GUATEMALA.

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DELIVERED AT THE OPENING OF THE

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By the President, DR. L. C. LANE.

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BY THE PRESIDENT, DR. L. C. LANE.

Believing the facts might prove of interest to the most of you, and add something to the knowledge of the medical topography of a region but imperfectly known, I herewith offer the following observations, recently made during a visit to the Republic of Guatemala.

Guatemala is the most northern of the five States which geographically comprise the region known as Central America; the remaining four being Salvador, Honduras, Nicaragua and Costa Rica. Guatemala lies between 14 and 18 degrees of northern latitude, and hence it is situated wholly in the tropics. Besides, it lies in the northern portion of that singular constriction which the hand of Nature has impressed on a portion of the equatorial region of the western continent, presenting a varying breadth of from three hundred to four hundred miles, between the Atlantic and Pacific oceans. South of Guatemala, the constriction becomes lessened in space until, at the Isthmus of Darien, it is but forty-seven miles wide. All old Californians remember the Isthmus, and carry in memory an unfading picture of a journey across it;

and no matter how many shadows departing years may cast over us, this picture hangs untarnished in the background of our lives, and as we turn again to it,

> "Where o'er hill and valley plays
> The sunlight of our early days,"

I am sure there is awakened in each of our hearts an indefinable thrill of pleasure.

For recreation, as well as to escape the unpleasant season of mid-winter in San Francisco, on the 30th day of last December, accompanied by my wife, I embarked on board the steamer Granada, for Central America. Bi-monthly trips are made thither by vessels of the Pacific Mail Steamship Company. These vessels touch at two Mexican ports and four in Central America, finally arriving at Panama; thence they connect with a line on the Atlantic side, so that in this way the passage can be made from San Francisco to New York, the whole journey being made in about one month. On boarding the Granada, I was struck with the wonderful difference in the accommodations of the present steamers and those of former times. The demands of commerce have banished from use the magnificent side-wheel steamers, so well remembered by all who made this trip twenty years ago. Instead of a floating palace, where all was arranged to afford the highest comfort and luxury to the traveler, we were ushered aboard a screw-propeller, where state-rooms are narrowed to petty closet-like quarters. Though these steamers are more comfortable than the famous Cunarders that cross the Atlantic, still they have but little to remind one of the sumptuous quarters which once floated on these waters, and still less to alter the definition which Dr. Johnson gave of a sea voyage, "imprisonment, with the chances of being drowned superadded." Though the voyage has been bereft of many of its olden attractions, still there

are some persons in whom the desire to hasten in life's feverish struggle is so far absent that they prefer this way of reaching New York. It were well that more of our careworn business men would take this journey when they return to their old homes in the East; they would thus slow the hand that is measuring off the hours on the dial plate of their lives.

Though our departure was in the season when storms usually lash our coast, still our steamer floated out through the Golden Gate in as smooth a sea as the most solicitous sea traveler could wish. As if to chronicle the approaching conclusion of 1882, the hour of sailing was shifted from morning till late in the evening; so that before we had reached the ocean outside, the sun was sinking in the watery horizon, and casting its last rays on the retiring city and the magnificent coast range of mountains which lie at the entrance of the Golden Gate, and farther beyond encircle our Bay. Around Tamalpais floated those fleecy clouds which are so characteristic a feature of the landscape, and which as "phantom ships" have been so eloquently described by Pollock, one of California's most gifted verse writers. How many argonautic adventurers of every profession and grade of humanity, including even the talented Pollock himself, after all their struggles in our new State, have in the end grasped nothing but gilded clouds, which proved cold and empty forms of bitter disappointment!

The ocean that received us with so placid a face, in less than twenty-four hours assumed his proper wintry dress, and during the remainder of the voyage treated us to continuously rough weather, and on one occasion to a violent storm.

