Tales of Our Forefathers

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Introduction

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Lax: This is the Reed of Reed–Simon.
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Student, mouth falling open: You’re Reed.
Lax: This is the Reed of Reed–Simon.

Student, mouth falling open: You’re Reed. I thought Reed was Simon’s first name.
Lax: This is the Reed of Reed–Simon.

Student, mouth falling open: You’re Reed.
I thought Reed was Simon’s first name.

But I digress—and not for the first time.
Some Caveats

Four caveats: First, I am not a historian and I've no faith that all that I’m telling you is true. None of the stories was made up,
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Second, I regret that this is only about forefathers and not foremothers also, although two female mathematicians have cameos later. It is an unfortunate aspect of history that we used to ignore half our mathematical talent—I’m glad we no longer do quite that badly.
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Of course, prior to the twentieth century, mathematicians were more universal and so “analysts” means most mathematicians.
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This is true not only of transcendent figures like Leonard Euler (1707–83), Carl Friedrich Gauss (1777–1855), and Bernhard Riemann (1826–66), but also of lesser figures.
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who made significant contributions to algebra (Jordan normal form, Jordan–Hölder sequences), geometry (Jordan curves), and analysis (Jordan content and Jordan decomposition of functions of bounded variation).
By the way, this is not the Jordan of Jordan algebras and the Jordan–von Neumann theorem—that was the physicist Pascual Jordan (1902–80), best known as one of the authors of the “three-man paper,” which was one of the foundational papers of quantum mechanics.
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Some have speculated that Jordan might have shared in Born’s Nobel prize if it weren’t for his strong support of the Nazis and pro-Nazi views during the Hitler era.
A last caveat: Mostly we remember mathematicians by applying their names to theorems and to mathematical objects. In this regard, I quote two principles which appeared in a 1997 lecture of V.I. Arnold (which he claims were formulated by M. Berry):

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Berry’s Principle is certainly true. You won’t find “Arnold’s Principle” on Wikipedia, but you will find “Stigler’s law of eponomy,” which Stigler stated in 1980 as
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Stigler remarked that since it was a discovery of Merton, it was appropriate to name it Stigler’s law to validate the law!
Family Matters

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We start with the largest of the mathematical families.
The family originally fled Belgium for religious reasons and wound up in Basel some time before the birth of mathematicians. The senior mathematician was Jacob (1654–1705).
The Bernoullis

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The Bernoullis

Jacob was the most significant mathematically with the discovery of $e$ as the limit of $(1 + n^{-1})^n$, Bernoulli trials and the law of large numbers, and Bernoulli numbers. Much of his most famous work appeared posthumously (1713) in *Ars Conjectandi*. 
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Daniel is most noted for Bernoulli’s principle in hydrodynamics and Johann for contributions to differential equations, for early work in the calculus of variations, and, as we’ll see, for l’Hôpital’s rule.
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The Bernoullis

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The most shocking event involved books on hydrodynamics. In 1738, Daniel published a book on the subject that he had largely finished in 1734. His father then published a book on the same subject using many of Daniel’s ideas, predated his book claiming it was earlier and that Daniel had taken the ideas from him!
Guillaume François Antoine, Marquis de l’Hôpital (1661–1704) was a French nobleman who over many years paid Johann Bernoulli a large annual retainer, initially for lectures on the new calculus of Leibnitz and Newton and for continuing advice.
In 1696, l’Hôpital published “Analyse des Infiniment Petits pour l’Intelligence des Lignes Courbes,” a hit as the first textbook on differential calculus. It contained what has come to be called l’Hôpital’s rule.
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Ironically, given Johann’s other priority disputes, this claim was dismissed by historians of mathematics of the nineteenth century, until in the 1920s when notes were found in the University of Basel which supported Johann’s claim!
Undoubtedly, Johann Bernoulli’s greatest contribution to mathematics concerns Leonhard Euler (1707–83).
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Both Euler’s father and maternal grandfather were pastors who expected him to go into the family business. During his studies, Euler convinced Johann to give him private lessons. Johann had been a student in university with Euler’s father and was able to convince the father to allow Euler to go into mathematics rather than become a pastor.
Euler, who also was a great physicist, was very prolific. It is estimated that about one-third of all research papers in mathematics and physics in the eighteenth century were written by him. In 1775, at age 68, he wrote over fifty papers.
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Karl Weierstrass (1815–97)

