

Centrum Mendelianum: The Mendel Museum Moved to the Former Premises of Mendel's Scientific Society

*Anna Matalová and Eva Matalová**

THE former Mendelianum of the Moravian Museum in the Augustinian Monastery in Old Brno was originally founded by the Gregor Mendel Genetics Department of the Moravian Museum in 1965 in the form of a J. G. Mendel Memorial. Mendelianum originated in an uneasy time of the post-Stalinist Lysenkoism era in the former Czechoslovakia. The Genetics Department itself started working in 1962 when the Nobel Prize awarded for the discovery of the DNA structure to Watson and Crick helped open genetics behind the iron curtain (Matalová A, Sekerák J., Genetics behind the iron curtain. Brno: Moravian Museum, 2004).

Jaroslav Kříženecký, founder of the Gregor Mendel Genetics Department in the Moravian Museum, was released from a communist prison in 1958. He was put in jail for his incessant criticism of the Soviet genetics that taught the inheritance of acquired characters and was strictly anti-Mendelian. During the era of the political thaw that was stopped by the Soviet invasion to Czechoslovakia in 1968, an open international

historical workplace for genetics with a significant support from abroad originated and became known as Mendelianum.

On the occasion of the fifty-year anniversary of its continuous activities, the Mendelianum in cooperation with Mendelian scholars and geneticists made a proposal for an innovated and extended Mendelianum under the heading Centrum Mendelianum (Mendelianum Centre, MCentre). Since 2012, the MCentre has been located in the authentic premises of Mendel's Agricultural Society housed in the former Bishop's residence in the historical heart of Brno that brought Mendel instigation for his experiments.

Mendelianum Introduces its New Concept

J. G. Mendel was a versatile personality—a physicist, naturalist, teacher in real subjects, researcher and experimenter, promoter of public education, meteorologist and bank manager. However, it was through his scientific achievement that he became world famous as a scientist (Matalová A., Gregor Johann Mendel. Brno: Moravian Museum, 1999).

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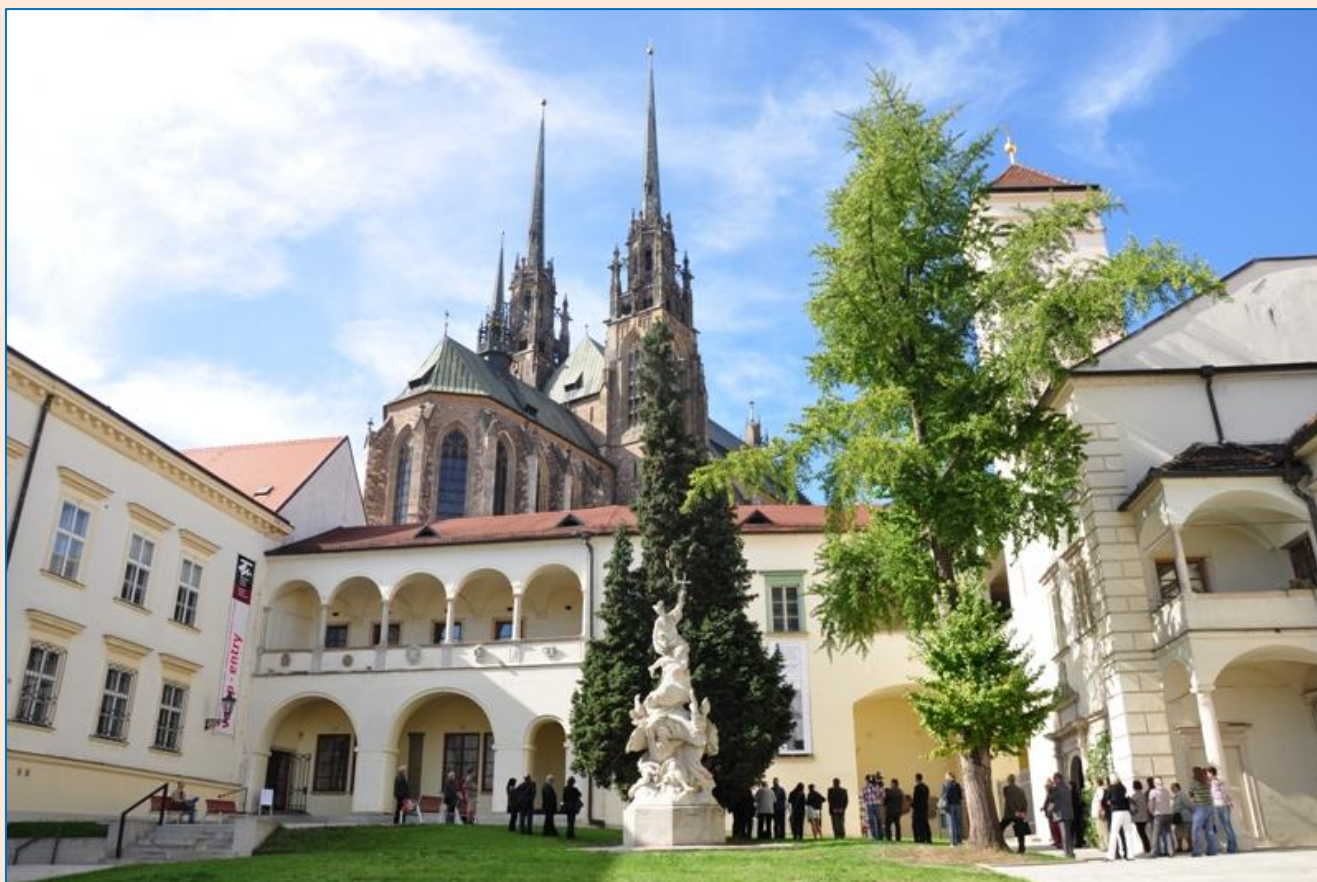


