Daniel Jefferson, born in England 1821, had found early employment in John Chapman's bookstore in London's Strand. Handsome, wealthy, recently graduated from Cambridge, Chapman yet knew nothing of the books. Chapman hired bibliophile Daniel to supply the missing knowledge at a daily wage of four shillings. Above Chapman's bookstore were maintained furnished rooms where literary clients often came to read, among them Miss Evans (George Eliot), Thackeray, Carlyle, Dickens, Field and Emerson. Personal intercourse with a pro-American colleague named Dolf together with continual encouragement from Emerson to visit the States persuaded Daniel Jefferson to leave the shores of a cholera and chartist ravaged Britain, April 7, 1849, on board a frail 700-ton wooden craft. New York was sighted on May 6; on the journey father, mother, and infant had been sick, and father had injured his leg. The child did not recover from the rough crossing and was refused burial in a church cemetery in Baltimore, a town where father had taken the family in search of work. Mother accepted the decision as the will of God. Father, man of letters, was embittered by the incident, which enabled him to tolerate the liberal leaning of his several children as they grew to adulthood. Daniel joined the Company of Wiley and Putnam where he soon distinguished himself by compiling the first edition of Best Reading of 1856. Later, he received employment with the Little, Brown & Company in Boston, where his fine critical knowledge of literature was well employed. Daniel Jefferson, too, was a true lover of nature, a good husband and well-meaning father. Mary Jefferson, modest, retiring, and obedient, epitomized mid-nineteenth century New England virtue.
On March 1, 1863 Mark Jefferson became the seventh child born to Daniel and Mary Jefferson at 27 Pine Street, Melrose, Massachusetts. The physical environment embodied much that nature could offer. Nature had been bountiful in her supply of invigorating air, prolific soils, abundant flora and fauna. The Jefferson home graciously distant from the delightfully unkempt roadway, sprawled leisurely to assure the household the scene of much happiness. Elms rose magnificently heavenward, shielding the house in winter from nature’s harshness, and affording pleasurable shade during the heat of summer months. This was the scene of Jefferson’s birth. In his earliest years Jefferson roamed the nearby woods identifying bird nests, and the more common trees and plants with the aid of Gray’s Botany, “playing with too few mates, reading too many good books.”

Of the seven children born to Daniel and Mary, it was the seventh, Mark, who displayed noticeable interest in reading. Jefferson’s early schooling was derived in a community which insisted on the validity of the Bible’s every line, and where by the stuttering will of society, a questioner of the existing order would be regarded as something worse than a liberal or radical. Daniel Jefferson himself was a strong Unitarian and a steady church-goer, a man of God, judging from the eulogies bestowed on him at death in 1896. But there was the inner self of Daniel Jefferson, not held fast in the fetters of a religion that was not open to question, who saw religion as a philosophy, and who bestowed a toleration, generous of its age, upon his children. Mark read and thought freely, was quite influenced by his father. In his early years he acquired the habit of the diarist, writing letters and notes to himself, probably a habit derived from his father. One such letter written by young Mark at the age of 12 years illustrates this habit:

Saturday. September 18th, '75.
I went to school last week and Clarence was discussing with me the fun we should have in Miss Bisbee's school, when Miss Porter called our attention by telling us the seven scholars who had the highest averages would pass up into Mr. Woodman's school, and read the names which were Josie Lovejoy, Emma Atwood, Mark Jefferson, Josie Vinton, Bette Paul, Willie Arthur, Joe Gibbons. In my first two spelling lessons that were recorded I had 100%, in History 100%, in Arithmetic 100%, in Grammar 94%. Mr. Woodman gives us an oral lesson in osteology, and the Physiology and Hygene of the bones. Bones are compounded from mineral and animal substances, the mineral consisting principally of lime and the animal of gristle, this can be proved by burning a bone after which the lime only remains, if the bone be submerged in a weak solution of muriatic acid the gristle
alone will remain. The bones in the upper extremities are the collar bone or Clavicle, the shoulder blade or Scapula, the long bone of the arm or Humerous, the two lower bones of the arm Radius and Ulna, the eight small bones in the wrist or Carpus bones, bound together with a band of silvery whiteness called ligaments, the five smaller bones on the back of the hand called Metacarpus bones, the fourteen small bones of the fingers called Philanges. At that point where the bones come in contact with each other they are covered with a thin coating of cartilage which is like India rubber, very yielding, this is a specimen of what he tells us. Last night Mr. Woodman kept us all after school until ten minutes of five o'clock, he tried to get us to recite our grammar but every scholar said, "I don't know", and sat down. I like him pretty well, but he keeps us after school too much.

Mark Jefferson

Soon father's collection of English Classics and the Melrose and Boston Public Libraries virtually came to form Jefferson's environment. Reading voraciously, he soon consumed much of Dickens, Thackeray, Dumas, Scott, Spenser, Jane Austen, the Brontes, Carlyle, Trollope, Emerson, Kipling, Lamb, Kingsley, Chaucer, Longfellow and Shakespeare—Shakespeare especially during college years when Edwin Booth played Hamlet in Boston for a week. Jefferson reports attending as near every night as the 25 cents admission to the gallery allowed. Jefferson also read the boys books by Oliver Optic, Maynard Reid, and R. M. Ballantyne though much preferring Max Muller's Science of Language, Ellis' Early English Pronunciation, and Kelland and Tait's Quaternions.3

Jefferson became a member of the eleven-man class of '84 at Boston University—"a tiny university in a great city." He studied for three years, becoming proficient in Latin, Greek, French, German, Italian, and Spanish. The languages he learned by eye were grammatically correct, extensive of vocabulary, but weak of pronunciation. Jefferson also keenly studied mathematics, astronomy, and philosophy and edited the college "Beacon."4

One teacher, Borden P. Bowne, inspired Jefferson. Bowne wrote his own books and insisted his philosophy derived from Lotze. "He was an excellent teacher," reports Jefferson, "a kind and a learned gentleman who humbled me profoundly but not publicly. I was eagerly sought by my classmates when they needed help but I was not popular. My self appreciation was too evident."5

Into Jefferson's astronomy class one day in November 1883 came Dr. Benjamin Gould, Director and astronomer from the National Observatory of the Argentine Republic at Cordoba. He was seeking an assist-
ant. Jefferson wanted to see the world he had read so much about, to hear languages actually spoken, to be an astronomer, and to wear a black skullcap like Ormsby MacKnight Mitchell in the frontispiece of "the Boy Astronomer." The pay was thrice the amount of a regular schoolteacher's salary. Jefferson had become intensely fond of Theodora Bohnstedt, class of '86, but found Theodora's mother did not approve of him. This was Jefferson's first love, and the manner of his rejection undoubtedly encouraged his departure.

