

prof. Stanisław Januszewski
Foundation of Open Museum of Technology, Wrocław
Technical Heritage Study and Documentation Center, Wrocław
Technical University of Wrocław

Technical Heritage of Solovki Islands Research for the protection strategy

The author – the initiator and organiser of the International Scientific-Research Expedition “Technical Heritage of the Solovki Islands” (2001), the consultant of the expedition of the Russian Academy of Science, the co-founder of the ‘Friends of Solovki’ association (2005) - presents the programme and the findings of the expedition to Solovki Islands, which was organized in order to preserve cultural and technological heritage of the Islands. In cooperation with the Solovki Museum, he is working on the solution to the problems of future civilization in the Solovki Islands, which, at the beginning of the 1990’s was included in the list of the world cultural heritage.

The protection of environmental, cultural and technical heritage should become the base for creating the social and economic development programmes. The principles of balanced evolution, keeping the balance between the human being and his surroundings and the balance between the heritage of the past, and the present expectations of the contemporaries should become the main principles of these programmes. The author emphasises that the programmes should include the reconstruction of the islands’ role as the centre of the Orthodox Church. The tourist offer should be addressed to the scientists of various disciplines, artists and students. The Solovki Islands should become the unique scientific and educational workplace, the place of research and studies, the open-air workshop for artists, the ground for students’ camps and practises, the ground for meetings and studies on the heritage and its role in our lives. The islands already play such role, but the idea should be further developed, and the Solovki Islands Museum should play the main role in the development process.

The initiative to document industrial and technological monuments in the Solovki Islands is the result of the international and interdisciplinary workshop-conservatorium. It is based on the experience of the Technical Heritage Study and Documentation Center located in Wrocław, and the Foundation of the Open Museum of Technology, which, for many years, have been organizing and educating a group of the historians of technology, architects, engineers from many disciplines, information scientists, lawyers, and marketing specialists. They have documented many industrial and technological monuments in Poland. The results of the studies are also used in educational research projects. Equally important purpose is also formulation of industrial heritage protection programmes and their entering into practice on the base of these studies what gives an exceptional character to the activity of this group. As a principle, the group is searching such forms of activity that would be connecting scientific, didactic and educational tasks to a specifically understood social mission. The strictly scientific-research problems are here interlacing all time with the economic and social problems and the postulate of protection of technical culture objects is entered into local development programmes.

This direction of thinking has led to creation of the non-government organization named 'Foundation of the Open Museum of Technology' in 1991. This organization assembles owners of technical civilization monuments. It searches for the proper forms of heritage protection, not only in substantial bearings but also in formal-legal, organizational and financial bearings.

The Foundation publishes a series entitled "Technological and Industrial Monuments in Poland" and is also participating in editing yearly publication 'Rivers. Civilisation – Culture – History'. It organizes scientific conferences and seminars, manages the International Postgraduate Studies on Industrial Archaeology at the Wrocław Technical University, Industrial Archaeology Workshop for the students of primary and secondary educational systems, organizes the Festival of Technology in Sowie Góry (from 2003), co-operates with the National Monument Protection Service, with owners and users of industrial architecture monumental objects, with self-governments and state administration and also manages an effective economic business in the form of an architectonic design studio. The Foundation seat is a renovated stem tug 'Nadbor' being one of last inland navigation steam ships in Poland and now fulfilling a function of the ship-museum, ship-laboratory named 'Technical Heritage Study and Documentation Center' and ship-school. On board of the ship, lectures on the technique history are delivered and a workshop of preservation is arranged for students of the Wrocław Technical University. Each year, about 200 students are trained in there and they have also organized the Scientific Circle of Students – 'Technique Monument Protection Circle', co-organize and develop the Museum of Technology in Sowie Góry, whose network includes Dzierżoniów, a railroad engine shop (mid 19th century), Dierig's industrial and agricultural complex in Bielawa, water-power plant in Lubachów (1913), the 14th century led and silver mine, historic 'Bielawska' and 'Bystrzycka' railroads (not in operation) etc. The FOMT Museum of the Odra River in Wrocław is associated with the 'Wet Deck Brotherhood', a fanclub with 60 members, who are the veterans of the Odra River transportation industry, employees of hydrotechnological companies, and technical school educators. From 2003, the Fanclub has been publishing the monthly bulletin entitled 'Prosto z Pokładu' (see: www.nadbor.pwr.wroc.pl). Also, the Fanclub contributes to the restoration of the historic 'Nadbor' tugboat.

