

*Anthology*

## **GREGOR JOHANN MENDEL (1822–1884): A MAN WHO LIVES AFTER DEATH**

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**Abstract:** In this article the life of Gregor Johann Mendel, Father of Genetics is reviewed. The aim is to bring the reader's attention to the hardship which he faced throughout his life journey. Further, the author humbly pays homage through a verse about the life of Gregor J. Mendel.

**Keywords:** Gregor Johann Mendel, Genetics, Life history.

Every one of us know the meaning and usage of the very old phrase “*like begets like*” – simply it means, human (re)produce human; monkey (re)produce monkey; tiger (re)produce tiger, plant (re)produce plant so on so forth. Though, superficially the above sentences look unquestionable, the degree of similarity between parents and their offspring is debatable. In today's scientific world, we know the exact reasons for similarity / dissimilarity among individuals in a lineage but, during 19<sup>th</sup> century it was not the scenario. Then, the science of ‘inheritance’ was very much primitive and Darwin's pangenesis theory was widely existed and discussed. In this backdrop, a poor humble but studious monk called Gregor Johann Mendel put forth the ‘laws of inheritance’ with the strong mathematical evidences observed in his numerous experiments across generations in garden pea plants (*Pisum sativum*). Unfortunately, it did not get due attention and appreciation by the scientific community. In due course of time, the ‘laws of inheritance’ was ignored, buried and entered into dormant stage till it was unearthed and rediscovered independently by three stalwarts after a few years. Followed by the rediscovery of ‘laws of inheritance’, the science of inheritance became another branch of biology which is known as genetics today. In this article, the life journey of the giant but humble scientist Gregor Johann Mendel, who sowed the seed which is now grown as genetics tree is briefed. The author's aim is to bring the attention of readers towards the hardship of Gregor J. Mendel's life.

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**Man who was inherited**

Johann Mendel was born on 20.07.1822 to peasant poor parents viz. Anton Mendel and Rosine Mendel at a village known as Heinzendorf which was then a part of Austrian empire (Now Czech Republic). He was a middle child and he had two sisters. His father was a gardener who had to work in Orchards to repay his debt. He was quiet, shy and relatively an introvert; his performance in school was not so extraordinary. During the off-school hours, he had to assist his father in 'grafting' technique in Orchard. This is how he learned the 'art' of grafting technique in hybrid plant production. Simultaneously, he also learned the management practices of plant slowly. These circumstances had favoured Mendel to focus his interest towards plants. At hind sight, one can easily visualize the positive impact of these hands on experiences in Mendel's experiments which he conducted in pea plants.

**Man who was in destitute but determined**

After the completion of schooling, the poor Mendel was in crossroad. He was not sure about his higher education. To rub the salt on wound, his father met severe accident in 1838 and Mendel was helpless at the age of 16. After so many struggles, he completed his secondary education from the nearby town. Followed by, he pursued his graduation in physics at Palacký University, Olomouc during 1940-1943. At this university, he got friendship with Mr. Johann Karl Nestler, an agricultural biologist whose interest was to study heredity. As time progress, Mendel also deeply occupied with 'heredity' thought.

**Man who resorted to the monastery**

After the graduation, once again Mendel was in crossroad thinking 'what next'? There comes his physics professor Mr. Friedrich Franz, who recommended him to join as monk in the monastery named The Abbey of Saint Thomas at Brno so that, he gets food, shelter as well as education. In monastery, he worked as a resident teacher, who taught physics, chemistry, botany and zoology to school children. Prof. Franz Diebl, a notable plant breeder in the monastery identified Mendel's inquisitiveness towards plants and offered him the course on 'fruit growing' in 1846. Johann Mendel formally became one of the priests of the abbey in 1847 and he got the name 'Gregor'. Thereafter, he was called 'Gregor J. Mendel'.

