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Educational aspects of nature protection in the Second Polish Republic (1918-1939)

Edukacyjne aspekty ochrony przyrody w II Rzeczypospolitej (1918-1939)

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Abstract: The aim of the article is to explain how in Poland in the interwar period (1918-1939) educational issues in the field of nature protection were presented in the monthly "Nature and Technology". The journal subjected to scientific research was published by the Polish Nicolai Copernicus Society of Naturalists, in the years 1922-1939.

Keywords: The Second Polish Republic (1918-1939), history of education, ecological education, nature protection, periodicals, "Nature and Technology" / "Przyroda i Technika" (1922-1939).

Abstrakt: Celem artykułu jest wyjaśnienie jak w Polsce okresu międzywojennego (1918-1939) przedstawiano problematykę dydaktyczno-wychowawczą w zakresie ochrony przyrody na łamach miesięcznika "Przyroda i Technika". Poddane badaniom naukowym czasopismo było wydawane przez Polskie Towarzystwo im. Mikołaja Kopernika, w latach 1922-1939.

Słowa kluczowe: II Rzeczypospolita (1918-1939), historia edukacji, edukacja ekologiczna, ochrona przyrody, czasopiśmiennictwo, "Przyroda i Technika" (1922-1939).

Introduction

The *Nature and Technology* monthly (devoted to natural sciences and their applications and to development of industry and agriculture) was written by the Polish Copernicus Society of Naturalists¹, and published first by the Polish Bookstore of the Academic Teacher Association (with sponsorship from the Science Department of the Ministry of Religious Denominations and Public Enlightenment) and finally, by the Atlas Bookstore of the Associated Cartographic and Publishing Institute of the Association of High School and Academic Teachers Co., Inc. Doctor Benedykt Fulinski, a professor at the University of

¹ In spring 1938, the third issue of the *Nature and Technology* from 1928 was attached a loose brochure according to which doctor J. Tokarski was the Chair and doctor M. Kamienski was a Secretary of the Polish Copernicus Society of Naturalists (which, as stressed, entered the 53rd year of its existence / activity). In addition, there were addresses of the branches of the Society in Bydgoszcz (Ossolinskich 4), Katowice (Provincial Educational Department), Cracow (Smolenska 23), Lvov (Sw. Mikolaja 4), Poznan (Slowackiego 4), Sosnowiec (Czeladzka 2), Warsaw (Chalubinskiego 5), Vilnius (Slowackiego 9). See the *Nature and Technology* / "Przyroda i Technika" (the monthly devoted to natural sciences and their applications published by Polish Copernicus Society of Naturalists), 1928 (annual 7), issue 3 (March 1928), booklet attached.

Technology in Lvov, a Member of the Main Board of the Polish Copernicus Society of Naturalists, was the Executive Editor of the monthly. Doctor Marian Koczwara took over this role in January 1926. The Editorial Committee was composed of Members of the Polish Copernicus Society of Naturalists: professors Jan Nowak and Wladyslaw Szafer² from the Cracow Branch, professors Jerzy Wasowicz and Fortunat Stronski from the Lvov Branch, professors Edward Lubicz Niegabitowski and Wilhelm Friedberg from the Poznan Branch, and professor Jan Lewinski and doctor Piotr Slonimski from the Warsaw Branch³.

In the first issue of the periodical, Stefan Niementowski, the Chair of the Main Board of the Polish Copernicus Society of Naturalists informed readers that the *Nature and Technology* was a monthly and would be published since October 1922 in a volume of 30,000 copies (excluding July August) as a consequence of the failure to establish the *Universe* periodical (Niementowski, 1922, p. 1, 3). The monthly was announced to discuss issues of physiography of Poland, local history and nature conservation (compare: *ibidem*, p. 2). Doctor Anna d'Abancourt-Koczwarowa succeeded as the Executive Editor in 1931. The Editorial Committee was then composed of professors E. Romer (Chair) and J. Siedlecki (Vice-chair). Also, the subtitle was change.

Among many sections of the periodical there were Articles, Current Matters, Knowledge Advancement and Achievements, Trivia, News from Poland, Naturalist and Photographer's Guide, Organizational Initiatives, Books Sent In. They discussed not only nature conservation but also anthropology, astronomy, botany, civil engineering, organic and inorganic chemistry, technology, physiology, physics, geography, travel, geology and paleontology, mining, metallurgy, animal breeding, transport, aviation, forestry, hunting, mechanics, machine engineering, medicine, hygiene, pharmacology, meteorology, climatology, optics, motion pictures, photography, pyrotechnics, prehistory, research and organizational initiatives, raw materials and their substitutes, telecommunication, commodity science, incretion, vitamins, zoology, or pest control.

