

**Mendel University in Brno
Czech Society of Landscape Engineers – ČSSI, z.s.**

**Public recreation and landscape protection
– with environment hand in hand?**



Proceedings of the 14th Conference

Editor: Jitka Fialová

9th–11th May 2023, Křtiny

MENDEL UNIVERSITY IN BRNO

Czech Society of Landscape Engineers – ČSSI, z. s.,



and

**Department of Landscape Management
Faculty of Forestry and Wood Technology
Mendel University in Brno**



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Editor: associate Professor Ing. Jitka Fialová, MSc., Ph.D.

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Under the auspices
of prof. Dr. Ing. Jan Mareš, the Rector of Mendel University in Brno,
of prof. Dr. Ing. Libor Jankovský, the Dean of the Faculty of Forestry and Wood Technology,
Mendel University in Brno,
of doc. Ing. Tomáš Vrška, Dr., the Director of Training Forest Enterprise Masaryk Forest
Křtiny, Mendel University in Brno,
of Ing. Dalibor Šafařík, Ph.D., the Chief Executive Office, Forests of the Czech Republic,



of JUDr. Markéta Vaňková, the Mayor of the City of Brno,



and of Mgr. Jan Grolich, the Governor of South Moravia,

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Contents

ADOLESCENTS' SMARTPHONE USAGE IN ACTIVE RECREATION AND NATURAL ENVIRONMENT <i>Stanislav Azor, Michal Marko, Štefan Adamčák</i>	9
ASSESSMENT OF EXTREME, LONG-TERM METEOROLOGICAL DROUGHT IN WESTERN PART OF SERBIA <i>Martina Zeleňáková, Milan Gocić, Hany Farhat Abd-Elhamid, Mladen Milanović, Tatiana Soláková</i>	14
AWARENESS OF SLOVAK TOURISTS ON POSSIBILITIES TO VISIT GEOSITES <i>Lubomír Štrba, Branislav Kršák, Lenka Varcholová, Michaela Podoláková, Silvia Palgutová, Csaba Sidor</i>	20
BANK STABILIZATION – NON-TRADITIONAL WAYS OF USING VEGETATION <i>Miloslav Slezinger, Dana Košťálová</i>	24
BIOCULTURAL DIVERSITY: SACRAL MONUMENTS AS HABITATS FOR BIRDS <i>Ivo Machar, Helena Kiliánová, Vilém Pechanec</i>	27
CARAVANNING AND TRAMPING VERSUS CAMPING AND NATURE CONSERVATION <i>Antonín Tůma</i>	31
CAUSES OF OVERCOMING OVERTOURISM FAILURE IN CZECHIA <i>Emil Drápela</i>	35
ECOTOURISM IN AMAZONIAN ECUADOR – BOSQUE MEDICINAL PROJECT <i>Petr Jelínek, Michal Hegar, Martin Mrkvička</i>	39
ERGONOMIC APPROACH IN TOURISM FOR VISITORS WITH SPECIAL NEEDS <i>Eva Abramuszkinová Pavlíková, Osman Nuri Özdogan , Cihan Yilmaz</i>	45
EVALUATION OF THE LANDSCAPE'S POTENTIAL FOR RECREATION <i>Daniela Smetanová</i>	50
EXPLORING THE RECREATIONAL POTENTIAL OF URBAN GAPS <i>Tímea Žolobaničová, Miroslav Čibik, Roberta Štěpánková</i>	57
EXPLORING WHITE SPACES ON URBAN MENTAL MAPS <i>Miroslav Čibik, Tímea Žolobaničová, Roberta Štěpánková</i>	63
FOREST EDUCATION AS THE BASIS FOR CONSCIOUS USE OF ALL FOREST FUNCTIONS BY SOCIETY IN THE CELESTYNŃW FOREST DISTRICT <i>Kamil Źořadek, Růža Brytan, Artur Dawidziuk</i>	67
GREEN AREAS AND NATURAL POTENTIAL OF THE POLISH CITY OF CIESZYN IN THE OPINION OF RESIDENTS <i>Edyta Rosłon-Szeryńska</i>	71
HEALTH VALUES OF FORESTS IN THE OPINION OF POLISH RESIDENTS <i>Emilia Janeczko, Małgorzata Woźnicka</i>	79
HISTORICAL EVOLUTION OF FESTIVALS IN GUIMARAS ISLAND: ITS IMPLICATION TO TOURISM INDUSTRY GROWTH <i>Norie H. Palma, Jasmin T. Gadian, Josie H. Gaitano, Revenlie G. Galapin, Petr Kupec</i>	83

