



Gregor Johann Mendel: From peasant to priest, pedagogue, and prelate

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Gregor Mendel was an Augustinian priest in the Monastery of St. Thomas in Brunn (Brno, Czech Republic) as well as a civilian employee who taught natural history and physics in the Brunn Modern School. The monastery's secular function was to provide teachers for the public schools across Moravia. It was a cultural, educational, and artistic center with an elite core of friar-teachers with a well-stocked library and other amenities including a gourmet kitchen. It was wealthy, with far-flung holdings yielding income from agricultural productions. Mendel had failed his tryout as a parish priest and did not complete his examination for teaching certification despite 2 y of study at the University of Vienna. In addition to his teaching and religious obligations, Mendel carried out daily meteorological and astronomical observations, cared for the monastery's fruit orchard and beehives, and tended plants in the greenhouse and small outdoor gardens. In the years 1856 to 1863, he carried out experiments on heredity of traits in garden peas regarded as revolutionary today but not widely recognized during his lifetime and until 16 y after his death. In 1868 he was elected abbot of the monastery, a significantly elevated position in the ecclesiastical and civil hierarchy. While he had hoped to be elected, and was honored to accept, he severely underestimated its administrative responsibilities and gradually had to abandon his scientific interests. The last decade of his life was marred by an ugly dispute with civil authorities over monastery taxation.

Cyrrill Napp | Gregor Mendel | heredity | Monastery of St. Thomas (Brno) | selective breeding

It is a cold February day in 1865, the temperature barely above freezing, light snow on the ground, tending toward twilight. That short, stocky man you see in the black frock coat with the tall, broad-brimmed Moravian hat and pant legs stuffed into his boots is Father Gregor Johann Mendel. He is an uncertified teacher of physics and natural history in the lower grades at the Brunn (Brno) Modern School, and he is on his way from there to the Monastery of St. Thomas near the center of town where he lives. He is not wearing clerical garb, because in his teaching job he is a civilian. He works for Franz Josef I, monarch of the Austrian Empire.

Mendel is friendly, approachable, and well liked and has a good sense of humor (1). Despite his stellar academic record as a student, he has endured severe disappointments. His tryout as a parish priest ended in disaster, prompting his abbot to assign him as a teacher. He did so well that the school authorities hoped he would pass the teacher certification examination. The result was mixed: fluency in subjects he knew well, floundering in those he did not. In response, he was sent to the University of Vienna, where he excelled

academically. But then, a few years later, disaster struck again when he had to withdraw from his second teacher certification examination because of a debilitating stress reaction (2). Now, in 1865, besides his teaching position, he keeps himself busy with daily meteorological recordings, astronomical observations, caring for the monastery's fruit orchard, beekeeping, growing flowers, and tending peas and other plants in the monastery's greenhouse and gardens.

He does not know it yet, but Mendel is a man of destiny. Three years from now he will be elected abbot of St. Thomas, a major clerical promotion to the ecclesiastical rank of prelate (equivalent to bishop) that also comes with appointments to important civil committees. The original buildings of the monastery were constructed in 1352 as a nunnery. They were converted into a monastery in the late 18th century to house friars of the Augustinian Order (2). The monastery is situated near the center of a city that is itself a major crossroads for north-south European trade and commerce, and it often hosts traveling scholars in its guest quarters. It is an institution that is neither wholly religious nor wholly secular; it answers neither to the pope in Rome nor to the emperor, but to both. Its religious role was to train parish priests, and its secular role is to train teachers for the public schools.

By 1865 the monastery has become an intellectual, cultural, and educational center for Brunn and all of Moravia. Its dozen or so friars are an elite community of scholars and educators representing a wide range of the sciences, humanities, and arts. The library boasts 20,000 volumes and includes treatises on art, history, literature, music, medicine, religion, and science. The archives date back to 1253 and include a letter from Pope Gregory IX (reigned 1227 to 1241) prescribing sanctions for men who disrespect nuns (3). Among its members are Tomáš František Bratránek and Matouš František Klácel, both philosophers, and the composer Pavel Karel Křížkovský; among its pupils is the 11-y-old composer-to-be Leoš Janáček. Its kitchen serves fine cuisine, and its wine cellar is excellent and well stocked. The monastery has far-flung land holdings, vast plantings of wine grapes, large flocks of sheep and herds of dairy cattle, and many hectares of land for pasture and for growing tobacco and cereal grains.