We also co-operate with many institutions and museums in Europe, with technique historians and associations. We are also interested in Russia being an important investigation field as concerns for example industry and technique works in realization of which also Polish technicians were participating on the turn of the 19th century as well those working in the industry of Ural district and those well known from building the Trans-Siberian Railway such as Stanisław Kierbedź, Eng., who was the builder of bridges in Siberia or others who as Stefan Drzewiecki and Jan Jarkowski and Witold Jarkowski brought in a significant share into the development of the air idea at its pioneer phase. These numerous relations having place between Russia and Poland should not disappear from our field of vision. They are constituting a capital which could be very useful in mutual communication, co-operation and creation of mutual understanding connections. Taking it into consideration, we have engaged ourselves into co-operation with Moscow Polytechnical Museum offering practices in the Foundation of Technology Open Museum and organizing common conferences and training in the range of protection of technological monuments. A scientific research program of the Moscow Institution of Nature and Technology Science History at the Russian Academy of Science and

its development in the range of technique monument protection is also in the sphere of our interests.

The above described character of our activity has led us to the conception of a confrontation of our experiences with a selected Russian civilization area in order to create a specific testing ground which could become a basis for multilateral international cooperation, in documenting industrial and technical monuments, as well as in formulating and analyzing protection programs and in supporting promotion of this area and its heritage in Poland and Europe in order to initiate proper directions in its development.

On other hand, we knew "Solovki" from the stereotype opinion, which was popular in Poland and in Europe – as one of the Greek Orthodox holy places, and as a place wherein the Gulag system was created. To us, it was the peripheral area in the Russian North, located at the end of the world. In the area, the time-flow seems to stop. We still remember the crimes against the humanity, which were committed in the Gulag, and the enormous energy, which was used to tame the nature. We came to the island, and were overwhelmed by the beauty of its environment, and cultural richness. In the landscapes of the North, we found people still struggling to tame the nature, to create life and work styles corresponding with environment conditions. This area is a unique set of nature and culture properties being very attractive field for inter-disciplinary investigations and is a carrier of multised information which could be a source of knowledge as well for a technique historian as for culture historian, ethnographer, architecture historian, art historian, geographer, natural historian or geologist. Just also these properties have decided on entering the Archipelago of Solovki Islands into the list of the world heritage of UNESCO. By this act, the international community has decided to take a joint responsibility for maintenance and exposition of significant components of the culture heritage presented by the Archipelago of Solovki Islands. There may be also found an answer to the question: why did we, Poles, occur in the Russian North, why did the protection of monuments in Solovki Islands become a subject of our interest? In fact, we, Poles, have many problems. However, we have to learn all time. The 'Sołovki' may become very good educational institution, it may be considered as an 'exclusive school' and specific university of industrial archaeology and may promote to an international seminar role. In the seminar, there may be a critical evaluation of all reflections and own experiences carried out. There will also be an occasion to get an experience from the Russian school achievements as concerns protection of technique monuments. Should we become aid full in protection of Solovki Islands technical culture heritage by promoting this our idea then our work in Poland will become more effective. Here and there and in Europe, we should find an answer for similar questions: what and how act in order to support new development programs by the heritage protection activity taking into consideration all respective aspects: social, cultural and economical.

If we relate this question to Solovki Islands, then many further problems will occur. However let us them to the basic development strategy. What do we like to see as concerns Solovki Islands picture after e.g. ten, twenty or thirty years? Is it reasonable to renovate it as a place of a religious cult or as an international center of tourist business? How to eliminate controversies? Will life conditions of inhabitants be changed? What will we take for developing the technical infrastructure of islands? What their features should be shown?

We planned our expedition based on previous experience (April 200 reconnaissance). We considered many different problems and issues. We were concerned with the future of the relics of the former water power plant (first such station built in the Russian North in years 1910-1912, developed in 1924 and closed down in the end of 30s of 20th century) as the dry dock beginnings of which are in 1977-1801, a state and functional conditions of the inter-lake canals system including melioration canals (built on the turn of the 15th century) and navigation canals (built in the beginning of the 20th century in the presently known form). What will the future be as concerns sea fish ponds building of which was initiated by Filip Kołyczew in the 16th century together, public vapor baths built in 1717 on the Bannoie Lake shore, buildings on the Herring Headland, ports of the Prosperity Bay? It is not difficult to rebuild such objects but the most difficult problem is to return them to the life, to determine their exploitation programs supporting a maintenance and protection of their monumental substance and simultaneously ensuring a balance between nature and culture.