HOW HIGH ARE THE ECONOMIC BENEFITS OF OUTDOOR RECREATIONAL USE FROM THE NEWLY DESIGNATED LANDSCAPE PROTECTED AREA? <i>Jan Melichar, Petr Pavelčík, David Zahradník, Marek Banaš, Radim Misiáček, Jana Hamanová, Martin Slaba, Viktorie Kováčová</i>	88
HOW TO MEASURE AND USE NATURE-BASED RECREATION EFFECTS: EXAMPLE OF RESULTS FOR THE VLTAVA RIVER CASCADE <i>Kateřina Mácová, Jan Melichar, Vojtěch Havlíček, Martin Heřmanovský, Filip Strnad, Pavel Fošumpaur, Karel Březina, Martin Hanel, Martin Horský, Tomáš Kašpar, Vojtěch Sýs</i>	93
HOW TO SUPPORT CARBON SEQUESTRATION AND RECREATIONAL POTENTIAL AT THE SAME TIME <i>Jan Deutscher, Jana Smolíková</i>	97
CHANGE OF THE WAY THAT LANDSCAPE IS USED AND IT IS EFFECT ON THE RECREATIONAL AND TOURIST POTENTIAL <i>Jan Szturc, Jan Prachowski, Jana Podhrázská ,, Petr Karásek,, Josef Kučera,,</i>	101
IMPLEMENTATION OF GREEN INFRASTRUCTURE ELEMENTS TO IMPROVE RECREATION IN THE VILLAGE OF DRIENOV, SLOVAKIA <i>Martina Zeleňáková, Natália Junáková</i>	106
IMPLICATIONS OF THE NATURE OF FORESTRY AND WOOD ENTERPRISES IN LATVIA <i>Dastan Bamwesigye, Ingus Grinbergs, Amanda Puzule, Tina Ķikule</i>	111
INFLUENCE OF RECREATIONAL ACTIVITIES ON THE DISTRIBUTION OF FOREST WILD BOAR ROOTING <i>Jakub Drimaj, Marie Balková, Jakub Špoula, Jiří Kamler, Ondřej Mikulka, Radim Plhal, Miloslav Homolka</i>	116
INNOVATIVE TECHNOLOGY OF SAPLINGS PLANTING FOR INCREASE TOURISM POTENTIAL OF THE LANDSCAPE <i>Luboš Staněk, Ladislav Zvěřina, Radomír Ulrich</i>	119
INTEGRATION OF NICHE AGRICULTURAL CROPS IN THE DEVELOPMENT OF ROMANIAN RURAL TOURISM. CASE STUDY: WALNUT CULTURE IN ROMANIA AFTER 1990 <i>Constantin-Răzvan Oprea, Roxana Cuculici, Iulian Săndulache</i>	123
INTELLIGENT DESTINATION GUIDE <i>David Zejda, Martina Pásková</i>	130
LANDSCAPE – ARCHITECTURAL PROPOSAL OF JANDURA PARK IN CANBERRA, AUSTRALIA: EXPERIENCE OF BILATERAL COOPERATION BETWEEN TWO UNIVERSITIES <i>Mária Bihuňová, Miroslav Čibik, Roberta Štěpánková, Attila Tóth</i>	135
LANDSCAPE CHARACTER AND INTEGRATION OF MINING LAKES INTO THE LANDSCAPE - OPPORTUNITIES AND RISKS <i>Hedvika Psotová</i>	140
LANDSCAPE-ARCHITECTURAL SOLUTION AROUND THE RIVER VÁH IN THE CADASTRAL TERRITORY OF SEREĎ WITH AN EMPHASIS ON RECREATION <i>Denis Bechera, Gabriel Kuczman, Miroslav Rusko</i>	144
LANDSCAPE-FRIENDLY METHOD OF FOUNDING WOODEN BUILDINGS FOR RECREATIONAL USE <i>Pavla Kotásková, Jitka Fialová</i>	149
SHARED-USED RECREATIONAL TRAILS IN THE CZECH REPUBLIC <i>Hana Hermová, Tomáš Kvasnička</i>	154