Figure 1. Location of the Mendelianum Centre within the Moravian Museum in the heart of Brno.

The Agricultural Society replaced the Moravian Academy of Sciences and founded the Moravian Museum in 1817. The Agriculture Society gathered experts from forestry, agriculture, horticulture, viticulture and viticulture, pomology, meteorology, sheep breeding, bee-keeping and statistics. Mendel actively worked in the Agriculture Society in the place where now the Mendelianum has been housed, from 1851 until his death in 1884. The Moravian Museum is the only scientific institution in the world directly continuing research into natural sciences constituted by Mendel and his colleagues and their predecessors.

To mark 50 years of intense work in research, development and propagation of Mendel's cultural and scientific heritage, Mendelianum prepared a new concept of Centrum Mendelianum (MCentre).

The aim of the MCentre is to provide a complex modern base built upon solid historical foundations and opened to both professionals and the general public. The MCentre integrates scientific, training, and popularising aspects. As such, the conception of the MCentre is supported by three pillars:

- 1) Mendel's Scientific Centre
- 2) Mendel's Visitor Centre
- 3) Mendel's Interactive school

Mendel's Scientific Centre was established on the 50 years of Mendelianum tradition in science and research related to Mendel and his ideas.

The activities include:

- Files are collected, classified, stored and displayed concerning Gregor Mendel's biography and the scientific context of his discovery, said documentation being created by researchers from here and abroad into Mendel's heritage since the beginning of the 20th Century.



Figure 2. Gene expression presented in 3D models and explanation using 3D animations along with the movement of the lift.

- *Folia Mendeliana*: the only international specialized historical-scientific reviewed journal with the research results on Mendel's life and reports on the origin and early development of genetics.
- Mendel Forum: conferences organized yearly since 1992 for professionals, later expanded to include a space for meetings of scientists, teachers, students and the general public.
- Mendel Medal: annual unique appreciation of internationally prominent personality for his/her contribution to the development

of the scientific and cultural heritage of J. G. Mendel and genetics.

