

Nature and education. The historical heritage of open-air schools in Italy

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Abstract: The Covid-19 pandemic has dramatically drawn our attention to the central issue of hygiene and the possibility to bring school education outdoors and into natural settings. In fact, international pedagogic thought has focused on a 'nature-deficit disorder' in today's children for some time (Louv, 2005), as well as the need to review the prevailing form of school settings, no longer privileging indoor locations but rather outdoor environments. This contribution aims to focus on the experiences of open-air schools which, from the early 20th century onwards, have fought the hygienic and medical battle against the tuberculosis «pandemic», aiming to rediscover nature and the outdoors as a privileged educational environment for primary school children. Widespread internationally, these experiences foster the rediscovery of the educational value of outdoor settings and nature in all its scientific and cultural aspects, and, precisely because of their open-air environment, they have been promoters of self-government, responsibility, co-education, collective discovery, within the framework of the spread of international pedagogic activism. In particular, using lesser-known archive source and more recent bibliographical references, the attention here focuses on open air schools set up and developed in Italy from the early 20th century, fully-fledged examples of international outdoor schools that go way beyond those which have been known until now. Finally, it will take a look at the key experiences and personalities who have promoted a renewed form of education through nature in open air schools in Italy.

Keywords: History of education; Open air schools; Outdoor education; Italy; 20th century.

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1. Education and nature in the classics and pedagogic innovation in the early 20th century

In recent years, the issue of the relationship between education and nature and open-air schools appears as a great pedagogic rediscovery both in Italy and abroad, even more so following the COVID-19 pandemic, which has brought new sensitivity and attention to the spaces and places of teaching and education. From the perspective of the education historian, it is clear that this relationship has been

widely debated in theoretical terms and has seen historical alternations woven into the institutional dimension of school education, with a particular genesis and history.

As is well known, the central focus of nature in the educational process has been underlined since the Renaissance, and from the 18th century with Jean Jacques Rousseau, who identified the countryside, as opposed to the city, understood as a place of 'corruption', as the ideal space for educating the young *Émile*, enhancing learning to the full through the senses and the outdoor natural environment (Rousseau, 1762). Friedrich Fröbel's thoughts were crucial in the early 19th century: within German idealism, he assigned nature a central role as a place and instrument for the revelation and manifestation of the divine. Nature coincided with God, it was His direct manifestation; therefore, growing up in nature, knowing it to the full, meant immersing oneself directly in the reality of God and understanding His essence. From here, for Fröbel came the definition of the kindergarten as a natural and 'divine' environment in which to learn about the cultivation of plants and flowers, with the tools required, thus learning to care for nature like young gardeners

it is particularly important at this age to work in the garden, work with a view to the products it will give. In this way, man sees for the first time [...] the fruits of his work, fruits that [...] also depend upon his activity, the way in which he has performed this activity (Fröbel, 1826, pp. 90-91).

Fröbel is also known for the adventurous dimension of the relationship between education and nature, which is the foundation of the current forms of *outdoor education* and *adventure education*, as in 1826 he wrote

the child's inclination to climb down into caves and ravines, walk in shady woods and dark forests, is no less important and suited to his development. It is the desire to seek things that have not yet been found, and find them, the desire to bring to the light and approach that which is found in the dark and the shadow, and take possession of it, making it his own (Fröbel, 1826, pp. 86-87)

and even then, also underlined elements that are very dear to today's ecological sensitivity

in his walks, the child will recognise how the colour and form of higher natural objects seems to depend on the place where they lie and their nutrition, thus for example the caterpillar and the butterfly and the insect on the plants are similar to the form and colour of that plant, which they are a part of (Fröbel, 1826, p. 299).