Jefferson accepted the position. He had experienced all the mathematics Boston University could offer, two years of Spanish by eye, and a class in astronomy based on Newcomb and Holden's book *Astronomy*. Jefferson had his sister, Ida, make him the skull cap at once.

The class of '84 was sorry to see Jefferson depart. They expressed their appreciation of his scholarly endeavors in the following letter:

The class of '84, realizing the great loss they are to sustain in the breaking of the relations they have held with you for the past three years, take this opportunity of expressing their regrets.

We cannot rate too highly your superior scholarship and intellectual ability which should make you a strong power for good, whatever your associations. While we feel that for us the vacant place can never be filled, yet we would forget our own loss in wishing you the best of success in your new field of labor, and assure you that there is left here in College a class who will always be pleased to hear of the future fate of one who has been so honored a member of '84.

Yours with best wishes,

Carrie Stone
E. Dawe
O. Powers
For the class.

In that same November, 1883, Jefferson sailed for Cordoba on the 3,000 ton *Dolphin*, built by John Roach for Presidential dispatch and rejected for failing to meet naval speed tests. Roach had re-christened her Finance, and with two sisterships, the *Advance* and *Reliance*, tried to operate a mail line to Brazil, the customary route being via Europe. The line later failed. The thirty-day journey to Rio delighted Jefferson, who, away from Boston and Melrose for the first time, experienced the wonderful colors of the trade wind oceans under bright blue skies, the balmy sub-tropical clime, "a more delicious climate than I ever knew before," a comfortable boat, an invigorating sea air and flying fish—"the silvery flying fish as they leaped forth and spun glittering away over the wave tops, till you could no longer follow them . . . ." Jefferson later wrote in the *Journal of Geography*.
Flying fish have always interested me very much. I have known them since an early voyage to Brazil on the Finance in 1883. I remember how we used to dispute about their manner of flight, whether they soared on rigid wings, airplane like, or flew with fins flapping. The “Finance” was not one of the big steamers of those days . . . At her fo’c’sle head, where I loved to perch to watch the flyers, one was not more than fifteen feet above the water, and the fish came up, as they will in the West Indies and tropical Atlantic waters, in schools.

A one day stop at St. Thomas in the Caribbean allowed Jefferson to indulge in a guided tour of the town and harbor by one, “Champagne Charley,” and to throw silver coins into the translucent waters, which West Indian boys would retrieve instantly. He was quite shocked at the poverty of these same inhabitants . . . “while the gorgeous rags and turbans of these creatures were not without an element of the picturesque, I never saw anything like the wretchedness and degradation of their condition.” Jefferson heard Spanish and Portuguese come to life on each of the one-day stops at Para, Ceara, Pernambuco, and Bahia. And as the little boat swept smoothly south, with sails spread, Jefferson studied mathematics in the morning, Spanish in the afternoon, and beheld the glories of the sunset at eventide. He was aware that the brilliant sunsets were no ordinary occurrence; their particular beauty was attributable to the explosion of Krakatoa on August 27, that same year, which cast dust into the upper atmosphere, creating bright red sunsets even in Europe.

One morning Jefferson awakened to see the looming of the magnificent peaks at Rio’s entrance from out of the morning fog. “Rio is grand . . . the scenery is the most splendid that could possibly be imagined, a grand array of bare rock mountains shooting up almost into needle points and clothed at their feet with luxuriant vegetation.” In Rio the captain of the Advance, sistership to the Finance, invited him to dinner after his long voyage and introduced him to black Brazilian coffee. Jefferson consumed it for the rest of his life, though he would mask non-Brazilian coffee in later years by the addition of cream, when Brazilian coffee was not available. The next three days Jefferson spent close to the bay on Mount Tijuca, to escape the yellow fever always prevalent in the city, a vexatious wait for a young man in a hurry, but Jefferson notes in his diary. Tijuca, high up in a pass between the summits, two hours ride from the city. A clear bracing air, fine mountain scenery, and the rich vegetation of the tropics—all contribute to make Tijuca one of those places where you feel it a positive luxury to be alive.

Five days travel south on a German boat, brought the Petropolis,
“with its barbarous German cooking . . to anchor in the roads, some ten miles from Buenos Aires on the opposite shore of the La Plata, in another nasty muddy sea, perfectly yellow, like the Amazon.” Here in distant sight of Buenos Aires, a three day quarantine period was observed at which time Jefferson insists, “We could do nothing but fish for river monsters.” As the Petropolis could not pull closer than a league to shore in these shallow waters, row boats and horse drawn carts were employed to carry ashore the passengers. On landing Jefferson at once made his way to the Hotel Provence where Mr. W. G. Davis of the Observatory arranged for the both of them to leave Buenos Aires by train of the next afternoon, January 5th.

At seven o’clock we took the river boat at Campana for Rosario, where we arrived Sunday morning . . . At four o’clock in the afternoon we took the train for Cordoba. After a long ride over immense unbroken plains, on a line so straight that it falls away below the horizon without a change of direction, we arrived at Villa Morea at about midnight, and taking with us from here Mr. Stevens the lively man at the Observatory, came into Cordoba at six o’clock in the morning, January 7th.

The house, which was to be Jefferson’s home for the next three years, boasted eight rooms, a patio itself “a compromise between North and South American styles of building with its little open court, high wall and heavy doors around,” and a broad verandah to the front of the house overlooking two benches, “the meeting place of the assistants after meals,” and a hallway that accommodated a half-barrel size water jar “constructed of porous clay so that the water oozing through is always evaporating and keeping the water cool.” Immediately to the rear of the house two dogs, India and Rover, mutually coexisted with a domesticated ostrich. Soon India gave birth to puppies which Observatory personnel promptly named Alpha, Beta, Gamma, Delta, and Epsilon Leonis. The constellation Leo was on the meridian when they were born. In this one storey house that lay within Observatory grounds, Jefferson was given a large, airy, and handsomely appointed room, the whole facing the Cordilleras to the West, and to the East, an immense Pampa, hundreds of leagues in extent, “so level that our horizon is as even as that seen at sea.”

