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THE BREAD OF THE TROPICS.

It is safe to say that in Jamaica alone, whence we derive nearly one-third of our banana supply, the waste amounts up into the hundreds of thousands of bunches each year, though less than one-tenth of the available banana land is yet under cultivation. Bunches that are undersized, or that contain a certain proportion of undeveloped "fingers," are rigorously cast out by the buyers, and at many of the ports these may be had for the asking or at a purely nominal price. The writer has often seen such, and bunches that were too far advanced in the ripening process to stand shipping, left on the wharf after a vessel's departure, with no one anxious to claim them, the supply of rejected fruit being so far in excess of the needs of the immediate community, nearly all of whom were themselves banana producers.

Yet, as Von Humboldt has estimated, 33 lb. of wheat and 99 lb. of potatoes require the same space of ground as will produce 4,000 lb. of bananas, and three good sized bananas contain as much nutriment as a 14 oz. loaf of bread, so great is the ability of this "tree of Paradise," *Musa paradisiaca*, to extract the greatest amount of vitalizing material from ground and sun and rain. It has well been said that this whole tropical region is "the land where that rare old alchemist, the sun, packs earth's most delicate and fragrant essences in most attractive shapes." And of the banana another author has written: "They really save more labor than steam, giving the greatest amount of food from a given piece of ground with the least labor."

This "bread of the tropics," however, while it will withstand so much handling as is required to get it to our northern markets, by means of our most perfect methods of rapid freight delivery, a system at present impossible in any other country, is not sufficiently imperishable to withstand a much longer series of shipments. At present the fine-flavored bananas are almost unknown in northern Europe; not because their excellence is unappreciated, but simply because the fruit is of necessity too long by the way to reach those countries in a marketable condition. So it comes that two lines of inventions having to do with banana culture are sorely needed in the West Indies, where with them the banana output would soon be doubled, and in time might easily be multiplied tenfold. These are a desiccating process and a flour or meal making process. The former is at present most in demand, and wherever one travels in the banana-producing regions, from Demerara to British Honduras, from Colon to Samana Bay, the cry will be heard at every large plantation, "Oh! if some one would only invent and perfect a drying or preserving process that could be depended on." The man or men who can put before the banana growers of the West Indies, who send over \$4,000,000 worth of this fruit to the United States each year, any system which will do for bananas what is now done for the fig, the grape, or the coriuth, commonly known as "dried currants;" or who can succeed in treating that fruit as well as peaches, apricots, and prunellas now are, will find himself the possessor of a wealth-producing invention. And the same may be safely predicted of any system which will succeed in putting into the meal or flour state a fair portion of the marvelous sustaining and nourishing powers which make the banana the king among fruits. The improvements which this century has seen, that lead up from the crude mandioca meal of the Brazilian native to the beautiful pearl tapioca of commerce, have developed for the cassava, *Manihot utilissima*, a foreign consumption which now runs high into the millions of dollars annually. The same period has seen the crude black cacao of the Caribees and northern South America develop into the chocolate, breakfast cocoa and broua of to-day, and now the tree *Theobroma cacao* vies with coffee in yielding nourishment and producing wealth in many countries. So may it be with the banana, if inventive skill will but turn its attention in that direction.

Sounds Focused by Ships' Sails.

The widespread sails of a ship, when rendered concave by a gentle breeze, are most excellent conductors of sound. The celebrated Dr. Arnott relates the following circumstance as a practical proof of this assertion: A ship was once sailing along the coast of Brazil, far out of sight of land. Suddenly several of the crew, while walking along the deck, noticed that when passing and repassing a particular spot they always heard with great distinctness the sound of bells chimeing sweet music, as though being rung but a short distance away. Dumfounded by this phenomenon, they quickly communicated the discovery to their mates, but none of them were able to solve the enigma as to the origin of these seemingly mysterious sounds. Several months afterward, upon returning to Brazil, some of the listeners determined to satisfy their curiosity. Accordingly, they mentioned the circumstance to their friends, and were informed that at the time when the sounds were heard, the bells in the cathedral of San Salvador, on the coast, had been ringing to celebrate a feast held in honor of one of the saints. Their sound, wonderful to relate, favored by a gentle, steady breeze,

had traveled a distance of upward of 100 miles over the smooth water, and had been brought to a focus by the sails at the particular locality in which the sweet sounds were first heard. This is but one of several instances of a similar kind, trustworthy authorities claiming that it has often happened under somewhat similar circumstances.