Gregor J. Mendel had an opportunity to become a high school teacher in 1849. But, he failed in the qualified exam. Thus, the Abbey decided to send him to the University of Vienna to study physics, chemistry, botany and zoology for three years (1851 – 1853). Upon completion of his tenure at the University of Vienna, he returned to the Abbey at Brno, where

once again he failed in qualifying exam and lost the opportunity to become a high school teacher due to ill health. Hence, he had to continue as physics teacher at only primary level.

### **It is not ‘what you learned’ but ‘what you loved’**

Though, Gregor J. Mendel was teaching physics, his mind and soul was always wandering only around the heredity. Since, he already had some experiences in grafting techniques in hybridization, growing fruit trees, plant management, etc. he independently started doing experiments on pea plants in the monastery garden (why he chose pea plants over others is history now). He was rigorously involved in, recording of physical traits of pea plants and peas; growing and management of pea plants; controlling pollination; collection of seeds and plants, etc. In this way, he did controlled breeding around 30,000 pea plants during the period of 10 years (1853-1863). He could successfully carryout breeding experiment for such a long years in the monastery garden was mainly due to the uninterrupted support rendered by then Abbot - Franz Cyril Napp and Prof. Franz Diebl. The astonishing aspect was that he maintained a meticulous register carrying his ideas (hypothesis), experiments (model), pre- and post experiment observations (results), etc. In addition, in the history of science, Gregor J. Mendel was the first to apply mathematics to solve problem in biology. His ten years of painstaking research was culminated with the proposal of “laws of inheritance” which explains how traits are transmitted from parents to offspring across the generations. He got his research works titled “Experiments on Plant Hybridization” published in the proceedings of Brno Society of Natural Science in 1866. Unfortunately, his paper was not received fitting attention and appreciation among the scientific fraternity and it went unnoticed. At hind sight, there are lot of speculations for why Mendel’s paper failed to bring the peer group attentions.

Gregor J. Mendel also did some experiment on hawkweed, bees, mice, etc. He had published many papers on meteorology also. In 1867, he became the Abbot of the monastery.

### **Belittlement and burial of ‘inheritance’**

After becoming the Abbot of the monastery, Gregor J. Mendel had to devote majority of his time in administration. As age progress, he suffered due to senility. At the age of 61, he died due to kidney failure in 1884. After his death, many of his experiments observations, results, and findings were burned and lost. In the history of science, Gregor J. Mendel was the most unrecognized and underrated person in every walk of life.

**Flourishing and blossoming of ‘inheritance’**

After the death of Gregor J. Mendel, the ‘laws of inheritance’ were kept buried for seventeen years till it was independently rediscovered by Erich Tschermak, Hugo de Vries and Carl Correns in 1900. Followed by, the scientific community was awakened and started unearthing Mendel’s works. The rest is history now. In the early part of 20<sup>th</sup> century, the science of inheritance has become another branch of biology called ‘genetics’. Thereafter, genetics has blossomed into different branches like classical genetics, cytogenetics, molecular genetics, biochemical genetics, genomics, population genetics, developmental genetics, clinical genetics, etc.

At the end, scientific community became honoured by honouring Gregor J. Mendel as “The Father of Genetics” who originally discovered the “laws of inheritance” which was operating the transmission of traits from parents to offspring across generations.

**GREGOR JOHANN MENDEL**

***LIFE TILL DEATH AND BEYOND...***

**A shy poor child who learned grafting in orchard**

**A diligent boy who was determined in study**

**A destitute man who resorted to an abbey**

**A graduate who got interest in inheritance**

**A teacher who nurtured plants over pupils**

**A researcher who chose land over lab**

**A priest who practiced science over religion**

**A gardener who believed in work over worship**

**A physicist who proposed particulate theory**

**An abbot whose body was buried**

**An experimenter whose findings were burned**

**A man whose soul was unsettled...**

**Posthumously**

**A man whose “laws of inheritance” were rediscovered**

**A man whose “findings” were adored**

**And now**

**The monk is being hailed as The Father of Genetics!**

**A man who lives after his death...!**

