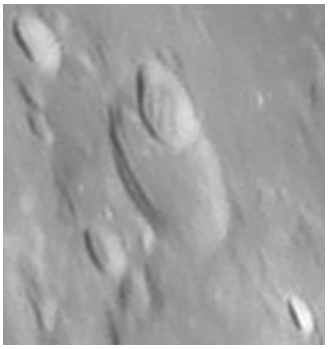
PROFESSOR SYLVESTRE FRANÇOIS LACROIX



"But they fight at an overwhelming disadvantage–living, John Field, alas! without arithmetic, and failing so."

— Henry Thoreau, WALDEN

WALDEN: If he and his family would live simply, they might all go a-huckleberrying in the summer for their amusement. John heaved a sigh at this, and his wife stared with arms a-kimbo, and both appeared to be wondering if they had capital enough to begin such a course with, or arithmetic enough to carry it through. It was sailing by dead reckoning to them, and they saw not clearly how to make their port so; therefore I suppose they still take life bravely, after their fashion, face to face, giving it tooth and nail, not having skill to split its massive columns with any fine entering wedge, and rout it in detail; –thinking to deal with it roughly, as one should handle a thistle. But they fight at an overwhelming disadvantage, –living, John Field, alas! without arithmetic, and failing so.

"NARRATIVE HISTORY" AMOUNTS TO FABULATION, THE REAL STUFF BEING MERE CHRONOLOGY

1765

April 28, Sunday: Sylvestre François Lacroix was born in Paris, into a poor family.

NOBODY COULD GUESS WHAT WOULD HAPPEN NEXT

PROFESSOR SYLVESTRE FRANÇOIS LACROIX

1779

At the age of 14 in Paris, Sylvestre François Lacroix was calculating the motion of the planets.

In 1843, during Thoreau's lifetime, regularities would be described in the occurrence of sunspots:

SUNSPOTS

The Sunspot Cycle 1710-1804

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1765 - 1770
1775 - 1779
1785 - 1788
1798 - 1804

DO I HAVE YOUR ATTENTION? GOOD.

1780

Harvard President Samuel Langdon left Cambridge to become the Unitarian parson at Hampton Falls, New Hampshire, contributing the initial collection of books to the church library to which Franklin Benjamin Sanborn, in the late 1830s, would have access.

Professor John Winthrop having deceased, Samuel Williams was made Hollis Professor of Mathematics and Experimental Philosophy at Harvard College (until 1788).

At the age of 15, Sylvestre François Lacroix was able to attend a course in mathematics offered by the famous Professor Gaspart Monge (1746-1818) of the École at Mézières, "father of differential geometry," at the Académie des Sciences in Paris — because this was at no charge.

NO-ONE'S LIFE IS EVER NOT DRIVEN PRIMARILY BY HAPPENSTANCE

1782

Foundation of Harvard Medical School, the 1st med school in North America.

The Reverend Manasseh Cutler began a private boarding school in Ipswich, Massachusetts (now Hamilton).

At the age of 17, recommended by Professor Gaspart Monge, Sylvestre François Lacroix was hired as an instructor in mathematics at the École Gardes de Marine at Rochefort, France.

LIFE IS LIVED FORWARD BUT UNDERSTOOD BACKWARD?
— NO, THAT'S GIVING TOO MUCH TO THE HISTORIAN'S STORIES.
LIFE ISN'T TO BE UNDERSTOOD EITHER FORWARD OR BACKWARD.

1785

Professor Gaspart Monge had recommended to the young Sylvestre François Lacroix that he undertake research on partial differential equations and the calculus of variations, and Lacroix had followed his advice. At the age of 20, he sent a memoir of his research to Professor Monge, who presented it to the Académie des Sciences. The young man had also persisted at his early interest in calculating astronomical data, and in this year submitted a new set of solar tables to the Académie des Sciences. He returned to Paris to substitute-teach Marie Jean Antoine Nicolas de Caritat, Marquis de Condorcet's courses in astronomy and mathematics at the Lycée (Professor Condorcet was preoccupied at the time with the duties of being Inspector General of the Mint). In about this timeframe, Lacroix got married.

In 1843, during Thoreau's lifetime, regularities would be described in the occurrence of sunspots: SUNSPOTS

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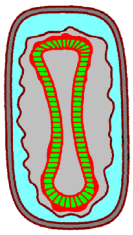
CHANGE IS ETERNITY, STASIS A FIGMENT

1787

For his contribution to calculations needed in the field of marine insurance, Sylvestre François Lacroix was the co-winner of the year's Grand Prix of the French Académie des Sciences (he would, however, never receive this prize). When the Lycée failed for financial reasons, he again needed to move to the provinces. At the École d'Artillerie in Besançon he would be offering courses in mathematics, physics, and chemistry.



Thaddeus Mason Harris graduated from Harvard College. Although through the influence of friends he was invited to become private secretary to General George Washington, an attack of the small pox would get in the way of his filling this position. For about a year he would make a study of theology while in charge of a classical school in Worcester. For a number of years he would be supplying articles for The Massachusetts magazine, or, Monthly Museum of Knowledge and Rational Entertainment (Boston: Isaiah Thomas and Ebenezer T. Andrews).

NEW "HARVARD MEN"

THE FUTURE IS MOST READILY PREDICTED IN RETROSPECT

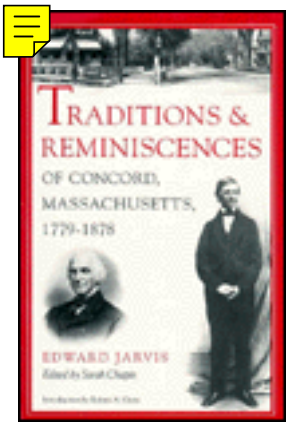
1793

In Concord, Samuel Swan sold the Wright Tavern to the saddler Reuben Brown, who then sold it to the bakers who were renting it, Thomas Safford and Deacon Francis Jarvis.

According to Dr. Edward Jarvis's TRADITIONS AND REMINISCENCES OF CONCORD, MASSACHUSETTS 1779-1878, page 87:

> My parents were married in 1793. My father had been successful in his business and bought the house very near to and north of the meetinghouses, where they lived until my mother died in 1826, and until my father moved to the Col. Buttrick farm, north

of the river, in 1832.