Memory as a Test of Age.

Memory is often a good test of age. When a person begins to find the recollection of current and recent work failing, and when he finds the recollection of events of the early part of his life acutely perceptible, and by a kind of spontaneity recurrent, the evidence is certain that the mind of that person is aging. The fact is still further emphasized if, with the remembrance of past days, there is a sympathetic response calling forth a sentimental feeling either of pleasure or of pain. There probably is a physiological reason for these phenomena. In early life certain centers of the brain are filled with impressions and images which have become fixed, and for a time quiescent. They sleep. While they sleep other parts of the brain are charged with new impressions, which remain in activity, provoking the physical body into new and continued actions, and constituting the life of the individual as it is seen at work, nay, as it really is. But time goes on, and under the active life the brain centers receiving the later impressions tire, wear out, and for working purposes suspend function and die. Their suspension is not, however, the suspension of the whole of the cerebral organism. The parts first impressed and imprinted—the parts that carry the latent impressions—remain intact, and no longer oppressed and obscured by that which has accumulated upon them, begin once more to live and display their activities. So aged people who forget the names of those who are staring them in the face, who forget the details of the last ride, or walk, or work, and who forget engagements, letters, and hours of meals, remember with the freshness of youth the friends of their youth; the places, habits, conversations, events that have long since passed, and have been so long in oblivion.

The study of memory in relation to age is full of practical as well as of philosophical importance. It bears on the value of evidence of observed facts and phenomena at different stages of life. There are thousands of persons who could give no evidence worthy of credence respecting sayings and events of to-day, who could still give the most accurate and reliable evidence about sayings and events of fifty years ago; and, if sympathies change with memories, there is an explanation, clear enough, why with age likes and dislikes should undergo the astonishing modifications we so often witness. I was called once to see a dying man who was advanced in life. He was muttering something strangely.

"What is it he says?" I asked. "I do not know, sir," replied the nurse, "but it's all about Monday, and see how curiously he moves his hands." I listened attentively, and soon caught the words, repeated many times: "Oh Jesu, Agnus Dei, qui tollis peccati mundi. Miserere nobis." I observed thereupon to my medical brother, whom I had been called to meet in consultation, "He," the patient, "is saying part of a Romish litany. He is a Roman Catholic." "Impossible! I have known him for thirty years, and he has been a man of the freest thought, good in every way, but allied to no creed whatever, and opposed to the Roman Catholic faith." "That may be, but in his early life, I warrant you, he was brought up in that faith and learned its services." On inquiry my conjectures proved correct. In the first five years of life he was trained in the Catholic ceremonial, since which age he had come under influences that had changed the whole tenor of his thoughts.

The point I wish to make in concluding this opusculum is, in the strictest sense, practical and medical. Whenever a patient who has passed the fifties, or is fairly into them, reports that current memory is fading and past memory is reviving, and when he reports also that his sympathies are running with his memories, his current sympathies declining, his old ones reawakening, he is in an indifferent condition. He requires immediate mental rest of those faculties that are becoming impaired, and is in want of pursuits and scenes that will bring new faculties into play. Fortunately we never use up a tithe of our brain surface. There is always ample uncharged surface to work upon even late in life, and if the brain be not physically diseased, new memories may be called forth which open up new activities and cover in the old. William Harvey, in his latter days, took to mathematics, and for the first time followed them with ease, much to his quiet. I knew an aged man who took, under the same circumstances, to music, and became quite a fair violinist; from all of which comes a lesson—

In second childishness child life revive;
Learn something new each day, and so re-live.

—Dr. B. W. Richardson, in the *Asclepiad*.