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Moravia has been a center for agricultural research and selective breeding since about 1800. The initial impetus in Brünn came from Christian Carl André, who was instrumental in organizing the Moravian Agricultural Society and a subsection called the Sheep Breeders' Society aimed at elaborating scientific methods in sheep breeding to improve wool production for textiles (4–6). Another notable member of the society was Count Imre Festetics (7). In the 1820s, Jan Karel Nestler, professor of natural history and agriculture at the University in Olmütz (Olomouc), had introduced scientific animal and plant breeding into the curriculum, emphasizing sheep improvement in particular, and his lectures were published and distributed in Brünn (6).

One of Nestler's stalwart supporters in Brünn is the monastery's abbot, Cyrill František Napp, who had been elected to that position in 1824. Napp is an intimidating person. He is diminutive in height and walks with a limp, but he has a presence, a formal and dignified manner that some interpret as arrogance. Napp is keenly interested in selective breeding, as he is well aware that the principal source of monasterial revenue is from sheep breeding. He is an active member of the Moravian Agricultural Society as well as the Sheep Breeders' Society. As long ago as 1836 he had formulated the key questions of heredity as: What is inherited? How is it inherited? What is the role of chance? (8).

Napp is a stickler for protocol and communicates with the friars only in writing through the prior, but he has taken a paternal liking to Father Gregor, possibly because of their shared interest in heredity. In any case, the abbot promotes Mendel's career however he can, and his mentorship may have paved the way for Mendel's future elevation to the position.

But now we have gotten ahead of ourselves, so let us turn the clock back and see how we have come to this point.

Early Life and Education (1822 to 1843)

Mendel was born on 20 July (or possibly 22 July) in 1822 and christened Johann. His parents were Anton Mendel and his wife Rosine (née Schwirtlich). Young Johann was the sixth generation of Mendels to be born in Heinzendorf bei Odrau (Hynčice), which was and remains a small village near the Moravian–Silesian border that at the time had a population of about 500. Today it maintains his birth house as a tourist attraction. Johann was the second of three surviving children, with an older sister Veronika and a younger born in 1829 called Theresia who Mendel drew close to in later years. Anton and Rosine had two other daughters: One, born between Johann and Theresia, died at age 2; and the other, born after Theresia, lived only a few weeks (2). Anton was a German-speaking peasant who maintained a farm but worked 3 d/wk under the *corvée*, a feudal holdover of unpaid labor exacted by the landowner. Work on the farm was therefore expected of the children, including beekeeping and the growth, management, and grafting of fruit trees, in all of which Johann excelled and carried on throughout his life as long as he was physically able.

Although many residents of Heinzendorf were illiterate, the village did have an elementary school. Long-time teacher Thomas

Makitta recognized Johann's exceptional academic talent and recommended that he be sent to boarding school in Leipnik (Lipník nad Bečvou), a town about 20 km away. Johann pestered his parents to let him go, and his mother, dreaming of a great future for him, badgered his father. In families in such financial straits as the Mendels, then as now, the problem was money for the fees and, then as now, the parents scrimped and saved and allowed him to attend. In his single academic year in Leipnik, Mendel distinguished himself, and a marginal note on one of his report cards described him as at the top of his class.

The next logical step in his education was prep school at the gymnasium in Troppau (Opava), about 30 km from his home, to which he was admitted at the end of 1834. The headmaster in Troppau was Father Ferdinand Schaumann, an Augustinian friar who had been trained at the monastery in Brünn. Although Mendel consistently achieved the highest grades, his chronic financial problems soon became worse when in 1838 his father had a debilitating accident that rendered the family unable to pay his bills. In winter work under the *corvée*, a huge log had rolled over him and crushed part of his chest. As a result of this accident, Mendel had to register in a course to train private tutors, and as a tutor he was able to earn enough to subsist.