Sylvestre François Lacroix became Examiner of the Artillery Corps, replacing Pierre-Simon Laplace in the post because, in the chaos of the French Revolution, Laplace had needed to flee the capital with his family.

William Jones of Concord, the only son of the blacksmith Samuel Jones, graduated from Harvard College.

> William Jones, only son of Samuel Jones, was born Sept. 15, 1772, and grad. Harvard, 1793. He read law with Jonathan Fay, Esq., and commenced practice in this town, but removed to Norridgewock, Maine, about 1801. He was appointed June 29, 1809, Clerk of the Court of Common Pleas for the county of Somerset and on the 23d of April, 1812, Clerk of all the courts in that county and June 22, 1809, Judge of Probate. While resident in Concord, he delivered an oration on the 4th of July, 1795, which has been published. May 12th of that year he was appointed Captain of a company of cavalry and April 17, 1799, Major in the 15th Regiment of the U.S. army stationed at Oxford. On the 27th of March, 1806 after his removal to Maine, he received a commission of Lieutenant-Colonel and Feb. 21, 1810, of Brigadier-General in the militia of that state. He died at Norridgewock on January 10, 1813, aged 40. His remains were removed and interred in Concord.[1]

NEW "HARVARD MEN"

1. Lemuel Shattuck's 1835 A HISTORY OF THE TOWN OF CONCORD;... Boston: Russell, Odiorne, and Company; Concord MA: John Stacy

1794

Sylvestre François Lacroix was aiding his old instructor, Professor Gaspard Monge, in creating material for a course on descriptive geometry.

Timothy Alden, Jr. took his doctorate from Harvard College in Classical and Oriental Languages with high ranks. He would become a teacher at Marblehead, Massachusetts.

Elijah Dunbar, also graduating from Harvard, prepared an assignment that has been preserved, "Calculation and Projection of an Eclipse of the Sun, to happen August 25th, 1794" (14 ½ x 21 ¼ inches). <http://oasis.harvard.edu:10080/oasis/deliver/~hua17004>[2]

NEW "HARVARD MEN"

2. At some point Elijah Dunbar would get married with Mary Ralston, daughter of Alexander Ralston of Keene, New-Hampshire. They would have six children.

1795

Professor William Dandridge Peck (1763-1834) of Harvard College published his "The Description and History of the Canker Worm" about the spring cankerworm *Phalaena vernata*. (Professor Peck would teach the entomologist Thaddeus William Harris, who would be David Henry Thoreau's entomology and botany teacher in his Senior year at Harvard.)

NEW "HARVARD MEN"

Sylvestre François Lacroix's *ÉLÉMENTS DE GÉOMÉTRIE DESCRIPTIVE: ESSAI DE GÉOMÉTRIE SUR LES PLANS ET LES SURFACES COURBES* (Paris: impr. Fuchs).

THE FUTURE CAN BE EASILY PREDICTED IN RETROSPECT

S.F. LACROIX PROFESSOR SYLVESTRE FRANÇOIS LACROIX

1797

Sylvestre François Lacroix's *ÉLÉMENTS D'ALGÈBRE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* (Paris: Chez Duprat) and *TRAITÉ ÉLÉMENTAIRE D'ARITHMÉTIQUE*. In this year and the following one, his *TRAITÉ DU CALCUL DIFFÉRENTIEL ET DU CALCUL INTÉGRAL* (Paris: Chez Courcier).

At the age of 24, Nathaniel Bowditch found an error in Newton's *PRINCIPIA MATHEMATICA*. At first he thought he must be delusional, because of course such a personage as Sir Isaac could not make misteaks, but finally he persuaded himself to show his calculations to a professor of mathematics, a certain Professor Webber of Harvard College. This personage also was of the opinion that a weighty luminary such as Isaac Newton would not be guilty of error, but rather it was brash American lads who made calculational mistakes. The following is from an article in the New York Review of April 1839 by Professor Benjamin Peirce, who had started out

as a protégé of Bowditch and thus may have had the story directly from him:

> At the very outset of his course, while yet engaged in navigation, when only twenty-four years old, and four years before the publication of the PRACTICAL NAVIGATOR under his own name, Bowditch gave a most remarkable proof of his critical acumen by detecting an important error in the *PRINCIPIA* which had escaped the penetration of the acutest geometers. This early evidence of his peculiar talent was far above the comprehension of the professor of mathematics to whom it was shown, and whose objections were quite worthy of the author of Webber's Mathematics. But it would be injustice to Webber to forget that he was, at this time, thought to be the first mathematician of New England, and that he looked down from his hillock of glory upon the arithmeticians around him, and saw not a single hand raised to contest his supremacy. The multitude must, indeed, have wondered at the head which could produce two octavo volumes of mathematics; and without presuming to inquire whence the rules of measuring hogsheads and constructing charts were derived, they must have reverenced, as a kind of inventor of time, the man who had written a theory of dialing, had actually constructed an erect declining sun-dial, and placed it upon the wall of one of the Harvard halls, called Massachusetts. The remains of this dial are still preserved, converted by the sacrilegious brush of the painter into a plain piece of board, square and white. What must have been the astonishment of such a man at receiving from a humble navigator, a pretended correction of the *PRINCIPIA*, of that immortal work whose presence upon his desk was as important to the dignity of the professor, as its contents were inscrutable to his comprehension. Not less intense must have been his surprise, than would be ours be at a similar attack, from an equally obscure source, upon the accuracy of Laplace or Bowditch. He seems to have sneered at the audacity of the youth, and to have undertaken to mystify him with a letter, the intricacy of which might have puzzled even Newton himself, and tells plainly of the confused state of his mind. This singular incident must be regarded as illuminating, less the extent of Webber's attainments, than the superiority of the young seaman to all the mathematicians of his country.

One wonders whether the professor who was a predecessor of Peirce at Harvard simply neglected to study Nathaniel Bowditch's calculation, or whether he was incompetent: remember that Harvard at this time was a school for preachers, not a school of the sciences.