Karl Weierstrass (1815–97) was the son of a Prussian finance ministry bureaucrat who wanted his son to follow in his footsteps and forced him to study finance at the University of Bonn. Karl rebelled and quit just short of his degree. After negotiations by a friend of his father, the compromise reached was that Karl could get a degree from Münster that would allow him to teach mathematics in gymnasium.
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Weierstrass

He taught at gymnasium starting in 1841, and during the 1840s wrote unpublished works that established the Weierstrass approach to complex analysis centered on power series. Many were only published in his complete works fifty years later although, to get ahead in our story, he exposed many of them in his lectures at the University of Berlin.
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During the summer of 1853, he wrote a mémoire on elliptic functions. In the hands of Abel and Jacobi, the subject had reached maturity around 1830, so the solution of the Jacobi inversion problem for general hyperelliptic functions caused a sensation.
Weierstrass

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One of my favorite quotes about Weierstrass is from T.W. Körner’s book on Fourier analysis, commenting on Fejér’s theorem on Cesàro summability of Fourier series and Weierstrass’ theorem on density of polynomials in $C([0, 1])$: "Fejér discovered his theorem at the age of 19, Weierstrass published this theorem at the age of 70. With time, the reader may come to appreciate why so many mathematicians regard the second circumstance as even more romantic and heart warming than the first."
Lipót Fejér (1880–1959) was born Lipót Weiss (German for white) in Hungary and was a student of Hermann Schwarz (German for black). In high school, he changed his name to Fejér (Hungarian for white), in part because he expected less anti-Semitism. One of his students was Fekete (Hungarian for black!). His other students included:
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While on the subjects of fathers and polynomial approximation, I note that the father of Marshall Stone (1903–1989) was Harlan Stone (1872–1946), who was a chief justice of the U.S. Supreme Court.
Bastards

The parents of Stefan Banach (1892–1945) were not only not married, but his mother departed four days after his birth, leaving behind nothing but the name Banach. Stefan was raised initially by his paternal grandparents and then by friends of his father. As a teenager, he was left to fend on his own. While he did study some mathematics, he only managed a first degree in Engineering.
Banach

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Steinhaus, who regarded Banach as his greatest mathematical discovery, took Banach to Lwów where, first, Banach got a graduate degree (his dissertation defined and began the study of what we now call Banach spaces) and then, with Steinhaus, founded the famous Lwów school and the journal *Studia Mathematica*. 
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Steinhaus Stories

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Steinhaus was a rather pleasant person. I was told by Mark Kac, one of his students, that Steinhaus loved stories and bon mots. A favorite among the ones Kac passed on was:

*The acceptance of your work by the mathematical public goes through three phases: First, they say it’s wrong. Then, they say it’s trivial. Finally, they say I did it first.*
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Jean-Baptiste le Rond d’Alembert (1717-1783) was found abandoned in the church of Saint-Jean-le Rond in Paris named after John the Baptist. He had been abandoned by his mother, Claudine Guérin de Tencin, whose literary salon was a social center during the reign of Louis XV. Her many lovers included Richelieu and Louis-Camus Destouches, an army officer who was d’Alembert’s father.
d’Alembert