Not only Rousseau and Fröbel, but substantially all the classics of education history from ancient times to the 19th century had underlined the centrality of the outdoor natural environment as an educational setting. However, Western schools and European school systems have clearly privileged the indoor setting. Indeed, it is well known that the impulse given by enlightened despotism in the late 18th century to educating the population codified an indoor educational setting in a space

called classroom, with a row of wooden benches and desks arranged in front of the teacher's desk, placed on a dais, so that all the pupils could clearly see the teacher and listen to the lessons, supported by the slate blackboard positioned to the side and then increasingly by other teaching aids and furnishings, such as panels, small collections of objects and textbooks, containing the key elements of the subjects taught, transmitting the values and behavioural models imposed by the authorities, *in primis* obedience, order, discipline, the love of studies and the fight against laziness and vices. This indoor setting, increasingly perfected within school buildings in the second half of the 19th century, defined the so-called 'traditional school', that which is internalised in every one of us, told in literature and film, that which the pedagogic activism of the early 20th century began to challenge more and more. From the late 19th century onwards, in fact, both in theoretical and practical terms there was a systematic criticism of traditional school, accused of rendering pupils passive, obedient and subjected to the times and spaces of school, for fear of being excluded in the form of being sent back a year or even abandoning school, which occurred especially among pupils of low social standing, not sufficiently culturally and materially supported by their families. At international level, all promoters of pedagogic activism strongly criticised traditional school, focusing particularly on the recovery of nature and the outdoor environment as a central factor of education and school (Tomarchio & D'Aprile, 2011; Arce Hai, May, Nawrotzki, Prochner & Valkanova, 2020). The centrality of the natural environment was also recovered and enhanced by medicine and social hygiene from the second half of the 19th century, fighting the great battle against the diseases that were decimating the population and above all against tuberculosis, the star of literature, art and music as one of the main causes of death among the world population (Bryder, 1988; Tognotti, 2012). The particular attention to social and pedagogic hygiene in the second half of the 19th century mobilised politicians and local administrators at all levels in a kind of collective battle which saw the establishment of offices in charge of public hygiene and hygiene propaganda in schools, particularly primary schools, through educational programmes, sign boards and the work of both doctors and teachers. Precisely on the crossroads between the criticism of traditional school – accused of excessive directivity, rigidity, verbalism and authoritarianism – by the international movement linked to pedagogic activism and the hygiene battle of doctors, hygienists, urban planners, politicians, local administrators and teachers, this led to new school experiences defined alternatively as *waldschulen* in the German area, *open-air school* in the Anglo-Saxon area, *école en plein air* in the French-speaking area, *escuela a l'aire libre* in the Spanish area and *scuole all'aperto* in the Italian area (Châtelet, 2003; D'Ascenzo, 2018a, 2018b, 2018c).

2. Open air schools and outdoor educational practices

The first open-air school established at international level was in Charlottenburg, near Berlin in Germany in 1904, thanks to the joint action of doctors, politicians and teachers. This school was located in a pine wood, in a simple building made of prefabricated Döcker structures donated by the Red Cross, then reorganised in order to guarantee the maximum possible exposure to light and air and the surveillance of

the frail, sickly pupils predisposed to tuberculosis aged between 6 and 14, on a co-education basis, which was a real novelty for this time when boys and girls were kept separate at school. The classes were small: from the 40 pupils in traditional schools to 'just' 20 pupils, who spent all day at school doing many educational activities, also particularly learning about hygiene. The pupils underwent a medical examination prior to admission and when they left the school, had a balanced, reinforced diet, with breakfast, lunch and an afternoon snack, with frequent medical gymnastics including respiratory activities, obviously in the open air, in the wood, and frequent ablutions in the swimming pool, where they could enjoy the benefits of heliotherapy. The lessons were short, two or three hours alternated with a thirty-minute break, with play, practical activities, free gymnastics, gardening and meteorological observations. The lessons were held mainly outdoors, with the direct observation of nature and animals and walks, and the desks and chairs of different sizes were taken outside. The teachers had to create a welcoming, serene environment, adopting great flexibility in the schedules and activities, aware of the social and educational function of such an innovative experience.