Our 14-day stay on the Islands was too short to carry sufficiently accurate investigations. So, we were forced to concentrate on such program construction, which would constitute a starting point for further international scientific research. For us, it was a chance to recognize not only the heritage wealth but also, paradoxically, a different life standards in comparison to these in Poland. In there, life conditions are very difficult, without a comfort and sometimes very primitive. Coming up it against splendid landscapes, the sky, water and earth colour, buildings, white nights, undergrowth, water clarity, warm-heartedness and frankness of local inhabitants in contacts with foreigners, readiness to co-operation shown also by our strategic partner Solovietski National Historic, Architectonic and Natural Museum-Sanctuary has enable us to find quickly Polish partners to our initiative being ready to give us a financial support. Rector Magnificus of the Wroclaw Technical University, Mr. Andrzej Mulak, Prof.Dr.Eng, has taken the honourable patronage over our activity. Beside of the Wroclaw Technical University and Technical Heritage Study and Documentation Center (BSiDZT), there are several another companies, mainly from Wroclaw, sponsoring our activity. Among them there are: ALWIMADA KONSULTING, HYDROPROJEKT Sp. z o.o., INTEGER S.A., ODRATRANS S.A., TAN S.A. Przedsiębiorstwo Inżynierii i Hydrotechniki, TECHLIFT Sp. z o.o. Zakłady Techniki Dźwigowej, VISCOPLAST S.A., VOITH POLSKA Sp. z o.o. From the point of view of our sponsors, an attractive force influencing them was not only exoticism of our venture but a certain role was here played by a stereotype and myth of "islands on the world end" as well as the memory of this region as a place of concentration camps for political enemies of former despotic systems and a contrary will to confront the mother's remittance: 'Poles never were going to Solovki voluntarily'. Now, they met an occasion to work in there, they were bursting with a will to see something unknown and they had a chance to check their own work abilities. All these factors were mobilizing as well Russian as Polish venture participants to impatient waiting expedition results. Especially, students of the Wroclaw Technical University were very interested in these results. We proposed the participation in the expedition to 10 students from the Scientific Interdisciplinary Student Circle (Technique Monument Protection Circle) assuming that for them it would be an excellent workshop of preservation and an occasion to introduce own inserts into work results for example by elaboration of respective materials, especially drawings and photos in computers. There were also participants from foreign countries: Mr. Mike Clarke from United Kingdom, Mr. Hans Joachim Uhlemann, historian and author of many elaborations concerning canals building and navigation from Germany, Mr. Vadim R. Mikheyev

from Russia. For Polish expedition participants, there were 7 historians and conservators of technique monuments, 3 architecture historians being active as architects engaged in design works and also interested in the post-industrial architecture. The group was complemented with a 2-person film-team from the Foundation of Techniques Open Museum and Wroclaw TV.

The group had following tasks:

- Documenting industrial and technical heritage of Solovki Islands in a written drawn, photographic and movie form. Elaborating a basic Catalogue of technical culture monuments of Solovki Islands which would be a base for further scientific and investigating works and design elaborations and which could also be useful in popularisation of the archipelago civilisation heritage and in promotion of it as well in Poland as in Europe.
- Elaborating a conception of bringing into use of the civilisation area from the Holy Lake to the White Sea as concerns dry dock and water power station hydrotechnical systems taking into consideration a possibility of dock renovation and former water power station revalorisation.
- Preparing photographic materials enabling us to arrange a popularising exposition of technical heritage of Solovki Islands

Expedition participants were working within problem groups realizing archives and bibliographic studies, field tasks and documentation issues of:

- hydro-technical buildings including inter-lake channel systems, dams, ports, landing-piers, a sea dry dock, sea fish ponds;
- power stations using water energy (electric power station, water mill from the turn of the 16th century and water systems of these objects);
- industrial activity in the area of the Herring Point, around Bannoie Lake and within are laying in northern direction in relation to the monastery (there are between others: rigging store, boat shed with slipways, greasing workshop with grease store room (1841-1842), public vapour baths (1717), stores of lime burning and potter workshop (30s of the 19th century), tannery workshop (ca 1690), hangar for a hydroplane (1925), primitive wood-distillers` works (end of the 19th century);
- technical infrastructure including between others relicts of a narrow-gauge railway from 20s an 30s of the 20th century, radio station (1915), sea lantern on the Siekirna Hill (1863),
- industrial and technical objects outside the Solovki Settlement and on archipelago islands (such as vapour baths in Isakow and on Siekirna Hill, port on the island Great Hare, cellars and various store rooms, relicts of a turn bridge on the channel connecting the Waldai Lake and Szczuczie Lake (1912).