While neither parent officially acknowledged d’Alembert, his father did arrange a foster home where d’Alembert lived for almost fifty years and, when he died, d’Alembert was left an income that allowed him to pursue mathematics rather than the more mundane law that he’d studied.
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d’Alembert discovered the wave equation as describing plucked strings and found the general one dimensional solution. He was an editor with Diderot of the *Encyclopédie* which led to his being made a member of Académie Française (the immortals). Laplace was his student.
Andrei Kolmogorov (1903–87) was also a bastard. His mother died in childbirth and his father had nothing to do with him. He was raised by his mother’s sister; Kolmogorov was his maternal grandfather’s name. In Soviet Russia, he was able to get an education.
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Kolmogorov

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Egorov was religious and loudly objected to the Soviet treatment of his beloved Russian church.
Kolmogorov was an important player in the Luzin affair of the 1930s. His teacher was Nikolai Luzin (1883–1950), in turn a student of Dmitri Egorov (1869–1931). Both were victims of the 1930s Stalin reign of terror. Egorov was religious and loudly objected to the Soviet treatment of his beloved Russian church. He was dismissed from his post in 1929, arrested in 1930, and died in the middle of a hunger strike in 1931.
Luzin was the center of a lively group of younger mathematicians in Moscow in the 1920s. Included in what was called Luzitania were his students Alexandrov, Khinchine, Kolmogorov, Souslin, and Urysohn. He was a powerful figure in the Russian Academy.
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In 1936, Luzin was accused of anti-Soviet behavior and given what was essentially a show trial before a commission of the Academy. He was found guilty but received a mild "sentence"—basically, a loss of power and influence that left him a broken man.
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There has been widespread speculation about the motivation of Alexandrov and Kolmogorov. These two were very close—they traveled together and shared a house. Whether they were having a homosexual relationship or only gave the appearance of one, there is a belief that they were pressured by the KGB to testify against Luzin or be arrested for homosexual behavior.
Among those testifying against Luzin were Alexandrov, Khinchine, and Kolmogorov. I think of this as a kind of mathematical patricide—and it has elements of Greek tragedy.

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On January 17, 2012, the Russian Academy formally rescinded their motion condemning Luzin.
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Just as one can’t imagine discussing Stan Laurel without Oliver Hardy, one can’t imagine John Littlewood (1885–1977) without G.H. Hardy (1877–1947).

They are arguably the most celebrated and most successful mathematical collaboration ever.
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Kummer (1810–93) was Schwarz’s father-in-law. Hermite (1822–1901) was Picard’s (1856–1941).
Fathers-in-Law

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Here’s a story of a non-mathematical father-in-law. George Airy (1801–92) came from a poor background but managed to get through Cambridge by being a sizar (part-time man servant!). In 1824, he met and fell in love with Richarda Smith, the daughter of the vicar of Chatsworth.
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But Vicar Smith would not allow Airy to marry Richarda because the Lucasian chair only paid £100 per year.
But Vicar Smith would not allow Airy to marry Richarda because the Lucasian chair only paid £100 per year. In 1830, the Plumian Chair of Astronomy, which paid £500, opened, Airy got it and Richarda! He went on to become Astronomer Royal.
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She returned to England, married Young whom she encouraged to become active in research (he had not been!).
Grace Chisholm Young

Works credited to him include the independent rediscovery of Lebesgue integration two years after Lebesgue, the Hausdorff–Young inequality, Young’s convolution inequality, and Young’s inequality on conjugate convex functions (e.g., $xy \leq \frac{x^p}{p} + \frac{y^q}{q}$).
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Grace Chisholm Young

It is clear that some of Young’s work was joint work with Grace, but not clear which. He wrote to his wife at one point:
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“The fact is that our papers ought to be published under our joint names, but if this were done neither of us would get the benefit of it. No. Mine the laurels now and the knowledge. Yours the knowledge only. Everything under my name now, and later when the loaves and fishes are no more procurable in that way, everything or much under your name. At present you cannot undertake a public career. You have your children.”
Erwin Schrödinger (1887–1961)
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Weyl and Schrödinger