The Current Matters section wrote about recent draft regulations on plants and animals (*Projekty rozporządzeń...*, 1938, p. 487-508), nature conservation and balancing projects, entrapment of animals, bans on hunting (the European bison, beaver, chamois, groundhog, black stork, female bears, moose, deer, fallow deer, roe deer, capercailie and blackcock in western and southern Poland) (compare: *Sprawy bieżące...*, 1928, p. 220-221) and fauna

² Professor W. Szafer was a member of the Editorial Committee of the *Nature and Technology* monthly (until November 1922). See the notice in the *Nature and Technology*/*"Przyroda i Technika"* (the monthly devoted to natural sciences and to development of industry and agriculture, published by Polish Copernicus Society of Naturalists - Cracow, Lvov, Poznan, Warsaw, Vilnius), 1922 (annual 1), issue 2 (November 1922), p. 136.

³ Address of the Editorial and Administrative Office of the *Nature and Technology*: Atlas Bookstore, Lvov, Czarnieckiego 12. See *Nature and Technology*/*"Przyroda i Technika"* (the monthly devoted to natural sciences and their applications published by Polish Copernicus Society of Naturalists), 1928 (annual 7), issue 8 (October 1928), inner cover page.

protection in Poland (excluding the Silesian Province) (compare: *Ruch naukowy...*, 1933, p. 188).

1. Vernacular nature conservation – educational implications

The periodical wrote about significance of nature conservation (Lindeman, 1937/3, p. 139-140) the evolution of the idea (Wodziczko, 1935/4, p. 145-148), importance of knowing and protecting this national heritage, prevention of deforestation, the drying of peat bogs (compare: Krzemieniewski, 1922/1, p. 23-27), overexploitation of natural resources (compare: Pazdro, 1925/10, p. 441-448), natural life in forest habitats (as highly organized natural entities that should live in an equilibrium for long-term harmony and health) (see: Jarmolińska, 1935/1, p. 1-8, compare: Sokolowski, 1937/6, p. 321-34, compare: Paczoski, 1937/8, p. 449-457), dying breeds of the European bison (Kuntze, 1935/18, p. 448-455), quantitative data on the European bison in Białowieża, or protection of old-growth trees in Poland. Professor Seweryn Krzemieniewski made readers aware of risks associated with the ravage caused to nature by the First World War. He wrote about invaluable beauty of the Białowieża Primeval Forest and about significance of the broadly defined (addressed to various social circles) process of education in developing environment-friendly attitudes. He explained that protection of monuments of the native nature and landscape may be effective only when the society cooperates with the government, the schooling is crucial, the teacher should not ignore any opportunity for instilling a passion for vernacular nature in students, there are many ways how a person can contribute, contemporary poetry and fiction provide valuable references, there is something worth noting and deserving respect near every school (a stone, rock or tree), high schools should promote knowledge about rare species of plants and animals for nature protection (Krzemieniewski, 1922/2, p. 95-96).

In this context, Benedykt Fulinski described the work of professor Marian Raciborski who disseminated knowledge about nature conservation and promoted establishment of local (provincial) local nature and history museums (compare: Fuliński, 1923/4, p. 205-210). The monthly wrote about initiatives taken by the National Nature Conservation Commission after the reorganization of the National Nature Conservation Board, involving conservation of nature and its monuments in the Tatra Mountains (*Z Państwowej Rady...*, 1935/8, p. 375-377), particularly by educators and by young people who should be inspired for the conservation of nature, establishment of local (provincial) nature conservation interest and national heritage interest groups (compare: *Redakcja...*, 1925/1, p. 145-147). He wrote about meetings of the National Nature Conservation Board (chaired by professor Władysław Szafer, held at the conference room of the Ministry of Religious Denominations and Public Enlightenment) with representatives of the Ministry of Interior, Ministry of Agriculture and Agricultural Reform, Foreign Ministry, Ministry of Military Affairs, Ministry of Transport,

Ministry of Industry and Trade, Ministry of Postal and Telegraph Services and the Ministry of Religious Denominations and Public Enlightenment and with delegates of numerous learned societies. The meetings deliberated on the urgent need to implement the teaching about nature conservation at elementary schools, high schools and universities (compare: *Ruch naukowy..., 1933/4*, p. 186-187).