The Charlottenburg experience was a pioneer in a long series of open-air schools around the world, in France, Spain, England, Germany; United States and South America (Martinez, 2000; Châtelet, 2003, 2008, 2011; Ludwig, 2003; Rodriguez Méndez, 2003; Savoye, 2003; Depaepe & Thyssen, 2010, 2012; Thyssen 2007, 2015, 2018; Dalben, 2019; Dalben & Silva, 2020). Other original open-air school solutions were identified, such as the boats in the ports of New York and the terraces of the tallest buildings in Boston and Chicago, the city in which the Elizabeth Mc Cormick Memorial Fund set up a particular open-air school in 1909 for around fifty children on the roofs of the 'Mary Crane' crèche: protected when needed by a removable glass awning, the children could enjoy the benefits of the sun, air and light, doing gymnastics, sleeping on bunks, growing flowers and plants in appropriate spaces (Châtelet, 2003; D'Ascenzo, 2018c).

Through many International Congresses on school hygiene in the early 20th century, open-air school experiences spread worldwide, strengthening this innovative and experimental educational model, which was increasingly debated and accepted within the international new school movement, of which one leading figure was Adolphe Ferrière and the 'J. J. Rousseau' Institute in Geneva.

In the 1920s, the most fervent supporters of open-air schools promoted the bond between open-air schools and new schools. In 1921, at the Congress in Calais, Adolphe Ferrière founded the *Ligue internationale pour l'éducation nouvelle*, which became one of the centres for the dissemination of pedagogic activism. In the same year, the Swiss theologian Jean Dupertuis, former head of the open-air school in Villars-sur-Bex in Switzerland, founded the *Bureau international des écoles de plein air* (BIEPA), active until 1926, when it was absorbed by the *Bureau international d'éducation* (BIE), registered in the section of the *Bureau internationaux* of the Society of Nations, a centre for gathering information on, promoting and studying the issues of open-air schools. The following year, in June 1922, the first International Conference on open-air schools was held in Paris, promoted by Gaston Lemonier and Jean Dupertuis, in which the Swiss theologian proposed the renewal of teaching methods and the extension of new education to open-air schools for all

nous voyons dans l'École Plein Air le symbole d'une rénovation complète des méthodes d'éducation que nous cherchons à établir à titre d'expérience de véritables Écoles Plein Air pour enfants ni pour enfants ni débiles ni anormaux, mais bien portants (Dupertuis, 1922, p. 6)¹

also in the pages of the journal «Pour l'ère nouvelle» directed by Adolphe Ferrière (D'Ascenzo, 2018c). Ferrière himself supported this absolute necessity at the *International Congress for the Protection of Child Life* in Paris in 1927-28, underlining the pedagogic value of open-air schools for all as a form of real active school.

3. Open air schools in Italy

In the early 20th century, the experiences of open-air schools began in Italy too, through their popularisation by Italian doctors, civil servants and teachers who attended international hygiene conferences, demonstrated by the conference proceedings themselves (D'Ascenzo, 2018c). In fact, the medical and hygiene battle against disease had already begun in Italy too, particularly starting from the Public Health Code of the late 19th century and coordinated by the doctor Luigi Pagliani, launching a medical programme for health surveillance and municipal hygiene departments, which locally promoted concrete disease prevention and healthcare programmes for children, as well as opening open-air schools.

Thanks to the role played by physician and hygienist Achille Di Giovanni, chairman of the Italian anti-tuberculosis association and its Padua branch, as well as the sensitivity of Alessandro Randi, physician and municipal councillor for hygiene in Padua in 1905, the first Italian open-air school was founded in the 'Raggio di sole' recreational school on the ramparts of the city walls. The educational practices alternated hygiene and medical activities with specifically outdoor educational activities, including gardening, horticulture, free drawing and specific lessons both inside the buildings and outdoors, with many medical and educational benefits for general well-being

when the weather permits, all the oral lessons are held outside the buildings, the desks arranged on the grass in the shadow of the trees. The children sit on chairs or folded blankets, forming a soft and very comfortable cushion [with] advantages for their appearance and general conditions, and in the development of their skeleto-muscular system; increased weight; disappearance of deep bronchial catarrh, full recovery from adenopathies and bone and joint conditions [...]. Also in pedagogic terms, results have been achieved and this should not surprise: open-air lessons, taken directly from nature, reveal the children's soul to be more amenable to learning them (Randi, 1910, p. 12).

