



Gregor Mendel and the People around Him (Commemorative of the Centennial of Mendel's Death)

D. SOUDEK¹

Gregor Mendel died on January 6 a century ago, after a lengthy suffering with chronic renal (Bright) disease. At his funeral, which was attended by many people, he was eulogized as a distinguished personality of the province, but nobody suspected that day that a founder of a new science was being buried. Probably Mendel himself would not have been aware of that fact. He remains an unusual scientific figure to this day. "The contrast between the modern, quantitative order in his paper and the cloistered monk, working in isolation in a narrow garden, heightened the impression of novelty and tended to give Mendel the aura of a romantic hero" (Dunn). There are many short biographies of Mendel available; and it would serve no purpose to repeat the milestones of the life of this man. We will restrict our attention only to two facets of Mendel's life: Did Mendel really live in isolation from science? and What was the relation of Mendel toward Darwinism?

Let us start with the basic question: Why did Mendel become a monk? We have a testimony from Mendel himself. In his official curriculum vitae from 1850, after describing his studies without any financial support, he wrote, "The respectfully undersigned realized that it was impossible for him to endure such exertions any further, therefore he felt himself compelled to step into a position which would free him from the bitter struggle for existence. His circumstances decided his vocational choice. He requested and received, in the year 1843, admission to the Augustinian Monastery. . . . Through this step, his material circumstances changed completely."

The Queen's Monastery in Brno (Brunn), which was the old name of the abbey, was at that time one of the real cultural centers of the province of Moravia. The abbot, J. C. Napp (1792-1867), was an unusual personality. A linguist specializing in Oriental languages, a politician and a member of the provincial diet, he was also intensely interested in science and in the improvement of agriculture. He could test some of his ideas on the estate which was owned and operated by the monastery. In the province of Moravia, in those days a part of the Austrian monarchy, there has been an increased interest in animal (especially sheep) and plant breeding since the end of the 18th century. Already in the year 1816 an

Received September 23, 1983.

¹ Queen's University, Kingston, Ontario, Canada.

© 1984 by the American Society of Human Genetics. All rights reserved. 0002-9297/84/3603-0001\$02.00

article had appeared in a Brno journal, describing the artificial fertilization experiments by T. A. Knight in England. In 1820 another article foreshadowed the necessity of experiments in this field, in order to discover the rules of hybridization. It would be possible to quote the names of at least a half-dozen men of science and breeders, active in the field of breeding in Moravia. Napp was one of those interested in breeding and heredity. In 1837 in a discussion, he tried to delimit the principal problem of heredity: "What is inherited and how it is inherited." Already by the year 1825 he had tried in vain to fill the vacant position of a teacher of agriculture in the Philosophical Institute in Brno with a friar from his monastery, and therefore he ran into the opposition of the bishop in Brno. The main argument of the bishop's office was that the lecture on sexual reproduction does not befit a priest. Later Napp built a glasshouse and an orangerie in the monastery, where many exotic plants were grown. Such was the man who admitted Mendel into the monastery and the Augustinian order.

Abbot Napp soon recognized that Mendel had little ability to perform some priestly duties and therefore relieved him from church functions and assigned him only to teaching. Later he arranged for Mendel's university studies in Vienna, the expenses for which were paid by the monastery. Napp himself originated from a poor family, and for that reason he supported young men with similar social backgrounds. He deliberately selected talented poor boys to become friars in his monastery. Their university studies were sponsored by the monastery. In this way, several talented men who otherwise could not have afforded the study were saved for their future roles in science or literature.

One of these, Matthew Klácel (1808–1882), who during his stay in the monastery was a professor of philosophy and a journalist, was later revoked from his professorship because of radicalism. He was a very interesting personality, and it seems he would probably fit better in the 20th century than in the 19th. One of his books, entitled *Letters to a Lady Friend on the Origin of Socialism and Communism*, was rather an unusual topic for a monk in the 1860s. The lady friend mentioned in the title was the Czech authoress Nemcova. Klácel defected from the monastery in 1869 (possibly with Abbot Mendel's silent knowledge) and immigrated to the United States, where he published agnostic literature. He died in Belle Plaine, Iowa. In the monastery, Klácel was in many senses a predecessor of Mendel and also his teacher. The experimental garden in the monastery was in his care until 1846, and was then looked after by Mendel. Klácel was interested in evolution and in the study of phenomena of heredity. He experimented with peas and potatoes; he probably implanted his interest in Mendel, who was 14 years younger. His fragmentary manuscript dealing with his view on evolution and heredity was found not long ago. His approach was different from that of Mendel, and so Klácel did not recognize the value of the work of his pupil and friend, nor did anyone else at that time.

Another famous member of Queen's Monastery was Frank Bratranek, Ph.D. (1815–1882), professor of Germanic languages at the University in Krakow and one of the first biographers of the German poet Goethe. Bratranek was also a botanical enthusiast, but his attitude too was different from that of his friend

Mendel. His ideas were influenced by the style of thinking of Goethe, as can be seen from his book *The Esthetics of Plants*. His unpublished diary reveals a man with democratic and liberal philosophy.