The *Nature and Technology* offered recommendations on how to behave during trips to protected area. Examples include tips for persons visiting the Stefan Zeromski National Park: bans on entry of bicycles, motorcycles and cars; ticketed admission for pedestrians only, with consent of the Park management; traffic only on marked paths and routes; camping only at designated locations; no picking of flowers, entrapping or shying animals, swimming, sunbathing, shooting or other noise-making or littering (compare: *Co się dzieje..., 1933/8*, p. 367-368).

The monthly wrote about the urgent need for protection of the groundhog (*Z ochrony przyrody*, 1923/5, p. 297-302) and other dying breeds of animals from extinction (the European bison - *Bison bonasus L.*, *Bison bison L.*, including the population of the Białowieża Primeval Forest; beaver - *Castor fiber L.*; sea otter - *Latax lustris L.*; turtle - *Emys orbicularis L.*) and for protection of Polish forests (Krzysik, 1926/5, p. 219-223) against overexploitation (particularly in the Tatra Mountains), protection of yew (see: *Ginace drzewo*, 1924/3-4, p. 243-246) and protection of the European bison in the Białowieża Primeval Forest (*Żubr Puszczy Białowieskiej*, 1927/5, p. 229-231).

The monthly wrote about the newly established private reserves of steppe flora in Podole, such as the Obizowa Reserve near Zaleszczyki (private property of baroness Stella Turnau), the Hłoda Slope Reserve in Kolodrobka (private reserve of Edward Sidorowicz) or the Oleksince on Dniestr Reserve (owned by engineer Antoni Gromnicki) (compare: *Utworzenie trzech rezerwatów..., 1933/8*, p. 368).

There were regular articles about Polish protected areas and about the urgent need for establishing them. Readers were told that the State Treasury purchased a part of the Tatra Mountains (near Murzasichle) to establish the Tatra Mountains National Park (see: Kuntze, 1926/10, p. 451-458). The magazine wrote about adverse effects of human activity on the nature, such as urban air pollution with coal smoke (toxic to humans and animals), and about climate changes (Klimowicz, 1927/9, p. 425-427). The idea of nature conservation was found to take root in Poland, turn into a "daily bread". Initially distrusted, misunderstood or even opposed, the advocates of the idea managed to crush the crust of public indifference within just a few years. There were regular articles on the conservation of nature, such as the one by S. Keler, "Nature conservation from the primeval and cultural standpoint", where the author presented a historical overview of the averse anthropogenic effect on the nature (compare: Keler, 1934/5, p. 193-196). He explained how to care for birds, particularly in winter (Keler, 1934/13, p. 409-415).

Readers were informed about the latest research in the field of nature conservation⁴, concerning matters such as the teaching of the detailed ecology of animals (see: Kuntze, 1934/5, p. 197-208). The monthly published articles on plant protection against pests (including insects) and on the devastation of flora caused by unskillful harvesting of medicinal plants (see: Szafer, 1931/5, p. 236-239). It popularized knowledge about plant species protected in Poland (Wodziczko, 1936/3, p. 167-168).

Further, it described beautiful landscapes, rare natural phenomena, such as the aurora borealis, but also explained ordinary atmospheric processes involving water vapor (e.g., the formation of clouds).

The *Nature and Technology* published the protest of the National Nature Conservation Board in response to the unlicensed shooting of two European bison in state-owned forests of Silesia by count Wielopolski from Warsaw (on invitation from count Jan Hochberg from Pszczyna). The authors were troubled by the fact that the Polish hunting law did not apply to Silesia (compare: Szafer, 1931/4, p. 175).

The monthly described environment-friendly ways of utilizing wastes (see: *Nowoczesne zużytowanie śmieci*, 1928/4, p. 184-185) in Poland and abroad⁵ and wrote about bad consequences of deforestation and how important it was to protect forests (Dyakowski, 1938/5, p. 271-277).