Jefferson was entranced with the immediate prospects of life at the Observatory:

Everyone is interested in the work of the Observatory and requires no orders, but they all arrange among themselves; we live in splendid style, get up when we wake, work in our own rooms and whenever we please; except that my meteorological instruments must be read at
fixed times, four in the afternoon and eleven at night, rain or shine. Also the comet observing wherein I am recording and counting seconds for Mr. Davis demands punctuality. My pleasantest times are the Wednesday and Saturday nights with Davis in the circle room.

The next three years Jefferson worked at the Argentine National Observatory at Cordoba in the capacity of assistant, later third and then second astronomer. As assistant at the Observatory Jefferson outlined his typical work day program:

*Half way between our house and the Observatory is a shed with a series of wet and dry bulb thermometers that I have just been out to read and set for the night (10 p.m.). I rise (now) at 6:30 a.m. and go out: set the thermometers for the day on my way to the Observatory and meantime measure the rainfall at an instrument opposite. Then I go to the Observatory, entering always the north door in daytime; enter room read barometer (11 a.m) and wet and dry bulb thermometer (12 noon) and record them with percentage and species of clouds in the sky, force and direction of wind, and rainfall at a book nearby (12 noon). Next or usually before this I go out through the south dome and read and set the vane (1 p.m.) and return home to take a cup of coffee and go to work, first helping Mr. Davis read last nights chronograph sheets and then reducing stars to true and mean places from the apparent. This work I carry on in my own room of course. At 11:30 breakfast—till 12:30 or 1, then I go over to the Observatory, wind the small chronometers in the N.W. corner and Sundays and Thursdays the clock (2 p.m), which is of course mounted on a pier separate from the building as are all the instrument piers, and deeply founded. Then I go to sleep, read or write—as inclination takes me—till 3:00 p.m. At 4 o'clock I go out again to set thermometers and wind vane and work till 5 when I put on my best bib and tucker and go down into the town for a walk till dinner at 6:35 or 7:00 p.m. according to circumstances. Immediately after dinner we open up the West dome, set the equatorial roughly on the comet, and I with lamp and chronometer go into the next room to count seconds and record time of transits while Mr. Davis observes. This takes 5 minutes to an hour according to the comets distance in time from the reference star of the evening. Then I go into the circle room with whomever has his turn for the evening, for I do not yet work wholly alone here—and work till the programme stars have all passed the meridian with an intermission at 10 p.m. to read standard barometer in the meteorological office—which on Sundays I also read at 8:00 a.m. and 4:00 p.m. Then at 11 or 12 we all assemble in the comedor for an iced drink, and then go to bed for another day.*
Under Southern Heavens, Cordoba, Argentina, 1885.
Jefferson quickly distinguished himself by his various abilities: swift and accurate mathematics, a working knowledge of six languages, enthusiasm and promise as an astronomer, neatness of appearance and godly bearing. Pleasantly enough, within days of his arrival, he was promoted to the position of third astronomer to the Observatory, and his salary was increased from $1200 to $1800 a year.

Jefferson experienced his first earthquake at Cordoba on February 15, 1884, an earthquake that was followed next morning by violent thunderstorms. At six o'clock, Chalmers Stevens, the second astronomer of the Observatory was taking morning coffee with Jefferson when lightning struck the pair. On coming out of a daze Jefferson inquired of Stevens whether he thought there was any relation between the storm and the earthquake, but second astronomer Stevens lay still in his chair. The lightning had travelled down a heavy metal chain which suspended an oil lamp over the table. Stevens was dead.

Jefferson was appointed second astronomer and accorded a considerably greater measure of responsibility in the affairs of the Observatory than hitherto, for which he was grateful:

We are very busy now, Dr. Gould having suddenly given us the revision of several clusters of stars. They follow so closely one after another, often with less than ten seconds between them that it takes three of us—one to observe in the chair and call out "tips," or time of stars crossing the middle thread in the telescope, when he cries "tip"—magnitude, color and so forth of star, with threads lost, which must be known to understand the record that the chronograph is all the while making of the transits. This also the observer must do by pressing a key everytime the star crosses a thread and naming those threads where he loses a transit. Then another assistant is busy with the four microscopes that must be used to obtain the reading of four different parts of the divided circle every time the instrument is set, cries these out one after another, asks for the next setting, at which he then places the instrument by turning the guide circle. Meanwhile a third is busy taking down all the miscellaneous cries that fairly fill the air, recording them in the proper place, demanding verifications of suspicious values, taking from the dial the instant when the observer cries tip and all the while keeping the observer informed, from the former observations, of the probable time, magnitude, and position in the cluster of the star on which the instrument is set that the observer may know which of the innumerable points of light he is to follow. And the while the chronograph is busily writing down the transits in the corner and beating noisily but rhythmically. Fortunately the largest group does not take more than fifteen or twenty minutes as we should give out, especially
the unfortunate at the microscopes. After that the pair who have the evening, go on taking circumpolar and timestars to determine the clock-rate for the evening.

During these years the National Observatory of the Argentine at Cordoba was engaged in four main works: 24

1. Firstly, the Uranometria Argentina—maps and a catalogue of all Southern lucid (naked eye) stars. Secondly, the Argentine Zones containing about 75,000 Southern stars, probably three-fourths of those between the first and ninth magnitudes (observations fairly sharp). Thirdly, the Argentine catalogue containing above 30,000 stars determined sharply with several observations in several years. Fourthly, the Argentine Durchmusterung, an approximate list of all southern stars between the first and tenth magnitudes.