METEOROLOGICAL ACTIVITIES OF J. G. MENDEL AS PART OF THE TOUR OF THE AUGUSTINIAN ABBEY <i>Jaroslav Rožnovský</i>	158
MID-FIELD WOODLOTS AS A SUBSTITUTE FOR FORESTS IN AGRICULTURAL AREAS - THE IMPACT ON ENVIRONMENT AND TOURISM <i>Beata Fortuna-Antoszkiewicz, Jan Łukaszkiwicz, Piotr Wisniewski</i>	163
MONITORING THE MOVEMENT OF VISITORS IN THE TATRA NATIONAL PARK USING BATTERY-POWERED ONLINE COUNTERS <i>Ivos Gajdorus</i>	169
MOUNTAIN RESCUE SERVICE - INEVITABLE HELP AT RECREATIONAL AND SPORT ACTIVITIES IN MOUNTAINOUS AREAS IN SLOVAKIA <i>Matúš Jakubis, Mariana Jakubisová</i>	174
NON-WOOD FOREST PRODUCTS: "CULTURE" + "TRADITION" = "EDUCATIONAL POSSIBILITIES". DOES IT MAKE SENSE? <i>Szczepan Kopeć, Paweł Staniszewski</i>	179
OLDER ADULTS AS A TARGET GROUP OF USERS OF GREEN AREAS IN PROJECTS OF THE WARSAW CIVIC BUDGET <i>Kinga Kimic, Paulina Polko</i>	184
PLANNING THROUGH A GIS THE RECOVERY OF RURAL BUILDINGS FOR THE DEVELOPMENT OF NEW FORMS OF TOURISM HOSPITALITY <i>Pietro Picuno, Salvatore Margiotta</i>	188
POSSIBILITIES AND ADVANTAGES OF INDIVIDUAL RECREATION IN THE TOPOLEČANY DISTRICT <i>Regina Mišovičová, Zuzana Pucherová, Henrich Grežo,</i>	193
POSSIBILITIES OF RECREATION IN HNILEC RIVER BASIN FROM CLIMATOLOGICAL POINT OF VIEW <i>Patrik Nagy, Katarzyna Kubiak-Wójcicka , Miroslav Garaj , Milan Gocic3</i>	198
POSSIBILITIES OF USING NEW TECHNOLOGIES IN CULTURAL TOURISM IN THE POST COVID ERA <i>Kristýna Tuzová, Milada Šťastná</i>	202
PROBLEMS OF RURAL LANDSCAPE'S PROTECTION VS ANTHROPOPRESSURE AND RECREATION MOVEMENT - THE EXAMPLE OF THE NATURE RESERVE "STAWY RASZYŃSKIE" NEAR WARSAW <i>Jan Łukaszkiwicz, Beata Fortuna-Antoszkiewicz</i>	206
PUBLIC RECREATION AND TOURISM ARE ASPECTS THAT AFFECT NOT ONLY THE ENVIRONMENT <i>David Brandejs, Pavel Klika</i>	212
QUALITATIVE ASSESSMENT OF THE PREPAREDNESS AND POTENTIAL OF NATURE PROTECTED AREAS TO SUPPORT SUSTAINABLE TOURISM <i>Radek Timoftej and Hana Brůhová Foltýnová</i>	217
RECREATION IN CZECH LARGE PROTECTED AREAS: COUNTED AND SORTED <i>Tomáš Janík</i>	224
RECREATION LAND USE IN TERMS OF WATER PROTECTION <i>Maria Hlinkova, Rastislav Fijko</i>	228

