

# FOLIA MENDELIANA

SUPPLEMENTUM  
AD  
ACTA  
MUSEI  
MORAVIAE

Edited by Jiří Sekerák ■

■ 2023

59/2

MORAVSKÉ ZEMSKÉ  
MUZEUM BRNO 2023

## EDITORIAL

The second issue of this year's edition of our journal begins with a contribution by Peter van Dijk and T. H. Noel Ellis on G. Mendel's hitherto unknown journey to Leipzig in 1865. Michael Mielewczik et al. respond to this text in a Letter to the editor. In their second contribution to this issue, the authors date Mendel's notes in the physics textbook of August von Lichten Kunzek (1795–1865) and identify the remaining textbook Mendel used for his initial homework exercises in meteorology.

In their paper on the application of mathematical knowledge in biology classes, Karl Porges et al. address methodological aspects of the use of mathematics in teaching. Gregor Mendel's research is a classic illustration of the potential for acquiring natural science skills. A more thorough application of mathematical methods in secondary level I and II biology classes leads to a deeper understanding of biological data and supports the interdisciplinary competence of pupils.

Other contributions include short reports on The International Mendel Day 2023 – Brno and DNA Day 2023 in the Mendelianum.

*Jiří Sekerák*

## A PREVIOUSLY UNKNOWN JOURNEY BY GREGOR MENDEL TO LEIPZIG IN SEPTEMBER 1865 AND HIS LIKELY PARTICIPATION IN THE BOTANICAL CONGRESS IN ERFURT

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*ABSTRACT* - A hitherto unknown visit by Gregor MENDEL to Leipzig, Germany, in September 1865 has been discovered in digitized German newspapers. This trip took place after his two lectures on his pea experiments but before the publication of his later famous article on plant hybrids. The probable purpose of this trip was to visit the Second Congress of German Horticulturists and Botanists and Gardening Enthusiasts, combined with the German Exhibition of Agricultural Products in nearby Erfurt. Crosses between plant species and varieties were among the main topics of the Congress. MENDEL's participation cannot be proven beyond doubt, but other participants in the Congress arrived in Leipzig at the same time as MENDEL and even stayed in the same hotel. In addition, the uniqueness of the Exhibition and the topics covered at the Congress make it very likely that this was the purpose of his trip. We propose that MENDEL's participation in the Congress could explain the early publication of an abridged version of MENDEL's article in Bamberg and that the Erfurter plant breeder and seed merchant Ernst BENARY was acquainted with MENDEL's pea experiments. Furthermore, MENDEL may, in his writings, have responded to the speech given by Professor Karl KOCH at the closing assembly.

### INTRODUCTION

Our understanding of how Gregor MENDEL made his later famous discoveries about the inheritance of traits, as published in his seminal 1866 *Pisum* paper, is severely hampered by the few primary historical sources available. Therefore, even a snippet of information can be instrumental. A search in digitized historical newspapers has revealed that Gregor MENDEL was mentioned in the German *Leipziger Tageblatt* of Sunday, September 9<sup>th</sup>, 1865, as having arrived at the hotel *Stadt Hamburg* in Leipzig ("*MENDEL, Stifts-Capit. a. Brünn*") (Fig. 1). Hotel registrations were often published in the newspapers a few days after arrival, suggesting that MENDEL could have arrived on Friday, September 7<sup>th</sup>. Until now, this journey to Leipzig in the Kingdom of Saxony was unknown (ILTIS 1924, RICHTER 1943, OREL 1996, VOLLMANN and MATALOVÁ 2016).

In the fall of 1863, after eight years, MENDEL had completed his pea-crossing experiments. He had given his pea lectures at the Natural Sciences Society in Brünn in February and March 1865, and his manuscript was due for submission by the next January.

## ON A POSSIBLE DATING OF MENDEL'S NOTES AND KNOWLEDGE ON METEOROLOGY

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*ABSTRACT* - It has been long assumed that Mendel's statistical knowledge at least partially originated from his interest and studies in meteorology. While some of his textbooks he used for study are known, others remained unidentified and it has remained also not possible so far to date some of the handwritten notes that Mendel left in his textbooks. We here provide a first dating of Mendel's notes in his physics textbook of August Kunzek and identify the remaining unidentified textbook that he had used for his first homework on meteorology.

While Mendel's most famous work is his 'Experiments on Plant hybrids', most of his scientific works were focussed on meteorological topics. It has been assumed for a long time, that his interest in statistics and his statistical knowledge have originated from his studies in meteorology.<sup>1</sup> However, it has been very difficult so far to exactly date the time when Mendel obtained parts of this knowledge as especially on his earliest meteorological work in the 1850s not much is known. For example, we were only relatively recently able to find a previously unknown report of Mendel in 1857 in which he had described.