It was with this latter work that Jefferson was primarily concerned. The Observatory itself had been engaged since 1870 in compiling this catalogue of the Southern Heavens, a work not previously undertaken. Jefferson’s labors were to constitute a part of this handbook and he took his work very seriously, reading much, especially volumes of Greenwich and Washington observations. Jefferson was able to report to his father in Boston on September 16, 1885:

*The other night I made my best record—forty-nine stars in an average time of 4 1/2 minutes per star, meaning eleven transits in Right Ascension and four Circle microscopes in Declination for each star. At Washington they expect to observe fifty stars per night, but have many observers and all are old astronomers of a certain eminence.*

Jefferson’s carriage, together with his long hours, accuracy, and persistence, eventually won for him, May 8, 1886, a permission to make his first comet observations—Comet Fabry—on the great equatorial telescope. For Jefferson observations of telescopic comets were interestingly different from circle work since “the observations are at once published with the observer’s name in the Astronomische Nachrichten where also appear the final orbits and discussions of value of individual observations.” Other of Jefferson’s observations were sent by the newly appointed Director Thome to the German astronomer Auwers. Jefferson wrote:

*They are to enable him to determine accurately the revolution value of a heliometer screw he used I think for the last transit of Venus. At any rate a good many observatories have been at work on them and my observations come out very nicely so far. Thome thinks they will make a good showing and I hope so.*

Continued and intensive observations bothered Jefferson’s health and especially his eyes, so that Sundays he was encouraged to pack cock-
tails, beer, oranges, cheese, tongue, Cordoban rolls, mount his "sabile" and accompanied by observers Tucker and Thome, enjoy a hunt in the "camp."27 Jefferson purchased a two-barrel Maynard French shotgun, 16 bore for $70 paper money, and reports shooting partridges and iguana in delightfully different flat land and noble sierra, which being clothed in purple-blue heliotrope or plentifully sprinkled with verbena, geraniums, daisies, cactus blossoms, and passion flowers, surpassed in beauty anything he had experienced in North America. Other of Jefferson's travels through these years, 1883 to 1886, were encouraged by his severe eye fatigue. In the closing months of the year 1886, Jefferson suffered continual affliction from his health. This debility coincided with a period of melancholy at the Observatory where a lingering sadness pervaded in the weeks following the death of Mrs. Gould, wife of the head man. Jefferson wanted to live with a native family in the city, to become familiar with the habit of the people, but this was forbidden. He could no longer practice his clarinet, was requested to refrain from remembering Mediterranean music by renditions of "Hymn to Apollo and the Muse" in Greek, even association with town people was discouraged. Jefferson began to feel very much alone. The salaries were fixed by the government and Jefferson considered the Observatory no place for a young man looking for advancement, although salary adequacy was beyond dispute.28 Perhaps Jefferson desired to pioneer, to try something new and financially more rewarding in an Argentine that was undergoing a period of phenomenal economic expansion. Whatever the reason, and perhaps Jefferson was motivated by a combination of some or all of the foregoing, he packed his bags, and left the Observatory.

Jefferson had bidden farewell to practical astronomy, yet he was never to forget this wonderful schooling. Sixty years later, in 1947, Jefferson was to reminisce of his Cordoba days:29

I like astronomy. Day-times I was set at the reduction of the mean places of the Southern circumpolar stars from all data extant, by the method of the least squares which I had never heard of before. I liked the technique of star observation . . . Is it not one of man's greatest mental accomplishments that we can in 1946 buy a Nautical Almanac that tells us the hour and minute of every eclipse in 1948 or even later and the place in the world where it can be seen? They are God's eclipses. Astronomers have learned to think some of God's thoughts after him. What other science can match this?

These three years in Cordoba had provided Jefferson with what he termed an "advanced schooling for the life struggle." This schooling was later to exert such a profound effect on Jefferson's career that it warrants further attention. Jefferson's linguistic ability was enhanced
enormously. Between the years 1880 and 1890 Europe was disgorging annually 100,000 emigrants into the Argentine, which became a veritable language laboratory. Living in a land where Spanish was the working language, he was able to strengthen his conversational Spanish, complementing well the grammatical and phonological studies he had made at Boston University between 1880-1883. Soon Jefferson was “hunting up some native of Castille to give me the niceties.” Constant intercourse with his bookseller friend, Portabella, was rewarding . . . “He tells me all the Spanish customs and sayings he knows, gets books for me without charging any commission.” While living at the Observatory Jefferson had hired a Parisian for three hours a week to talk French with him in his Observatory room.

Thirteen visits to the Italian Opera Company were a major source of pleasure and recreation to Jefferson who, with a reserved seat near the stage, acquired many tips from clarinetist Bonet, on how best to play that instrument. Jefferson enjoyed his perambulation from the hill-top observatory to the town center, though finding it necessary to tote a leaded cane for protection. He was able to increase his circle of acquaintances in Cordoban society, and with much additional study of Italian, especially on cloudy nights when observations were rendered impossible at the Observatory, gave himself a working knowledge of that language.

A Foreigners Club, eighty members strong, had opened a house in Cordoba in 1885, where men from forty different countries were constantly engrossed in their mutual awareness and appreciation of difference. In all of his spare moments Jefferson was at this club talking with its members—“German professors from the university, Englishmen from the railway, Italians and Spaniards from Europe’s south”—and reading from the very considerable collection of newspapers always present there. Eighteen months conversation in languages other than English obliged Jefferson to write in August 1885, “Don’t be surprised at any deviation from custom in my spelling of English. We follow the sound so closely in Spanish that when I write my own tongue I have to consult the Dictionary at every turn.” The study of languages for some years had been Jefferson’s prime concern, indeed, it seems likely that the linguistic possibilities of the Argentine were the chief reason for his initial departure from New England. In the Argentine, his plans for the future began to assume form:

My plans, in their present form, subject for date of execution to the premium on gold here, run somewhat as follows—At least a year of strictest economy and study in Italy and France to round up my knowledge of the principal Latin languages, a return to the States with
funds enough to supply possible difficulties while I look up something temporary in the way of educational employment. I shall take even a very modest school mastership if attainable to begin and trust to make myself known as a candidate for some university position by original work in the modern languages, a professorship in which is my aim and object. If while in Europe I can obtain some employment as here that will permit me to make profounder studies in the customs and languages while covering my outlays so much the better, but I should look on that as a piece of good fortune and count on the probable case of having to stand my own bills.