RECREATIONAL POTENTIAL OF RADOŠINKA MICROREGION: LANDSCAPE – ARCHITECTURAL PROPOSAL OF THE CYCLO ROUTE <i>Mária Bihuňová, Branislav Králik</i>	232
RECREATIONAL USE OF FOREST ROADS IN THE TERRITORY OF NATIONAL PARKS AND PROTECTED LANDSCAPE AREAS <i>Roman Bystrický</i>	237
REFORM OF THE CONSTRUCTION ADMINISTRATION IN RELATION TO THE PERMITTING OF BUILDINGS FOR RECREATION <i>Alena Kliková</i>	243
REVITALISATION OF DRAINED FOREST AREA <i>Jana Marková, Petr Pelikán</i>	249
REVITALIZATION OF THE PARK IN THE CENTER OF IVANKA PRI DUNAJI <i>Gabriel Kuczman, Denis Bechera</i>	253
RISK ASSESSMENT ON GEODIVERSITY SITES <i>Lucie Kubalíková, Eva Nováková, František Kuda, Karel Kirchner, Aleš Bajer, Marie Balková</i>	258
RIVERS AS BACKBONES FOR URBAN AND PERIURBAN RECREATION – CASE STUDIES FROM KOŠICE AND PREŠOV, SLOVAKIA <i>Juraj Illes, Katarína Kristianova</i>	263
SMALL-SCALE INVASIVE INTERVENTIONS AS IMPULSES FOR THE REACTIVATION OF FORGOTTEN URBAN SPACES <i>Miroslav Čibík, Katarína Jankechová</i>	268
STUDY OF THE RELATIONSHIP OF MOISTURE AND COMPACTION ON THE MODULUS OF RESILIENCE OBTAINED BY CYCLIC CBR TESTING IN LOCAL SOILS FOR A QUALITY RURAL TOURISM <i>Iñigo Garcia, Lenka Ševelová</i>	273
THE "KAMIEŃ" EDUCATIONAL PAVILION IN WARSAW AS A PLACE OF PRO-ENVIRONMENTAL ACTIVATION OF THE URBAN COMMUNITY <i>Kinga Kimic , Magdalena Wolska</i>	277
THE ASSESSMENT OF ECOSYSTEM SERVICES IN TRNAVA (SLOVAKIA) AND SURROUNDING REGION <i>Radovan Pondelík, Martin Zápotocký</i>	282
THE CONCEPT OF SENSE OF PLACE IN ENVIRONMENTAL EDUCATION <i>Dominik Rubáš, Tomáš Matějček, Tomáš Bendl</i>	286
THE EFFECT OF GRASS STRIPS ON SOIL RETENTION AND EROSION REDUCTION IN AGRICULTURAL LANDSCAPE <i>Petr Karásek, Josef Kučera, Michal Pochop</i>	290
THE FIRST OFFICIAL FOREST MIND TRAIL IN THE CZECH REPUBLIC – KŘTINY ARBORETUM <i>Jitka Fialová, Martina Holcová</i>	295
THE HIPOROUTES IMPLEMENTATION OPTIONS FROM ALTERNATIVE MATERIALS <i>Václav Mráz, Jiří Ježek , Karel Zlatuška , Vlastimil Nevřkla</i>	302
THE IMPACT OF THE CREATION OF A RECREATIONAL AREA BY RECLAMATION OF A SURFACE MINE ON PROPERTY VALUE <i>Vítězslava Hlavinková, Martina Vařechová</i>	306

