradually broadening knowledge horizons, metaphorically narrating, in this route, the growing up of characters who gain a more complex maturity by experiencing life directly.

A nature regarded as a placid and unspoiled dimension, a romantic metaphor for the human soul, a landscape living in perfect harmony with the events taking place within it – events which are especially related to the life of rural community – reappears in the novels by Astrid Lindgren, in the trilogy dedicated to Emil and, above all, in *Holidays on Seagulls' Island* (1964) which is inspired by the beauty of the Stockholm Archipelago: life on the island teaches Karin, the main character, the capacity to feel the energy of a simple, happy and intimately unspoiled nature flowing through her body, a nature able to represent a sort of reservoir of positive emotions from which to draw on for the rest of her life. A wild, totally absorbing and primordial nature, which requires respect and knowledge, is instead the absolute protagonist of the beautiful novel *Ronja* (1982): a kind of *forest feeling* runs through the whole book. The joining with all creation, the experience of seasons, the

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

ecstasy about the arrival of spring, the changing in perceptions during the different hours of the day, all of this represents a sort of melody flowing through the novel's pages (Edström, 2000, pp. 277-278).

Today books for children and young adults focusing, in a more or less direct way, on the topics of environmental education represent a remarkable share of the publications market, expressed through a wide catalogue of opportunities, ranging from the classics of environmentalist thought, such as *The Man Who Planted Trees* (1953) by the French author Jean Giono, to handbooks and activity books, with games and experiments introducing young people to ecosystems, arriving to popularisation books dealing with the topic of biodiversity and climate change, e.g. the denunciation book by Al Gore - *The Crisis of Global Warming told to Youth* (2008), and to publications mainly linked with active citizenship. It may be said that the beginning of a literature for children which is not pedantic or moralistic but indeed latched on to contemporary times from a stylistic and thematic point of view, which is sensitive to the reality to be presented to the young reader without any censorships or sugar-coating, stems also from a profitable contamination with the environmental and scientific culture of the Seventies. In this sense, the contribution by Gianni Rodari has been emblematic: he was the pioneer of an experimental literature for children and young adults, marked by the «coming down of barriers among literary genres, the use of parody and of the technique of rewriting, the high rate of intertextuality» (Rossitto, 2011). The works by Rodari show a deep ecological awareness in the expression of a strong solidarity towards people, being in a close conjunction with the natural environment surrounding them. It is not for nothing that the main character of the nursery rhyme whose title is *A mature man with an unripe ear* (NoT, Original title in Italian: *Un signore maturo con un orecchio acerbo*), defined as being an original 'pacifist ecological manifesto' (Panzarasa, 2011), has a young ear which is useful to understand things adults have forgotten about: the words of trees, of birds, of clouds passing by, of stones, of streams, and also of children when they say things which may sound mysterious and incomprehensible to a mature ear. Not only does Rodari significantly pay attention to scientific themes but the ecologist level of his work goes together with those important problems, such as the debate over the neutrality of science and the role played by scientists, towards which the author takes a clear and sharp value position already in *The Cake in the Sky* (NoT, Original title in Italian: *La torta in cielo*, 1966). A sensitivity which will widely resound in books and tales by authors who will bet on the productive connection among literature, science and ecology: by putting together narration and popularisation, they will refer to the new paradigms of science, such as the thought through connections, the unpredictability and irreversibility of environmental damage, by expressing a kind

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

of ecology which is no longer limited to the observation of the living systems, to their aesthetic vision but which is indeed able to make a problem of the environmental situation, and to provide young generations with updated and refined critical and hermeneutical skills. These international pedagogic and cultural principles and trends will be referred to and re-launched during the *Intergovernmental Conference on Environmental Education in Tbilisi* where, among the other recommendations, it is established for the first time that: «A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment.» (UNESCO, UNEP, 1977).