There were other problems as well. It was in Troppau in 1838, at age 16, that Mendel experienced the first episode of a severe but unspecified illness that required him to withdraw from school and return home for weeks or months at a time before he could go back to his studies. These episodes recurred several times during his late teens and early years in the monastery. I am in no way qualified to render a professional diagnosis, but my personal opinion is that the symptoms resemble what is now called "adjustment disorder" (9), an adverse response to stress that, according to the Mayo Clinic (10), results in feeling stressed out, hopeless, and overwhelmed that is accompanied by difficulty in concentrating, lack of appetite, and troubled sleep. The typical age of onset is late adolescence. Each bout of adjustment disorder can last from weeks to months, and bouts recur as long as the stressors recur. The condition often subsides by about age 30.

Despite his financial and medical setbacks, Mendel continued his studies in Troppau with high distinction, being marked superexcellent (*prima classis cum eminentia*) in almost all his studies. Two poems in Mendel's distinctive handwriting survive this period, which were found among Theresia's keepsakes. The corrections, cross-outs, and rephrasings in the manuscript leave little doubt that the poems are original and authentic. A stanza in one poem translated by Scott Abbott reads (2):

**But the laurel for one who earnestly and ardently
pursues cultivation of the mind,
Who seeks and finds the secret depths of knowledge
with lightning flashes of understanding,
In whose developing power the seed of most glorious
invention plants itself,
Nourishes and finally sends its blessing to the needy
human throng in blessed bounty,
Yes, that laurel never withers.**

In the spring of 1839, ill once again due to stress, Mendel withdrew from school and spent the rest of the spring and summer at home with his parents. He was well enough to return to Troppau in the fall of 1839, and in 1840 completed his studies with a certificate acknowledging his industry and talent.

The year 1841 proved to be a turning point. Anton Mendel's health had continued to deteriorate, and he had to sell the farm. It was purchased by his son in law, Veronika's husband, under a contract that provided a small stipend to Johann for as long as he was a student and a dowry for Theresia. In the same year, he was admitted to a 2-y course of study at the Philosophical Institute of Olmütz, which was affiliated with the Palacký University Olmütz, the oldest university in Moravia, established in 1573 by the Jesuits. During his first year, Mendel suffered another debilitating nervous breakdown, causing him to withdraw. The subject that chiefly interested him was physics, and by the time he returned the following year, a new physics teacher had joined the institute. This was Professor Friedrich Franz, who had taught physics for nearly 20 y at the Philosophical Institute in Brünn while living with the friars at the monastery. Mendel's stipend was insufficient to support himself and pay his fees, and it is at this pivotal juncture that his sister Theresia, only 11 y old at the time, voluntarily renounced her share of the family estate and turned it over to him so that he could continue his studies.

By the time Mendel's course of study had been completed successfully, he had had enough of scrambling for money. He described his conclusion in his autobiography: He "realized that it was impossible for him to endure such exertions any further. Therefore, after finishing his philosophical studies, he felt himself compelled to step into a station of life that would free him from the bitter struggle for existence. His circumstances decided his vocational choice" (11).

He turned to Professor Franz for advice, who, as it happened, had recently been asked to select which among his students he could recommend for the monastery in Brünn. On 14 July 1843 he wrote back naming Johann Mendel, who during his 2-y course in philosophy "has had, almost invariably, the most unexceptionable reports, and is a young man of very solid character. In my own branch he is almost the best. He has some knowledge of Czech, but not sufficient, so he is willing to devote himself to the mastery of the language during the years of theological study."

Mendel was therefore invited to join the Augustinians in Brünn. Prior to acceptance, he was required to pass a physical examination, which he did with no indication of the recurring illnesses that had stricken him, and to submit a document signed by both his parents giving their permission. Taking the name "Gregor," he was finally and formally admitted on 9 October 1843 along with three other novices.

Scholar and Teacher (1843 to 1868)

Mendel's formal studies at the monastery did not begin until a year after his arrival. He must have spent much of this time getting to know the people and his way around the monastery and the city as well as learning to

understand written and oral Czech and to speak it haltingly. The curriculum for novices included lectures on such ecclesiastical subjects as church history, canon law, dogmatics, and moral theology. He also studied Hebrew, Greek, and elementary school education, made a passing acquaintance with Chaldaic, Syriac, and Arabic, and attended lectures on economics, agriculture, pomology, and viticulture at the Brünn Philosophical Institute.