¹ J. Dupertuis, *L'école plein air et le Bureau international des écoles plein air*, Librairie centrale et universitaire, Lausanne 1922, p. 6, in Institut 'Jean Jacques Rousseau', University of Geneva, Adolphe Ferrière Fonds A 67-1; cfr. M. D'Ascenzo, *Per una storia delle scuole all'aperto in Italia*, cit., pp. 56-62.

Particularly important was the healing of the sun, carried out according to the rules of heliotherapy, rest in the shade of the trees, singing and gardening and horticulture, obviously carried out outdoors. These two practices were both of a medical-hygienic and educational nature, as they were based on a different approach to teaching, not merely scientific teaching. There was a shift from the use of items of a 'objectified' nature kept in collections, educational museums, also of a commercial nature found in the catalogues of the manufacturers, to a living education taken from the 'real', the living 'great book of nature' and therefore, also recovering the lesson of the classics of pedagogy, the Froebelian activities of gardening and vegetable growing were rediscovered, reviewed and extended by the lesson of Lucy Latter, the English teacher who had opened an infant school in London, on her return from a cultural and pedagogic tour of the United States, where she came into contact with the emerging trend of *Nature study* (D'Ascenzo, 2018c; Brunelli, 2013). Precisely the book *Gardening for little children* published in 1906 – then translated into Italian and promoted during Latter's stay in Italy with barons Alice Hallgarten and Leopoldo Franchetti at Villa della Montesca in Umbria – helped to spread cultivation techniques throughout Italy, common to the new schools and open-air schools of those years, also already in Padua, where the teachers

have a clever guide in the precious manual (Lucy R. Latter - School Gardening for Little Children -) kindly donated to us by Baroness Alice Franchetti, a brilliant expert of pedagogic studies, an intelligent lover of floriculture and horticulture, whom the learned translator Bice Ravà offers a worthy eulogy in the beautiful preface. Gardening is a favourite occupation among our children and, also to accommodate their natural inclination, we aim to continue to increase their satisfaction, perfecting this and other similar subjects in our programme (Randi, 1910, p. 10).

After Padua, open-air schools spread throughout Italy, with considerable coverage, well beyond anything that had been known up to that time, and indeed the phenomenon is still the topic of historical and educational research today. In Milan, a very important experience began in 1913, and was later developed and extended during the 1920s, in a large and famous park at the time, called 'Trotter', which was also visited by Adolphe Ferrière

écoles en plein air. Les plus importante et l'une des plus anciennes est celle du Trotter a Milan qui dispose d'un grand espace, de locaux et d'un matériel didactique complets. La « différenciation didactique » y est en corrélation avec la vie en plein air qui transforme les leçons scolaires en expériences directes et personnelles de l'élève. Les exercices d'éclaireurs (boy scouts) y ont la première place. Je ne parlerai pas à davantage de cette magnifique école car M. Ad. Ferrière, qui l'a étudiée de près, pourra le faire (Lombardo Radice, 1927, p. 125)

The open-air school in Milan was subject to close control during the Fascist Regime, which worked to promote a model that was above all hygienist, aiming to

control bodies and youth, within a general framework of 'fascistisation' (Thyssen, 2009).

Particularly significant was the experience in Bergamo, linked not only to reasons of hygiene but also the battle against traditional school, as expressed by Francesco Fratus, the teacher who led outdoor pedagogic and educational innovation in Bergamo, for whom

for many, the educational task still consists solely of teaching reading, writing and arithmetic. Nothing more. Nothing that helps to develop the body, nothing of all that helps the pupils to relate to life, nothing that makes school attractive and salvific of the family environment and authority. Cold, arid instruction prevails; sterile exercises of memory, early fatigue of the mind that leads to the tedium, boredom and the drudgery of study. The children begin school at the age of six, when they immediately have to take a pen and lean over their notebooks. And if one day they learn a letter of the alphabet, the next day they must learn another, fixed by antiquated pedagogic criteria; and thus, they continue, until the poor creatures fall ill or react. Then the pupils are treated as lazy or insubordinate, and are scolded, threatened and punished. They are punished because they are weak, because they are fragile, because they are children (Fratus, 1914, p. 22).