> But Webber's letter, combined with his own native modesty and caution, was not without its effect on Bowditch, and his correction was not, for several years, presented to the American Academy, and published in their transactions.

1798

Sylvestre François Lacroix's *TRAITÉ ÉLÉMENTAIRE DE TRIGONOMÉTRIE RECTILIGNE ET SPHÉRIQUE ET D'APPLICATION DE L'ALGÈBRE À LA GÉOMÉTRIE* (Paris: impr. Duprat).

In 1843, during Thoreau's lifetime, regularities would be described in the occurrence of sunspots:

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1798 - 1804

1799

Sylvestre François Lacroix's *ELÉMENS DE GÉOMÉTRIE* (most of his texts would be created for use in his own courses). He was voted into the newly formed Institut National des Sciences et des Arts.

With Sir Joseph Banks, the Count von Rumford helped establish the Royal Institution of Great Britain and choose the chemist Sir Humphrey Davies as lecturer. He established the Rumford medals of the Royal Society, and established the Rumford professorship at Harvard College, and established the Rumford medals of the

NEW "HARVARD MEN"

American Academy of Arts and Sciences. He would even have the balls to propose himself for the post of supervisor of the Military Academy of the United States of America at West Point, the military position which had once almost been betrayed by its commanding general, Benedict Arnold. However, when in a more caloric mood: the townhouse of the Count's friend Mary Palmerston in London was so disgusting due to smoke and cinders from its fireplaces that she feared to sit on its furniture in her gown, so he designed an improved fireplace and chimney with a narrower and shallower aperture and a smoke shelf to inhibit the gusts of wind that came down the chimney and scattered soot, and wrote "On the Salubrity of Warm Rooms," "On the management of Fire and the Economy of Fuel," and "Chimney Fireplaces, with Proposals for Improving Them to Save Fuel, to Render Dwelling-Houses more Comfortable and Salubrious, and Effectually to Prevent Chimneys From Smoking."

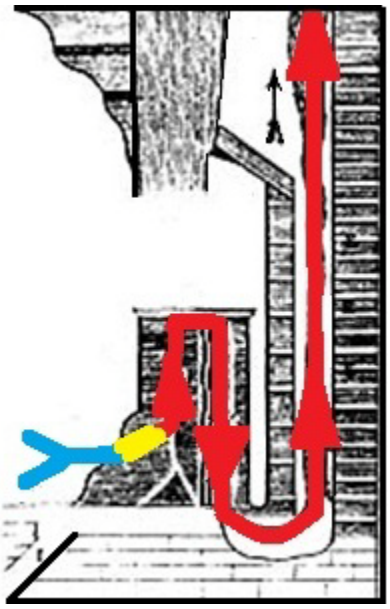
Unlike the stove designed by his compatriot Benjamin Franklin, the Count's improvements worked and did not need later to be tinkered with.[3] On a subsequent screen is a cartoon sketch done on June 12, 1800 in the Count's presence, as he warmed his buttocks before one of his fireplaces:

3.In today's world everyone seems to have heard of Franklin's stove but no-one seems to be able to retain the fact that this stove design could not be made to function effectively and had to be abandoned. For instance, in one of the many egregious errors and misconstructions of Daniel J. Boorstin's inane THE CREATORS: A HISTORY OF THE HEROES OF THE IMAGINATION (New York: Random House, 1992, page 578), he declares that the Franklin stove has "not been much improved since." (We note also that at an equivalent level of inanity but at much greater harm to our national spirit, the one reference Boorstin makes in his many, many pages to the previous existence of American slaves and American slavery is an assertion that Franklin petitioned for its abolition.) Franklin was a "patriot" and the key thing is that America wants to remember him as a contributor. No-one seems to remember the Rumford fireplace, in spite of the fact that it worked very well indeed, throwing abundant heat into a room while sucking the smoke up the chimney, because Rumford must be classed as an "expatriate and traitor" and therefore should not be remembered as a contributor.

PROFESSOR SYLVESTRE FRANÇOIS LACROIX

S.F. LACROIX

And here, by way of contrast, is the design of the celebrated Franklin Stove which –Americans pretend not to know– did not function well and had to be abandoned:



1800

Sylvestre François Lacroix's *COMPLÉMENT DES ÉLÉMENS D'ALGÈBRE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* (Paris: impr. Duprat) and *TRAITÉ DES DIFFÉRENCES ET DES SÉRIES; FAISANT SUITE AU TRAITÉ DU CALCUL DIFFÉRENTIEL ET DU CALCUL INTÉGRAL*.

It is possible that the Amos Baker who had married Ame Prescott in Concord in 1785 in this year remarried, with Eunice Dudley of Concord.

Nicholas Boylston, Esq. donated $23,200 to establish at Harvard College a professorship in Rhetoric and Oratory — with the condition that John Quincy Adams, son of the sitting President of the United States, be the first person appointed.

Timothy Flint graduated from Harvard. He would study to become a Reverend while teaching for one year at an academy in Cohasset, and delivering practice sermons at Marblehead, Massachusetts.

Washington Allston graduated from Harvard and moved to Charleston, South Carolina.

Rufus Hosmer of Concord, son of the Hon. Joseph Hosmer, graduated from Harvard.

> Rufus Hosmer, son of the Hon. Joseph Hosmer, was born March 18, 1778 and grad. Harvard, 1800. He was admitted to the bar in Essex in 1803, and son after removed to Stow, where he resided as a counsellor at law.[4]

NEW "HARVARD MEN"

4. Lemuel Shattuck's 1835 A HISTORY OF THE TOWN OF CONCORD;... Boston: Russell, Odiorne, and Company; Concord MA: John Stacy

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PROFESSOR SYLVESTRE FRANÇOIS LACROIX

1802

Sylvestre François Lacroix revised his *TRAITÉ DU CALCUL DIFFÉRENTIEL ET DU CALCUL INTÉGRAL* to a shortened version for classroom use (the shortened version, *TRAITÉ ÉLÉMENTAIRE DE CALCUL DIFFERÉNTIEL ET DU CALCUL INTÉGRAL*, would be published in nine editions before 1882).

Benjamin Silliman, Sr. was appointed professor of Chemistry and Natural History at Yale College.