- Mendel Lecture: since 1992, it represents a significant opportunity for scientists to present their research within the framework of the awarding of the Mendel Memorial medal of the Moravian Museum.
- Mendel's native house: cooperation in the foundation of the historical trust house of Mendel's parents, its reconstruction, preparation of exhibitions, excursions, together with a long-term cooperation in the evaluation of the students' competition taking place in Mendel's Hynčice for talented secondary school students.
- Mendel Brno: since 2001, organization of occasional strolls around Mendel's Brno with an expert commentary, complemented by short-term exhibitions, publications and other activities.
- Exhibitions and expositions: a long-term tradition of professional and popular science exhibitions. J. G. Mendel Memorial, Mendelianum (Mendlovo náměstí) – 1965—2000, Mendelianum (Údolní Street) – 2001—2006, Mendelianum Centre (Biskupský dvůr) – since 2012.
- Professional publications: in addition to papers published in *Folia Mendeliana* and other international journals, this section includes the issue of professional and popular scientific publications (Gregor Johann Mendel, Genetics Behind the Iron Curtain, Mendel in a Black Box, Experiments on Plant Hybrids, Mendel's Brno, and many others).
- Other activities: lectures, seminars, excursions, popularization activities, film and interactive materials, Web pages, etc., etc.

Mendel's Visitor Centre presents a modern form of a living museum, which includes laboratories and other interactive elements that enable an active involvement of visitors in science and research. Men-

del is not presented in a golden heavy frame, but as a living original thinker.

The basic parts of the Visitor Centre consist of:

- Introductory section: From the genetic program to its implementation
- Molecular-biological laboratory: The desire to explore and discover
- Genetic stories on the background of Nobel Prizes: Mendel in the concept of today's science
- Historic hall and modern science: A counterpoint of old and new
- Conference Hall: the place where Mendel was meeting his hybridizing colleagues and gathered motivation for his experiments
- Mendel's laboratory: disclosure what Mendel knew and what he couldn't know
- Scientific environment of Mendel's discovery: A trip to Mendel's epoch
- Mendel's experimental plants: Mendel's verification of his discoveries
- Mendel Brno: Walking in the footsteps of J. G. Mendel

Mendel's Interactive School takes advantage of the incentive aspect of JGM and his heritage to meet the overall concept for popularization and dissemination of results of science and research. A scientist should have not only a thorough knowledge of his field, but also an aptitude to explain it at different levels, as well as a constant interest in self-education.

Mendel was an exceptional, modest and loving personality, but he never established a scientific school of his own during his lifetime. Until 30 years after his death his ideas were incorporated into the body of science giving birth to genetics.

Mendel's Interactive School has several divisions:

- Mendel Mobile School (MMS): The MMS offers a path of scientific thinking to students. The MMS is a unique project of five mobile laboratories that will allow the input of science and research in secondary schools, in which the interest in science and research is usually created.
- Mendel Scientific Research School (MSRS): The MSRS invites students to engage directly in scientific activities. This part of the school is based on the hands-on experience of students directly in sites of science and research.
- Mendel Popularization School (MPS): A part of the school is the annual organization of popular-scientific conferences Mendel Forum. In the year 2014/2015, this activity is enhanced by internship programmes and workshops.
- Mendel Summer School (MSS): The MSS is a novelty that allows an entertaining education even during a holiday season with the use of facilities of the reconstructed Mendel Native House and the Visitor Centre Mendelianum – an attractive world of genetics.
- Mendel School World Wide + Web (MSW): The MSW offers distant form of education through e-learning and propagation via the website.

Key partners of the Moravian Museum in Brno:

- Institute of Animal Physiology and Genetics of the Czech Academy, v.v.i. (for research institutions)
- Mendel University (for universities)
- Gymnasium of Captain Jaroš, Brno (for secondary schools)

Associated institutions in Brno:

- University of Veterinary and Pharmaceutical Sciences in Brno
- Faculty of Natural Sciences of the Masaryk University

- Faculty of Medicine of the Masaryk University
- Masaryk Memorial Cancer Institute
- Institute of Vertebrate Biology of the Czech Academy, v.v.i.
- Veterinary Research Institute, v.v.i.
- Brno University of Technology

International Advisory Board:

- Prof. Jan Klein, Pennsylvania State University, USA (chair)
- Prof. Robert C. Karn, University of Arizona, USA
- Dr. Hervé Lesot, University of Strasbourg, France
- Dr. Dinko Mintchev, Academy of Sciences, Bulgaria
- Prof. Paul T. Sharpe, King's College London, UK
- Prof. Valery N. Soyfer, George Mason University, USA

Financial support:

- Mendelianum runs under Ministry of Culture of the Czech Republic.
www.mendelianum.cz
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The centre was established in 2012, the comprehensive complex will be inaugurated on

March 8, 2015, on the occasion of the anniversary of 150 years since the publication of Mendel's discovery paper in Brno, and of 50 years since opening the "old" Mendelianum.