Jefferson's German friends from the Foreigners Club, numbering among them a professor of philology at the Colegio Nacional, urged him to continue his studies at the University of Berlin. Relations with Berlin University were friendly in Cordoba where Dr. Kurtz, the Cordoban botanist, was a companion of the very professor in Berlin under whom Jefferson wished to study. The expenses of such a venture would have been very considerable, especially since both the times and the European tradition mitigated against a student maintaining a part-time job. Jefferson was not unmindful of difficulties ahead:35

To enter a German university, the foreigner needs a certificate of good previous schooling: here was my difficulty—had I finished my last year in Boston there would be no trouble as the diploma is sufficient. But things being as they are, arises the question would the Boston University faculty feel justified in giving me the required certificate.

Jefferson alluded to the fact that he had not yet graduated from Boston, for he left the University at the end of his third year of schooling. Funds and possibly a lack of certification were fundamental obstacles that would have to be negotiated before he could study at Berlin.

In Cordoba Jefferson had employed his facility in language to good purpose, devouring all the literature he could obtain in many different tongues. This reading was for Jefferson both vindication of his language studies and fulfillment. He insisted that study of a language in isolation from the study of its people, institutions, mores, and writings was most sterile. More especially did Jefferson read at this time in languages other than English, works on astronomy, travel, meteorology, earth measurement, literature, the state of nature, and European history. He wrote essays, amassed notes, and collected references on subjects which included collimation, Spanish pronunciation in Cordoba, the evolution of European language, Beowulf verbs, Spanish love poetry, situations he wished to recapture because he found them difficult of expression, aneroid measurements of the Andes West of Cordoba and calculations of
the earth's size from the dip of the horizon. The latter fascinated Jefferson who read, annotated, and reworked the measurement formulae suggested by E. G. Cassini in *De la Grandeur et de la Figure de la Terre* 1751, and Peter Muller in *Kosmischer Physik* (Braunschweig, 1804).

Of more particular merit among Jefferson's unpublished work at this time are the essays "The name Argentine," "Final and Medial English Sonants," and "The Correlation of Ideas." Both Portabella, his Spanish bookseller friend, and his father in Boston, helped satisfy Jefferson's literary needs, causing expenditures which at this time accounted for no mean part of his living costs. Invariably having read a book Jefferson would précis the work, adopting the tongue of the author, in this manner assuring himself practice both in the reading and writing of these languages. He continued phonological study, commenced in his undergraduate days at Boston University, by placing a mirror before him while seated at his dressing table in the Observatory house and thrusting a knitting needle down his throat until he produced "the right cadence and flex of grunt." In 1885 Jefferson was elected a member of the Argentine Geographical Society, which gave him ready access to men undertaking scientific exploration in South America.

Jefferson never lost contact with the outside world while he was in Cordoba. A continuous interchange of correspondence between him and his parents in Boston, his class of 1884 now scattered, and numerous European travellers whom he had met in the Argentine, kept him informed of life beyond South American lands and occasioned him the opportunity of self-expression. Jefferson's letters were invariably written in a neat, compact hand, beautifully composed, usually containing between two thousand and five thousand words. These letters were sent from the Argentine once every fourteen days either on a forty day journey to Europe or a fifty day journey to the United States. Their content includes contemporary accounts of political problems in the Argentine, the economic opportunities offered by the Pampa, Jefferson's views of man's destiny, the education of his nephew, the wonder of a four season climate, Cleveland and the United States Presidency, Bismark and the German Empire, General Gordon and the Sudan, the inevitability of homesickness. A constant thread winding through Jefferson's South American correspondence is his restlessness, his yearning to devote himself more completely to the study of language. This specific yearning to continue philological studies was fostered and nurtured by correspondence from Bernhard Berenson, one of Jefferson's classmates of 1884 at Boston University, who dwelled constantly upon the then pres-
ent forces of philistinism prevalent everywhere except at "the sweet retreats" of the European University, those isolated islands of refuge as Oxford, Berlin, or Heidelberg.\textsuperscript{40}

But in 1887 Jefferson decided to stay in the Argentine a little longer. He was mightily attracted by opportunities which would later enable him to roam the universities of Europe without care as to means . . . "you know Schliemann's history—how he acquired a fortune in business to apply it in later life to his favorite studies,"\textsuperscript{41} and Jefferson was getting to know the people, a circumstance he valued highly.

A Pampean Creole society which did not customarily accept foreigners, extended its sympathy to the young North American who had so narrowly escaped death after Chalmers Stevens had been struck by lightning in the Observatory. An invitation to stay a week-end at the La Paz country place of Don Felix Funes and his sister-in-law, Madame Roca, wife of the Argentine President, was indication enough that "Don Marcos" was to be made welcome in the Argentine. This quite unusual invitation was an experience that Jefferson later came to cherish dearly. He was introduced to the gracious living of the Republic and wrote of its elegant simplicity:\textsuperscript{42}

\begin{quote}
I made my first two leagues on horseback—all on the estate, rowed in the pond, made use of the bath—a magnificent tank of running water some fifteen by eight feet where you could swim about—admired the ostriches, the horses, the cattle and the peach trees and above all the mountains and the very respectable woods that abound here; for round about Cordoba every tree must have a ditch to bring it water or it dies and the land is level as the sea, except for the barrancas that look for all the world like so many great cracks made by the earthquakes. The service of the house is performed by a swarm of Negro women with the greatest care and promptness, everything in the way of comfort, from the great fan of ostrich feathers over the table to the viands and the wines, is provided.
\end{quote}

This kindness was henceforth extended Jefferson throughout Cordoba. Creole society taught Jefferson to ride a horse, a necessary accomplishment in an area where horses outnumbered humans seven to one. After Jefferson's breaking in he was never without a horse in the Argentine, eventually travelling several hundred miles in this fashion. He delighted the Creoles by taking photographs of groups of Creole friends at their country houses, with the camera and equipment left by Stevens, which later he was to put to excellent use. "I have now Stevens old photographic camera and am practicing that art with a view to our Sierra and my future travels. As yet the chief result has been to make
an apothecary's shop of my room."43 Jefferson observed that the Creoles preferred Europeans to North Americans because the latter were oblivious to the merits of Creole life...44

They buy in Europe, they travel in Europe, they affect European manners and mode of life. Their aspiration is to be rich enough to possess English blooded stock and horses. They want to join the Jockey club and use two English phrases in their Spanish—four o'clock, meaning afternoon tea, and high levee (high life) for fashionable. They like French furniture and want it.