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were both professors in Zurich in the 1920s, coupled scientifically in work on quantum mechanics. But they were linked not only scientifically.
As one biographer of Schrödinger put it:
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“Those familiar with the serious and portly figure of Weyl at Princeton would have hardly recognized the slim, handsome young man of the twenties, with his romantic black moustache. His wife, Helene Joseph, from a Jewish background, was a philosopher and literateuse. Her friends called her Hella, and a certain daring and insouciance made her the unquestioned leader of the social set comprising the scientists and their wives.”
Anny, Schrödinger’s wife, was almost an exact opposite of the stylish and intellectual Hella, but perhaps for that reason Weyl found her interesting and before long she was madly in love with him . . . The special circle in which they lived in Zurich had enjoyed the sexual revolution a generation before the United States. Extramarital affairs were not only condoned, they were expected, and they seemed to occasion little anxiety. Anny would find in Hermann Weyl a lover to whom she was devoted body and soul, while Weyl’s wife Hella was infatuated with Paul Scherrer.”
Lyapunov

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In 1886, he married Natalia Sechenov—he’d met her as a teenager when he was being tutored by her father, his cousin.
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In 1917, Lyapunov took a position in Odessa since the doctors thought the climate there was better for Natalia’s tuberculosis. Her condition worsened and she passed away on October 31, 1918. Later that day, the distraught Lyapunov shot himself, dying of his wounds three days later.
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Johann Peter Gustav Lejeune Dirichlet (1805–59) was a German of Belgian extraction ("the young one from Richlet"). Because of the poor education in Germany at the time, he went to Paris and studied with Fourier and Poisson. After his famous work on Fourier series, the Germans wanted him to return to a professorship, but the lack of a German degree was a problem. Like Weierstrass later, this was solved by arranging an honorary degree for him.
By the way, Dirichlet’s
By the way, Dirichlet’s wife was Felix Mendelssohn’s
By the way, Dirichlet’s wife was Felix Mendelssohn’s sister, and the Dirichlets, Mendelssohns, and Jacobi had close social connections.
Sergei Bernstein (1880–1968) was a Jewish Ukrainian mathematician known for his work in approximation theory (Bernstein polynomials and inequality) and for his integral representation theorem for completely positive functions.
Bernstein

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This thesis solved (or partially solved; later contributions include E. Hopf, de Giorgi, and Nash) Hilbert’s Nineteenth Problem—one of the first to be solved.
Bernstein

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Bernstein returned to Russia where his Ph.D. wasn’t recognized, so before he could teach, he had to be a graduate student and then submit a master’s thesis. Eventually, after he was teaching, he submitted a Ph.D. thesis that went a ways towards solving Hilbert’s Twentieth Problem.
In June 2012, I attended a conference in Copenhagen that met in the Danish Academy of Sciences. There was a huge painting of a meeting held around 1900, and a number of famous Danish scientists of the period were pointed out to us.
I asked where was Johan Ludwig Jensen (1859–1925) who revolutionized the study of convex functions (think Jensen’s inequality) and invented Jensen’s formula—a cornerstone of Nevanlinna theory.
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In 1928, the family was able to emigrate to Montevideo, Uruguay. The four of them lived in single room; his father sold newspapers on a downtown street corner, his older brother became a tramway conductor and Mischa played the piano from 4pm to 4am in a rough harbor bar! Not too long after arriving, the senior Cotlar came in first in a national chess tournament and the fact that a member of the “lower classes” did this caused some news coverage.
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From the mid ‘40’s onwards, several American foundations sponsored trips by US mathematicians to Argentina including Adian Albert (1905–1972), George Birkhoff (1884–1944), Marshall Stone (1903–1989) and Antoni Zygmund (1900–1992). During one of these trips Zygmund discovered Alberto Calderón (1920-1998), an engineer and brought him to Chicago with money from the Rockefeller Foundation, where Stone convinced them that Calderón should get a degree.
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Cotlar spent much of his career as a Professor in Buenos Aires where he helped nurture the talents of Argentine born Carlos Berenstein and Norberto Kerzman. After the 1966 coup by the military junta which ordered beating of students and faculty at the University, Cotlar went into exile Caracas, returning to Buenos Aires after the return of democracy to Argentina.
High School Teachers