In November 2001, the group has elaborated and delivered to the Solovki Museum 23 information cards industry and technique monuments in the form of compact disks CD and in the form of prints containing data of history and technical and functional transformation process of each object, descriptions of construction and architecture, its condition, guidelines of preservation, wide photographic and graphic documentation. For this last range, beside of photogrammetric measurements of rigging store room and of the flying-boat hangar, architectonic stock-taking of former water power station relicts, making dry dock sections and stock-taking of a laundry lying on the Holy Lake shore and of an accommodation building for wood-distillers,

the group has limited its works to elaboration in a new form of documentation prepared earlier by the Solovki Museum. The Museum has also received 24 information questionnaires containing basic information showing historical, technical and architectonic values of industry and technique works. The applied type of records is simplified and constitutes rather an indication for persons elaborating information cards and will enable a planning works purposed at preparing further information cards what is important to us taking into consideration the fact that we have intention to continue and develop the program of the expedition 2001 According to our opinion, the collection of data should include approximately 350 objects of former industry and technique existing on Islands. Charts and polls, which were used by our group, are a good basis for further work, and might be helpful in further research by architecture and technology historians. In 2005, we continued our research program at the Solovki Islands, and, in our catalogue, we included different objects.

On Solovki, we have made about 3000 photos with use of the digital technology. We have delivered to the Solovki Museum these materials, and large-scale illustrations from a photographic exposition entitled 'The Technical Heritage of the Solovki Islands' (on compact disc), which was shown at the Wroclaw Technical University (October - November, 2001, and in 2003, at the Sowie Góry Museum of Technology, and in 2005, at the Museum in Kamieniec Żąbkowicki). The exposition was visited by over 20,000 persons, and the expedition results have obtained many positive opinion, starting great interest in technical heritage, not only of Solovki Islands, but, also in the heritage of Russia. Initiating the exhibition of photodramas, we have an intention to indicate also attractiveness of Islands from tourist point of view and they may also be very interesting direction of industrial tourism.

Now, we are also planning a trip on board of the 'Nadbor' steam tugboat along the inland waterways from Wroclaw to Rotterdam. Within the framework of our program entitled 'Europe over Rivers', we want to promote the Polish and European technical heritage. This program includes the Solovki Islands, and we expect a wider co-operation with Russian and European historians and historic monuments conservators.

In Wroclaw, we organized a popular-scientific session, which included presentations of material by 2001 expedition participants. The second edition of the session was organized in 2003, and 2005 at the Solovki Islands. Our widened program included workshops, scientific methodology and research results. We plan to publish the results of our research, as a conclusion of scientific work by the Foundation members and the Solovki Museum employees.

The Solovki Islands Museum received an architectonic project of revalorisation of the former water power station. We assumed, that the power station building would be reconstructed according to the state, after earlier development in 1924 in its body, plan and elevation. We plan an adaptation of the object to the role of the 'International Solovki Centre for Technical and Cultural Heritage Interpretation'. It could become a basis for various Russian and international scientific expeditions, supporting individual scientists, who would be able to use a studio, a reference library and a computerized laboratory. This idea to create the Centre was developed in the circle of Solovki museum specialists. We declared our support to its revival, and we produced the architectural project, which was based on our original ideas.

Why should the former power station be used as the centre, and why the power plant should be again put in operation (for example, it could be mounted on a new, more effective turbine), according to earlier proposals considered on Solovki Islands? The

history of the power plant seems to indicate the fact that its construction was the result of the monks' interest in technical achievements at the turn of the 19th century and the beginning of the 20th century. They were so interested in that project, that they replaced an old sawmill working on the same water intake with the power plant, and from 1908 to 1912, they implemented a huge program of water regulation in order to provide their power plant with water. As the result of their great effort, they obtained 47 kW from the generator, and that was, unfortunately, not a sufficient amount of energy. Simultaneously developed steam energy aggregates produced 120 kW. Considering existing environmental conditions, constant shortage of water, and limited days of power turbine exploitation, they were able to use 600 bulbs, and one electric engine. Not surprisingly, further electric energy production was based on steam turbo-generators. However, the power station modernization carried out in 1924 has exhausted development reserves. In 1926/1927, a new thermal power plant was built nearby the Holy Lake, and it was successively developed till the 1970's (today, its maximum output is 3 MW), resulted, already before 1930, in resignation of old water power plant's maintenance. Therefore, a reconstruction of the old power plant doesn't seem reasonable from an economic point of view, and ensuring a continuous operation of the water plant is rather impossible, even if all the hydrotechnical constructions on inter-lake canals were rebuilt, and water reserves in Holy Lake were increased to proper proportion.