Samuel Hoar graduated from Harvard College. An assignment he prepared, "A Stereographic Projection of the Sphere, and Astronomical Calculations" (21 x 28 in.), is still on file there: <http://oasis.harvard.edu:10080/oasis/deliver/~hua17004>

NEW "HARVARD MEN"

1804

Sylvestre François Lacroix's *ÉLÉMENS D'ALGÈBRE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* and *COMPLÉMENT DES ÉLÉMENS D'ALGÈBRE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* (Paris: Chez Courcier).

President Thomas Jefferson appointed Maryland's Isaac Briggs as Surveyor General of the Louisiana Purchase.

John Lee, son of the Governor of Maryland, matriculated at Harvard College. Since he was Catholic, but well to do, the arrangement made would be that he would simply pay the standard fee for a student who happened to miss morning prayers. His fine for this missing of chapel obligations would thus be the highest possible, amounting to $1.11 per term. Arrangements would be made for this student to conduct his Catholic observances in the Christ Church, the Episcopal edifice across the Cambridge Common, so that he would not need to make a weekly trip into Boston. (It would appear, however, that young Lee, due to "habits of idleness," would miss a number of lectures and recitations and would depart from Harvard degreeless after this one year.)

NEW "HARVARD MEN"

WHAT I'M WRITING IS TRUE BUT NEVER MIND
YOU CAN ALWAYS LIE TO YOURSELF

1805

Sylvestre François Lacroix's *ESSAIS SUR L'ENSEIGNEMENT EN GÉNÉRAL ET SUR CELUI DES MATHÉMATIQUES EN PARTICULIER* and *TRAITÉ ÉLÉMENTAIRE D'ARITHMÉTIQUE À L'USAGE DE L'ECOLE CENTRALE DES QUATRE-NATIONS* (A Paris: Chez Courcier, Imprimeur - Libraire pour les Mathématiques, quai des Augustins, n° 71).

After studying theology at Andover, John Farrar became a tutor in Greek at Harvard College.

NEW "HARVARD MEN"

There was a struggle over a professorship at Harvard that had fallen vacant, between the Trinitarians and the Unitarians, and the Unitarians won the nomination. The Reverend Henry Ware, Sr. was elected to the Hollis Professorship of Divinity, the first faculty member of Harvard not an avowed Trinitarian and Calvinist. The repugnance the "Hopkinsians" and "Old Calvinists" felt to this theologian's opinions of the original goodness of humankind would lead them to infer that all Harvard had been captured, and they would in response in 1808 create the Andover Theological Seminary.

The leader of the Trinitarians in this struggle had been the conservative Reverend Jedediah Morse of Charlestown. His son Samuel F.B. Morse would become a radical Unitarian and dedicate his life to the eradication of Catholicism.[5] But Professor Ware's conception of man's "natural affections," that they occasioned "error and sin" not by any inherent depravity, but simply because they were susceptible to corruption by a "wrong direction," would not substantially alter over the years.

5. Be aware that the name "Unitarian" was not in use until 1815, and that it originated in the Reverend Jedediah Morse's attempt to associate his theological enemies with the heretical notions of the Reverend Joseph Priestley and Belsham.

1809

Sylvestre François Lacroix was elected professor at the École Polytechnique, filling the chair in mathematics vacated due to ill health by Professor Joseph-Louis Lagrange.

Coronation of Joseph Bonaparte in Madrid. In the war between France and Austria, Austria defeated Emperor Napoléon I. Arthur Wellesley, in command in Portugal, defeated the French at Oporto and Talavera and was created Duke of Wellington. His brother Marquis Wellesley was appointed Foreign Secretary. The Emperor of the French divorced his Empress Josephine.

During this First French Empire, François Pierre Guillaume Guizot prepared a collection of French synonyms.

1810

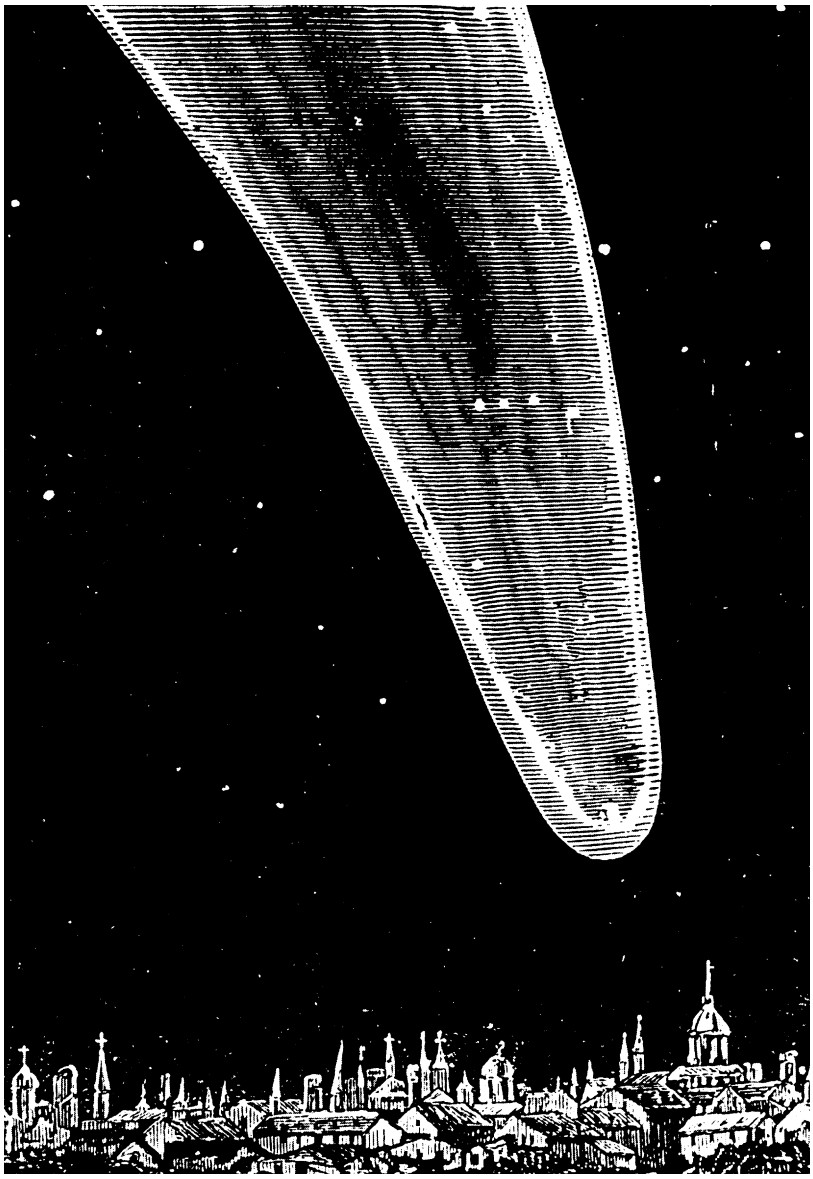
Sylvestre François Lacroix was made Professor of Differential Calculus at the Faculté des Sciences.