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Some did their best work then, often in the evening.
High School Teachers

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Among them are Eduard Kummer (1810–93) [who had Leopold Kronecker (1823–91) as a student in class] and Jacques Hadamard (1865–1963) [who had the twelve-year old Maurice Fréchet (1878–1973) in his class and was later his thesis advisor!]. Also, Henri Lebesgue (1875–1941), who invented his measure during that period, René-Louis Baire (1874–1932) who invented monotone classes of functions, and Rolf Nevanlinna (1895–1980) who developed his value distribution theory while a high school teacher.
Nevanlinna

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Nevanlinna

His theory of 1925 made a big splash and he was shortly afterwards a professor at the University of Helsinki where he became rector in 1941. He cooperated with the Nazis and, indeed, was the chair of the support committee for the Finnish branch of the Waffen SS.
After the war, he was dismissed as rector and spent some time in Zurich. His defenders claim he was not so much pro-German as anti-Russian. He fought in a Finnish–Russian war at the time just after the Russian revolution, and morally supported Finland in its 1939 war with Russia.
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Some mathematicians are either unappreciated in their lifetimes or even now. Let me talk about a few.

Joseph Fourier (1768–1830) was more an engineer and physicist than mathematician. Because of his practical abilities, he had high political appointments. He went to Egypt with Napoleon's 1798–99 campaign and ended up governor of Lower Egypt. He spent many years as Prefect under Napoleon of the province that includes Grenoble and constructed the Turin–Grenoble highway. He wound up with an appointment as a Baron.
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A committee of Lagrange, Laplace, Monge, and LaCroix questioned the notion of expanding “any” function in Fourier series and it was only in 1822 that the book was published. In 1829, Fourier’s student Dirichlet proved piecewise $C^1$ functions have convergent Fourier series (using the Dirichlet kernel).
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“Apart from his prefectorial duties Fourier helped organise the ’Description of Egypt’ . . . Fourier’s main contribution was the general introduction—a survey of Egyptian history up to modern times. An Egyptologist with whom I discussed this described the introduction as a masterpiece and a turning point in the subject.”
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“Apart from his prefectorial duties Fourier helped organise the 'Description of Egypt'... Fourier’s main contribution was the general introduction—a survey of Egyptian history up to modern times. An Egyptologist with whom I discussed this described the introduction as a masterpiece and a turning point in the subject. He was surprised to hear that Fourier also had a reputation as a mathematician.”
Cantor

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Cantor

One naively thinks theorems are either true or not and can’t be controversial. But radically new approaches can face strong attacks. I want to consider three now-central pillars of modern mathematics, but they were not always so. First, Georg Cantor (1845–1918).
Cantor