2. Educational contests in nature conservation for teachers

In response to the initiative of the Educational Authority of the Poznan Educational Region announced on the onset of school year 1928/1929, the monthly held an open contest for all teachers interested in nature conservation (not only naturalists), working at both public and private elementary schools, high schools and teacher's seminars in the Poznan Educational Region, titled: "What are your nearby monuments of nature and how to use them for school education?" The work was supposed to contain a detailed description of monuments of nature existing in the teacher's closest surroundings or in any area of the Greater Poland region. The work could be collective and the following attachments were welcome: monument location maps, photographs, detailed sketches, drawings, identities of monument owners, safeguarding plans and plans for putting the monuments to use as part

⁴ Examples include the article titled "Recent Beaver Research" (by an unknown author) in the *Nature and Technology*/*"Przyroda i Technika"* (the monthly devoted to natural sciences and their applications published by Polish Copernicus Society of Naturalists 1928 (annual 7), issue 8 (October 1928), p. 368-370.

⁵ On the example of the German implementation of coniform paper milk packages of various volumes (made from impermeable but non-waxed cardboard). See "Things of interest. Paper milk bottles." in the *Nature and Technology*/*"Przyroda i Technika"* (the periodical devoted to popularization of natural and engineering sciences published each month excluding July and August), 1931 (annual 10), issue 1 (January 1931), p. 40-42.

of the process of school education. The papers were supposed to be sent to the Nature Conservation Committee in Poznan until November 1, 1928⁶. It was stressed that, although the contest was targeted at teachers of the Poznan Educational Region, educational authorities of other regions should be encouraged to do the same and, per analogy, motivate teachers to work for the conservation of nature.

3. Nature conservation abroad

The periodical printed interesting articles on unique landscapes of other countries. Examples include the illustrated article on the surroundings of Stockholm and beauty of the Stockholm Archipelago (Niemcówna, 1929/9, p. 385-393). Another author, Marian Koczwara, described and depicted with photographs long-lived trees of Australia, North America and Europe (see: Koczwara, 1923/3, p. 139-155). Jan Gadomski described the aurora, also known as the northern lights, and clarified the mechanism of this beautiful natural phenomenon (see: Gadomski, 1926/8, p. 336-342). Also, the monthly wrote about the proposal for the establishment of the National Park of Greenland and about the necessity of saving the arctic fauna from extinction.

The audience of the *Nature and Technology* were informed that the International Bird Protection Committee was founded in 1922, first chaired by doctor G.T. Pearson of New York. This association had a European Section (led by Jean Delacour from France), seated in Brussels. The organization had national sections for Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Estonia, Finland, France, the Netherlands, Yugoslavia, Germany, Norway, Romania, Switzerland, Sweden, Hungary and the UK, among others. Each country was represented by up to 8 members of institutions and associations concerned with the conservation of nature. There was also the Polish Section established in 1930 by its first Chairman, professor M. Siedlecki, representing the following: the Polish Academy of Learning in Cracow, the State Nature Conservation Board, the Copernicus Society of Naturalists in Lvov, the State Zoological Museum in Warsaw, the State Farming Research Institute in Pulawy, the Dziaduszyckis Museum in Lvov the T. Chalubinski Tatra Mountains Museum in Zakopane (*Sprawy bieżące*, 1938/2, p. 95-102, compare: *Międzynarodowa ochrona...*, 1938/9, p. 546-548).

⁶ Professor Adam Wodziczko was the Chair of the Nature Conservation Committee in Poznan. The contest jury included (among others) professor Wladyslaw Szafer, a delegate of the Minister of Religious Denominations and Public Enlightenment for Nature Conservation.

4. Reviews of periodicals

The *Nature and Technology* described the contents of selected periodicals devoted to environmental protection, including the *Nature Conservation* (an organ of the National Nature Conservation Commission) writing not only about significance of the conservation but also about the importance of introducing the topic into the process of school education (*Przegląd czasopism*, 1925/10, p. 489). This is what Marian Sokolowski wrote about in his article "About the introduction of the conservation of nature as a subject of school education" (in the pages of the *Nature Conservation*) (*O wprowadzeniu...*, 1926/4, p. 190-191). The issue of the *Nature and Technology* of February 1931 described the contents of the whole *Nature Conservation* annual of 1930 (p. 309). The annual was recommended to all enthusiasts of nature because of huge informative value of its reviews of the research associated with environmental protection. Authors cited included Michal Siedlecki (articles about protection of whales), Wladyslaw Szafer (damage from the unskillful harvesting of medicinal plants), Adam Wodziczko (urban greens in the context of nature conservation), Stanislaw Kulczynski (protected areas in Polesie), T. Swierz-Zaleskiego (the W. Orkan Forest Reserve in Gorce), Jozef Motyka (importance of the protected Carpathian primeval forest in Gorce), A. Kozlowska (protection of the remaining steppes of Pokucie), Szymon Wierdak (importance of nature conservation) and K. Bunikiewicz (valuable tree species in the Typin County: larch, yew and beech) (Czudek, 1931/2, p. 95-96).