The earliest primary evidence has been a homework on Physics that Mendel had to write when he first tried to obtain a teaching certificate.<sup>2</sup> The question Mendel had to answer was given by Andreas von Baumgartner (1793-1865) to him. In his work Mendel had to describe 'The mechanical and chemical properties of the atmospheric air and the formation of the winds'.<sup>3</sup> From his homework it is obvious that Mendel at that time had obtained some knowledge on meteorology. In the second part of his report Mendel described on 4 manuscript pages the formation of wind by heating of individual air masses. He explains in his text the circulation of the atmosphere, the influence of the earth rotation on the rotation of the wind, and also Passat winds and Monsoons and the formation of land- and sea-winds, ending with the typical occurrence of West- and Southwest winds in Western Europe.<sup>4</sup> While Mendel's work on Physics and meteorology was evaluated quite favourable, his second homework in Natural History was evaluated quite negatively and together with a failed oral exam Mendel eventually missed to obtain the wished teaching certificate.<sup>5</sup> At the end of his physics homework Mendel however left some information in the form of author names, whose work he had used for his homework. Those included for

## LETTER TO THE EDITOR:

### DO WE REALLY HAVE TO REPHRASE TWO OF THE MOST SENSITIVE PERIODS IN THE EARLY HISTORY OF GENETICS?

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In their current article in the *Folia Mendeliana*, already available as preprint online, Van Dijk & Ellis discuss their most recent discovery of a previously unknown journey of Mendel to Leipzig in September of 1865. In this context, they also raise the possibility that this was only an in-between stop of Mendel on his visit of a gardening and horticultural exhibition in Erfurt that was held around this time. Furthermore, they also assume that there was a possible link between this visit and the existence of the Bamberg reprint, an only recently discovered early abridged version of Mendel's article that has been published in 1867, thus predating all previously known other reprints and the rediscovery of Mendel's work by more than 30 years.<sup>1</sup> Additionally, Van Dijk & Ellis pull on a few loose strings and footnotes in our own paper on the discovery of the Bamberg reprint, particularly linking to the offprints of Mendel's paper that have been printed in 1866. While we are ourselves intrigued by the new finding of Van Dijk & Ellis, we think a direct reply letter is now mandatory, as their article will add unnecessary confusion to readers and future researchers studying two of the most sensitive phases in the early history of genetics – namely 1.) the short initial phase between the initial lectures held by Gregor Mendel in February and March 1865 and the eventual publication and circulation of his printed article on 'Experiments in Plant-Hybrids' in the winter of 1866/67 and 2.) the brief period of the rediscovery. In particular four points, in our opinion, require a more thorough discussion and reassessment: I) the possible correspondents that exchanged information between Brno/Brünn and Bamberg relating to Gregor Mendel's paper; II) open questions on the special offprints of Mendel's paper that were printed at the end of 1866 in Brno/Brünn; III) the potential participation of Mendel on the travelling bee-keeping convention that was held in Brno/Brünn in September 1865; and IV) the possible objective of Mendel's journey to Saxony in September 1865. Our letter reports itself:

#### I. On the correspondence between Bamberg and Brno/Brünn in the timeframe of 1865 to 1867 and the identity of the potential editor of the Bamberg reprint

Van Dijk & Ellis conclude that the Bamberg reprint was based on one of the 40 special reprints that had been produced in Brno/Brünn, as it, as they claim, contains

**„DAS KLEINE EINMALEINS“ DER MENDELSCHEN REGELN.  
ZUR ANWENDUNG MATHEMATISCHER INHALTE  
IM BIOLOGIEUNTERRICHT**

**Mendel's rules and other basics: On the application of mathematical  
knowledge in biology classes**

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*“The gulf between biology and mathematics is narrowing as each tackles the language, concepts and methods of each other.”*

Avner Friedmann, 2010, Gründer des Mathematical Biosciences Institute (zit. nach Caspar und Hungerbühler 2022, S. 4).

*ABSTRACT - The deployment of mathematical methods in contemporary natural science is an inseparable part of its research tools. At the same time school teachers still underestimate the great potential of mathematical methods in biology teaching. The following article demonstrates that biology and mathematics as subjects in secondary education have numerous interconnections, which can be used to enrich biology classes through interdisciplinary forms of teaching. Furthermore, mathematical skills are an essential part of the curriculum, and biology classes can be used to promote these skills by demonstrating their applicability to biological issues and making references to everyday life. In our contribution, methodological aspects of applying mathematical methods in biology classes will be discussed. We also offer drafts of lesson plans examples of how to incorporate mathematical content into biology classes. We claim that more a intensive application of mathematical methods in biology classes of the secondary levels I and II will not only lead to a more profound understanding of biological data but will also contribute to the further development of basic mathematical skills and promote interdisciplinary competencies among students.*

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