THE IMPLEMENTATION OF GIS TOOLS FOR PLANNING THE DEVELOPMENT OF RURAL TOURISM ALONG THE NETWORK OF OLD SHEEP-TRACKS <i>Giuseppe Cillis, Dina Statuto, Pietro Picuno</i>	311
THE IMPORTANCE AND FUNCTIONS OF RIPARIAN STANDS OF THE RECREATIONAL WATER RESERVOIR POČÚVADLO IN ŠTIAVNICKÉ VRCHY <i>Mariana Jakubisová, Matúš Jakubis</i>	316
THE ISSUE OF GEO-EDUCATION ON NATURE TRAILS IN THE FIRST SLOVAK GEOPARK BANSKÁ ŠTIAVNICA <i>Silvia Palgutová, Michaela Podoláková, Lenka Varcholová, Branislav Kršák, Ľubomír Štrba</i>	321
THE ROAD FROM THE CITY TO THE FOREST. OR HOW FAR IS THE URBAN MAN FROM A FUNCTIONAL FOREST? <i>Vilém Pechanec, Helena Kilianová, Ivo Machar</i>	326
THE ROLE OF LAND CONSOLIDATION IN RURAL SPACE DEVELOPMENT <i>Jana Konečná, Michal Pochop, Jana Podhrázká, Petr Karásek, Eva Nováková</i>	331
THE ROLE OF WETLANDS IN FLOOD PROTECTION PROCESSES IN THE LANDSCAPE – CASE STUDY <i>Marián Dobranský, Peter Bujanský, Gao Zhenjun</i>	336
THE UNFINISHED HITLER'S MOTORWAY – A HERITAGE IN THE CONTEMPORARY LANDSCAPE <i>Ivo Dostál, Marek Havlíček, Hana Skokanová</i>	340
TRADITIONAL COPPICE MANAGERMENTS AT THE LANDSCAPE LEVEL TOGETHER WITH RECREATIONAL USE <i>Barbora Uherková, Jan Kadavý, Zdeněk Adamec, Michal Friedl, Aleš Kučera, Robert Knott, Michal Kneifl, Jakub Drimaj</i>	346
TRANSFORMATION OF GARDEN SETTLEMENTS INTO A RESIDENTIAL ZONE <i>Sofie Pokorná, Vítězslava Hlavinková</i>	351
UNDERGROUND SPACES IN BOSONOŽSKÝ HÁJEK NATURE RESERVE AND THEIR GEOEDUCATION IMPORTANCE <i>Karel Kirchner, František Kuda, Vít Baldík, Lucie Kubalíková</i>	356
URBAN AGRICULTURE – ECOSYSTEM AND CULTURAL FUNCTIONS OF ORCHARD VEGETATION <i>Jan Winkler, Petra Martínez Barroso, Doubravka Kuříková, Helena Pluháčková, Aleksandra Nowysz</i>	360
VALORIZATION OF AN OLD SHEEP TRAIL AS A NEW OPPORTUNITY FOR SUSTAINABLE PUBLIC RECREATION: A CASE STUDY IN SOUTHERN ITALY <i>Dina Statuto, Giuseppe Cillis, Pietro Picuno</i>	364
WHERE NATURE MEETS ADVENTURE: TOURIST ACTIVITIES AT DOBROGEI GORGE NATURE RESERVE, ROMANIA <i>Teodorescu Camelia, Szemkovics Laurentiu-Stefan, Dumitrascu Alina Viorica</i>	369
WHERE THE SQUARE MEETS THE STREAM: RE-DESIGNING THE RURAL SQUARE IN VEĽKÝ KÝR, SLOVAKIA <i>Attila Tóth</i>	373
WHICH INFLUENCE HAS DEFORESTATION ON TOURISTIC RECREATIONAL AREAS IN SUCEAVA COUNTY? <i>Ana-Maria Ciobotaru</i>	378

WILL THE REMOVAL OF THE RECREATIONAL SYMBOL OF JESENÍKY MOUNTAIN SUMMIT PARTS, THE DWARF PINE FORESTS, AFFECT THE ECOSYSTEM FUNCTIONS OF THE HILLS?
Petr Kupec, Petr Čech, Jan Deutscher 382

WINDBREAKS AS AN IMPORTANT ECO-STABILISING AND SOIL-PROTECTIVE ELEMENTS IN THE LANDSCAPE OF SOUTH MORAVIA
Josef Kučera, Jana Podhrázská, Michal Pochop, Petr Karásek 387

METEOROLOGICAL ACTIVITIES OF J. G: MENDEL AS PART OF A TOUR OF THE AUGUSTINIAN ABBEY

Jaroslav Rožnovský

*Czech Hydrometeorological department, branch Brno, Kroftova 43, 616 67 Brno, Czechia
Department of Breeding and Propagation of Horticultural Plants, Faculty of Horticulture, Mendel
University in Brno Valtická 337, 691 44 Lednice, Czechia*

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Abstract

Gregor Johann Mendel is known worldwide for establishing the genetic laws. What is less well known is that during his life he devoted far more time to meteorology. He started as an assistant to Dr. Olexíka, who performed meteorological measurements on the premises of the Hospital at St. Anna in Brno. G.J. Mendel independently carried out his measurements in the grounds of the Augustinian Abbey in Staré Brno from July 1878 to July 1883 as a meteorological observer of the Austrian Meteorological Services. He studied at the University of Vienna and used his knowledge of physics to process meteorological data, which was unusually extensive and graphically expressed for that time. His physically very expertly described tornado that occurred in Brno on October 10, 1870 is very well known. He supported the development of weather forecasts and forecasts with specifically focused on agriculture. Part of the exposition in the Mendel Museum of the Masaryk University in Brno is dedicated to his meteorological activities. Visitors to the Abbey can familiarize themselves with the meteorological instruments located in the meteorological booth on the terrace. In the courtyard, there is a replica of the tin meteorological booth from the period of Mendel's measurements in its original place.