1811

Professor Sylvestre François Lacroix's *INTRODUCTION À LA GÉOGRAPHIE MATHÉMATIQUE ET CRITIQUE, ET À LA GÉOGRAPHIE PHYSIQUE* (Paris: J.G. Dentu, Imprimeur-Libraire, Rue du Pont de Lodi, n° 3, près le Pont-Neuf).

A spectacular comet appeared, with a tail that would extend some 100,000,000 across the heavens, a greater distance than from the sun to the earth. This comet would remain visible for a year and a half and would be very bright for many weeks. Henry Bell's steamship *The Comet*, which would go into operation on the Clyde River of Scotland in the following year, would be named after this comet. Since, in this year, Portugal would produce a very good vintage of port, this vintage would be marketed for many years as "comet wine," the unusual size of the comet being pressed into service as an explanation for the unusual excellence of the vintage. The comet would appear on the bottle labels as a maiden with streaming hair holding burning brands in her

hands.



This, the "Great Comet of 1811," would be given a mention by Tolstòy in WAR AND PEACE:[6]

> *The radiant star which, after traveling in its orbit with inconceivable velocity through infinite space, seemed suddenly -like an arrow piercing the earth- to remain fast in one chosen spot in the black firmament, vigorously tossing up its tail.*

SKY EVENT

Nine-year-old Harriet Martineau would, to her mortification, be entirely unable to make out the comet in the

night sky no matter how hard she tried:

> When the great comet of 1811 was attracting all eyes, my star-gazing was just as ineffectual. Night after night, the whole family of us went up to the long windows at the top of my father's warehouse; and the exclamations on all hands about the comet perfectly exasperated me,—because I could not see it! "Why, there it is!" "It is as big as a saucer." "It is as big as a cheese-plate." "Nonsense; you might as well pretend not to see the moon." Such were the mortifying comments on my grudging admission that I could not see the comet. And I never did see it. Such is the fact; and philosophers may make of it what they may,—remembering that I was then nine years old, and with remarkably good eyes.

6. "GREAT COMET, (C/1811 F1=1811 I). Followed without optical aid from Apr. 1811 until Jan. of 1812, T=1811 September 12. Also known as Comet Flaugergues. During April faintly visible to the unaided eye low in the evening sky in Puppis. Brightened to roughly magnitude 5 before entering the twilight. Not seen again until the third week of August when still in conjunction with the Sun but well north of it in Leo Minor. Visible at both dusk and dawn as an object of perhaps 2-3 magnitude. Moved steadily to the northeast. In mid September, of magnitude 1-2, tail a dozen degrees long. In the beginning of October, visible throughout the night from mid northern latitudes as a spectacular object situated below the handle of the Big Dipper. Comet's head about 1st magnitude with a tail spanning up to 25 degrees. Later in October traversed Bootes and Hercules as an evening object, magnitude 1-2, tail over 20 degrees long. Early in December situated near the star Altair, magnitude 3-4 with a 5 degree tail. At the opening of January 1812, when approaching the evening twilight, visible as a 5th magnitude object in Aquarius."

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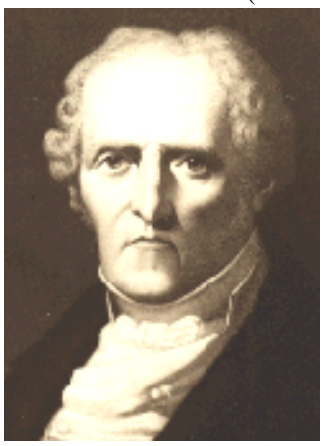
PROFESSOR SYLVESTRE FRANÇOIS LACROIX

1812

Professor Sylvestre François Lacroix was appointed chair of mathematics at the Collège de France. Babbage set up an Analytical Society for the translation of Professor Lacroix's DIFFERENTIAL AND INTEGRAL CALCULUS.

An inheritance gave Charles Fourier the opportunity to devote himself to social and economic theorization, and he wrote his *TRAITÉ DE L'ASSOCIATION AGRICOLE DOMESTIQUE* ("Treatise on Domestic Agricultural Association," 1822) and *LE NOUVEAU MONDE INDUSTRIEL* ("The New Industrial World," 1829-1830).



1813

Boston boys Samuel Joseph May, Caleb Cushing who would become a Democratic politician, Samuel Atkins Eliot who would become mayor of Boston, 13-year-old George Bancroft who would become a national historian and Secretary of the Navy, George Barrell Emerson who would become an educational reformer, and David Lee Child who would become a radical abolitionist, were matriculants at Harvard College.

Before entering Harvard, George Barrell Emerson had undergone a few weeks of preparation at Dummer Academy in Byfield, New Hampshire. He would concentrate in mathematics and Greek. He had been taught the Linnaean system of classification by his father and it would appear that right after getting settled in his dorm room, he visited the botanic garden in order to ply Professor William Peck there with questions about plants he had noticed during his boyhood in his hometown of Wells that he had been unable to identify.

George Ticknor was admitted to the Massachusetts bar, and opened a law office in Boston.

Professor Sylvestre François Lacroix's *TRAITÉ ÉLÉMENTAIRE D'ARITHMÉTIQUE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* (A Paris: Chez Mme veuve Courcier, Imprimeur-Libraire pour les Mathématiques, quai des Augustins, n° 57).