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His work on counting infinities—especially his proof of the existence of transcendentals and that $\mathbb{R}$ and $\mathbb{R}^2$ had the same number of points—caused great discomfort. Kronecker was an implacable foe who blocked Cantor’s dream of a professorship at Berlin. Poincaré thought it a disease that he hoped would be cured!
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His initial burst of activity started in 1873 and ended about 1885, with his discovery of the Cantor function. There was a second few years around 1891. In between and in the later years of his life, Cantor was incapacitated by depression, now believed to be caused by bipolar disorder.
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“Distribution theory was one of the two great revolutions in mathematical analysis in the 20th century. It can be thought of as the completion of differential calculus, just as the other great revolution, measure theory (or Lebesgue integration theory), can be thought of as the completion of integral calculus. There are many parallels between the two revolutions. Both were created by young, highly individualistic French mathematicians (Henri Lebesgue and Laurent Schwartz). Both were rapidly assimilated by the mathematical community, and opened up new worlds of mathematical development. Both forced a complete rethinking of all mathematical analysis that had come before, and basically altered the nature of the questions that mathematical analysts asked.”
But the assimilation, while “rapid,” wasn’t overnight. Hermite initially dismissed Lebesgue’s work as insignificant. As for Schwartz, Treves (Schwartz’s student) tells the following story in his obituary for Schwartz:
“In 1948 Laurent Schwartz visited Sweden to present his distributions to the local mathematicians. He had the opportunity of conversing with Marcel Riesz. Having written on the blackboard the integration-by-parts formula to explain the idea of a weak derivative, he was interrupted by Riesz saying, ‘I hope you have found something else in your life.’
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“Later Schwartz told Riesz of his hopes that the following theorem would eventually be proved: every linear partial differential equation with constant coefficients has a fundamental solution (a concept made precise and general by distribution theory). 'Madness!' exclaimed Riesz. 'This is a project for the twenty first century!' The general theorem was proved by Ehrenpreis and Malgrange in 1952.”
Lebesgue and Schwartz

Part of the irony is that Riesz’s students Gårding...
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Part of the irony is that Riesz’s students Gårding and Hörmander used distributions to reformulate and study quantum field theory and PDEs, respectively.
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Eduard Helly (1884–1943) is underappreciated and a paradigm for “may you live in interesting times” being a curse. In 1912, while teaching high school, he wrote a brilliant paper about $C([0, 1])$. He proved the Hahn–Banach theorem for this case (they did their work ten years later) using an argument that works for general separable Banach spaces (which had not yet been defined!). He also proved sequential weak compactness of the unit ball in the measures (Alaoglu’s work was 25 years later).
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There are those who think that Maurice Fréchet (1878–1973) was a pivotal figure in twentieth century mathematics. Angus Taylor, who spent his career at UCLA (after getting a Ph.D. in 1936 from Caltech), is among them, and I am sympathetic to this point of view.
Fréchet

There are those who think that Maurice Fréchet (1878–1973) was a pivotal figure in twentieth century mathematics. Angus Taylor, who spent his career at UCLA (after getting a Ph.D. in 1936 from Caltech), is among them, and I am sympathetic to this point of view. Why?
There are those who think that Maurice Fréchet (1878–1973) was a pivotal figure in twentieth century mathematics. Angus Taylor, who spent his career at UCLA (after getting a Ph.D. in 1936 from Caltech), is among them, and I am sympathetic to this point of view. Why? In his 1906 thesis, Fréchet defined metric spaces. He didn’t have the triangle inequality but a number of alternatives that included it (shortly afterwards, F. Riesz focused on the triangle inequality).
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Fréchet

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Fréchet

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I end my discussion of Fréchet with dueling quotes: the first is from Dieudonné’s comment to Taylor about the naming of Fréchet space:
“Fréchet was always striving for generality without caring for applications, and this was thoroughly repugnant to the Bourbaki spirit, where no notion could be accepted if we could not be convinced that it was useful in some classical problem (although many readers, for lack of background, did not realize it). Nevertheless, we thought that Fréchet’s name deserved to be attached to those spaces, not so much for his 1926 paper, but because in his 1906 thesis.”
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The second is from a letter the 71-year old Alexandrov sent to “Cher Maitre et ami,” the 89-year old Fréchet (my translation):
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The second is from a letter the 71-year old Alexandrov sent to “Cher Maitre et ami,” the 89-year old Fréchet (my translation):

“What is your place and role—it is a place among the greatest mathematicians of our time, it is the role of a true master.”
We end with death.
Prime Number Theorem

We end with death. So it isn’t such a downer, I begin by noting that many mathematicians have lived to ripe old ages—70s, 80s, 90s, and even over 100! Indeed, as Odlyzko, as quoted in Derbyshire’s “Prime Obsession,” said:
Prime Number Theorem