Most persons who have gone to sea, afterwards have their storm-story to tell; and as the stories are much alike, I will omit the narration of mine, except to state that it was en-

countered in crossing the Gulf of Tehuantepec, which seems to be one of Nature's great blow-pipes, through which is expelled from the interior of Mexico a huge blast of wind that reaches far out into the Pacific Ocean. This region is so notoriously the site of storms that every traveler who makes this voyage learns the fact from some older voyager long before he reaches the place. From the mild blow that is generally experienced in crossing the outlet of the Gulf of California, and the still severer one at the Gulf of Tehuantepec, it would seem that Nature has a special love for blowing over a tongue of water that projects into the land.

The storm off Tehuantepec tested the bottom of our steamer, as well as that of every passenger's stomach; the former lost none of her cargo—of the latter so much cannot be said. For over one hour, while the steamer was running before the storm, two sharks kept near her keel; whether these heterocercal monsters snuffed a bouquet ahead, or whether idle curiosity impelled and sustained their diligence, remained an unsolved problem, yet they did prove one thing: that muscle and fin can make as much progress in water as steam. Another observation made was that the phosphorescent agent in a calm, when the water is moved diffuses itself like liquid fire—but during this storm the luminous principle seemed to aggregate itself in isolated centers, so that the amount of light emitted was lessened.

In Hyrtl's Topographical Anatomy—a book in which the student will learn much anatomy and be entertained with much that is witty, quaint and sparkling—the author tells us how, in crossing the Mediterranean Sea, he spent his time in studying the action of the abdominal muscles in the act of vomiting. If Hyrtl had been a voyager on this passage and shared the fate of most of those on board, I am certain that paragraph in his Anatomy would not have been written, since

both his head and his stomach would soon have been empty.

Many attempts have been made to offer a scientific explanation of sea-sickness; to the numerous ones found among medical writers, I will add one more:

In the last few years the German cerebro-vivisectionists have plainly demonstrated that in many instances of cerebral trouble the cardinal condition is that of anæmia, instead of hyperæmia, as was formerly taught, and as the concomitant of such anæmia, nausea may arise in a perfectly sound stomach. In intra-cranial circulation two factors figure— the movement of the blood and the movement of the cerebro-spinal serum. The affluent blood-wave displaces and causes the serum to escape from the skull; the returning blood-wave again acts reversely, and, as it escapes, it is replaced by the entering cerebro-spinal serum. Such efflux and reflux of the serum can be seen in the animal's neck, when the occipito-atloid ligaments are laid bare. The ascent and descent of the subject on shipboard tend to interrupt the uniform movement of the reciprocal currents—both by virtue of their inertia sink as the vessel rises, and rise as the vessel sinks; thence arises disturbance in the equilibrium of the supply of blood to the brain, and, as a further consequence, sympathetic nausea. Long continuance of the cause finally begets a tolerance, and hence a disappearance of the sea-sickness. Should this explanation share the fate of its predecessors, and require that *non sequitur* should be appended to it, let the discoverer of the fallacy refrain from concluding, *propter inscitiam propriam*—(lack of individual experience.)

To get relief, or in a measure to avoid sea-sickness, secure a berth "amidships," and during rough weather maintain the horizontal position, use a light and easily digested diet in which there is no excess of liquids, and remain in bed during the period requisite for digestion. As constipation sooner or

later occurs, this should be relieved by proper remedies; and this latter hint should especially be attended to at the end of a protracted voyage where there has been a transition from a cold to a hot climate. This little precaution, and especially if the traveler will take old Rush's "ten and ten" of submuriate and jalap, will often ward off an attack of fever. Seasickness, depending as it does upon causes outside of the body, is not curable by any internal remedy. Chapman's ice-bag, with which many English travelers provide themselves when they cross the Channel, nitrite of amyl, the bromides, etc., are all useless ballast in a sea voyage.

The lines of Byron—

> "Of all the seas the traveler pukes in,
> None is more dangerous than the Euxine,"

plainly point to the universality of sea-sickness; and he who travels by sea may safely include this in the expenses which he must incur in order to see other lands, for none are exempt except a favored few—very few—in whom the partial hand of nature has so cunningly adjusted the elements of the cerebral circulation that they never get adrift, but remain *chock-a-block* during wind and storm.