Jefferson left the Observatory on April 1, 1887 and assumed residence with two native friends in a Cordoban house. The house was comfortable and meant small expense for Jefferson who lost no time in advertising his services locally as a teacher of languages. Teaching English to natives and Spanish to immigrants, Jefferson managed to earn $80 a month, certainly enough to support him until he found a more substantial employment, and in any case he was enjoying a well earned rest. Work abounded at this time in the Argentine and positions for Spanish speaking people were readily available. During one June week alone Jefferson was offered five jobs—"Professor of English in the Colegio Nacional, Bookkeeper at $200 a month, assistant on the Brazilian-Argentine boundary commission, Assistant in the La Plata Observatory and a position with Mr. E. A. Hudson, land surveyor." But not one of these did he accept.

In 1887 there occurred the revolution of Tucuman, a province some 350 miles to the north and west of Cordoba. Among the revolutionaries was Justinians Claria, founder and manager of La Providencia Sugar Estate. Claria was one of the first men to die in the struggle, and the estate needed a man clear of mind and with managerial talents to replace him.45 Some of Jefferson's Creole friends who had travelled north in the Argentine and helped establish La Providencia sugar estate remembered the young-looking North American who could tell the time from the stars, take photographs, who spoke many languages and who, by his personal qualities, had won for himself a position in Creole and Cordoban society. This information did not escape the notice of Don Doroteo, one of the directors and shareholders of La Providencia sugar estate ingenio, who lived in Cordoba. Quite by coincidence D. Doroteo knew Jefferson well—for Jefferson crossed his threshold weekly to teach both his daughters the English language! The combined office of sub-manager and treasurer at La Providencia was offered to Jefferson who accepted the position for one year and held it for three years.

Jefferson arrived at La Providencia sugar estate, thirty miles distant
from Tucuman, on June 20, 1887. The Observatory at Cordoba pro-
vided him with a collection of meteorological instruments in order that
he might establish a station in Tucuman. Jefferson wrote of his inten-
tions . . .: "My abode before the end of the month will be one of the
most important meteorological stations in the country. I mean to make
a special study of all storms and have already begun work on the
subject though some important instruments remain unmounted."

He was most impressed with the grandeur of physical plant. Claria,
the founder of the factory had been a man of lavish idea but ignorant of
the mechanics of an ingenio. Yet his early efforts in 1882 had met with
great financial success, for at that time an estate of two hundred thou-
sand dollars value paid for itself in a year. This encouraged Claria to
build a plant that nestled congruously among the peach blossoms, or-
ange scents, and varied hues of a near tropic environment. He at-
ttempted to capture fragments of the outdoors within the estates dwell-
ings so as to introduce there something of the serenity of nature. "A
brick building was put up for the factory of the most luxurious con-
struction. We utilize about a fifth part—every sort of useless luxury is
to hand." In this same period of extravagance a residence for the
management had been constructed five-eighths of a mile from the fac-
tory. It failed to house the overseers who needed to be on hand night
and day in the factory; consequently, management found itself obliged
to appropriate an ugly brick building built for storehouse space close by
the factory, which caused Jefferson to comment, "We are greatly trou-
bled for house room and though my quarters are comfortable enough,
as far as South American quarters go, I am yet living in my trunks and
my books in boxes or a few in a chair." Peons were housed close by
to supply the regular labor for the estate. The whole was kept in good
repair by the more skilled of these peons, who used black walnut as the
usual wood for door frames, rafters, posts, and other woodwork. "It
would surprise you to see our roof; it is one network of black walnut
beams and only lacks polish to grace any cathedral for its form and
material." Jefferson's inquiring mind wished to know something of the
history, extent, and future possibilities of the estate whereon he worked.
Consultation of estate archives was revealing: It is part of a property granted by a Spanish king in 1717. We possess
the original grant to Sargento Mayor Don Andries Artasor y Aquilera,
and since that date the successive deeds of sale and bequest are extant
in an unbroken chain that inspires much respect for the legal exactness
of the early Spaniards, taking into consideration that twenty years ago
Tucuman was a wilderness three or four months journey from Buenos
Aires across the Salt deserts and the Pampa infested with hostile indi-
ans and has more revolutions in its history than Athens or Rome. The
property is most curious too in its external form being a narrow ribbon
on the North bank of the Rio Seco from fixed boundaries in the plain
where access is easy “to the eternal snows on the hills”, its southern
boundary, the Rio Seco and its northern and imaginary line always
distant from the Rio 1200 yards in a North and South line. On ac-
count of the denseness of the forest the surveys have never attained
more than five or six leagues from here and the snow remains another
ten or fifteen beyond. In the extreme East of this property lie the
factory and canefields.

Initially Jefferson’s lot as treasurer and sub-manager was an unenvia-
able one:51

Some circumstances of my living arrangements have been such as
would soon be insufferable under other conditions but when one passes
six or seven hours at most out of the twenty-four in his room the only
commodity he is apt to think of is his bed and he is not apt to be very
particular about that. For more than a week at a time I have had to
sleep dressed to save time in the morning when I had work to do early.

52 When I first came on the 20 June 1887, it was fearfully cold and
the manager had me called every morning at 4 or 5 not to do much of
anything for I didn’t even know what was to be done. That of course
was my trial and I succeeded in sticking it out satisfactorily.

Life at La Providencia estate was entirely concerned with sugar. In
the summer months of December, January, February, and March the
young cane would grow emerald green, under abundant Tucuman rains,
sway in the wind, while suckled by the hot, humid, Tucuman climate.
This was the off season, the wet season, the time of chills and fevers in
Tucuman Province, when activity on the estate was minimal:53

In the rainy season . . . all is decidedly wet and then the sun comes
out and raises an unwholesome steam. The pools of rain water in the
road, stagnating, pass from green to yellow . . . but already my rubber
coat and boots have won general respect though at first inclining to
merriment.

Jefferson’s tasks included the supervision of labor, gauging the mar-
ket for changes in the price of sugar and for adequate substitutes,
caring for the manufacture of fine spirits, keeping the estate’s accounts,
and coordinating all activity at harvest time. Undoubtedly harvest time
and preparation for it taxed Jefferson most fully, at which time he
proclaimed that he “ruled the wilderness as a Russian CZAR.”