So, we postponed that attractive idea, and we considered the old power station revitalization, which included its new role. We postulate to ensure protection *in situ* to the Francis turbine relic, which could only be an element of a new inner space arrangement. The former machine room could play a role of an exposition audio-visual hall and the building of the power plant would be radiating light visible even in Kem, the town in Karelia. It would bring back the memory of the great enthusiasm for technological development at the beginning of the 20th century.

The postulate concerning reconstruction of the sea dry dock does not such irresolution. Here, we are indicating decisively and in accordance with the monument protection practice, secondary importance of economic reasons in the protection procedure. We are accenting the need to develop the dock revitalization program. It could very well perform the role of a yacht port enabling also the carrying-out of repair works, and even constructing new floating units and to store yachts during winter season. From the beginning of the 19th century, the dock was considered as fascinating idea. Currently, it is a jewel of the Solovki. After its reconstruction, the yearly 'Dock Feast' could be celebrated; it could be a land-and-water festival, showing the aspects of the history of industry and technology at the Solovki.

The result of the 2005 expedition, will be a project to revitalize the Herring Point. From the 1840's, the Herring Point has been an industrial center of the settlement. Even now, the dominant element of the Herring Point' landscape, are unique wooden and stone constructions of the sailing ships shipyards, boat storage facilities, former fish oil factories, fish-smoking factories, and other storage facilities, and botanic station built in the 1830's – the first in the Russian North. *Vis á vis* the Herring Point industrial center, on the other side of the Prosperity Bay, there are the ruins of the pilgrims' inn, built in the 1860's. After restoration, it could be used as educational and administrative center of the Solovki Museum, whose current localization is considered as controversial.

We should like to see Solovki not only as a center of popular tourist movement, aim of multi-thousand peregrinations. Taking into consideration unique values of local

nature and culture landscapes and a force of tradition driving reconstruction of the monastery being one of holy places of the Orthodox Church, we are setting our bigger hopes on the pilgrimage movement giving also work. As concerns a tourism, we are opting on the qualified tourism. According to our opinion, Solovki have a chance to create here an exceptional scientific and investigating laboratory. These islands should become a range for scientific researches and studies, place of practices for students and pupils, a place being attractive for scientists, an oasis for artistic plain-air works, a place meeting and reflection on a heritage and its role in the present life of people. All of these activities already are in there and we should like to develop them in the future. We shall return to Solovki Islands. We should like to serve them and get something from them having also in the mind the great heartedness of Mr. Michał Wasiliewicz Łopatkin – director of the Solovki Museum and his co-workers opening Solovki for the world.

We would like to invite you to the next expedition, which we plan for the 2007. Old Russian people say, that the Russian North is located near the realms of God. We promise you an expedition to the outskirts of the human ecumenical region. I myself am convinced, that you will enjoy the experience, and you will be surprised to see the greatness of the mankind's work.

Illustrations – photographs by S. Januszewski

1. Monastery from the south-west side
2. Camp SŁON barracks, 1923-1939
3. Relics of the water electric power plant, 1910-1912/1924
4. Water turbine of Francis system, 1910
5. Data collecting in ruins of the water electric power plant
6. Sea dry dock, 1799-1801/1843-1846/1881
7. Film team of the expedition at the dry dock
8. Sea dam between the Great Solovki Island and the Great Muksalma, ca. 1860/1907
9. Sea fish ponds, 17th century
10. On the inter-lake canal Szczuczie-Płoticzie, 1908-1912
11. Relics of turning bridge on the Szczuczie-Płoticzie canal, 1912
12. Prosperity Bay view
13. Pier on the Herring Point, 19th century
14. One of ports on the Herring Point
15. Port basin on the Great Hare Island, 16th/17th century
16. Water mill in monastery kremlin, half of 17th century
17. Part of an underground mill canal, 17th century
18. Part of an underground mill canal, modernized at the end of 19th century
19. Lighthouse at the top of Orthodox Church dome on the Siekirna Hill, 1862-1863

20. Industrial building on the Herring Point. Storage of rope impregnating materials and rigging storage, ca 1830/1840
21. Primitive wood-distillers` works Nr.1, ca 1890
22. Public bath at Bannoje Lake, 1817
23. Building of former radio-station, 1915
24. In archives of the Solovki Museum
25. An artist in the plain-air of the Prosperity Bay
26. Sunday procession around monastery kremlin walls
27. A part of the exhibition entitled 'Technical heritage of Solovki Islands' at the Wroclaw Technical University, 2001