THERE are 208,749 railroad bridges in the United States, spanning 3,213 miles.

Opening of the Great Leland Stanford, Jr., University.

The opening ceremonies of this great institution of learning took place at Palo Alto, Cal., on October 1. As an individual benefaction for useful purposes it is one of the noblest and most generous of any on record. The endowment reaches the munificent sum of twenty millions of dollars. On the day of the opening a stage had been arranged at the north end of the quadrangle, and the spot had been decorated with evergreens and palms, with a background of American flags artistically arranged. On the rear wall hung a portrait in oil of Leland Stanford, Jr., in whose memory the university was erected. Seats had been arranged on the stage for distinguished guests. The seats in front were reserved for the students, and on the right of the stage were raised seats for the choir. The great quadrangle was filled with people.

Every seat was taken and thousands were obliged to stand. The faculty of the Stanford University and professors from the universities at Berkeley and Santa Clara had seats upon the platform with other guests.

A little before noon the Senator and Mrs. Stanford ascended the platform, and as they came into view of the audience there was enthusiastic cheering, while the students for the first time expressed their college yell, "Wah hoo, wah hoo, L. S. J. U. Stanford."

After devotional exercises President David Starr Jordan, of the university, introduced Senator Stanford, who was greeted with prolonged applause. Senator Stanford spoke at length, reviewing the progress of education and the founding of this university.

He was followed with addresses by Judges James McMillan Shafter, one of the trustees of the university, Martin Kellogg, President of the University of California, and President Jordan.

Four hundred and forty students have been admitted to the various classes of the university, of whom ninety-five are girls. The dormitories, as far as completed, will not accommodate more than 300 pupils, but as some of the boys have consented to share their quarters with others, 350 pupils can be accommodated. At present the others will find lodgings in the neighborhood. Fully 1,100 applications for admission to the institution have been received, and examinations are not yet finished.

Seven years ago Senator Leland Stanford lost by death his only son Leland Stanford, Jr. The university is erected as a memorial of the dead beloved. We take the following particulars from the *New York Tribune*:

The Leland Stanford, Jr., University has probably excited more interest in this country than any institution since the founding of Cornell University, over twenty years ago. It is one of those experiments in education which appeal to the popular imagination just as Cornell appealed to it, because it is an effort to strike out in a new field. The university has a princely endowment; it is the chief object in life of Senator Stanford, who has never yet turned back in any work which he undertook to carry to completion; it represents the thought and study of a singularly practical and broad-minded man for twenty years; it is the means by which he hopes to make his great fortune of direct benefit to the youth of California who have the ambition to take advantage of the manifold opportunities offered in this new Western land.

In founding the university and endowing it as few institutions in this country are endowed, Senator Stanford has had in view mainly the large class of boys and girls who desire to make their own way in life the moment they come out of school. While the higher education will not be neglected, the greatest attention will be given to those special studies that will enable pupils to do something for their own support as soon as they are graduated. For this purpose the schools in mechanic arts, in manual trainings and in all the sciences will be made the most perfect in the country. The collections already secured in botany, mineralogy and geology are among the most valuable in the world, and in other sciences collections and apparatus will be equally perfect in time. With a faculty thoroughly in earnest, good results ought to be accomplished in original work.

The project of a university at Palo Alto, in the very heart of the rich Santa Clara Valley, was taken up by Senator Stanford as a distraction in the great grief of his life. He had made an imperial fortune by building the overland railroad in the face of public doubt and distrust; he was preparing to train his son to assume much of the burden of the care and responsibility that great wealth brings with it, when Roman fever cut short the young man's career. The lad had always shown the keenest interest in mechanics, and what was stranger still, though only seventeen at the time of his death, he had developed a plan for a great museum on this coast which should be free to the people and should be used to aid boys who were learning trades. He amused himself collecting curiosities and specimens of art work in many materials for this museum during the last few months he spent in Italy. When death ended this young life, so full of promise, the parents were naturally inconsolable. Even their great wealth seemed to add to the irony of fate, for of

what purpose was it, since they had no one to inherit and use it wisely? It was while plunged in this first grief that the thought came to Stanford to put into practice the plans of his son and to make them bear directly upon the class of young people with whom the son had had the deepest sympathy. This idea made so profound an impression on him that it seemed like a vision from the other world, like a direct message from the dead. He threw off the lethargy of grief, and since that time he has devoted much of his time and energy to the development of his great educational scheme.