At that time there was a dearth of parish priests, and Abbot Napp asked that Mendel's elevation in the hierarchy and priesthood be accelerated. It was, and he was ordained in July 1847. In less than a year he had a tryout as an adjunct parish priest in the collegiate church of the monastery. It did not go well.

Napp had by now become director of high school education in Moravia and Silesia, and in 1849 the high school in Znaim (Znojmo), a small city in Moravia about 65 km southwest from Brünn, made it known that it needed a teacher. Mendel was available because, as Abbot Napp explained to the bishop, "he lives a very retired life [and] ... is very diligent in the study of the sciences; but he is much less fitted for work as a parish priest, the reason being that he is seized by an unconquerable timidity when he has to visit a sick-bed or to see any one ill and in pain. Indeed, this infirmity of his has made him dangerously ill, and that is why I found it necessary to relieve him from service as a parish priest."

Mendel was thereupon dispatched to Znaim, where he taught elementary mathematics and Greek. An 1850 edict required that all previously uncertified teachers be subjected to a certification examination (2), which affected Mendel and two other uncertified teachers in Znaim. Mendel applied for the examinations in natural history and physics. It was in support of this application that Mendel submitted his autobiography.

The certification process entailed preparation of a lengthy research paper on each of the two chosen subjects, then a trip to Vienna for a written examination on each subject, followed by a face-to-face grilling. His examination results were mixed, with success in much of the physics portion but awkwardly uninformed answers in natural history and a mostly mediocre performance in the oral portion. His examiners denied him certification but were impressed with his zeal and recommended that he reapply within a year. Mendel's first biographer, Hugo Iltis (12), devotes a lengthy chapter to this episode and concludes that the outcome was foreordained because Mendel had no university-level training in physics and no formal training whatsoever in natural history but was entirely self-taught. Mendel himself admitted that, in natural history, "the autodidactic method here, as perhaps in no other science, is extremely difficult and leads to the goal only slowly" (11). He returned to Brünn and spent the following year teaching in a local school.

It was not only the school authorities in Znaim who wanted Mendel to be certified as a teacher. The chair of Mendel's examining board, who in the meantime had become the minister for commerce, wanted it, too, and in 1851 wrote to Abbot Napp to that effect. Napp concurred, whereupon he contacted the bishop of Brno asking permission to send Mendel to the University of Vienna for a

2-y course of study. The bishop, extremely traditionalist in his view of the primacy of church over state, and already so nearly convinced that the monastery was unacceptably secular that 3 y later he would recommend the friars be disbanded, nevertheless could hardly refuse a request originating from the minister for commerce (13, 14). He therefore grudgingly agreed that he would allow Mendel to study what he later described as “the profane sciences at a worldly institution,” but with the condition that Mendel “not become estranged from his profession” (13, 14).

So it came to pass that Father Gregor spent the academic years 1851 to 1853 in Vienna, returning to Brünn only for holidays and, in 1852, traveling to Heinzendorf to attend Theresia’s wedding. In Vienna, he attended lectures in experimental physics from Christian Andreas Doppler, and he also attended lectures on the construction and use of physical apparatus, mathematics, mathematical physics, chemistry, zoology, paleontology, systematic botany, plant physiology, and microscopy. His paleontology professor reported that he was “extremely diligent and most attentive down to the close.” In his second year of study, Mendel was elected to the Zoological and Botanical Society of Vienna and later received a lifetime membership.

From his return to Brünn in the summer of 1853 until the spring of 1854, it is unclear what Mendel was doing, but he may have been teaching in the Brünn Elementary School. At the end of May 1854, he was appointed substitute teacher at Brünn Modern School, which had an enrollment of 300 that eventually grew to more than 1,000. There he taught physics and natural history until 1867.

A year after his appointment at Brünn Modern School, Mendel again applied to be examined for teaching certification, this time with physics as his main subject and natural history as the second. He received excellent evaluations of his research papers, which qualified him for the on-site portion. In early May 1856, he traveled to Vienna for the examination. The results are best described in a letter from fellow friar Klácel to friar Bratránek: “Although he drew easy questions, he fell ill during the written examination and as a consequence was unable to write. He seems to have problems with his nerves generally since he endured several such insidious attacks already.... One has to feel sorry for him, since his homework etc. was graded as excellent. But formalities are formalities; in this case it was not possible to continue. Afraid that further attacks might continue, he returned home without accomplishing anything” (13). He rescheduled the on-site examination for August of that same year, but evidently never traveled to Vienna to take it.