The *Nature and Technology* made a recommendation for *The Earth*, an illustrated fortnightly devoted to local history, published under the editorship of doctor R. Danysz-Fleszarowa.

5. Reviews of books and brochures

The monthly described the contents of books (monographs) on the conservation of nature, such as "Aquatic Treasures" by Michal Siedlecki. Examples include the work by Marian Sokolowski, titled "Let us protect vernacular nature and its monuments" (the Publishing House of the National Nature Conservation Commission, 1924), elaborating on reasons for the conservation (historical, patriotic, aesthetic, environmental, scientific, educational), protected areas objects (nature parks, reserves, landmarks and monuments of nature), conservation methods and conservation development in Poland under the Annexation. Editors of the monthly stress that the work should reach as broad circles of the society as possible because of its value for education and for child-rearing. It should be accessible first of all at libraries for teachers, students, scouts, soldiers and tourists (compare: *Książki...*, 1925/1, p. 43).

In summer 1925 the magazine wrote about the project for publication of "A Herbarium of the Tatra Mountains" (for school use) by the T. Chalubinski Tatra Mountains Museum in Zakopane. The first part of the herbarium contains specimens of fifty plant species attached to cardboard sheets with printed names and places and dates of picking the plants. The publication was supposed to prevent the massive devastation of montane vegetation by school trips (*Zawiadomienie..., 1925/4*, p. 192).

The *Nature and Technology* recommended the "Peculiarities i monuments of nature of the Silesian Province" by Andrzej Czudek (published by the State Nature Conservation Board in 1929) for school use (as an educational aid). It was stressed that his brochure not only enriched knowledge about the nature but also developed an attitude of respect for its monuments and conservation-oriented awareness (compare: *Książki..., 1929/8*, p. 384).

Examples of other recommended publications of the National Nature Conservation Board included the book by Swiss author E. Riggenbach, titled "How can young people protect the nature?" (Publication of the National Nature Conservation Board № 22, translated into Polish by M. Amouraux) intended for children and teenagers. The work offers tips for nature conservation at home, on the street, in rural areas, in forests and in water. Because the author described in detail how to protect birds in winter and in summer, editors of the *Nature and Technology* concluded that it should be accessible at all school libraries, to nature interest groups and to scouts (compare: *Książki..., 1930/4*, p. 238). Another excellent example of this kind is the "National Parks in Poland" by Wladyslaw Szafer (Publication of the Polish-English National Nature Conservation Board № 23), containing essential information (including maps and photographs of landscape, plants and animals) on the existing, proposed and currently developed protected areas and national parks in the Tatra Mountains, Pieniny, Bialowieza, Czarnohora, Babia Gora and the Swietokrzyskie Mountains (*ibidem*, p. 239). There was also the paper (in French) by Jan Gwalbert Pawlikowski, concerning the appointment and activities of the National Nature Conservation Commission and of the National Nature Conservation Board, titled "Loi pour la protection de la nature en Pologne" (intended for foreign audiences, Publication of the National Nature Conservation Board № 24) (*ibidem*).

Readers of the *Nature and Technology* were informed about publication of a valuable work by Jozef Paczoski, titled "Forests of Bialowieza" in Poznan in 1930 (by the National Nature Conservation Board in Cracow) (see: *Książki..., 1930/10*, p. 478-479). The monthly described "An album of rare species of animals and plants, major nature reserves and national parks in Poland" (the Publishing House of the National Nature Conservation Board) (*Książki nadesłane, 1935/8*, p. 383-384). In spring 1936 it announced the publication (by the Tatra Mountains Museum, in 1935) of Marian Sokolowski's guide to the world of fauna of the Tatra Mountains, titled "The vegetation cover of the Tatra Mountains Polish" (*Książki nadesłane, 1936/3*, p. 189-190).

The inner cover of the monthly offered information (in the form of advertisements) about books devoted to the conservation of nature. Examples include the work by Wladyslaw Szafer, titled „Yellowstone. The country of hot springs and bears.”, based on personal experience of the author from his travel to the Yellowstone Park⁷. Another recommendation was the work by Zofia Gasiorowska, titled “Impressions from the Yellowstone Park. Notes from the travel” (the book contained notes taken during the author’s trip, concerning the landscape of the Rocky Mountains, geysers and animals) (Gasiorowska. 1938/4, p. 193-201).