During our progress southward we were generally in view of land; the western coast of Mexico, consisting of hills and low mountains that were nearly destitute of trees and living vegetation, made a landscape of which the eye seldom grew weary. And this view became doubly interesting when it reminded one, as was often the case, of the Coast Range of mountains of our own State, and recalled those picturesque lines of beauty which nature has so happily traced in the face of California. As in art, one finds different schools with distinctly characteristic methods and styles, so in sketching mountain forms, uniformity has not fettered the hand of nature; such liberty she indulged in while tracing our coast

mountains and foothills, developing a style elegant, distinctive and peculiar. The mountain of Norway with its sombre brow of pines mirrored in the lake at its foot, and the Alpine peak with the green meadow at its base bestarred with yellow flowers, have each their special charm—yet the traveler who has not seen the mountains of California has yet in store for himself a pleasure which the former can never awaken in his heart. And this same originality of character is found from the Columbia River to the tropical region of Mexico, reappearing again, as I have seen in the Andes of Peru. Hence the Sierras, the Cordilleras and the Andes are one and the same sketch made by the hand of Nature—a sketch in which the devices of concealment with which Art often disguises her defects are rigidly avoided, since each outline is distinctly traced on the sky, and is as clearly visible as if seen in a miniature picture held in the observer's hand.

On the eleventh day of our voyage we arrived at Champerico, a small port on the coast of Guatemala. Champerico has commercial importance on account of the large amount of coffee produced in its vicinity and thence shipped. From this point the two distinctive physical characteristics of the State of Guatemala become plainly visible, viz: high lands and low lands. The low lands comprise a highly fertile belt of soil that reaches some thirty miles inland from the Atlantic and the Pacific; between these level plains lies the high land, which rises here and there into mountains of high altitude. The greatest elevation reached is between two and three miles above the sea level. Among the summits that especially attract notice are those of Santa Maria, El Agua and El Fuego, the latter two being volcanoes which have not lost their function of occasionally disgorging their fiery contents.

During our stay at Champerico several of the travelers

were entertained by an excursion upon a short portion of the railroad that is being constructed from the port to a town which is situated about thirty miles inland, and when finished will serve as an outlet to the immense crop of coffee grown in that region. The passengers who enjoyed this short ride were quite carried away in their transports of wonder at the tropical scenes which were thus suddenly opened to their view; and I am sure that each one bears with him many kind remembrances of the hospitalities of Captain Douglass and others who are managing the construction of this road, which is being built by the money and enterprise of a San Francisco company.

From Champerico, a few hours steaming brought us to San José, the leading port on the western coast of Guatemala. Here, as the early morning opened, we found ourselves lying almost in the shadows of the volcanos, Water and Fire, which, though some miles inland, seemed very near, owing to the clearness of the air. From the nostrils of El Fuego (fire) a cloud of white vapor was slowly escaping and idly wreathed, like grey locks, this slumbering Titan's head. As he lay there in his placid sleep no one would have thought that in that quiet form were concealed the earthquake and Force and Might, more than a match for Promethean divinity.

The tumult and bustle consequent upon disembarking are illy consonant with the musing which otherwise such a morning and such scenery might have favored; thoughts of a more practical nature occupied our minds, viz. to go ashore and see that none of our effects were left behind. From the steamer we were carried in barges to the end of a long iron pier, which has been built from the shore into the water about one-eighth of a mile.

To digress here. Nature has been very unequal in her gifts to the eastern and the western sides of the continent.