Fratus rediscovered the centrality of sensory education and learning from the Real, starting from nature itself and the external territory, through excursions, exploratory trips, occasional and targeted observations, under the careful guide of the teacher, in a climate of fraternity and shared experience, which ended up overturning the rigid discipline of traditional school and the teacher-pupil roles, remarking the difference in methodological quality of open-air schools

how do you teach in an open-air school? That's easy: by conforming the educational task to that of nature. Education certainly does not begin when the child enters the school, to be closed within four walls. They have already acquired many notions through observation at home and outside and talking with the people in their family and their school companions. They have therefore learned an infinity of things by observing and questioning. It is therefore natural that the children's instruction be continued according to the method that they themselves have indicated, and from which they have profited hugely. On the other hand, the children's education delivered in many of our schools stops and hinders the children's growth, as it does not incite them to act and learn spontaneously. In the fields, in a wood, on the street, on the banks of a lake or a stream, children can talk and act freely; thus, in a short time they acquire more notions of practical use than they would otherwise acquire without ever learning. The notions learned outdoors run from the stream to the sea, from the cultivated field to the rock and all inanimate nature; from the insect to the whole living world! After these lessons, others also come easily. Reading is no longer monotonous and burdensome, because thought can follow what is read, writing and composition are no longer stunted, because words are accompanied by images, thoughts by actions; arithmetic and geometry are not boring, arid

subjects, as their practical application is found directly; moral teaching is no longer pointless verbalism, as it is accompanied by many examples of order, activity and love, of which nature is the universal theatre (Fratus, 1914, pp. 158-160).

One original experience of open-air schools dates back to 1913 on the Strega beach in Genoa, in Liguria, overseen by the doctor Mario Ragazzi, one of the main supporters of open air schools. He was one of the members of the Italian delegation of the Third International Congress of School Hygiene held in Paris in 1910, director of the Italian journal 'Igiene della scuola', physician and school inspector of the Municipality of Genoa and professor of Pedagogic Hygiene at the University of Genoa. In 1928, Ragazzi in fact reported to the International Congress on the protection of childhood on open-air schools in Italy, describing various experiences (D'Ascenzo, 2018c, p. 45), including in particular that of Genoa². In 1919, the school, named after 'Nazario Sauro', saw the wooden barracks replaced by a closed concrete construction on three sides, with the south-facing side open; from 1923, however, a new building was erected with bathrooms on the ground floor and classrooms on the upper floor, all looking towards the sea, with large terraces, modern equipment and a capacity of 240 pupils. Inaugurated in 1925, the new 'Nazario Sauro' open-air school organised a municipal car service to transport the pupils, and tram carriages from 1935, the year in which rowing sports were also started (D'Ascenzo, 2018c, pp. 96-99). The open-air school on the beach in Genoa paved the way for other similar schools in Italy, such as those in Naples and Palermo, and allowed the pupils to partake in healthcare activities based on the sun, air and water, and these experiences often became authentic summer camps.

One of the most important open-air schools in Italy, for its pedagogic innovation, long standing and political prestige was that in Rome, promoted by the Ernesto Nathan's Radical council in the early 20th century, which opened in 1910. Here, the school inspector Gaetano Grilli introduces the new backpack-desk, a wooden desk with a lightweight chair and lectern that could be carried on the shoulders and used in the places deemed suitable for the lessons, enhancing a model of itinerant outdoor school. In Rome, the hygiene and health practices were closely linked to educational practices inspired by the neo-idealistic activism of Giuseppe Lombardo Radice, the author of the 1923 *Educational programmes for primary school* within the Gentile Reform. Gardening, horticulture, targeted observations of nature, as well as singing, trips to city monuments, pottery, mathematics and geometry through nature, cooperation, self-government and coeducation were the basis for quality forms of educational innovation, even within the framework of the progressive fascistisation of schools and society that marked 1930s Italy as well as open air schools. In the 1920s the school in Rome received a lot of attention, and visitors from abroad, including Adolphe Ferrière

² M. Ragazzi, *L'école de plein air en Italie*, in *Congrès International de Protection de l'Enfance*, Paris 1928, pp. 317-323, in Institut 'Jean Jacques Rousseau', University of Geneva, Adolphe Ferrière Fonds A 67-2.