The magazine wrote about the *Images of Vegetation of the Kingdom of Poland* published since 1912 under the editorship of professor Z. Woycicki (containing photographs by R. Cholewinski). It was noted that the periodical continued to be published (with photographs from other authors) under a new title: *Vegetation Landscapes of Poland*. The magazine wrote about valuable books by J.S. Mikulski (the “Animal Ecology Issues” intended for school children as a supplementary reading) (*Książki nadawane*, 1938/8, p. 508-509) and by J. Marchlewski (the “Dying animals and how to protect them” about harmful effect of human economic activity), both published as part of the Biological Library series of the Atlas Bookstore in Lvov and Warsaw.

6. Proclamations and appeals published in the pages of the *Nature and Technology*/"Przyroda i Technika"

The monthly published proclamations of the National Nature Conservation Board concerning protection of the primeval steppes of Wolyn and Podole. The Polish society was called to raise funds for redemption of the last remaining Polish steppes. The Polish Local History Association was appointed as the fund raiser (compare: *Odezwa...*, 1926/5, p. 223-224). In December 1927 the magazine wrote that the State Nature Conservation Board, as an advisory body for the Ministry of Religious Denominations and Public Enlightenment, took a number of measures to protect the remains of the natural beauty of the Polish nature – the vegetal cover, dying breeds of animals, monuments of inanimate nature, primeval landscapes – from devastation or extinction. Accordingly, the monthly addressed the proclamation written by Aleksander Janowski, Wladyslaw Szafer, Jana Gwalbert Pawlikowski and Boleslaw Hryniwiecki, concerning the foundation of the Nature Conservation League in Poland, to all enthusiasts of nature (also members of associations

⁷ „Book Advertisement: W. Szafer: ‘Yellowstone. The country of hot springs.’” in the *Nature and Technology*/"Przyroda i Technika" (the monthly devoted to natural sciences and their applications published by Polish Copernicus Society of Naturalists 1929 (annual 8), issue 3 (March 1929), inner cover page.

and groups of naturists)⁸. The authors called for a massive enrollment to the League and for contribution of 30 cents per year by each member of the Nature Conservation League to enable *ad hoc* protection of the most endangered monuments of nature and redemption of the most valuable sites from private owners for establishment of nature reserves.

The magazine wrote about activities of enthusiasts of the Tatra Mountains from Poznań, who appealed to the Ministry of Religious Denominations and Public Enlightenment and to the Minister of Agriculture and Agricultural Reform for counteracting the devastation of the landscape of the Tatra Mountains, the construction of the aerial cable car and erection of new brick buildings (compare: *Poznań w obronie...*, 1937/9, p. 561-562). The magazine published the appeal of the Nature Conservation League addressed at the Polish government, concerning the issuance of a regulation on the establishment of the Tatra Mountains National Park (*O Tatrzanski Park Narodowy*, 1938/6, p. 382).

7. Exhibitions devoted to animal care and nature conservation

The *Nature and Technology* monthly described the exhibition titled "Animals in Photographs" organized by effort of the Animal Care Association in Cracow. The exhibition showed one thousand creative photographic depictions of domestic animals (dogs and cats) and farm animals (horses, cattle, etc.) to endear as many supporters of animal care as possible. The exhibition presented photographs documenting mistreated animals (hassled, trained) (compare: *Co się dzieje...*, 1934/2, p. 92-93). Readers were told about the "Our Forests" and the "Nature Conservation" exhibitions, the latter organized on the initiative of the Museum of Industry and Agriculture in Warsaw and of the Chamber of Industry and Commerce of Lvov. The magazine described the dominant sections of the exhibition ("National Parks" and "Reserves") depicting the nature of the Tatra Mountains, Pieniny, Babia Gora, Czarnohora, the Swietokrzyskie Mountains, the Białowieża Primeval Forest, Polesie and the Greater Poland region. The magazine published maps and photographs of sylvan, steppe, rocky, cavernous and aquatic reserves (*Wystawa Ochrony Przyrody*, 1936/9, p. 550).