The harvest at La Providencia was not only a time when the estate
was most productive, it was also a time of beauty. Enormous fields
replete with the sway of emerald cane presented themselves on all sides
of the factory in an estate that boasted a twenty mile length and a mile
and a half width. The golds, ochres, yellows, and purples, a veritable jazz of cut cane color, merged imperceptibly into a hazy blue foothill zone of the lofty snow-covered Sierra to the West. The period of cultivation is past, everyone braces for the ensuing months. One day a sufficient amount of cane is declared fit for grinding and harvest begins. Gangs are formed, running gear oiled, at last the fires are lighted, those fires that must be maintained to the end. On the day announced the cane begins to arrive in every imaginable sort of vehicle from the indigenous “Aipa” whose wheels are simply cross sections of a huge log, to the modern narrow gauge horse railway that serves our largest plantation.

At the factory the slow but powerfully revolving cylinders of the conductor began to toil incessantly as though conscious of the quarter million tons of cane before them. More cane-loaded wood carts creaked to the scales as the Santiago men sang “tristes” in the knowledge of the exhausting harvest to come. “The gauchos and Indians did to Spanish words all that Homer had done to Greek words,” and the incessant throbbing of the air pumps beneath the evaporating apparatus supplied the rhythm to a continuous process that lasted one hundred days. Each activity and sound, every color, came to mingle in the voice of harvest at the sugar factory. Throughout the 100 day sugar making period between the ripening of cane in May or June and frost in September, the estate employed some 200 Indians from the nearby province Santiago del Estero. They spoke Spanish, had Spanish names, and promised the Virgin rewards if She would heal them when they were sick. The Indians provided labor when the sugar estate required it, but this variety of labor also brought in its wake attendant problems. These Indians were hired each season with an advance of money on a contract signed before the local chief of police, and in addition to cigarette and clothing money which was paid them twice a month during season, they managed to take with them between 50 and 100 dollars at the season’s close. Only a few women and boys were brought to the estate—the women to cook and the boys to drag the bagazo (crushed cane) from the drying fields to the furnaces where it was burned. The labor was not of the most reliable nature. Men would abscond and cause concern to Jefferson, whose duty it was to look after the entire well-being of La Providencia. In Jefferson’s first year at the estate one man escaped, was returned by the police, usually aided by professional trackers, and publicly whipped in order to deter other laborers from breaking their contracts. Within a year, public whipping was forbidden by law. Stocks were then used, which in turn were forbidden, and the strong room was the only punishment management could mete out.

Jefferson was largely responsible for effectively organizing and assign-
ing this labor force to the various tasks that had to be performed on the estate. One section of this force cut the ripe cane; a second section maintained the wood pile, by drying out bagazo and by cutting sebil and lance from the virgin forests some six or seven miles to the west of the factory; a third section manned the factory; a fourth section transported the finished product from the storeplace of the estate to the provincial railroad, which, in 1885, was extended from Buenos Aires to pass within one mile of La Providencia. Jefferson's work was efficient. After one year of his management, the estate began to regain the vitality it had enjoyed prior to the Tucuman revolution, and indeed a one month pay was granted to all hands as a bonus with the completion of the harvest in 1888. Jefferson was seeing the world, was broadening his set of experiences rapidly, was preparing himself, albeit unconsciously, for his life's work, for at this time he had no thought of ever teaching geography.

La Providencia unlike Cordoba had no society, not even a village. The nearest doctor was thirty miles distant in Tucuman. Jefferson lived close by the factory with the Director's family, and to his delight no one spoke English! The mechanics, the sugar maker, and the distiller were French, and the blacksmith was Italian; the labor force was Spanish speaking. Living close by the factory with the Director's family, Jefferson was happy with his work making sugar, running a factory, exploiting a wilderness, enjoying pleasant relations with estate personnel. Don Doroteo, part owner and director of La Providencia who had been largely instrumental in securing Jefferson his present appointment, possessed a fine Phillipe-Patek watch which Jefferson could always praise by insisting upon its accuracy. Relations between the two of them were good and Jefferson never went in need of a letter of introduction in the Argentine.

Jefferson's range of interest was very considerable, and already he was beginning to display an ability to withdraw from too much personal involvement with others in order to study subjects of immediate concern. He had already displayed his power of concentration, was already beginning to ask himself of every phenomenon, how . . . why? During his years in South America, Jefferson had evidently gathered a functioning knowledge of Swedish and Danish, for his language study at Boston University, encompassing Latin, Greek, German, French, Italian, and Spanish, had not included Danish or Swedish. References in more than one letter suggest that he had begun to learn the Scandinavian languages in the period, 1884-1888.

During his stay in the Argentine, and especially in the off season at La Providencia, Jefferson seized every opportunity to travel and ob-
serve. On January 27, 1886 while still employed at the Observatory, Jefferson had journeyed from Cordoba to Oroya in Peru, returning to Tucuman by April 1st. Every day on his way to and from Oroya whether on horseback, in railroad carriage, or on boat, Jefferson would ask questions—of himself, fellow travellers, indigenous inhabitants. The answers, observations, and conjecture were written into his diary. The first two weeks of April 1887 saw Jefferson travel west from Cordoba through the Sierra de Cordoba on horseback to further rest his eyes. The riding skill that he had acquired from the Creoles was now proving most valuable. But the more Jefferson travelled, the more he wondered at the nature of things entire. Not unnaturally he sought books on the subject of the Argentine and South America, in order that he might understand through the written word what he could not understand in nature, and yet no satisfactory book could he find until he discovered Darwin. Charles Darwin, a young man of twenty-two and already a most competent natural scientist, had visited the Argentine in 1831 and 1832 as part of his five year journey around the world as a guest of Captain Fitz Roy on HMS Beagle in a surveying voyage. Six years later and some fifty years prior to Jefferson's residence in the Argentine, Darwin wrote a book, his Journal of Researches, originally written with the help of a grant from the Royal Society. Jefferson read the book:

I have read and reread it till the volume needs rebinding. I note that my Origin of Species is in excellent condition and has pencilled comments in the margins of the first 16 pages only . . . I suspect the famous, bearded old man whose portrait John Murray used to illustrate my 1889 edition of the Researches—could not have written the book.