The eastern coast has been favored with well sheltered harbors—great pockets, as it were, inviting commerce to shelter there its stores. The Pacific side, on the contrary, is remarkably wanting in such resources. Any one who has easily walked on or off a vessel lying at one of the wharves of San Francisco, and who debarks at a Mexican, Central American, or South American port, in a small boat that is compelled to land on a harborless, unprotected beach, has learned that our land-locked bay is a natural gift beyond all price. And these advantages will take a still higher rank, if he should ever land at San José de Guatemala, where the debarkation is done in a basket that is suspended to a crane some twenty feet above. The hoisting of the basket and its swinging shorewards are done by steam. The tossing of the small boat which carries him to the pier, and the swaying revolutions of the balloon-like basket, for the first hour of his advent, will quite absorb his attention.

Among the fellow passengers during the voyage was General Butterfield, a man well known in the history of our country as a fearless champion of the cause of our Government during the late war. His present mission hither was as the representative of, and shareholder in, an American company that has purchased the control of a railroad which has lately been constructed from San José to Escuintla, a town nearly thirty miles inland. General Butterfield, accompanied by Mr. George Crocker, son of the well known capitalist of San Francisco, came for the purpose of completing this road to Guatemala City, the point of its final destination. Besides this work, they are now occupied in making topographical surveys preliminary to building other railroads in Guatemala, and the adjacent State of Salvador. The great energy, unusual powers of endurance, experience in the field, and personal ability of General Butterfield, and above all, his

self-denying devotion to the enterprise which has been delegated to him, shows that Northern capital has exercised keen discretion in the selection of its management; and if a prediction be allowed, it requires no special acumen to discover that the hand which led martial hosts to success in war, will conduct peaceful legions here to no less signal victories in their battles with tropical nature.

On arriving at San José, General Butterfield invited a number of the passengers to accompany him in an excursion from the port to Escuintla, the present terminus of the road. The strange novelty of the tropical flora of the country traversed by the road, many of the shrubs and trees being in bloom, and others being quite covered with the rich flowers of the trailing convolvulus, was one of those rare spectacles which falls on the traveler as a new revelation, that remains as an unfading picture forever afterwards, giving delight as often as the hand of memory unveils it. In that panoramic scene which was rapidly unfolded to view, as the train sped on its course, were now and then caught glimpses of fields of coffee and sugar cane, and of the thatched huts of the Indians, under the shade of cocoa palms and orange trees. At Escuintla, the party was the recipient of a choice collation, in which the wine of the North mingled its gift with that of the passion-flower and a half dozen other tropical fruits. This finished, the party next visited a church built over two hundred years ago, and ascending its half-ruined tower, looked on one of the most beautiful landscapes of Guatemala—a scene which the artist's pencil, not written words, can portray. Thirty miles away lay the Pacific, of which the moving waters, mirror-like, gave glimpses of reflected light; while nearer by, cloud-shadow and sunlight disputed dominion over vast scopes of evergreen forests and fields, whose verdure rejoiced in unending Summer; on the other side,

close at hand, rose the huge forms of Water and Fire, their bases enriched with a zone of forests, interrupted now and then by cultivated fields of cane and coffee; these green fields could be descried reaching far up toward the summit, and seemed to hang, like emerald gems, on the mountain's side.

In the evening, after the rest of the party had returned aboard, we drove to the plantation of Concepcion, which lies at the base of the volcano of Agua. This large estate, which is devoted to the raising of sugar cane, is the property of Baron Duteil, who came to Guatemala many years ago. This place, which is in a high state of cultivation, besides its wonderful natural endowments, shows in the rare felicity of its improvements that its owner has kept even pace with nature; for one is surprised at the rare combination of comfort, luxury and elegance which blend in the appointments of its manorial mansion. From Escuintla, there leads to it an excellent road, the latter portion of which passes through an alameda or avenue of cocoa palms, bordered on each side by a broad expanse of sugar cane, all of which was overlooked from the cool piazza of the front of the house. In the rear was another open piazza where meals were served, and where long vistas of field, forest, gorge and volcano, took the place of the ordinary wall pictures. A third side looked on a fountain of playing water and on a short avenue of trees that ended near a swimming bath. This bath was constantly replenished by pure water from a neighboring stream, the water constantly falling, cascade-like into a stone reservoir some thirty feet long, that was overarched by a bower of roses and passion flowers; the perfume of these flowers, and their tints yet visible in the moonlight, the faultless temperature of both air and water, made a picture of oriental luxury such as will recall to the reader's memory Irving's sketches of the Alhambra.