We end with death. So it isn’t such a downer, I begin by noting that many mathematicians have lived to ripe old ages—70s, 80s, 90s, and even over 100! Indeed, as Odlyzko, as quoted in Derbyshire’s “Prime Obsession,” said: “It was said that whoever proved the Prime Number Theorem would attain immortality. Sure enough, both Hadamard and de la Vallée Poussin lived into their late nineties. It may be that there is a corollary here. It may be that the Riemann Hypothesis is false: but, should anyone manage to actually prove its falsehood—to find a zero off the critical line—he will be struck dead on the spot, and his result will never become known.”
Prime Number Theorem

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The irony of the quote is that Odlyzko has done computer searches to find zeros off the critical line.
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As we know from Schramm’s death, accidental death is still with us. Perhaps the strangest accidental death of a mathematician was Jorgen Gram (1850–1916) of Gram–Schmidt. He was walking to an Academy meeting when he was struck by a bicycle and killed.
As we know from Schramm’s death, accidental death is still with us. Perhaps the strangest accidental death of a mathematician was Jorgen Gram (1850–1916) of Gram–Schmidt. He was walking to an Academy meeting when he was struck by a bicycle and killed. I think of Gram when watching bicycles whizzing by in Copenhagen.
Pavel Urysohn (1898–1924)

Pavel Urysohn (1898–1924) was noted for his proof that any second countable, normal topological space is metrizable—during which he used what has been called Urysohn’s lemma. In 1924, he and his friend Alexandrov traveled to Göttingen and Paris and on to vacation in Brest on the coast of France. While swimming, he was swept off by a wave and perished at age 26.
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Paley

Raymond Paley (1907–33)

Raymond Paley (1907–33) did remarkable research in harmonic analysis with Littlewood and with Pólya and with Zygmund in Cambridge. He went to the U.S. to work with Wiener, and there went on a skiing vacation in Banff where he was killed in an avalanche, also at age 26.
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Medical Limitations

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[Image of a postage stamp with Niels Henrik Abel's portrait]

Gotthold Eisenstein (1823–52), and Bernhard Riemann (1826–66) died of lung ailments at ages 26, 29, and 39. Thomas Jan Stieltjes (1856–94), although I have been unable to find out what the cause was, other than an illness. Hermann Minkowski (1864–1909) died at age 44 of a burst appendix.
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Medical Limitations

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Riemann

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Riemann

There is the celebrated short paper on the Riemann zeta function, its functional equation, the Riemann hypothesis, and his vision of the complex analytic view of the distribution of primes. And there are papers on higher-dimensional theta functions (and Riemann–Roch) and on the Riemann approach to hypergeometric functions (and monodromy).
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Since my student years Minkowski was my best, most dependable friend who supported me with all the depth and loyalty that was so characteristic of him. Our science, which we loved above all else, brought us together; it seemed to us a garden full of flowers.
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Nazi Mayhem

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Hausdorff

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As the 1930s progressed, things got progressively worse: he was dismissed from his position in 1935. On January 25, 1942, expecting to be picked up for deportation to camps in the East, Hausdorff, his wife, and her sister took overdoses of barbiturates and died.
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Schur

The following story told by Shiffer illustrates the isolation and humiliation suffered by someone like Schur:
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“Schur told me that the only person at the Mathematical Institute in Berlin who was kind to him was Grunsky, then a young lecturer. Long after the war, I talked to Grunsky about that remark and he literally started to cry: ‘You know what I did? I sent him a postcard to congratulate him on his sixtieth birthday. I admired him so much and was very respectful in that card. How lonely he must have been to remember such a small thing.’”
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Schur

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Fritz Noether

Both Emmy and Fritz had German positions from which, as Jews, they were dismissed in 1934. Emmy went to the U.S. and died of cancer a year later.