école en plein air près du Colisée à Rome. C'est un cours complet avec une vingtaine de classes. La «différenciation» y consiste en culture et élevage, vie en commun toute la journée, octroi de responsabilités, développement du dessin décoratif pour l'embellissement des salles, travaux de plastique (Art de la poterie) (Lombardo Radice, 1927, p. 32).

and Angelo Patri, pupil of the philosopher and pedagogue John Dewey in the United States, who defined the open-air school at the Colosseum as «one of the most beautiful schools in the world» (Lombardo Radice, 1928, p. 32).

Particularly significant was the experience in Bologna which, according to the latest research, appears to be one of the most pedagogically and educationally innovative in Italy (D'Ascenzo, 2015, 2017, 2018c, 2020). Inaugurated on 22 July 1917 by the Socialist council led by Francesco Zanardi during the Great War emergency, it was located in three brick-built pavilions in the Giardini Margherita, with the intention, expressed by the education councillor Mario Longhena, of

being the first to fight the sadness of the methods poisoning our children. Taking schools into the open, we aim to transform the formalist, rhetoric, empty and pretentious schools, the slave of obsolete formulae and age-old lies, into naturalist and scientific places, brave and without prejudice; it may seem strange that the inauguration of three modest buildings, which have nothing architecturally elegant, which represent no progress in school buildings, attracts such a crowd of people [...] we think that methods and contents that are too old force our school into quasi-immobility, a child of the past, which has not been freed of all that time has placed around it. Formalistic, fond of schemes, respectful of old distinctions, prejudices of the past that are all too often closed to all innovation, made more of words and rules than of things and laws, gives the fruits it can: it distances the bright, intelligent child, who to the rigorous study of grammatical rules prefers the knowledge of the life of plants, who to the battles between the Romans and the Carthaginians – dead, distant people who provoke no thrill or passion in him – he puts the fights between the various animal families, the superb struggles between the elements, who instead of the aesthetic rhetoric of our schools loves the beauty of the fields, the sky, the trees, who now rebels against the nauseating repetition of the same old chatter and wants to think of the infinite things before him, alive and full of mystery, attractive in their solemn silence (D'Ascenzo, 2018c, pp. 181-182).

The school, named after 'Ferdinando Fortuzzi', worked on a coeducation basis with mixed classes, promoting cooperation and self-government with the appointments chosen freely and democratically by the pupils, an element that remained even during the Fascist 1920s, as demonstrated by the periodical «Il giornalino della scuola all'aperto» which described teaching «in action». Targeted and scientific observation of nature, gardening, horticulture, animal husbandry, pottery, were interdisciplinary practical activities for both sciences and language, the subject of conversations and written texts that were later published, along with the intra-school correspondence with other schools in Bologna and other Italian cities.

School trips outside the city, some lasting several days, were particularly important and carefully documented in the periodical between 1921 and 1924, which describe a truly interdisciplinary outdoor education practice. The role of the teachers selected by the Municipality was fundamental; particularly the head teacher Argia Mingarelli, who clearly indicated the inductive and scientific method used in the school and the careful study of nature, appreciated by the many visitors to the school and carefully documented in the archive materials and printed publications.