From 1856 to 1863, Mendel carried out his pioneering experiments on heredity in garden peas. Three and a half years after these experiments began came the bombshell of 19th-century biology: the publication on 24 November 1859 of Darwin’s *On the Origin of Species by Means of Natural Selection*. Mendel purchased personal copies of all of Darwin’s books as soon as they became available in German translation, and he read them assiduously and made marginal notes and comments. His personal copy of *Origin* was a second-edition German translation published in 1863 (15), and he was strongly influenced by it (14). It contains annotations of passages he found interesting.

Enthusiasm over *Origin* overshadowed virtually every other aspect of biology at this time. Indeed, on the clear, cold evening of 11 January 1865, Alexander Makowsky, the featured speaker for the monthly session of the Natural Science Society in Brünn, gave a passionate summary of Darwin’s *Origin* filled with praise (2). Mendel would be the next featured speaker, for the sessions in February and March.

Mendel seemed to enjoy traveling, and for his vacation in 1862 a special opportunity had appeared. Viennese entrepreneurs Neumeyer and Mihailovičs had recently established a travel agency specializing in luxury group pleasure tours. One went by train from Vienna to London via Paris and cost 250 Austrian guilders, about half Mendel’s annual salary (16). He used his own money to buy a ticket, and on 30 July he joined over 300 mostly well-to-do passengers in Vienna to start the trip. The group spent 6 d enjoying the tourist attractions of Paris and its environs, where Mendel stayed in the recently opened deluxe Grand Hotel near the Opéra Garnier and the Louvre-Tuileries. From there they traveled to London, lodging in the newly opened London Pavilion Music Hall near Piccadilly Circus and sightseeing for 6 d including 2 d at the International Industrial Exhibition, a world’s fair. They returned to Vienna on 16 August (16).

Mendel must have enjoyed the trip because a year later he signed up with the same travel agency for a tour of Italy (17). He and a group of more than 100 other luxury travelers set off from Vienna on 1 September and traveled by train through Verona to Genoa and then by boat along the coast to Pisa and on to Rome, where they spent 6 d including a group audience with Pope Pius IX on 9 September. From Rome it was on to Naples and Pompeii, then back along the coast by boat to Pisa and a train to Florence for 5 d, finally returning 21 to 24 September through Genoa, Milan, and Venice (17).

Abbot Mendel (1868 to 1884)

Cyrril Napp died on 22 July 1867. On 26 March 1868, Mendel wrote to Leopold Schindler, Theresia’s husband, saying “Next Monday at noon we shall have at length to elect a prelate.... It is still quite uncertain which of us will be the lucky one. Should the choice fall on me, which I hardly venture to hope, I shall send you a wire on Monday afternoon. If you don’t get a telegram, you will know that someone else has been elected.” The telegram was sent.

The new Abbot Mendel seriously underestimated what the job entailed. Soon after his election, he wrote to Carl von Nägeli in Munich that, while he understood his new position would cost him a good deal of time and effort “until I feel myself at home in my new duties,” nevertheless, “this will not prevent me from my going on with the hybridization experiments of which I am so fond; indeed, I hope I shall be able to give still more time and attention to them.” For the first few years he was right, and his extensive hybridization experiments continued. In 1871, he even had time to travel to Kiel north of Hamburg for an International Conference of Beekeeping, returning via Cologne and Frankfurt (17). But as his administrative burdens grew, they forced him to abandon his scientific

interests by the wayside one by one. By 1873, he was lamenting that “I am really unhappy about having to neglect my plants and my bees so completely” (18). Only his meteorological recordings were carried out until nearly the end.