Mendel Comes Back to His Home Scientific Community in the Moravian Museum

In the world-famous work "Experiments on Plant Hybrids," which became the basis of genetics, Mendel presented for the first time on the platform of the Natural Science Society. This was part of the former Moravian Academy known under the name Agricultural Society (AS). The AS resided in the Bishop's Court in Brno where is now located the Mendelianum Centre.

The Bishop's Court was acquired by the Moravian-Silesian Society for the Improvement of Agriculture, Natural Science and Knowledge of the Country in 1817 and created there a pioneer centre of an organized research in Moravia and Silesia. In addition to the depositories and exposures of the Francis Land Museum, the AS created therein its operating headquarters. Through the modern term of the natural history in its name, the AS declared its loyalty to the new natural science trend that started to penetrate into the science of agriculture. The Agricultural Society developed not only natural sciences (physics with meteorology, biology with geology and mineralogy, mathematics, statistics, biology, chemistry) but also social sciences and liberal arts. It was the AS, which laid the foundations of the Moravian Gallery in Brno and the Moravian Science Library. In lexicons, the AS was reported among scientific academies as the Academy for Moravia and ranked among the progressive institutions of the experimental and art-loving orientation. Its members have introduced real and technical education in Brno, its graduates have successfully contributed to the industrialization of the country.



Figure 3. Mendel welcomes his students and visitors in the authentic Meeting Hall of his scientific Society (Agriculture Society).

After the revolution year 1848, the AS changed its statutes and opened itself to a wider professional and interest public in recruiting new members. On the pattern of the AS, rural intelligence established local associations in smaller towns and villages, organized exhibitions of flowers, vegetables and fruits, listed prices for the acquisition of new varieties. Through awarding medals and recognitions, the AS supported the efforts and strengthened the economic awareness of the broad masses of the population in Moravia. After 1848, a part of the members separated from the Moravian-Silesian Agricultural Society and created a Silesian Agricultural Society. The Moravian Agricultural Society continued to develop its professional structure that included a fruit growing-viniculture and horticultural department, a for-

estry section, a beekeeping association, an agro-agricultural division, a historic-statistical department and a natural science department, which included mineralogy, geology, botany, zoology and meteorology. Mendel joined the natural science section in July, 1851. The official nomination was issued in January, 1855.

Mendel joined the activities of the Agricultural Society immediately after his return from the Vienna University in the fifties of the 19th century. He contributed to many specialized sections of the Society, his experiments with pea hybrids Mendel carried out within the natural science section of the AS (naturwissenschaftliche Sektion); this includes also his work on agricultural pests *Bruchus pisi* and *Botys margaritalis*. Here began Mendel his meteorological observations. In 1861, the natural science section started its transformation in a natural sci-

ence association (*Naturforschender Verein*), in which Mendel continued in the research of hybrid plants and meteorological observations. Here, Mendel spoke on its discovery in 1865. A year later his work on pea was published in the Association magazine *Verhandlungen des naturforschenden Vereines in Brünn*. In 1869, he published in this Association his paper on some hybrids of *Hieracium*.