The third member of the group was Joseph Křížkovský (1821–1885), noted composer of choral songs which were based on Czech folk music. Křížkovský gave music instruction to a young boy who was being educated in the years 1865–1869 at the monastery. This young man was later to become the very noted composer Leoš Janáček (1854–1928). Those interested in music will be familiar with his name, since Janáček's music is more appreciated today than it was in his own lifetime. Janáček was later to become the Director of Music for the monastery and was the musician who played the organ during the funeral mass for Mendel. In his compositions created many years later, *The Youth* (1924) and *Symphonietta* (1926), he has preserved for us his musical impression of his stay at the monastery; for example, in the third movement of *The Youth*, Janáček included the *March of the Blue Boys*—the institutional uniform of the monastery choirboys was blue.

Mendel was especially friendly with Klácel and Bratranek because both these men were ardent botanists, as was Mendel himself. However, not being musically talented, Mendel had no common interest with Křížkovský in that field. Křížkovský, however, was probably Mendel's closest personal friend in the monastery. Klácel, Mendel, and Křížkovský were the trio from Queen's Monastery who shared the antipathy of the Brno bishop, Count Schafgottsch.

Another personality, who could have influenced Mendel, was Alexander Zawadzki (1798–1868). Originally a university professor in Lwow, he was demoted to the position of high school teacher as punishment for his participation in the revolution in the year 1848. He was teaching at the same high school as Mendel; because of his influence, the school was a center for botanists, zoologists, paleontologists, and those interested in evolution. Others who had friendly relations with Mendel were some prominent members of the Brno Natural Science Society (Brunn Naturforschendes Verein).

A political friend of Abbot Napp, the famous Czech physiologist and histologist J. E. Purkyně (Purkinje) (1787–1869), visited him at the monastery several times. It is probable that on one of these visits, Mendel and Purkyně met and were introduced; regrettably, however, no record exists to prove such a meeting of these two famous scientists: Purkyně, an old man, already famous; the other, Mendel, a young man, as yet unknown.

It is obvious that Mendel did not live in deprivation from stimulating company.

Soon after Darwin published his theory on the origin of the species in 1859, his book was translated into German and was enthusiastically accepted by many men of science in countries where the German language was used for scientific communication. Soon a controversy erupted: Should evolution be presented in schools as a scientific fact or as a theory only? The main opponent of Darwinism was the Church. In Brno, Darwin's book was already discussed in the year 1861. Mendel became acquainted with this book in 1863. One of the members of the Natural Science Society gave a lecture in favor of Darwin in the year 1865.

Several translated books of Darwin, with traces of Mendel's thorough study, are preserved in Mendel's Memorial. Mendel became very knowledgeable of Darwin's theory. However, the controversy about Darwin posed an obvious dilemma for him; if he disagreed with Darwin, his position in the Church and his knowledge of the problem would impose upon him a moral duty to act as an opponent of Darwinism. On the other hand, his Church affiliation would prevent him from communicating a positive opinion on Darwin. Mendel solved the dilemma by avoiding any speaking on Darwinism in public.

For 7 years, however, Mendel exchanged letters with one of the leading German Darwinists, Carl Naegeli (1817–1891). It is not within the scope of this article to mention Naegeli's lack of comprehension toward the meaning of Mendel's results and his fatal advice to Mendel to work with hawk-weed as an experimental organism. Finally, Naegeli made no mention of Mendel's work at all in his book on heredity (1884). In two of his letters, destined to only one reader, Naegeli, Mendel used a Darwinian explanation. In his letter of July 3, 1870, Mendel mentions his experiments regarding the pollination with a single pollen grain. He writes: "Not all pollen grains are equally capable of fertilization . . . the competition of other pollen grains were excluded. When several are competing, we can probably assume that only the strongest ones succeed in effecting fertilization." Here the principle of the survival of the fittest is employed.

In his letter of November 18, 1873, in the paragraph relating to naturally occurring hybridization, Mendel makes use of the principles of natural selection and the struggle for existence. "Naturally occurring hybridization in *Hieracium* (hawk-weed) should be ascribed to temporary disturbances, which, if they were repeated often or became permanent, would finally result in the disappearance of the species involved, while on another of the more happily organized progeny, better adapted to the prevailing telluric and cosmic conditions might take up the struggle for existence successfully and continue it for a long time, until finally the same fate overtook it."

These lines of Mendel testify that he held a personal positive belief toward Darwin's theory. In his letters to Naegeli, Mendel several times quotes Darwin, sometimes though, with criticism. During his short visit to London in 1862, with a tourist group, Mendel did not even try to contact Darwin at his Down house. Darwin was suffering from disease at that time and probably would not have received any visitors, especially someone he did not know.

It seems that Mendel did not live in isolation from contemporary trends in biology.

ACKNOWLEDGMENTS

I am obliged to the late Director of Mendel's Museum, Dr. J. Kříženecký (1896–1964), for calling my attention to the passages in Mendel's letters. Also gratefully acknowledged is the permission granted by the Genetic Society of Canada for a partial use of the author's former article in the bulletin of the society.

EDITOR'S NOTE: The author took part in establishing the Genetics Department of the Moravian Museum in Brno, Czechoslovakia, which includes the former Museum Mendelianum.