A special act was passed by the California legislature permitting the conveyance to trustees of property for the endowment of an educational institution. A board of trustees was appointed, of which Judge Lorenzo Sawyer, who died recently, was chairman, and which included such representative men as Justice Stephen J. Field, Senator Stewart, Judge Deady, of Oregon; Judge James McM. Shafter and Irving M. Scott, the builder of the cruisers *Charleston* and *San Francisco*. To these trustees, Senator Stanford and his wife conveyed by deed the fine estate of Palo Alto, comprising 7,300 acres, the Vina ranch in Tehama County of 55,000 acres, which includes the largest vineyard in the world; the Gridley ranch in Butte County of 21,000 acres, and other valuable property. The total endowment is above \$15,000,000, and the revenue from the various properties is large. It was decided to erect the university buildings not far from the Senator's residence on the Palo Alto ranch. The site selected is about three miles from Menlo Park, the most beautiful of the collection of suburban homes of San Francisco millionaires. The site is an almost level bit of land just at the edge of the foothills on the east side of the rich Santa Clara Valley. It is the ideal place for a seat of learning, as it is removed about three miles from the railroad, and is in a district that is sheltered from winds, and is especially suited to the growth of all trees and shrubs. One hundred acres were set apart for the university grounds.

The architecture of the buildings is as unique as the plan of the university. The prevailing style is an adaptation of the California missions, low buildings, with heavy walls and roofs of tile. The main group of fourteen buildings incloses a quadrangle 600 feet long by 250 feet wide. These buildings are mainly intended as class rooms. They are built of cream-colored sandstone, are 70 by 50 feet and the height from the ground to the roof tree is 60 feet. All the buildings open upon an arcade, with Moorish columns, which is 20 feet wide and 18 feet high. This runs around the whole quadrangle and permits one to walk in comfort even during very rainy weather.

The surface of the quadrangle is covered with a heavy coat of asphaltum pavement and the levels are so nicely adjusted that all water is drained off in a few minutes. Eight circular beds in this quadrangle are filled with semi-tropical trees and plants, which add greatly to the beauty of the scene. Midway on one side of the quadrangle is the main entrance, over which will be erected an imposing arch; on the opposite side is the museum building, four stories high, of pure Greek architecture. On the west side of the quadrangle will be built the memorial church, cruciform in shape and built of the same materials as the other structures. Even in its present unfinished condition this quadrangle is worth traveling many miles to see. The perfect line of the arches in the arcade is something to which no words can do justice. Standing inside the quadrangle and looking out through any of the arches between the buildings, one has glimpses of deep green fields and of trees whose foliage is lightly touched by the afternoon wind. One seems to be looking out upon one of the hills of the Alhambra, and this old world air is strengthened by the mellow tone of the stonework and the tropical luxuriance of the fan palms. Photographs at best give only a faint idea of the charm of this arcade, which fills and satisfies the eye.

When one steps out of the arcade, he is at once brought back to the present by the spectacle on one side of the two large dormitory buildings and on the other of the tall stone chimneys, the boiler house and machine shops. The boys' dormitory is built of sandstone, but the building for the girls is made of concrete. The boys' building is probably the finest structure of the kind on this coast. No expense was spared on it; everything is genuine, even to the brass in the gutters that carry the water from the roof. Over \$400,000 was spent on it, but it is a thing of beauty in its finish. The main dining hall is the handsomest room in the building, and no hotel in New York has a finer apartment, so far as harmony of tones, light and outlook are concerned. The building is finished throughout in hard woods, and though the furniture is plain, it is very handsome. Senator Stanford's idea is to have nothing that savors of luxury. On the same principle, the board furnished will be good but simple. Those who may come to the university under the idea that every modern luxury will be furnished because the institution has a great endowment will be disappointed, as will those who fancy they can get along without solid

work. Mrs. Stanford has provided each room in the dormitory building with a handsomely bound Bible—a reminder that though the university is not bound to any creed, it is to be Christian in spirit, and religion will form a vital part of all instruction.