What he misjudged was the time and effort required to manage the monastery's far-flung estates and the need for frequent in-person inspection visits. His manifold public duties as prelate consumed a huge amount of time. He was made a member of virtually every learned society in Moravia. He sat on a committee that examined fruit and vegetable growers, one that allocated agricultural subventions to rural communes and agricultural schools, one that adjusted land tax in Moravia, one that prepared a legislative proposal to promote the building of byroads, one that reported on the availability of library books on agriculture in elementary schools, and many others. He was asked to review books, evaluate a type of yarn made from mulberries, and identify a caterpillar devastating flax crops. He was appointed deputy chairman of the Moravian Mortgage Bank, which paid a healthy stipend but required an hour or two of work at the bank almost every day.

His greatest tribulation was a 10-y struggle with the Ministry of Public Worship and Education over taxation. In 1874 the Reichsrat passed, and the emperor duly signed, a law adding a special tax on monasterial income to pay the stipends of parish priests and other religious functionaries. Although all monasteries objected to this tax, most of them eventually complied with the law by reporting their income but deducting money paid to friars and staff as well as other expenses, effectively zeroing out their bottom line and paying nothing. Abbot Mendel declined to play this game. He insisted that the law was unconstitutional (it was not) and refused to pay. His protests and appeals went on month after month until, in 1876, the exasperated authorities sequestered the monasterial estates and withheld the tax. Mendel stubbornly continued his protests, year after year, until he became too sick to continue. He became embittered, thought his friends had betrayed him, and alienated many of his fellow friars. Iltis (12) devotes 20 pages to this unhappy and unsatisfying last chapter in Mendel's prelacy. After Mendel's death, the monastery procurator carried out a proper assessment of the monastery's income through the previous years, zeroing it out with deductions as described earlier, with the result that much of the money that had been taken in taxation was returned either directly or through abatement of other taxes (12).

Declining Years (1882 to 1884)

With many of his friends and colleagues alienated over his long dispute with the authorities, and as his health declined, Mendel grew closer to his two surviving nephews, Theresia's sons Alois and Ferdinand Schindler. Theresia had had three sons, and as each became old enough, Mendel had them relocated to Brünn where, in gratitude for Theresia's altruistic gift allowing him to continue his own education many years earlier, he supported them and paid for their education through high school. He also supported Alois and Ferdinand through medical school at the University of Vienna, and both became doctors. Theresia's

firstborn son, Johann, had become assistant headmaster at Brünn Technical School and was a fellow member of the Natural Science Society in Brünn along with his Uncle Gregor, but he died of tuberculosis in his mid-20s (2).

Mendel was chronically overweight. He was of middling height and had a body conformation that was stocky in youth, stout in maturity, portly in middle age, and corpulent thereafter. The body conformation was partly genetic (Theresia was overweight, too), but the gourmet meals served by the monastery chefs undoubtedly played a part. Years earlier a doctor had told him that smoking might help him control his weight—and smoke he did: as many as 20 small cigars a day.

By the end of 1883, he was suffering from kidney failure and congestive heart disease, so much so that he could no longer carry out his meteorological observations. He died peacefully on 6 January 1884, age 61.

At age 28, in his autobiography, Mendel summarized his life to that point as follows: “His sorrowful youth taught him early the serious aspects of life, and also taught him to work” (11). At age 60, a few months before his death, he conveyed his valediction to novice Franz Barina: “Although I have had to live through many bitter moments in my life, I must admit with gratitude that the beautiful and good prevailed” (1, 19, 20).

His funeral was elaborate, befitting an abbot and important civil personality, attended by hundreds of mourners from all religions, representatives of the many organizations and societies to which he belonged, and members of the government including some from his monasterial taxation nemesis, the Ministry of Public Worship and Education. Leoš Janáček played the organ.

Mendel's papers and other memorabilia were probably burned after his death, except for his bound books. Although their loss is a tragedy, it hardly matters now why they were destroyed or who authorized their destruction because, with the Nazi takeover of Brno in 1939 and the communist occupation after the war, much of the monastery's memorabilia was lost anyhow. Even Mendel's handwritten manuscript went missing and was only located and returned to Brno in 2012 (21, 22).