In 1868, he became Abbot, and it was only a matter of time when he would replace his deceased predecessor Abbot Napp in the leadership of the AS. The AS General Assembly voted the members of the Main Committee for the term of three years. Mendel became a member of the Central Committee of the AS in January 1870. As a member of the Main Committee of the AS attended Mendel regularly the Moravian Museum and actively participated in solving problems in all sections and associations of the AS and signed also reports on the economy of the Museum. His publication and professional activity reaches a broad professional spectrum that traces the professional construction of the AS. The most important are his works in meteorology, entomology on pests of agricultural crops and then innovative plant physiology. On the thematic structure of the AS is based also Mendel's activity in the field of apiculture, fruit growing, horticulture and viticulture. Mendel devoted a considerable attention to the publication of papers on the latest professional literature, reviews of the latest news and co-determined the acquisition policy of the library of the Provincial Museum. He interfered in listing competition issues and their evaluation and remuneration. He was also active as a member of the evaluation committee for exhibitions of flowers, fruits and vegetables, in which he had taken part with his cultivars. In the field of pomology, the AS named him an official examiner for the qualifying examination of fruit-growers. For his wide horizon of knowledge, he was involved in the distribution of agricultural subsidies of the AS and promoted the implementation of new knowledge into practice. The

professional work in the AS, to which he devoted the rest of his life, was for Mendel an escape from his abbatial duties. None of his numerous resignation letters was intended to the Agricultural Society. The world of the Agricultural Society Mendel transferred to his prelature. The fruit growing, viticulture and horticulture appear in ceiling paintings in the library of the Augustinian monastery in Old Brno, which capture the composition of ornamental plants, fruit and grapes. The paintings were made on request of Mendel in 1875. We must gratefully acknowledge that Mendel's scientific work in the Agricultural Society and its Natural Science Association brought him great satisfaction and balanced the injustice (*Kränkungen*) which brought him his "fight" against increasing the monastic contributions to the religious fund.

It is commonly stated in the literature that before a so called rediscovery of Mendel in 1900, no one realized the significance of his work. In connection with the Museum and the Agricultural Society we can demonstrate that members of its horticultural-fruit growing-vinicultural section considered Mendel's experiments with plant hybrids for epochal even during his life and stressed their importance in the necrology, which was published shortly after his death. It is apparent from a historical documentation that in the AS in the Bishop's Court Mendel was among his own people.

We believe that Mendel's passion for scientific work will have a positively impact on "his students" in authentic premises where the ideological environment of Mendel's discovery was formed. The location of Mendel's study and visitor centre in the historical centre of Brno, near the train and bus station, will allow an easy access even to foreign visitors who will be simultaneously able to employ the Mendel's documentation centre which since 1966 publishes the specialized English-language journal *Folia Mendeliana*. In managing the professional part of the project takes part the international council of scientists with the participation of our experts. The inauguration of the project is devoted to the 150th anniversary of the publication of Mendel's

scientific work through lectures and the 50th anniversary of the foundations of the Mendelianum.

Mendelianum Presents Mendel's Scientific Board in Brno

In 2012/2013, the Mendelianum of the Moravian Museum focused its activity on presenting Mendel in the open space of the historic city centre of Brno (Matalová A., Mendelovo Brno. Brno: Moravian Museum, 2012). The Tourist Information Centre has resumed the program "Walks through Mendel's Brno", which was organized by the Mendelianum since 1992. The Tourist Information Centre wants to continue with this successful project of guided tours, so that candidates and students can look forward to get acquainted with Mendel in a live form and to discuss directly with experts of the Mendelianum.

Following the presentation of sites associated with the work of Johann Gregor Mendel, the Mendelianum in 2013/2014 presents the personalities with which Mendel was in direct professional contact, and which could have an impact on him in terms of a scientific research. An important member of Mendel's Council is Professor Franz Diebl from which Mendel obtained a certificate in the field of agriculture, fruit growing and viticulture. The certificate from these fields was an important qualification for Mendel both for his teaching career and his professional activity in the Agricultural Society. The Agricultural Society founded in 1817 the Francis Museum, now the Moravian Museum. Another person from Mendel's circle is Alexander Zawadzki, who engaged Mendel in the natural science section of the Agricultural Society. Zawadzki was an eminent physicist, botanist and Mendel's colleague from the grammar school.