1814

Professor Sylvestre François Lacroix's *ÉLÉMENS DE GÉOMÉTRIE, A L'USAGE DE L'ÉCOLE CENTRALE DES QUATRE-NATIONS* (A Paris: Chez Mme veuve Courcier, Imprimeur-Libraire pour les Mathématiques, quai des Augustins, n° 57).

A chaire de langue et de littérature chinoise was created at the Collège de France, and was filled by Jean-Pierre Abel-Rèmusat.

Jean-Baptiste Say "availed himself" (as he put it) of the sort of liberty arising from the intrusion of the allied powers into France to bring out a 2d edition of his *TRAITÉ D'ÉCONOMIE POLITIQUE, OU SIMPLE EXPOSITION DE LA MANIÈRE DONT SE FORMENT, SE DISTRIBUENT, ET SE COMPOSENT LES RICHESSES*, an edition dedicated to the emperor Alexander I of Russia because that monarch had professed himself to be Say's "pupil." In this same year the French government dispatched Say to make a study of economic conditions in the United Kingdom (he would present his conclusions in the following year as *DE L'ANGLETERRE ET DES ANGLAIS*).

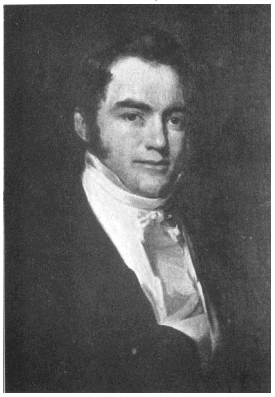
1815

Thaddeus William Harris received his BA degree from Harvard College and entered the Harvard Medical School.

NEW "HARVARD MEN"

Convers Francis, Jr. also received his bachelor's degree. Still on file there is his "Spherical Problems. Convers Francis (21 ¾ x 29 inches)."

The Hollis Professor of Mathematics and Natural Philosophy at Harvard, John Farrar, was sponsoring the building of a weather observatory at Harvard (the project would not accumulate the required funds). Harvard awarded its automatic degree of Master of Arts to William Elliott of South Carolina (who actually, now fancy this, hadn't even graduated with his class).



Professor Sylvestre François Lacroix left the École Polytechnique to take up a chair at the Sorbonne, and was appointed to the chair of mathematics at the Collège de France where since 1812 he had been teaching.

S.F. LACROIX

PROFESSOR SYLVESTRE FRANÇOIS LACROIX

1816

Professor Sylvestre François Lacroix's *TRAITÉ ÉLÉMENTAIRE DE CALCUL DES PROBABILITÉS* (Paris: Mallet-Bachelier). With the prompting of Babbage's Analytical Society for the translation of Differential and Integral Calculus, Professor Lacroix's DIFFERENTIAL AND INTEGRAL CALCULUS was translated into English by George Peacock.

Professor Jacob Bigelow received the Rumsford Chair in Application of Sciences to the Useful Arts at Harvard College. He would hold this chair until 1827, lecturing on the application of science to the useful arts. These lectures would be published in 1829 as ELEMENTS OF TECHNOLOGY, TAKEN CHIEFLY FROM A COURSE OF LECTURES DELIVERED AT CAMBRIDGE, ON THE APPLICATION OF THE SCIENCES TO THE USEFUL ARTS (Boston: Hilliard Gray, Little and Wilkins), and then again as USEFUL ARTS CONSIDERED IN CONNECTION WITH THE APPLICATIONS OF SCIENCE (2 volumes, New-York, 1840).

THE SCIENCE OF 1816

We know that these materials were familiar to Henry Thoreau, for he would refer to them during February 1838 in a letter to his brother.

ELEMENTS OF TECHNOLOGY

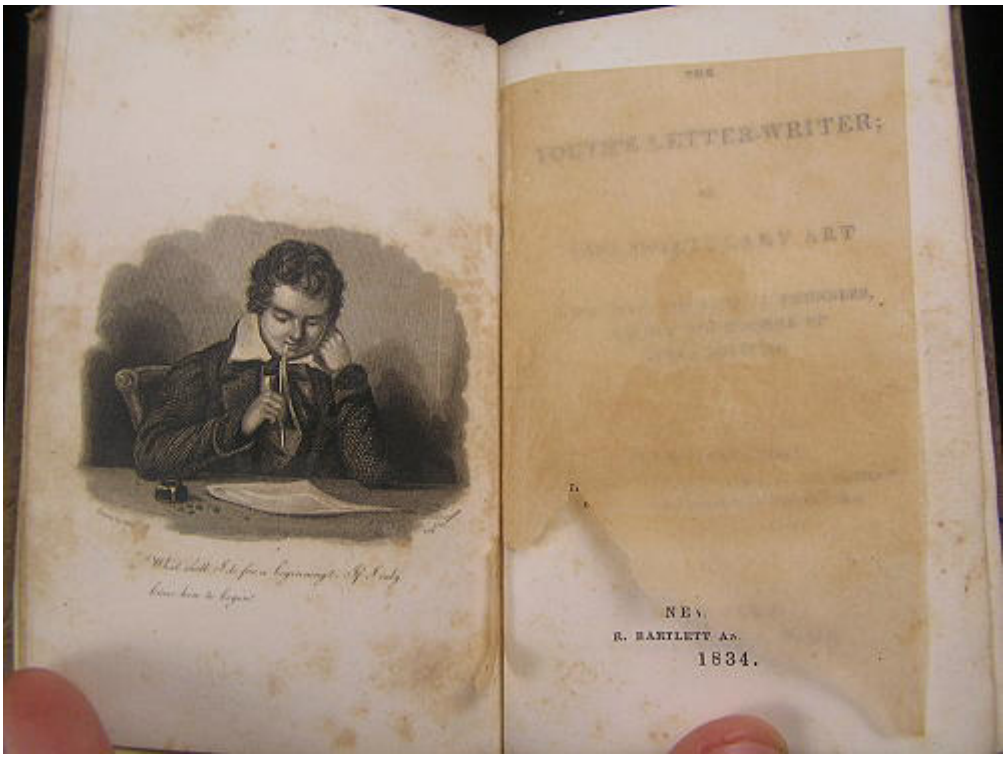
1818

Doctor Walter Channing became the initial Professor of Obstetrics and Medical Jurisprudence at Harvard College.