### 1. Three important books in Italy

Between 1970 and 1980 in Italy, together with Rodari's production, three books introducing modern environmental concepts in children and young adults' literature are published. If reread from a contemporary ecocritical point of view, they appear to be the first ones to be dealing with thought through ecological connections by offering it as a character of the plot and a construction of the writing: *The Island* (NoT, Original title in Italian: *L'isola* 1974) by Giulia Niccolai and Luciano Marco Boschini, *Blue Sky Chlorophyll* (NoT, Original title in Italian: *Clorofilla dal cielo blu*, 1975) by Bianca Pitzorno and *A Hare having the Face of a Young Girl* (NoT, Original title in Italian: *Una lepre con la faccia di bambina*, 1978) by Laura Conti.

*The Island* is for younger children and it talks about the resources of a territory being exploited and the subsequent exclusion of its inhabitants from this process. It is maybe the first time that this topic is being dealt in a simple and direct way in the literature for children and young adults.

The story talks about a Happy Island discovered by the powerful Society PQRSTT which is ruled by 7 Authorities. 'As soon as they landed on the island thanks to their competences, the 7 Authorities soon became aware of the happiness and healthiness of that place, as well as of its resources. And, in order to better exploit the latter, they decided that the former should be eliminated'. So they build factories, plants and megalopolises which are identical to those of the countries they come from, they sell Catarine's monkeys –which had been living there for a long time– to zoos and those that succeed in escaping are able to survive by remaining hidden within the

## SCIENTIFIC THINKING AND ENVIRONMENTAL EDUCATION AS FACTORS OF INNOVATION IN LITERATURE FOR CHILDREN

island together with children who, on their turn, have been moved away because they can no longer play in the occupied lands. By clearly alluding to the seven oil companies which, in the 70s, had a monopoly over the market of oil world exploitation, the story highlights the close connection between assault on environmental resources and impoverishment of territory through the exportation of their own economic models. The illustrations by Boschini are the ones to provide the right view for a significant and poetic interpretation of the whole book. Every picture of the Happy Island's surface is indeed drawn according to the curvature profile of the earth's horizon, thus suggesting that the story refers not only to that remote island but that it has something to do with what is actually happening in every part of the world. The horizon's representation provided by Boschini shows us that weak people are the first victims of any Exploitation Organization, as a matter of fact the horizon «...is the first line to trace so that the earth can be conceived, that is invented [...] it allows the local order and the cosmic order to overlap exactly because it sets up a hinge not between two different and separate parts of the world, between finite and infinite, but between two conceptions: the world which is made up of processes and relations and the world which is made up of things» (Farinelli 2007).

While keeping the pedagogic interpretations and the literary interpretations of books for children and young adults as separate as possible, it is clear that the new scientific and environmental knowledge represents innovative contaminators. From 1970 onwards, the notion of environment itself goes beyond the aesthetic approach in order to gain the statute of being «a huge, enormously complex living machine that forms a thin dynamic layer on the earth's surface. [...] Each living species is also linked to many others. These links are bewildering in their variety and marvellous in their intricate detail» (Commoner, 1971). In the same way as in the Environmental Education the change in habits and points of view becomes a new territory for pedagogic research, so in the literature for children there is the emergence of stories interpreting them.

*Blue Sky Chlorophyll* is probably the first book embracing the new environmental vision in its plot, since it talks about a vegetal extraterrestrial baby girl fallen down to earth in Milan, one of the most polluted cities in Italy, who is at risk of dying because of urban smog. The characters of the story are the scientist Erasmus and his two nephews who, with the help of a doorwoman, will save the baby girl from the one who wants to vivisect her for studying her and, then, from death caused by pollution. What makes this book one of the classics of environmental literature for children and young adults is not only the theme of air pollution, the evident basis of the plot, but indeed the narrative solution given by the author to Chlorophyll's problem. As a matter of fact, the progressive poisoning of the vegetal baby girl is not treated through a specialised-medical approach, aimed at