Sources

In this account, any details not explicitly attributed to others are taken from Iltis (12). Hugo Iltis (1882 to 1952), while a schoolboy in his native city of Brno, read Mendel's paper in the museum library without realizing its significance. Later, when he was a student in the sciences and Mendel's work became widely known and began to be appreciated, Iltis resolved to gather information to record his life and honor his memory. Despite the distractions of teaching natural science at the German-language gymnasium in Brünn and serving as a Privatdozent for botany and genetics at the German Polytechnical Institute, not to mention the upheaval resulting from the collapse and dismemberment of the Austro-Hungarian Empire in World War I, Iltis published a dozen short articles and popular essays during the years 1908 to 1923. His full biography of Mendel was finally published in German in 1924, with an English translation appearing in 1932 (12). Iltis founded the

Mendel Museum in Brno in 1932 and curated it until 1937, when he emigrated to the United States to escape the Nazi persecution of the Jews.

Although Iltis was extraordinarily diligent in tracking down documented evidence of Mendel's life and work and in interviewing Mendel's surviving relatives and students, he found trustworthy biographical data scarce and memories vague. What emerges from Iltis's account is an understanding of Mendel as an unusually private person focused mainly on day-to-day life with little inclination toward philosophical reflection or sentimentalism. Although Mendel never kept a diary, and his letters reveal virtually nothing about his inner life or thoughts, Iltis did uncover the autobiography, written in 1850 in the third person (11), which was submitted as part of his request for admission to his first examination to certify high school teachers.

This account also leans heavily on the scholarship of Vítězslav Orel (1926 to 2015). He was born in a small town about 30 km southeast of Brno, where he was educated through high school (23). After World War II, when Czech universities were allowed to reopen, he moved to Brno and attended the agricultural university and eventually worked his way to department head in the poultry research institute. With the communist takeover in 1948, Mendelian genetics was banned owing to the campaign against it by Russian agronomist Trofim D. Lysenko, who was supported first by Joseph Stalin and later by Nikita Khrushchev (24). Within a few years a marble statue of Mendel was relocated from the front of the monastery to a remote back corner, where it remained until 1964 when it was moved again to the main courtyard facing the monastery garden.

In 1958, Orel's mentor, the geneticist Jaroslav Kříženecký, was imprisoned after a political show trial for promoting genetics, and Orel was dismissed from his post at the agricultural college and assigned to work in a poultry farm. Kříženecký was released from prison in poor health in the early 1960s, when Lysenko's influence had begun to wane, and he and Orel set about to organize a Mendel symposium in 1965 to commemorate the 100th anniversary of his work. Kříženecký died in 1964, leaving Orel to tend to the myriad and frustrating details, but the symposium was a great success and is often regarded as the denouement of Lysenkoism (23).

After the symposium, Orel became the first head of the Mendelianum, a newly established museum in the

monastery showcasing Mendel's research. He worked there until 1989, editing the journal *Folia Mendeliana* and becoming an authority on the history of selective breeding in Moravia, on the monastery, and on Mendel and his work. In 1989, as the result of a serious car accident, he became paralyzed and bedridden. He sent me a handwritten note dated 8 March 1995 in which says "I am still in the hospital with my problem with legs. I only hope that I should recover." Unfortunately, he never did.

Daniel J. Fairbanks is one of the foremost contemporary experts on Mendel and his work. He reviewed an early draft meticulously, making numerous comments, suggestions, and corrections. He supplied additional references and background material, and kindly allowed me to cite from his new Mendel biography (2), which at the time was still in press. Thanks to Fairbanks's review, the manuscript was much improved. Responsibility for any remaining errors of omission, commission, or emphasis is mine alone.

I have glossed over the details of Mendel's experimental results because they are so widely known. Suffice it to say that Mendel's research revolutionized the study of heredity in two ways. One was methodological: He demonstrated that the proper way to study heredity is character by character and trait by trait, paying careful attention to genealogy and the numerical ratios of contrasting traits in each generation. The other was experimental: He discovered that the hereditary elements determining traits (now called genes) unite when reproductive cells come together in fertilization and separate (segregate) from each other again when reproductive cells are formed.

The best available translation of Mendel's paper is by Abbott and Fairbanks (25). Matalová and Matalová have compiled and published a set of primary sources pertinent to Mendel's scientific work that includes his education, teaching, and activities in local scientific societies (26). For a discussion of the many issues and controversies that have arisen about the experiments, I would suggest refs. 15 and 27–30. The MendelWeb (31) is also an excellent resource.

Data Availability. There are no data underlying this work.

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