Keywords: meteorological observations, weather forecast, wind storm, data processing

Introduction

Part of recreation in cities are visits to museums, important buildings and the like. On July 20, 2022, 200 years have passed since the birth of the world-renowned scientist Gregor Johann Mendel. He went down in the history of science as a genius geneticist. However, the fact that this abbot of the Augustinian monastery in Brno called himself a meteorologist at the time of his fruitful scientific research still arouses great astonishment and surprise.

This fact is evidenced by the records of his meteorological observations, which he not only wrote down by hand, but also evaluated and published. Considering the extent of his meteorological activities, one can say quite responsibly that he devoted a significant part of his other scientific activities to meteorology. A visit to the grounds of the Augustinian Abbey, including the Mendel Museum, gives an opportunity to get to know and learn about his meteorological activities as well as genetics.

Meteorological measurements

On the petition of the Naturalist Association in Brno from 1870, in the proposal for the establishment of the Moravian University, Mendel's expertise was listed as a meteorologist (Kříženecký, 1965). Quite realistically, one can state that unlike his genetic knowledge, where he did not receive recognition during his lifetime, his meteorological background and studies were known and his opinions were sought after. To the question of what Mendel's activities were in meteorology, one can answer that they were very diverse, corresponding to his style of scientific work, i.e. from basic observation and measurement, through data processing to the publication of his results (Seiner, 1965). Nowadays, his handwritten records of meteorological measurements (Fig. 1) are safely stored in the archives of the Brno regional office of the Czech Hydrometeorological Institute.

They form part of the continuous meteorological observations and measurements within the data series of the Brno city (Štěpánek 1998). The longest period of meteorological measurements in the Czech Republic is that of Klementinum (Prague), which has a continuous temperature series since 1775. In Brno, continuous meteorological data has been available since January 1, 1848, thanks to meteorological measurements conducted by dr. Paul Olexík in the general hospital of St. Anna (Vitasek, 1952). G. J. Mendel was a close friend of dr. Oleksík and helped him with meteorological measurements at his station.

It is assumed that G. J. Mendel already during the collaboration with dr. Oleksík performed simultaneous measurements in the monastery, according to some opinions, as early as 1857 (Orel, 1965). Mendel's separate measurements are from January 1, 1879 to July 1883 (Liznar, 1886). As

part of the exposition in the Mendel Museum, we can find a monthly report filled out by Mendel (Fig. 1).