The Journal of Researches was the book that opened Jefferson's eyes, that showed him the world he was looking at but did not know how to see. Jefferson was deeply impressed with Darwin's work:

The discovery of Darwin meant more humiliation for me. There were so many things I didn't quite get. I knew nothing of nature, nothing thorough. Quartz and felspar were just words. How did you tell them apart? How did Darwin know that those long screes of greenish rock on the slopes of the valley leading to the Mendoza pass over the Andes were Cambrian?

After reading young Darwin, I looked again at the country and its people and saw them. But I could not follow Darwin with satisfaction for lack of training in natural science. There was beginning to rise in me a consciousness of great lack.

The immediate inspiration for reading Darwin possibly came from a book, Excursions of an Evolutionist by John Fiske, an 1885 Christ-
mas present from Jefferson’s father. In thanking his father for the book Jefferson wrote:

For your own present, you could not have made me one more after my own heart had you been a millionaire bent on getting rid of a year’s income. In John Fiske’s book I find for the first time set forth what seems to me the only reasonable aspect of the universe in our days. It is needless to say that I admire the book immensely. There is not one word in the whole thing that does not seem to me just the best thing to say in its place. The satisfaction of at last finding one author, and that a man of no mean intelligence, who clearly puts forth the views and arguments that have been forcing themselves on me for the last few years is something considerable. You will readily perceive how much a ready understanding of Fiske’s views must have been aided by a good deal of thinking over the same ground especially where I had been wont to use the same bases of argument.

The chief thing that was new and came like a burst of light to me was his references to the full scope of natural selection. It is something I have read too little of, and seems to me the precise thing to fill the demand of the ritualistic theologians that philosophy shall build up as well as destroy.

Jefferson found himself defending his position at the sugar estate to both his parents and his friends. “It is not you will say an intellectual life. I do not know—but it is an active one and near to Nature’s heart.” Jefferson insisted that life in the great outdoors was good for the body, but his firmest defense of life in Tucuman reads:

My present chief who is very sparse of compliments or even expressions of favorable opinion assured me that my education was worth more than a fortune to me because it assured me a comfortable livelihood wherever I chanced to fall. I find something true in this point of view—what is false is the notion that therein lies the value of a good education.

A man should be well educated—taught to think rightly and instructed in the elements of now known historic and scientific phenomena—because his intelligence is the mainspring of his life, and as such must be well secured and evenly applied to all his volitions would he fulfill the possibilities of his nature.

With such an education, the livelihood is a secondary consideration and simple. I am certain there are so few well educated men in the world that one can find his place in any occupation of life and with credit. Partly a desire to demonstrate this belief and partly Carlisle’s unpracticed preaching that a man should devote what culture he has to work rather than talk and manuscript have moved me to look for and finally accept my present position.
But again that long standing desire to study in Europe swept through him, this time irresistibly. First he would go to Boston University, complete his bachelors degree, then sail for Europe. With thoughts of Boston University and a completed diploma in mind, Jefferson asked for a leave of absence from La Providencia to commence in December, 1888 and to last several months:

I have asked leave of absence for some months dating from December to go home and take my degree thus bridging the difficulty I had anticipated in Germany once and for all. . . . I shall take the swiftest steamer either Lamport and Holts the only ones that sail direct for New York, or the Italian steamers that make best time and will land me in Genoa 18 days after leaving Buenos Aires. I shall prepare myself as well as possible before and during the journey for taking a speedy examination and trust to Providence as one says that the Boston University Faculty may show disposition to facilitate the execution of my plan.

The Directorate of La Providencia estate granted Jefferson leave of absence, whereupon he returned to Boston by January 13, 1889, via Cordoba, Buenos Aires, Rio, San Vicente (Cape Verdes), Lisbon, Bordeaux, Paris, London, Liverpool and New York—the quickest and cheapest route in those days. The next five weeks Jefferson passed with his parents, while he busied himself in meeting the requirements set by the Boston University faculty. Jefferson’s work for the Bachelors degree was now complete except for a thesis on a subject later to be decided by a Dr. Huntington of the Boston faculty. During the same five weeks Jefferson had found the time to visit Theodora with whom at one time he had kept company at Boston University. Theodora had remained at Boston University, received the Isaac Rich Scholarship in 1885, and had graduated in 1886 on completion of a thesis entitled “The Theory of the Evolution of Animals from Aristotle’s Time to the Present.” Her mother had died in 1887, and Theodora was living with her Aunt in Horne House, Gilmanton, New Hampshire. Jefferson re-commenced a courtship of Theodora which was to result in marriage in August, 1891. Jefferson hurried back to La Providencia, again via Europe, just in time to supervise the harvest—the official manager, La Torre, being sick with fever. The harvest three weeks old, Jefferson received a suggestion from the Boston faculty that his thesis should be entitled “The Uranography of the Southern Hemisphere.” At harvest time Jefferson was busy from “five in the morning until late at night, separating groups of brawling men, heavy with drink,” yet he seemed to have an inexhaustible constitution which could work without respite. Jefferson casually observes:

It would have been very simple then to select a subject and write it up
on the long outward journey whereas now I am put to it in full swing of the Harvest and five hundred miles from the needed Astronomical maps and catalogues. However, I have gone so far and certainly shall not turn back for so slight a cause. The essay shall be forthcoming at the earliest possible notice.

He completed the thesis and his degree, was seeing La Providencia safely through another harvest, had accumulated funds enough to fulfill his ambition—language study in Europe. But during his absence in Boston and his total concern for the harvest, Jefferson had not appreciated that inflation was beginning to sweep the Argentine. His plans for Europe were now very much hurried by the price of gold. Jefferson’s savings had been decimated, but he had not despaired entirely of university study in Europe.

The old College Year Books claimed “corresponding Faculties” with Athenian and Roman Universities, asserting if I remember rightly, that Boston University graduates may attend the lectures at Rome without further fees. I have written to ask him (Dean Huntington) the significance of the “correspondence”. But please ask also, in case it is as I remember. I would like him to send the necessary justifications, as I mean to attend the Roman University if possible.