The amount of sugar produced at Concepcion was so enormous that upon the item of spirits distilled from the waste material the government receives a tax of over five thousand dollars a month.

Leaving Concepcion on the following day, we next proceeded to Barcenas, a large coffee estate that lies somewhat off the main road which leads from Escuintla to the City of Guatemala. This place is owned by Señor Samayoa, who is the Minister of Agriculture, and is reckoned among the wealthiest men of Central America. Our late arrival prevented us from seeing much of the estate that night, but early the next morning the most of the party were on the grounds, eager and curious to see growing coffee. One saw there this precious shrub in every stage of growth, from the nursery plants, which were just peering through the earth, under cover to screen them from the hot sun, to the full grown shrubs, some ten feet high, which were laden with nearly ripe fruit. This shrub resembles somewhat a cherry tree in foliage, though the leaves are more glossy. The fruit grows in crowded clusters, without stems, in the axils of the branches. Each berry, when ripe, is of purplish tint, and if perfect, it contains two hemispherical grains with their flat faces opposed. The pulp of these berries is of a sweetish taste, and possesses none of the qualities of coffee. From the growing shrub we were next conducted by Mr. Klee, the manager of the estate, to the mill where the coffee berries were being hulled or threshed. During the short time that we regarded this work, several hundred pounds of coffee passed through the mill. The consumer of coffee in the North will value his cup still more when he learns that the annual product of a shrub is never over four pounds, and on an average is not much more than one pound; that the producing period of a shrub is not more than fifteen years; and that each grain of

coffee, from planting until it reaches the sack, receives the labor of over a dozen persons. The coffee which commands the highest price in the market, known as the pea coffee, but here called "caracolillo," from its resemblance to a snail shell, is of small, round form, like a miniature egg, and would appear to be a dwarfed product, where the berry, instead of two grains, contains but one grain.

From Barcenas we proceeded to the City of Guatemala, the first hour's ride being through coffee fields belonging to the estate of Samayoa. In many places I observed that the shrubs were partly shaded by the plantain or banana shrub. After some four hours ride we reached the City of Guatemala, situated on a large plain about one mile above sea level. On arriving here nearly all persons are rendered sensible of the high altitude through the increased demand made by the lungs for more air, owing to the rarity of the atmosphere.

The City of Guatemala was originally built about thirty miles from the present location, close to the base of the volcanos, Water and Fire, and at a slightly less elevation than that of the new city. The old city, now named Antigua, was twice destroyed by the adjacent volcanoes—once in 1541, and again in 1762. In the first disaster, on a dark night when rain was rapidly falling, there gushed forth a flood of water from one of the mountains, which was quickly followed by an eruption of lava from the other; and these destructive forces were soon reinforced by earthquakes, so that the town was utterly destroyed, burying in its ruins the families of Alvarado and others of the primitive conquerors. The old Castilian conquerors, shrinking from no peril and dismayed by no disaster, rebuilt the city, to suffer a similar fate from earthquakes two hundred and twenty years later.

A visit to Antigua shows the traveler a wonderful pile of ruins, surpassing anything of the kind to be seen elsewhere

in America. I saw there the fallen, or half fallen walls of over one hundred and fifty churches, of which enough remained to show their former greatness. Walls cleft and partly or wholly fallen, fragments of broken columns, ruined arches, broken statuary, fallen altars, shrubbery and trailing vines disputing with mutilated figures for place in the weather stained niches, and beasts stabled on floors where once the worshiper knelt, are the characters in which the earthquake and volcanic violence have left record of their advent of ruin.