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Fritz went to Tomsk. In 1937, he was accused of being a German spy and imprisoned. In 1941, he was shot for anti-Soviet propaganda. In 1988, the Supreme Court of the Soviet Union officially exonerated him.
I hope you’ve learned that our forefathers are fascinating as people and that you’ll consider using Mr. Google and Ms. Wikipedia to look up the names you find on theorems.
A Comprehensive Course in Analysis by Poincaré Prize winner Barry Simon is a five-volume set that can serve as a graduate-level analysis textbook with a lot of additional bonus information, including hundreds of problems and numerous notes that extend the text and provide important historical background. Depth and breadth of exposition make this set a valuable reference source for almost all areas of classical analysis.

Part 1 is devoted to real analysis. From one point of view, it presents the infinitesimal calculus of the twentieth century with the ultimate integral calculus (measure theory) and the ultimate differential calculus (distribution theory). From another, it shows the triumph of abstract spaces: topological spaces, Banach and Hilbert spaces, measure spaces, Riesz spaces, Polish spaces, locally convex spaces, Fréchet spaces, Schwartz space, and $\mathbb{L}^p$ spaces. Finally, it is the study of big techniques, including the Fourier series and transform, dual spaces, the Baire category, fixed point theorems, probability ideas, and Hausdorff dimension. Applications include the constructions of nowhere differentiable functions, Brownian motion, space-filling curves, solutions of the moment problem, Haar measure, and equilibrium measures in potential theory.
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Part 2A is devoted to basic complex analysis. It interweaves three analytic threads associated with Cauchy, Riemann, and Weierstrass, respectively. Cauchy’s view focuses on the differential and integral calculus of functions of a complex variable, with the key topics being the Cauchy integral formula and contour integration. For Riemann, the geometry of the complex plane is central, with key topics being fractional linear transformations and conformal mapping. For Weierstrass, the power series is king, with key topics being spaces of analytic functions, the product formulas of Weierstrass and Hadamard, and the Weierstrass theory of elliptic functions. Subjects in this volume that are often missing in other texts include the Cauchy integral theorem when the contour is the boundary of a Jordan region, continued fractions, two proofs of the big Picard theorem, the uniformization theorem, Ahlfors’s function, the sheaf of analytic germs, and Jacob, as well as Weierstrass, elliptic functions.
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Part 2B provides a comprehensive look at a number of subjects of complex analysis not included in Part 2A. Presented in this volume are the theory of conformal metrics (including the Poincaré metric, the Ahlfors-Robinson proof of Picard’s theorem, and Bell’s proof of the Painlevé smoothness theorem), topics in analytic number theory (including Jacobi’s two- and four-square theorems, the Dirichlet prime progression theorem, the prime number theorem, and the Hardy-Littlewood asymptotics for the number of partitions), the theory of Fuchsian differential equations, asymptotic methods (including Euler’s method, stationary phase, the saddle-point method, and the WKB method), univalent functions (including an introduction to SLE), and Nevanlinna theory. The chapters on Fuchsian differential equations and on asymptotic methods can be viewed as a minicourse on the theory of special functions.
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Part 3 returns to the themes of Part 1 by discussing pointwise limits (going beyond the usual focus on the Hardy-Littlewood maximal function by including ergodic theorems and martingale convergence), harmonic functions and potential theory, frames and wavelets, $H^p$ spaces (including bounded mean oscillation (BMO)) and, in the final chapter, lots of inequalities, including Sobolev spaces, Calderon-Zygmund estimates, and hypercontractive semigroups.
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Part 4 focuses on operator theory, especially on a Hilbert space. Central topics are the spectral theorem, the theory of trace class and Fredholm determinants, and the study of unbounded self-adjoint operators. There is also an introduction to the theory of orthogonal polynomials and a long chapter on Banach algebras, including the commutative and non-commutative Gel’fand-Naimark theorems and Fourier analysis on general locally compact abelian groups.