

Einstein's schooldays

CONTRARY to a popular legend that has given comfort to countless slow starters, young Albert Einstein was remarkably gifted in mathematics, algebra and physics, academic records recently acquired from Swiss archives show.

The records, contained in a collection of the great theorist's papers now being prepared for publication at Princeton, confirm that Einstein was a prodigy, conversant in college physics before he was 11 years old, a "brilliant" violin player who got high marks in Latin and Greek. But his inability to master French was the bane of his school days, and may have been chiefly responsible for his failing college entrance examinations.

The documents "place Einstein in the context of his times much more than in the past, providing details of his education in Germany and Switzerland and his more human contacts," said Dr. John Stachel, editor of the papers.

A prime objective of Princeton University Press, which plans to publish the first volume of the Einstein papers in 1985 after years of controversy and law suits, is to seek out the roots of Einstein's sudden penetration to a deeper understanding of nature. The series may run to 38 volumes when complete.

Although some Einstein biographers have disputed the widely held belief that Einstein was a poor student, the papers at Princeton lay this to rest, once and for all. According to Stachel, those who saw Einstein's academic records may have been misled by a reversal in the grading system of his school in the Aargau canton of Switzerland.

Those records show that, for two successive terms, when Einstein was 16, his mark in arithmetic and algebra was 1 on a scale of 6, in which 1 was the highest grade. For the next term his mark was 6, which would have been the lowest grade, except that the grading scale had been reversed by school officials.

The more recent acquisitions also document, as never before, the scope of the electrical manufacturing activity of Einstein's father Hermann and of his more scientifically minded uncle Jakob. Technical journals in Britain, France, Italy and Germany reveal that one of its devices, an electric meter, was patented in the United States, and that the Einstein company built the central power station for a Munich suburb.

This has led Dr. Stachel to suspect that Einstein's upbringing in a home where manipulations of electricity and magnetism were a daily preoccupation helped set him on a road that led to his first Relativity Theory.

With 1 as the highest grade and 6 the lowest, the principal reported, Einstein's marks in Greek, Latin and mathematics oscillated between 1 and 2 until, toward the end, he invariably scored 1 in maths.

It was chiefly Einstein's weakness in French that led to his failure to pass the entrance examinations for the Federal Technical Institute in Zurich. According to the documents assembled at Princeton, he had been allowed to take the examinations even though he was two years younger than the normal admission age of 18, thanks in part to intervention by Gustav Maier, a family friend.

While Maier's letter has not been found, the archives of the Zurich institute have produced Albin Herzog's reply. "In my opinion," he wrote, "it is not advisable to remove even so-called 'Wunderkinder' from an institution in which they have begun studies before they have been fully completed."

He recommended that Einstein finish his preparatory studies, but said he could take the examinations if he wished. When Einstein failed them, Herzog suggested that he enter the Aargau Cantonal School, whose graduates were automatically admitted to the institute.

The essay that Einstein wrote in French on his original examination for acceptance at the institute in Zurich was full of errors, but also very revealing. It is quoted in part by Abraham Pais in his recent book on Einstein, "Subtle Is the Lord."

Entitled "My Future Projects," the essay says he hopes to concentrate on mathematics and physics. "I see myself becoming a teacher of these branches of natural science, choosing the theoretical part of these sciences."

"Here are the causes which have led me to this plan" he continued. "It is above all my personal disposition toward abstract thought and mathematics, lack of imagination and of practical talent." — **New York Times.**