The country around Antigua is of unsurpassed richness. As in the fertile fields around Ætna and Vesuvius—so here in these volcanic crucibles Nature has compounded a soil most favorable to vegetable growth; here the coffee shrub bends under its richest harvest, and fruit trees so numerous that their names would fill a half page, with slight toil offer their luscious products to man; here all plant-life revels in riotous luxuriance. No wonder that in such an Eden numerous warnings passed unheeded; and only when the demon of destruction had converted the place into one vast tomb did the inhabitants forsake this paradise—and lest there should be a return thither, the fallen city is more securely guarded than if sentineled by a flaming sword turning every way at its gates, since not a week passes there without an earthquake, nor a day without some tremor, as revealed by the sisometer.

The present City of Guatemala contains sixty thousand inhabitants, and is located on a large plain that is surrounded on the east, north and west by ranges of mountains. When the city is looked at from an eminence it presents a very imposing appearance, owing to the walls of the houses being of snowy whiteness and many of the churches being models of architectural beauty. The streets, crossing at right angles, are of good width and paved with stones of two forms—one of flat blocks, placed at regular intervals, while the other,

smaller and more irregular, fill the spaces between the blocks —and the whole is so disposed as to slope towards the center of the street, there forming a shallow gutter. The sidewalks, sloping towards the street, are paved with square blocks of stone. The city is provided with a system of sewerage which, though imperfect, is superior to that of San Francisco.

To digress to the important topic of sewers, I would here say, that when abroad a few years ago, I made a careful and laborious examination of the sewerage system of London, and from the Board of Works of that metropolis procured drawings and description of the same; also, a description of the Paris system; all of which is contained in a biennial report of the California State Board of Health. An examination and comparison of the system of San Francisco with that of London or Paris convicts us of egregious ignorance and stupidity, and will cause every lover of our city to wish that he he could blot out this page from the municipal history of San Francisco; yet, so long as official position, votes, and sewer builders and cleaners are so closely articulated, so long will mismanagement prevail and epidemic pestilence make its recurrent visitations.

The houses of Guatemala are built of adobe, stone, or brick, the walls being from two to three feet thick, to afford security of escape in case of earthquakes. To have sufficiency of room, they must occupy much more space than even large houses do with us. The floors are made of half-burnt brick, resting on a concrete foundation, and are covered with a thin straw matting. One great pest of the country is fleas, which are not confined to the untidy houses of the poor, but they hold sway in every household. While Nature has added to the size of other insects in the tropics, she has amply compensated for diminished volume of the flea by increased activity, and, as if to favor this commonwealth of insects, men-

tha pulegium has been omitted in the flora here. I would advise one of those enterprising Dalmatians who are growing flea powder in the neighborhood of Stockton, California, to come here and plant the flea-driving pyrethrum. If he will do so, he will enrich himself, and win the praise of this flea-ridden people.

The water used here comes through time-worn and rickety aqueducts, from a natural fountain, some miles distant. Arriving in the city it is conducted to one or more reservoirs in each block, which are constructed in a corner or side of a house, in which the rattling sound of the falling water is heard, as one passes near it. From such a reservoir, several houses are supplied. The water, before its use as drinking water, is caused to pass through the porous wall of a large filter that is made from *tufa* or volcanic rock. Besides cleansing, this stone filter cools the water. Such filtration might be adopted with advantage in San Francisco.

As public institutions for the indigent sick, one finds two in the City of Guatemala, one for soldiers, and the other for civilians. Through the courtesy of Dr. Joaquin Yela, I was enabled to see and inspect each; also from his annual report I was able to get much information respecting hospital management here.

The Military Hospital is located on elevated ground, three miles from the city. The diseases seen there were those resulting in the main, from dissipation, the largest contingent being furnished by the Guard of Honor. One found that the Southern sons of war are nearly akin to those of the North, in making frequent pilgrimages to an unlawful shrine; and as Vulcan caught in a net the war god during an unlawful visit to his own household, so the followers of Mars often re-enact his role, insomuch that their *follies* cost the State as much as their wounds in its defense. Hygienic

philanthropy has here a hard problem to solve. Who has the wisdom to do it?