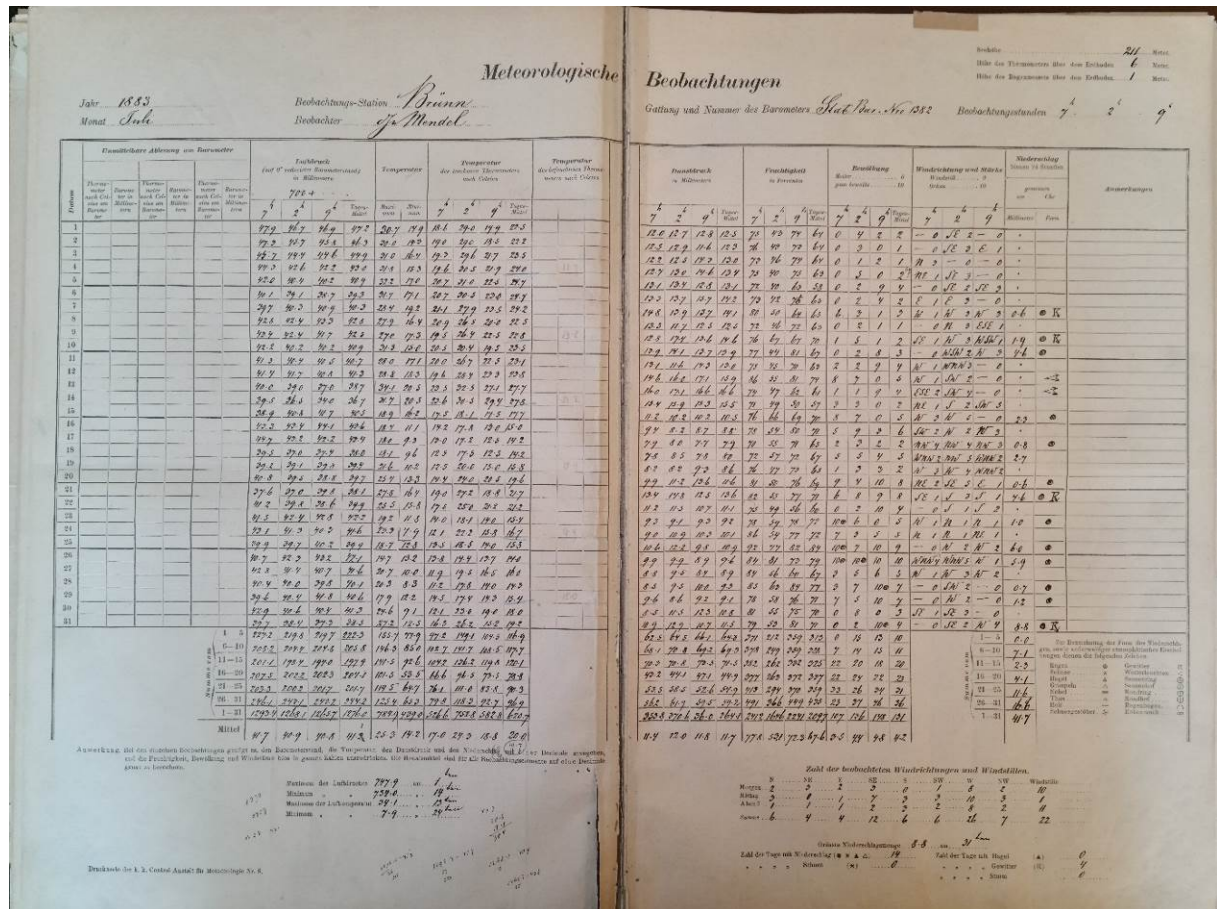


Fig. 1: Monthly report of meteorological observation written by G. J. Mendel

Apparently, we also have a preserved tin meteorological booth and thermometers from the period of his measurements. During renovations on the grounds of the Abbey, a partially damaged booth was found in which the mercury thermometers were preserved, which were also undamaged, and the mercury column was completely clear, i.e. the capillary was not contaminated by mercury, as is common with meteorological thermometers after prolonged use. Visitors can find a replica of the tin meteorological booth as part of the exhibition in the museum, but also in the courtyard on the wall at the place of Mendel's probable observations (Fig. 2).

Visitors to the abbey can learn more about meteorological measurements thanks to the installed meteorological booth and rain gauge on the terrace (Fig. 3).

In the 1862 annual report of the Society of Natural Sciences in Brno, he mentions the publication "Bemerkungen zu der graphisch-tabellarischen Übersicht der meteorologischen Verhältnisse von Brünn" (Notes on the graphical and tabular overview of meteorological conditions in Brno). His remark that air temperatures are higher in the city center compared to its outskirts is significant. It is a warning about a phenomenon that we study extensively today and call it the urban heat island. Only after more than twenty years has this knowledge become the subject of interest of meteorologists and climatologists (Dobrovolný et al. 2012, Litschmann and Rožnovský, 2012).



Fig. 2: A replica of the tin meteorological booth in the Mendel Museum exposition



Fig. 3: Meteorological booth and rain gauge on the terrace in the abbey grounds

Experiments with weather forecasting

G. J. Mendel was an active meteorologist, he had a physics education, so he knew the essence of many processes in the atmosphere. He also perceived the influence of the course of the weather on nature and, given his agricultural roots, was aware of the importance of weather forecasting. What still applies today - our effort to use the knowledge of meteorology in various fields of human activity.

It is therefore logical that G. J. Mendel perceived all this and was not only interested in the possibility of predictions, but also tried to make predictions himself. He was aware of the importance of weather in agriculture and supported the issuing of weather forecasts for farmers. He therefore supported the publication of short-term weather forecasts by the then Central Institute for Meteorology and Earth Magnetism in Vienna. These predictions were telegraphed to subscribers, who then passed them on further.