Professor John Farrar published for the use of his pupils an English version of Professor Sylvestre François Lacroix's *ÉLÉMENS D'ALGÈBRE*, titled ELEMENTS OF ALGEBRA. He would follow this with selections from Legendre, Blot, Bezant, and others. Harvard, the US military academy, and other institutions of higher education would at once adopt these works as textbooks.

1834

Mrs. John Farrar [Eliza Ware Rotch Farrar]'s THE YOUTH'S LETTER WRITER, OR, THE EPISTOLARY ART. MADE PLAIN AND EASY TO BEGINNERS, THROUGH THE EXAMPLE OF HENRY MORETON (New York: R. Bartlett and S. Raynor).



Professor Sylvestre François Lacroix's AN ELEMENTARY TREATISE ON ARITHMETIC, TAKEN PRINCIPALLY FROM THE ARITHMETIC OF S.F. LACROIX, AND TR. FROM THE FRENCH WITH SUCH ALTERATIONS AND ADDITIONS AS WERE FOUND NECESSARY IN ORDER TO ADAPT IT TO THE USE OF AMERICAN STUDENTS. | BY JOHN FARRAR, LL.D., HOLLIS PROFESSOR OF MATHEMATICS AND NATURAL PHILOSOPHY. | FOURTH EDITION, REVISED AND CORRECTED. (Boston: Hilliard, Gray, and Company).[7]

A general, disposing his army into a square, finds he has 284 soldiers over and above; but increasing each side with one soldier, he wants 25 to fill up the square; how many soldiers had he? *Ans.* 24000.

There is a prize of 212*l.* 14*s.* 7*d.* to be divided among a captain, 4 men, and a boy; the captain is to have a share and a half; the men each a share; and the boy $\frac{1}{3}$ of a share; what ought each person to have?

Ans. The captain 54*l.* 14*s.* $\frac{3}{7}$*d.*, each man 36*l.* 9*s.* $4\frac{2}{7}$*d.*, and the boy 12*l.* 3*s.* $1\frac{5}{7}$*d.*

A cistern, containing 60 gallons of water, has 3 unequal cocks for discharging it; the greatest cock will empty it in one hour, the second in 2 hours, and the third in 3; in what time will it be emptied, if they all run together? *Ans.* $32\frac{8}{11}$ minutes.

In an orchard of fruit trees, $\frac{1}{2}$ of them bear apples, $\frac{1}{4}$ pears, $\frac{1}{5}$ plums, and 50 of them cherries; how many trees are there in all? *Ans.* 600.

A can do a piece of work alone in 10 days, and B in 13; if both be set about it together, in what time will it be finished? *Ans.* $5\frac{15}{23}$ days.

A, B, and C are to share 100000*l.* in the proportion of $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$, respectively; but C's part being lost by his death, it is required to divide the whole sum properly between the other two. *Ans.* A's part is $57142\frac{8}{7}$*l.*, and B's $42857\frac{1}{7}$*l.*

LACROIX ON ARITHMETIC

7. Professor John Farrar had been the one who, after the Great September Gale of 1815, created the understanding that hurricanes consisted of "a moving vortex and not the rushing forward of a great body of the atmosphere." He would be Hollis Professor of Mathematics and Natural Philosophy at Harvard College from 1807 until in 1836 he would become seriously ill.

1837

December 31, Sunday: In his journal on this day Henry Thoreau provided us with some clue as to the nature of his classical education by the making of an allusion to a one-liner from Horace's SATIRES, "*Invenias etiam disiecti membra poetae*." What Thoreau writes in his journal is "We go picking up from year to year and laying side by side the *disjecta membra* of truth." (Although it is true that one might nowadays pick up a phrase such as "*disjecta membra*" from anywhere in the general culture, such as out of a TV sitcom, it is clear from numerous other such references that in Thoreau's 19th-Century context he had been obtaining these materials in the course of his formal education and that he had acquired considerable familiarity with Horace's body of work.)

Thoreau had occasion to reflect on, and to recycle, a problem from his algebra textbook at the Concord Academy, Professor John Farrar of Harvard College's AN INTRODUCTION TO THE ELEMENTS OF ALGEBRA, DESIGNED FOR THE USE OF THOSE WHO ARE ACQUAINTED ONLY WITH THE FIRST PRINCIPLES OF ARITHMETIC / SELECTED FROM THE ALGEBRA OF EULER (3d ed. Boston: Hilliard, Gray, Little and Wilkins, 1828), some of the examples of which he had calculated as a student of ten or eleven years of age:[8]

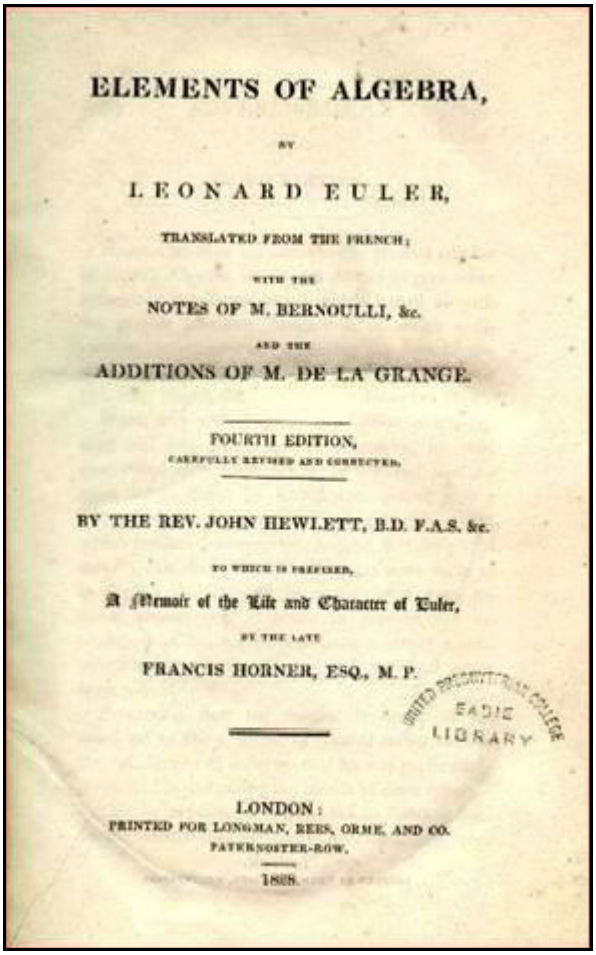
> As the least drop of wine tinges the whole goblet, so the least particle of truth colors our whole life. It is never isolated, or simply added as treasures to our stock. When any real progress is made, we unlearn and learn anew what we thought we knew before. We go picking up from year to year and laying side by side the disjecta membra of truth, as he who picked up one by one a row of a hundred stones, and returned with each separately to his basket.