A visit to the Hospital General for civilians showed me an institution as well conducted as similar ones in the United States. Disease here is classified as internal, or medical, and external, or surgical; and each of these sections is under the charge of an intelligent corps of medical attendants. The whole number of patients treated here during the year 1882, was five thousand four hundred and ninety persons; of these there remained on hand January 1st, 1883, two hundred and forty patients; whole number of deaths in 1882, four hundred and thirty-three. The medical and surgical service is rendered gratuitously, with the permission of the service utilizing the hospital for medical instruction. Internes, chosen by the faculty of the medical school, reside in the hospital, and to some extent replace the regular physicians during their absence. The physicians and surgeons attending the hospital are mainly graduates of the Guatemala school, who have been abroad and added to their qualifications by a period of study in Paris.

In the treatment of the sick, Dr. Yela told me that they had abandoned the use of stimulants. This course had been adopted after a trial of Todd's mode of treatment by stimulation, under which it was found that more died than under the present non-stimulant method.

A striking feature in the building is that the main portion of it is constructed in the form of a Greek cross; the effect of such an arrangement is singularly impressive, as, standing in the center the eye wanders along the four avenues, each lined with two rows of beds for the sick. Suffering in its many forms seemed strikingly in place there, and to re-enact the great scene whence sprang this sacred symbol, which devotion and self sacrifice have carried to every clime and

planted on every shore where throbs a human heart.

The immediate attendance upon the patients is rendered by Sisters of Charity; and to this is due the remarkable order, the scrupulous cleanliness and the faultless system which characterized the internal management of this institution. A large range of observation, embracing nearly all parts of the globe, has proven to me that such management is the best, and it is quite inexplicable why the French authorities have lately become so hostile to it, and are so determined to abolish it. Armand Despres, of resolute heart and great readiness as a writer, firmly resists this change in the Parisian hospitals, and though in the minority, he is giving his opponents much trouble. Besides observation abroad, personal experience at home, while acting as surgeon to a hospital in San Francisco, under the care of the Sisters of Mercy, has fully proven to me the excellence of this system, for one sees that untiring devotion to the wants of the sick, utter extinction of self, and final death at the altar at which an unchangeable purpose had been pledged, find there their fullest realization.

The sources of maintenance of the Hospital General are novel and worthy of mention. These are moneys derived from the sale of lots for the burial of the dead, income from bull fights, a lottery established for this purpose, a certain percentage of bequests left by will, also bequests occasionally made to the hospital, and a part of the collections made in the churches.

The burial of the dead is under public management, and is an expensive matter, costing those of average means from five hundred to one thousand dollars. The interments are made a few hours after death. The body is deposited in a stone or brick receptacle that is on a level with the earth, while about this there is built a somewhat pretentious mauso-

leum of brick or stone masonry. And these houses for the dead are of such uniform similarity, that when one has seen one, he has seen the whole. The old cemetery is now nearly full of such vaults.

In a part of the burying grounds, there is a portion separately walled off, over the entrance to which is the inscription, "Creencias Varias," meaning, "dissenting creeds." Here one finds a number of vaults containing the bodies of those who, wandering to this remote land in quest of fortune, have found a tomb instead. On reading the inscriptions, one learns that these unfortunates have wandered hither from almost every country of the Protestant North. As a rule, Art has given them tombs of more simplicity, and absent Friendship places fewer votive offerings thereon than one finds over the graves of their Catholic brethren. Yet for the absent wreath and cross, Nature has made amends, in replacing the one, by the trailing passion flower, and the other, by rearing one constructed of stars, in the Southern sky, for the Southern Cross, as a faithful sentinel, nightly watches their ashes.