8. Information about the Nationwide Congress of Animal Protection Associations and about other nature conservation organizations

In February 1934, the monthly wrote about the Congress of the Animal Care Association held in the previous month on the initiative of the Chairman of the Animal Protection

⁸ "Temporary address of the Polish Nature Conservation League: Cracow, ul. Lubicz 46" in the *Nature and Technology/Przyroda i Technika* (the monthly devoted to natural sciences and their applications published by Polish Copernicus Society of Naturalists - Bydgoszcz, Cracow, Lvov, Poznań, Sosnowiec, Warsaw, Vilnius), 1927 (annual 6), issue 10 (December 1927), p. 463-464.

League in Lvov, doctor M. Zawadzki. The convention brought together representatives of animal care associations from throughout Poland. Particularly the paper by Janina Maszewska-Knappe (the Vice-chair of the Polish Animal Friend League in Warsaw), titled "Ideas for animal protection in the human history", attracted much attention (compare: *Zjazd...*, 1934/2, p. 93).

Readers of the *Nature and Technology* were informed about meetings of sections of the Nature Conservation League in Poland devoted to conservation of the nature of the Tatra Mountains (see: *Co się dzieje...*, 1935/6, p. 283-284, compare: *Walne...*, 1936/6, p. 444) and about the proceedings of the first meeting of the Bear Protection Section convened on the initiative of the Lesser Poland's Hunting Association in Lvov, held on June 27, 1935, concerning data on quantitative concentration of bear lairs in the Eastern Carpathians, Polesie and the Tatra Mountains (*Stan niedźwiedzi...*, 1935/8, p. 377-378).

9. Gifts and phenomena of nature

The *Nature and Technology* wrote about the wealth of flora and fauna of the Białowieża Primeval Forest and abundance of gifts of nature (Lindeman, 1938/8, p. 459-469). It explained the role of gold in the nature and wrote about the exceptional stability and resistance of this metal (Maślankiewicz, 1935/6, p. 203-309), about importance of bituminous and brown coals, natural gas, bituminous shale and of the therapeutic mud, a variety of peat used in balneotherapy.

The magazine described beautiful (for their aesthetic merit) natural phenomena such as the manifestation of the aurora borealis featuring great intensity of light and color, observed on the Kasprowy Summit on January 25, 1938 (Stenz, 1938/4, p. 209-213) and natural landscapes (Młodziejowski, 1939/4, p. 201-209). Readers were encouraged to take photographs of nature.

10. Cultivation of medicinal and other plants at school gardens, growing tips

Irena Turowska wrote in her article on the growing of medicinal plants in Poland about the establishment of the Polish Herbal Committee based in Warsaw in 1930. She explained the importance of the work of this association in Poland (Turowska, 1936/6, p. 329-334).

The monthly wrote about the educational value of work done by teachers and students at school gardens, gave examples of soil treatment exercises (Tołpa, 1936/2, p. 115-117), methodological guidance (Minko, 1936/3, p. 178-180) and school garden keeping tips (Pawlowski, 1936/4, p. 238-241, compare: Pawłowski, 1936/5, p. 301-306).

11. Biological Methodology. A supplement to the Nature and Technology devoted to the teaching of botany and zoology (published by the Graphic Works of Atlas Bookstore in Lvov Co., Inc.)

Biology teachers who convened at the 1936 Congress of Leaders of Biological Methodology Groups suggested the editorial staff of the *Nature and Technology* that the magazine should continue to improve their methods of working on the popularization of natural scientific knowledge. For this purpose, they proposed the Editorial Committee to continue publication of the following sections: Laboratory, Cultivation, Botanic Garden, Supplementary Reading, Excursion Trails, Reviews and Evaluations (*Metodyka...*, 1937/1, p. 1).

11.1. Nature conservation

It is worth noting that the *Biological Methodology. A supplement to the Nature and Technology devoted to the teaching of botany and zoology.* dealt with nature conservation topics. In May 1937, the supplement published an interesting article by Jadwiga Dyakowska commenting on the fact that the Minister of Religious Denominations and Public Enlightenment and the Minister of Agriculture and Agricultural Reform issued a regulation recognizing the *Emys orbicularis L.* turtle as a species protected in the whole country on October 10, 1935. The killing and entrapping of turtles, and the picking or destruction of eggs, were banned. Based on the regulation, the Minister of Religious Denominations and Public Enlightenment could give permissions for entrapment of turtles for research, educational or breeding purposes. Jadwiga Dyakowska postulated that, although persons interested in breeding the European pond turtle at school may obtain such special permission from the Minister, the turtle should not be bred at schools because of its protected species status (compare: Dyakowska, 1937/5, p. 80).