8. Thoreau also had in his personal library Professor Farrar's 1825 textbook AN ELEMENTARY TREATISE ON MECHANICS, his 1826 textbooks ELEMENTS OF ELECTRICITY, MAGNETISM, AND ELECTROMAGNETISM and AN EXPERIMENTAL TREATISE ON OPTICS, his 1827 textbook AN ELEMENTARY TREATISE ON ASTRONOMY, and his 1834 translation of Professor Sylvestre François Lacroix's AN ELEMENTARY TREATISE ON ARITHMETIC, all of which were required texts either at the Concord Academy or at Harvard.

LACROIX ON ARITHMETIC

Christian P. Grueber had the following to offer in his 1853 PhD dissertation "The Education of Henry Thoreau, Harvard 1833-1837": "John Farrar, the compiler of the four books which were the basis of the course in natural philosophy, rightly calls each of them a treatise. In this area of 'mixed mathematics,' the student began with mechanics, and then proceeded through electricity, optics, and finally astronomy. If Thoreau's grades are any indication of attitude, the theoretical approach to the mixed mathematics was not to his liking. In calculus, the last of the pure mathematics, Thoreau's grades averaged 6.7, not far below the 6.9 average he was maintaining in Greek and for which he merited the honor of an exhibition part. But in mechanics, for which he supposedly had a natural aptitude and some practice in the family business, his grades dropped to a very mediocre 4.9." (Unfortunately, Dr. Grueber tells us nothing about Thoreau's classroom performance in regard to Farrar's Lacroix's ARITHMETIC.)

PROFESSOR SYLVESTRE FRANÇOIS LACROIX



ELEMENTS OF ALGEBRA,

BY

LEONARD EULER,

TRANSLATED FROM THE FRENCH;

WITH THE

NOTES OF M. BERNOULLI, &c.

AND THE

ADDITIONS OF M. DE LA GRANGE.

FOURTH EDITION,

CAREFULLY REVISED AND CORRECTED.

BY THE REV. JOHN HEWLETT, B.D. F.A.S. &c.

TO WHICH IS PREFIXED,

A Memoir of the Life and Character of Euler,

BY THE LATE

FRANCIS HORNER, ESQ., M. P.

LONDON:

PRINTED FOR LONGMAN, REES, ORME, AND CO.

PATERNOSTER-ROW.

1828.

QUESTIONS FOR PRACTICE.

1. Required the sum of an increasing arithmetical progression, having 3 for its first term, 2 for the common difference, and the number of terms 20.
   Ans. 440.

2. Required the sum of a decreasing arithmetical progression, having 10 for its first term, $\frac{1}{3}$ for the common difference, and the number of terms 21.
   Ans. 140.

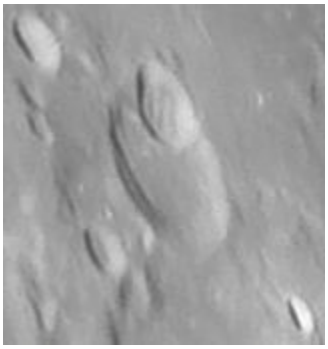
3. Required the number of all the strokes of a clock in twelve hours, that is, a complete revolution of the index.
   Ans. 78.

4. The clocks of Italy go on 24 hours; how many stokes do they strike in a complete revolution of the index?
   Ans. 300.

5. One hundred stones being placed on the ground, in a straight line, at the distance of a yard from each other, how far will a person travel who shall bring them one by one to a basket, which is placed one yard from the first stone?
   Ans. 5 *miles* and 1300 *yards*.

1843

May 24, Wednesday: Sylvestre François Lacroix died in Paris.



"MAGISTERIAL HISTORY" IS FANTASIZING: HISTORY IS CHRONOLOGY

S.F. LACROIX

PROFESSOR SYLVESTRE FRANÇOIS LACROIX

"It's all now you see. Yesterday won't be over until tomorrow and tomorrow began ten thousand years ago."

– Remark by character "Garin Stevens" in William Faulkner's INTRUDER IN THE DUST

Prepared: March 14, 2015

PROFESSOR SYLVESTRE FRANÇOIS LACROIX S.F. LACROIX

ARRGH AUTOMATED RESEARCH REPORT

GENERATION HOTLINE

This stuff presumably looks to you as if it were generated by a human. Such is not the case. Instead, someone has requested that we pull it out of the hat of a pirate who has grown out of the shoulder of our pet parrot "Laura" (as above). What these chronological lists are: they are research reports compiled by ARRGH algorithms out of a database of modules which we term the Kouroo Contexture (this is data mining). To respond to such a request for information we merely push a button.

Commonly, the first output of the algorithm has obvious deficiencies and we need to go back into the modules stored in the contexture and do a minor amount of tweaking, and then we need to punch that button again and recompile the chronology — but there is nothing here that remotely resembles the ordinary "writerly" process you know and love. As the contents of this originating contexture improve, and as the programming improves, and as funding becomes available (to date no funding whatever has been needed in the creation of this facility, the entire operation being run out of pocket change) we expect a diminished need to do such tweaking and recompiling, and we fully expect to achieve a simulation of a generous and untiring robotic research librarian. Onward and upward in this brave new world.

First come first serve. There is no charge.
Place requests with <Kouroo@kouroo.info>. Arrgh.