In an environment of the Agricultural Society, Mendel had information about the research of hybrid plants from Jan Tvrđý, Hans Molisch and Gustav Niessl who monitored this issue, procured live specimens of hybrids for the lec-

ture meetings and published the results of their research in the specialized literature. The study of variation and selection in the spirit of Darwin belonged to the research field of Mendel's friend Matouš Klácel, who bequeathed his monastery experimental garden to Mendel. Mendel's monastic brother Tomáš Bratránek explicated in his reflections on the plant aesthetics the ideas about the development of nature as a living organism in the dynamic conception of German natural philosophy. From Pavel Olexík, Mendel obtained meteorological observations and some meteorological instruments. Alexander Makowsky, professor of natural science at the Technical Institute in Brno, reported in the press about Mendel lecture in 1865 and thanks to him we now know as Mendel notice of his discovery was accepted. In the Agricultural Society, Mendel cooperated with an apiarist František Živanský who correctly anticipated that Mendel could not be successful in his hybridization experiments with bees. A. Tomášek reported on Mendel's acclimatization experiments with a bee *Trigona lineata* in German and Russian scientific journals. Our Brno circle of Mendel's colleagues in the scientific environment concludes A. Tomaschek known thanks to his work about Mendel's acclimatization experiments with the bee, *Trigona lineata* Lep. Published in the journal *Zoologischer Anzeiger* in 1870. A Thomaschek was a professor of natural sciences, who also investigated plant fertilization. As Mendel, A. Tomaschek studied botany at professor Unger at the Vienna University. Individual personalities and their relationship to Mendel give an insight into the ideological context of Mendel's scientific work, the focus of which was in the scholarly Agricultural Society that is in Otto's educational vocabulary marked as the Moravian Academy of Sciences, which supported science, research and education.

The research activity of the Mendelianum to the topic of Mendel's Scientific board will be crowned with an exhibition, which will be opened in March 2015 on the occasion of the 150th anniversary of the publication of Mendel's world-famous discovery.

Mendelianum Greatly Acknowledges Dedication in the New Book on Mendel to the Mendelianum Tradition by J. Klein

Jan KLEIN, Norman KLEIN: *Solitude of a Humble Genius. – Gregor Johann Mendel: Volume 1. Formative Years.* Edited by Paul Klein. Springer, 407 s., ISBN 078-3-642-35253-9.

The two-volume biography by Professor Jan Klein, of which the first volume has been published, surpasses all books on Mendel published thus far. It begins with Ancient Greece and explains where modern genetics meets Aristotle and how Mendel fits into it. With a feeling of appurtenance he introduces Moravia and Silesia as part of his effort to capture in detail Mendel's birthplace, his ancestors, parents, sisters, and their life at a farmstead, as well as the four seasons in Kravařsko (Cow Country) of their time.

Starting from Hynčice (Heinzendorf), he accompanies Mendel on his studies to Lipník (Leipnik), to the Gymnasium in Opava (Tropau), and to the Philosophical Institute at Olomouc (Olmütz). In another collection of detailed information and interesting interconnections he deals with Brno and the Augustinian order of Saint Thomas at Staré Brno (Old Brno), where Mendel collapsed physically and mentally at the very beginning of his pastoral activities. The breadth of coverage and the clarity with which one is drawn into the story will surprise many a student of Mendel. The author's systematic organization of the data facilitates a quick search for specific facts of Mendel's life. Incidentally, the book presents many valuable findings, which, however, the author modestly lets to float with the powerful stream of data. It can be expected that in Brno the book will dampen the rapid fermented and would be innovative interpretations of Mendel's life, which have been emerging in the last ten years. We must realize that in Brno Jews, Germans, and Czechs have been developing Mendel's legacy systematically over long period of time at very high level.

In present-day Europe we should interpret Mendel in the dynamic scientific and cultural

context. Data remain the same; what is new is the context in which they emerge.