11.2. The student as an explorer of nature

Stanislawa Pawłowska, a teacher working at the E. Orzeszkowa Junior High School in Tarnow published in the pages of the supplement her lecture delivered during the conference of the Biological Methodology Groups in Cracow, titled "A Student's Natural Scientific Gazette". She pointed in the lecture that, according to the natural scientific teaching curriculum (in the new type of the junior high school), the student is supposed to turn into a "little but serious" explorer of nature (Pawłowska, 1937/6-7, p. 92) and, accordingly, show interest in reading about the subject. A natural scientific gazette can be one of the educational means leading to this effect. The gazette should change, "evolve together with

students" (*ibidem*, p. 93). According to S. Pawłowska, the collection of material (e.g., from periodicals, dailies, weeklies publishing current mentions, articles) should be the first step of preparing a natural scientific gazette. This is prerequisite to the emergence of a natural scientific gazette that will become "a kind of a propaganda poster encouraging the reading" (*ibidem*). Accordingly, the layout of the gazette must not be random but has to be well thought-out, encouraging the reading. According to the educational recommendations from Pawłowska, articles should be short (written by students), their artwork should be aesthetic and, in addition, the gazette should expose literary works (*ibidem*, p. 95).

11.3. School gardens

The President of the Association for the Promotion of School Gardens, professor Włodzimierz Gorjaczkowski, said that the Association, popularizing the idea of establishment of school gardens among teachers (for more than a dozen years), decided, in 1937, to set up an exemplary school garden as a reference for elementary schools in Warsaw, at the Municipal Plant Growing Institute (at 11 Chodkiewicz Street), meeting requirements of the teaching curriculum, which can be brought to life at low cost. This was a farm-like garden but tailored to requirements of elementary schools (compare: Gorjaczkowski, 1937/6-7, p. 97).

His article contained general remarks on the planning of school grounds. He emphasized that, in line with the teaching curriculum for elementary schools (public), each school having an adequate site (owned or leased) was obliged to run a school garden and carry out practical gardening exercises there. The size of a school garden growing flowers, fruits or vegetables, containing an apiary and a culture of bee-feeding plants (with roads and protective lining of a part of the boundaries) should be approximately 1,500 square meters. Also the standard for a "utility teachers' garden" with roads and the planting of the remaining part is approximately 1,500 square meters. Where the site is larger (than the above mentioned standard size), a part of it can be allotted for a playground, gymnastic yard or schoolyard. On the other hand, when the school has a smaller plot, it may give up the "utility teachers' garden".

The article by Włodzimierz Gorjaczkowski contains detailed information on the size of the vegetable garden and of the garden allotted to fruit trees and saskatoons, strawberries or wild strawberries (*ibidem*, p. 100). It also "implies" a drawing titled "An example layout of an 800 square meters school garden" (see: *ibidem*, p. 99, compare: Gorjaczkowski, 1937/8, p. 111-112). The significance of the school garden in the process of learning at school was also explained by Franciszek Baranski in the article titled "The school garden (the use of it in the teaching of biology at high school)".

11.4. School trips

The *Biological Methodology. A supplement to the Nature and Technology devoted to the teaching of botany and zoology.* (the organ of the Biological Methodology Groups) wrote also about "detailed didactics" of natural scientific excursions (see: Tolpa, 1938/10, p. 133-138, compare: Massalski, 1939/2-3, p. 17-38). It highlighted the importance of such trips in the process of education and of child-rearing for the conservation of nature (*ibidem*, p. 18, 30, 32, 37, compare: Cholewa, 1939/5, p. 65-88). In addition, it was said that the *Nature and Technology* monthly can serve as a valuable educational aid in the process of learning at school (Nowicki, 1938/3, p. 39-48, compare: Nowicki, 1939/1, p. 1-9).

Conclusion

Based on scientific research, it was found that the issues of nature protection were presented in the pages of the journal *Nature and Technology / "Przyroda i Technika"*. Individual sections wrote about the over-material importance of nature protection and the excessive use of natural resources. Knowledge about protected areas was shared, landscapes and rare natural phenomena were described. Educational competitions for teachers were announced. The monthly informed/wrote about nature protection abroad, encouraged to read professional journals, visit exhibitions devoted to the care of animals.

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