4. Educational practices in open air schools in Italy

In addition to Padua, open-air schools spread practically everywhere in Italy, and indeed Jean Dupertuis in *Bureau international des écoles plein air* dated 1922 quickly listed their presence in Padua, Barbarano, Bologna, Milan, Caltagirone, Naples, Rome, Genoa, Florence, Bergamo and Naples, however without entering into detail (Dupertuis, 1922, in D'Ascenzo, 2018c, p. 75). In fact, the phenomenon of open-air schools in Italy was much broader than was known until now both abroad and in Italy, and only further case studies can bring to light local experiences, their key steps and personalities, also for the purpose of understanding the underlying pedagogic models and if these schools were linked more to hygiene needs or to actual educational innovation. Today, it has emerged how some experiences were more significant for their innovation, others for their continuity over time, others again for the role played by some famous personalities, such as councillors for hygiene or education or the teachers involved first-hand. All the Italian open-air schools known today shared some common features: the hygiene needs linked to the fight against tuberculosis and the presence of doctors and hygienists in the municipal administrations able to raise awareness among the political and civil forces to promote the birth of schools for weak children and those predisposed to tuberculosis in natural spaces rich in greenery and trees, in which to develop the new common educational and teaching practices. These specifically medical and hygienic practices helped to strengthen the body and improve health, alternated and interwoven with purely educational practices. Physicians and hygienists therefore supervised the enrichment of diets, offering three meals a day – important for children who were often poor and hungry – and medical gymnastics aiming to strengthen the respiratory system, along with frequent ablutions in small tubs, followed by hand, nail and head care and foot baths. Not only hygiene practices, but also education which, set in mainly outdoor settings, privileged the natural environment in which they were located (woods, gardens, parks, the sea) as a place of hygienic importance and a place offering tools for active education. In methodological terms, everything focused on learning by discovery, that experiential learning indicated explicitly by the teacher Argia Mingarelli in the 'Fernando Fortuzzi' schools in Bologna in which «through a rigorously scientific method, allow the need for investigation, reasoning, proof, to be born» (Mingarelli, 1919, p. 177) and for the teaching of sciences

everything is studied on the truth. Animals, plants, minerals: in botany in particular, the pupils of the open-air school are young scholars [...] at first, before an unknown flower, the presence of an unknown insect, they asked the teacher:

«What's its name?» Now this is no longer the case. With something unknown in their hands, with the appearance of miniature scientists, they run over and say: «Can we have the books, we want to identify this flower, this insect? And they browse through, debating and discussing, gathered around the unknown object and the book that knows everything, and then ... Eureka! They run over, breathless, announcing what they have discovered, and then run off again to discover something else (Mingarelli, 1919, pp. 178-179)

and mathematics, as in Rome

teaching arithmetic and calculus will be greatly facilitated by the natural means offered by open air school (counting flowers, fruit, animals and practical calculations on the four operations, accounts, the metric system, real inquiry for work and meals (buying and selling materials and work, etc.). Furthermore, we believe that open air school must adopt an animated times table, which surprisingly facilitates mental calculations on the four operations (Gasca-Diez & Nobile-Ventura, 1925, p. 24)

and geometry, where the decimal metric system was taught from the real

measuring, comparing, verifying and, in geometry, studying the shape of the beds in the vegetable garden which were deliberately given a range of geometric forms (Mingarelli, 1919, p. 179).

or in Imola (Bologna) in the open-air school set up after the Second World War at the will of the Communist mayor Amedeo Tabanelli and the teacher Velia Pelloni

the Canda vine is a climbing plant. I have a shoot with 4 leaves, each composed of 5 smaller leaves. I counted all the smaller leaves and I saw that there were 20 in all, I checked that the 5 smaller leaves were repeated 4 times (Gianna Nobili, class II). This morning we went to a field; it wasn't the same one as yesterday, but it was the same shape: it was a rectangle. With a tape measure, we measured the length and width, then with four rods, each one a metre long, we made a square on the ground and so we could see what a square metre is (Casadio, 2006, p. 42).

In open-air schools, the subjects were tackled using an inductive method, which helped the children to discover things directly, in an «outdoor» context which started from the natural environment of the school and the territory beyond the school, understood as the economic fabric (factories, industries etc.) and the historical and cultural heritage

the monuments and plaques remembering the events of our Renaissance led me to make appropriate comparisons between Italy today and in the past, between the men who in modern times have contributed to making our homeland strong, and those who in past times made Rome a great name; all in all, with

apparently detached facts, I was able to reconstruct the key points of the history of Rome so that the pupils could gain a clear and precise idea. These episodes, enjoyed occasionally and delivered with such liveliness, the open-air lessons, were of great help to me to introduce renewal and recapitulation into school (Fratus, 1914, p. 206).