The Ministry of Plowing at the time set up a kind of institute of local forecasters, who edited the general forecast and sent it out in the form of telegrams to individual interested parties. In the villages, simple signaling was introduced, e.g. by hanging flags or baskets. G. Mendel tried to compile his own weather forecasts for three days, but essentially unsuccessfully. If we imagine the information he had at his disposal and compare it with today's, there is a big disparity. When evaluating this activity, we must realize that he was clear about the physical nature of weather forecasting, that he was aware of the scope and importance of this newly emerging part of meteorology, which today we call synoptics.

Professional activities

As noted, G. J. Mendel's meteorological work was extensive. He was also interested in the use of meteorology in other fields, as evidenced by his activities in professional societies. As early as 1851, on 7/23, he joined the natural science section of the Moravian-Silesian Society for the Improvement of Plowing, Natural Science and Homeland Studies (abbreviated Moravian-Silesian Economic Society). A year later, he becomes a member of the fruit-growing, wine-growing and horticultural section of this company. His esteem is evidenced by the fact that in 1871 he was elected to the committee of the Moravian-Silesian Economic Society and in 1882.

He was accepted as a member of the Zoological and Botanical Society in Vienna on January 5, 1853. He is a co-founder of the Natural History Society in Brno, which was established on 21st December 1861, in which he presents himself as a meteorologist. He is known for his activity in the Beekeeping Association in Brno, in which he later held the position of deputy mayor and was nominated for the post of mayor. G. J. Mendel was one of the important personalities of the Austro-Hungarian meteorology of that time. He was a founding member of the Austrian Meteorological Society.

Conclusion

The meteorological activities of Gregor Johann Mendel contributed significantly to the development of meteorology in several directions. His personal measurements became part of a long-term series of meteorological data from the territory of the city of Brno. As part of a visit to the Starobrněnské Abbey, it is possible to get acquainted with the entire breadth of Mendel's activities at the exposition in the Mendel Museum. The installed meteorological booth gives the opportunity to get closer to the basics of meteorological measurements, as they were performed prior to them being fully automated. In the courtyard it is then possible to see a replica of the tin meteorological booth, which was most likely used by G. J. Mendel. This review of meteorological documents gives visitors the opportunity to assess how technical conditions and methods are progressing even in meteorology.

However, the legacy of G. J. Mendel is not only in professional activities, but also in the overall approach to science. When evaluating his legacy, one must always remember that he was an abbot of the Augustinian order, i.e. a scientist and a Christian at the same time. As a representative of orders and a scientist, he proved his not only managerial but also financial abilities. The proof is that, among other things, he was also the chairman of the bank board.

In order not to forget Mendel's meteorological activities, meteorological measurements were provided on the grounds of the Abbey outside the event for his significant anniversaries. Evidence of his meteorological measurements is also part of the exhibition in the Mendel Museum.

Literature

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Souhrn

Gregor Johann Mendel je celosvětově znám stanovením genetických zákonitostí. Méně známé však je, že během svého života daleko více času věnoval meteorologii. Začínal jako pomocník dr. Olexíka při měřeních v areálu Nemocnice u sv. Anny v Brně. Svá měření samostatně prováděl v areálu Augustiniánského opatství na Starém Brně od července 1878 do července 1883 jako meteorologický pozorovatel Rakouské meteorologické služby. Studoval na vídeňské univerzitě a svých znalostí fyziky využil pro zpracování meteorologických dat, která byla na tehdejší dobu neobyčejně rozsáhlá a graficky vyjádřená. Známa je jeho fyzikálně velmi odborně popsaná smršť, která se vyskytla v Brně 10. října 1870. Zasloužil se také o rozšíření meteorologických stanic na Moravě. Podporoval rozvoj předpovědi počasí a jejich specifikaci pro zemědělce. Sám se o předpovědi pokoušel, ale ne úspěšně. Z jeho uváděných 13 publikací je 9 věnováno meteorologii. Byl také aktivní v odborných spolcích. Meteorologickým aktivitám je věnována část expozice v Mendelově muzeu Masarykovy univerzity v Brně, které je umístěno v areálu Starobrněnského opatství. Návštěvníci Opatství se mohou seznámit s meteorologickými přístroji umístěnými v meteorologické budce na terase V nádvoří je na původním místě umístěna replika plechové meteorologické budky z období Mendelových měření.

Contact

Jaroslav Rožnovský

E-mail: jaroslav.roznovsky@chmi.cz

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