



Gregor Mendel, Genetics and the SSC

B. C. Brown

Fermi National Accelerator Laboratory
P.O. Box 500, Batavia, Illinois 60510

January 5, 1988



Gregor Mendel, Genetics and the SSC

B. C. Brown

January 5, 1988

A couple of divergent cultural tendencies affect my perception of the SSC project. On the one hand, the "Great American Genius Syndrome" encourages one to seek technological progress in the work of isolated geniuses who are provided through good fortune with the setting in which great ideas are allowed to flourish. Names like Edison, Gibbs and Lawrence bring to mind the saintly virtues of great independence and isolated genius (Not that they *worked* in isolation). Perhaps the most timely archetype of our "American Genius" style in the 1980's is the software geniuses behind VisiCalc or TurboPascal. The conflicting virtue of "Thriving American Free Enterprise" which harnesses "freedom" to allow Americans to work together for great goals seems more to the point for our present understanding of the SSC. But we seldom hold up this virtue in discussing scientific progress. It seems to fit more with World War II Victory Ships. In our era it still doesn't quite fit comfortably, this idea of scientific progress from some great planned project. Even though my training denies the myth, I still find it unsettling to argue for a \$4 billion project which expects *scientific* progress from a planned group effort rather than individual genius.

During a vacation visit to Brno, Czechoslovakia, I was afforded the opportunity to visit the Mendelianum, a museum devoted to the history of the discovery of the laws of heredity by Gregor Mendel. My host, Jiří Farský introduced me to the Head of the Mendelianum, Dr. Vítězslav Orel. The visit was fascinating. The museum dispelled the misconception I had shared with many people concerning the history of Mendel's discovery. Dr. Orel showed me the displays and explained to me the history of the discovery. When I finished, I felt very excited by the implications I find in this history for our efforts to develop the SSC. Let me explain.

A common misconception is that Gregor Mendel was an isolated genius who worked out the laws of heredity in isolation in a monastery in Moravia. On the contrary, Dr. Orel has shown that this work was the result of a line

of scientific progress going back more than 50 years before Mendel. Breeding work for both sheep and fruit had been actively pursued in Moravia since before 1820. The basic problem of inheritance was posed by C. F. Napp, who was the abbot of the Augustinian monastery in Brno. He recruited Mendel to the monastery, provided him with training, including sending him to study *physics* in Vienna with Doppler and provided him with the resources to carry out the research. This culminated with publication of his decisive work in 1866. The fact that the world did not know more of this for the next forty years can likely be traced to the further development of Mendel's career. Whereas he had a good start at presenting his work in scientific meetings in Moravia, this effort was somewhat cut short by his elevation as abbot of the monastery in 1868. The duties of that office in a time of turmoil cut short his efforts to communicate his scientific results.

I found it exciting that this central discovery of biology was a culmination of a series of steps taken with due deliberation in 19th century Moravia. The building of a scientific culture in the Augustinian Monastery of Old Brno was undertaken against clerical opposition and with substantial investment of resources. Without in any way discounting the genius of Mendel, it is important to recognize that the basic formulation of the problem was laid out by his predecessors. To hope that a program of investigation can be laid out for a coming generation and the necessary investment of financial, political and intellectual resources committed is not untried. Great science has flowed from such efforts in the past.

A pamphlet called *The Research of GREGOR MENDEL* can be purchased from the Mendelianum. Further details can be found in the book *Mendel* by Vítězslav Orel published by Oxford Paperbacks. I would like to take this opportunity to publicly thank Mr. Farský and Dr. Orel for their kind hospitality and the very stimulating discussions I had with them.