as well as for geography, learned through school trips and outings in the local territory, as in Bergamo

one day I found myself on the walls giving a geography lesson. I indicated the vast horizon to my pupils, the sinuous lines of the Brembo and Serio rivers, I showed the white peaks of the Alps, and far off the Apennines that blended into the blue sky. My students were very interested in the lesson, and were very attentive for a good half hour (Fratus, 1914, p. 162)

for history

we also think that teaching history must not be limited to a chronological succession of facts and episodes, often degenerative due to a lack of characteristics or due to the fragmentary contraction of elements into a drab, colourless crown of human sentiments and actions, vices and virtues, common to all eras; it must instead aim to offer the concept – however elementary – of the eras of the past, the great tragedies of the peoples, customs and consumptions, arts and laws, all in all the development of civilisation. And yet this lesson will also revolve around the life of the heroes, traditions, myths and legends, which circulate within the popular spirit, like a moral and artistic idealisation of historical facts and as a universal summary of our ancestry, in its historical and moral ordeal, its tragedies and its aspirations. A powerful aid to this teaching will be cinematography, particularly understood as the reproduction of the environment, habits and customs of peoples, the life of heroes, archaeological and historical geography aids. As there is still no systematic collection of cinematographic material for the above purposes in Italy, hoping that this can soon be created and organised, especially in Rome, the open-air school will adopt a pre-arranged plan of visits to Museums and Monuments, and in the professional classes, also specific conferences illustrated by screenings and demonstration boards (Gasca Diez & Nobile-Ventura, 1925, p. 25).

and for learning to read in the first primary classes, for which the use of the Montessori movable alphabet and the arrangement of plants in the garden forming the shape of the letters were recommended

Caution – for teaching literacy in the first classes, the Montessori-type movable alphabet and printing trays with a range of coloured cubes are recommended. Some flower beds destined for the first class will be laid out, arranging the plants in the form of the letters of the alphabet. The pupils will trace the letters on the soil using small pots of flowers and herbs. The same

means can be adopted by the pupils to mark names, words, phrases etc. (Gasca Diez & Nobile-Ventura, 1925, p. 42).

and for strictly outdoor free drawing

particular attention was paid to large-scale drawing exercises attracting the attention of visitors: topographic, anatomical, geometric drawing, but above all the reproduction of leaves, flowers, fruits that the children choose among the lush vegetation in these gardens and insects found among the grass or captured in flight as they buzz through the perfumed air (Mingarelli, 1919, p. 179)

along with the observation and care of animals covered, always present in Italian open-air schools and the subject of studies, scientific descriptions and personal and collective narrations in the school activities, of which the teachers and heads described in their reports and printed publications, also illustrating the change of a professional teaching skills if the educational action was performed in the open air (D'Ascenzo, 2020).

Open-air schools continued to operate in the Twenties and Thirties and beyond throughout the world and in Italy, in many cases absorbed by the fascistisation imposed by the Regime and then re-emerging after the Second World War, until the disappearance of tuberculosis undermined the original reasons for their establishment. The historical experience of open-air schools appears very interesting today, not only due to the effects of the COVID-19 pandemic but also for the recovery of stronger ties between education and nature, on one hand, and due to pedagogic and educational renewal on the other, as has been underlined by the considerable return to open-air schools today worldwide, and in some impressive exhibitions, including the one in 2018 in Bologna at the Modern Art Museum - MAMbo (D'Ascenzo, 2019)³. Still today, is it precisely the history of open-air schools, an authentic historical and educational heritage (D'Ascenzo, 2019), that can restore the theoretical and practical tradition for supporting and relaunching innovative outdoor educational and school experiences for the new generations, contributing to the revival of the profound sense of the bond between humans and nature, between I and the world.

5. References

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³ On these exhibitions, see the links <https://www.youtube.com/watch?v=lc3wst4sZJI> and <https://www.youtube.com/watch?v=hrA2GNRE0FU> (last access: 10.01.2022).

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