As an Expert on peasant life Professor Klein understands the depth of Mendel's longing for freedom, which led him to join the revolutionaries in 1848. Mendel's personal involvement—as a teacher of physics and natural sciences,—in making education the means toward self-determination in one's personal life, at the same time, sheds light on the conditions existing in the educational system of the monarchy. We learn who governed, who obeyed, and who rebelled; who created and where he found inspiration; who succumbed to utopian visions and who rejected any such visions; who was the last but became the first; who was at the right time at the right place, even though he did know what to expect. From the world perspective we all will welcome the opportunity to visit Mendel's native country, where lived its inhabitants and what they did for living; who were Mendel's neighbours what did they believed in and how they viewed the world. J. Klein even filled in the white spots in regard to Mendel's entry in the monastery, an event which until now most biographers remained silent; about the impact of the revolutionary year 1848 on the life in the monastery; and about the changes that the revolution induced and which affected Mendel positively.

The first volume ends with Mendel's studies at the University of Vienna and the acquisition of the position of a substitute teacher at a higher state secondary school with which ambitions of Freemasons are associated. Each of the six thought circles (Greek view of heredity, sex and type; Mendel's sorely tried homeland—Silesia and Moravia; the childhood on a farmstead; Mendel's apprenticeship, the pledge of allegiance, a futile effort to obtain the professorships) is furnished with rich notes, literary references and explanations. Drawings of Norman Klein that bring portraits of people, buildings and places associated with Mendel's life, constitute a great contribution to the book.

Professor Jan Klein is currently the chairman of an international team of experts involved in the construction of the Mendelianum Centre in the Moravi-

an Museum in Brno, which had to vacate its Mendelianum in Old Brno monastery in 2000 after the restitution of the church property.

Professor Jan Klein was born in a small Silesian village near Mendel's Hynčice. Like Mendel, Professor Klein grew up on a farmstead and attended the grammar school in Opava. In the time of Stalinist Lysenkoism, he defended Mendel's work and campaigned for the support of the Mendelianum.

Mendelianum Participation in a Weekend with J. G. Mendel in Brno

The anniversary of 150 years since the publication of Mendel's discovery work *Experiments on Plant Hybrids* on the territory of the city of Brno, 8. 2. and 8. 3. 1865, deserved more than a commemoration. Centrum Mendelianum prepared a unique series of activities under the banner of Mendel's year of entertaining education.

JUBILEE MENDEL FORUM CONFERENCE

March 6 – 8, 2015

Centrum Mendelianum, Muzejní 1, Brno – centre
Czech Republic
www.mendel-brno.cz

Secretary

Ma. Eva Janeckova
MF2015@email.cz

Registration

Free of charge

Limited number of participants

Deadline for abstract submission: Dec 31, 2014

www.mendel-brno.cz

Major Topics

J. G. Mendel (Mendel as a Scientist and Multifaceted Personality, Mendel's Discovery in Context of Recent Science), Mendel's Scientific Society (Mendel, Agriculture Society and Moravian Museum, Mendel's Scientific Collegium in Brno), Mendel's Plants, Solitude of a Humble genius, Mendel's Plants, and other related topics announced in submitted abstracts.

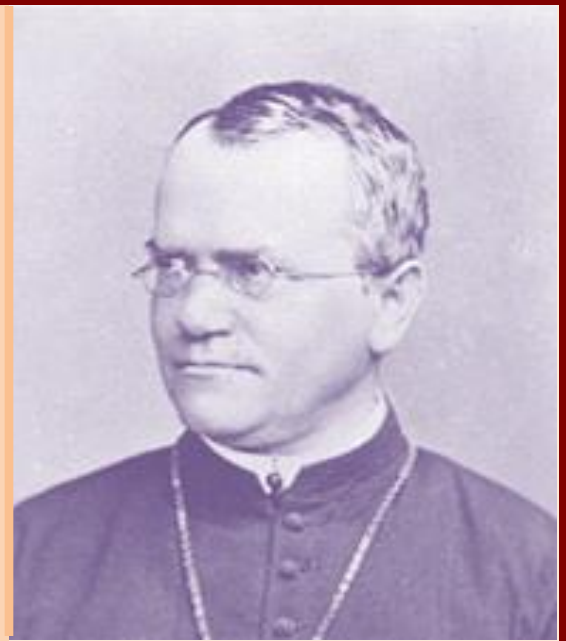
Highlights

Ceremonial Inauguration of the Centrum Mendelianum

Walk through Mendel's Brno

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