The girls' dormitory building has been built of concrete which harmonizes in color with the stone of the quadrangle near by. It was found necessary to use this artificial stone in order to complete the building for the opening. The museum, a huge four story building of perfect classical style, has been built within four months. The material is concrete, and it is said to be the largest building in the world made of this artificial stone. An enormous force of men has been at work on this building, and though it is practically finished, yet it will not be feasible to place the collections in the various rooms, lest they be injured by the damp walls. In this climate a building of concrete, rushed to completion, requires several months for the walls to become thoroughly dried. Senator and Mrs. Stanford have gathered a large number of rare and valuable articles for this museum. The nucleus of it is the collection by young Leland Stanford when in Italy. To this will be added the finest collection of copies of the old masters ever brought to this country, with an admirable representation of copies of the masterpieces of modern European art.

Near the dormitory buildings are the cottages of the faculty. These are so arranged that additions may be made to the group at any time, and it is expected that by another year the majority of the professors will be domiciled there, as well as many families of those who have children in the university. It is needless to point out what a center of refined society will be formed at Palo Alto, should the present plans be carried out. No place of residence in California has greater advantages in the way of climate, scenery and the advantages of proximity to the largest city on the coast, and none will have a society more congenial to cultured people. It is among Senator Stanford's designs to build a large number of cottages near the professors' quadrangle for the accommodation of those who may desire to make partial use of the university collections or to place their children in any of the schools. No arrangements have been made for preparatory training, but already two young women, one from Wellesley and the other from the Harvard Annex, have opened a preparatory school for girls in the old Coon mansion on the university grounds, and about a mile from the quadrangle. These young ladies propose to take a post-graduate course and to pay their expenses by this school.

The applications for admission have already outrun the accommodations. Over 400 boys have applied. Sixty-two girls have been assigned rooms in the girls' dormitory. Thirty-seven are from California, two from Honolulu, and the remainder from Coast States and the East. Besides these, forty pupils will come up every day from San Jose, returning in the evening. Senator Stanford has kindly arranged to give these students a ten-cent fare for the round trip, so that their traveling expenses will be light. Many students have been attracted from Eastern colleges. Professor Swayne brings fifteen of his class from the University of Indiana, and Professor Gale, of St. Louis, is also expected to fetch a number of his special students.

Much of the success of the final arrangements is due to the great executive capacity and energy of Dr. David Starr Jordan, the president. President Jordan is known to all Western teachers as the man who has made the University of Indiana what it is to-day. He is a graduate of the Scientific Course of Cornell University, and has won higher honors in the scientific world than perhaps any other graduate of that university. He stands at the head of American ichthyologists, but he is not merely a scientific specialist. He is a man of the broadest culture. He has much of ex-President Andrew D. White's faculty of stimulating students to study and research, and he is full of that hearty human nature and sympathy which go so far to establish *esprit de corps* among any large body of students.

Concert Music by Telephone.

I once spent a large share of the night with a telephone operator at Worcester, and know that there are many pleasant things connected with the business. Generally after 12 o'clock the calls are few and far between, coming chiefly from the newspapers and doctors. It is the custom of some of the operators to make the circuit of several places and tell funny stories.

The pleasantest part of it is when Worcester, Fall River, Boston, Springfield, Providence and New York are connected by the long distance wire. Most of the boys of these places are musicians. The operator in Providence plays the banjo, the Worcester operator a harmonica, and generally the others sing. Some tune will be started by the players and the others will sing. To appreciate the effect, one must have a transmitter close to his ear. The music will sound as clear as though it were in the same room. It is a very hard thing for a person to believe unless he has heard it.—*Boston Evening Record*.