The largest sum of money derived from any source is that received from the hospital lottery. This mode of raising money, which would awaken scruples with many of us, is here regarded as strictly legitimate. Since I have been here the hospital has received the proceeds of a concert in which there were two hundred players on wind instruments. But of all the means of amusement whence money is procured for hospital support, the most famous is bull fighting. As this is a national entertainment of the Spanish, I am glad to be able to furnish a description of what I saw of it. There is a special amphitheater here for this diversion, where standing room, plain or choice seats may be had, according as the visitor is willing to pay. The central arena is fenced off by a

barricade from the spectators. Though this barricade is strong, yet a few weeks prior to my visit a bull broke it down, and added to the fete by tossing some of the spectators. From two to five thousand persons witness the fights. An hour or two before the spectacle it is announced by a number of persons, dressed in a grotesque style, parading the streets with dancing and shouting. The show commences with music from an excellent band, among whom is one who plays upon an instrument of aboriginal origin. This instrument resembles in sound that of the wooden pianist on Kearny street, San Francisco. A company of soldiers are drilled, and display evidences of good training. In one act there is an intention to represent and personate a party rapidly growing here that has as its ultimate purpose the union of the five Central American States into one confederation. There next follow some creditable equestrian feats. One rider is especially a favorite, and as he appears your neighbor at your side is sure to tell you that he is the best rider in Central America. This prelude having concluded, the fighters of the bull, partly on foot and partly on horseback, take their positions for the combat. These men are dressed in colors calculated to madden the animal. All being ready, the gate opens, when to the sound of music the bull is ushered into the midst of his persecutors. He is first teased, enraged, and chased by those on horse, who goad and annoy him in every possible way, taking care, however, not to seriously wound him. This is the most exciting and critical period of the show, since as soon as the bull is well maddened, he may make an unexpected dash at a horseman, and throw both man and horse to the earth. Whenever the bull accomplishes this masterly feat, he follows it up by attacking the unhorsed rider. The first time I witnessed a fight this occurred, and for a moment the man was in extreme jeopardy; yet through the aid of

his comrades he escaped, being more fortunate than a man who two weeks prior to this was so thrown and killed by the bull thrusting his horn through his chest. After a short time of chasing and teasing, during which the footmen flung red blankets in front of the bull, and paper-winged darts which fixed themselves in his sides, the animal became tired, and seemed to lose his spirit. As soon as he gave signs of this he was allowed to escape, and a new one allowed to enter. After a half dozen bulls are thus treated, in which, as a rule, neither man nor beast is much hurt, the show concludes by a bull being caught and haltered, when two men mount his back and ride him, to the infinite merriment of the spectators. In bull fighting as practiced here, no charge can be made of foul play, since it is never permitted to kill the animal, though that privilege is conceded to him; and should the latter catastrophe occur, most naturalists would agree that the great law of evolution would not be violated, since there would be a *survival of the fittest.*

From Dr. Yela's annual report we learn that of the five thousand four hundred and ninety patients treated there were but sixty-three who had had tubercular consumption, and of these but about one-half had died. A striking difference from what one finds in England or in the United States; here deaths from tuberculosis amount to less than eight per cent. of all deaths, while in the North a large proportion of deaths in hospital practice is from consumption. Guatemala contains a population of one million and a quarter of inhabitants. Nearly half of these are Indians, the descendants of the aborigines who are civilized. The remaining population consists of Ladinos, who are a mixture of Spanish and Indian, and, besides these, a small number of foreigners of various nationalities. Pulmonary consumption almost never occurs among the pure blooded Indians, but is chiefly found among the Ladinos.

Goitre is of common occurrence, being seen chiefly among the Indian women. As there is a prevalent opinion here that the cure of a goitre tends to develop scrofula, hence those subject to it seldom apply for treatment. Cretinism, closely associated with goitre elsewhere, does not occur here. The prevalence of goitre renders this a good place to test Chatin's theory in regard to the origin of this disease. According to him there is an absence of iodine in the water, air and food in regions where the disease prevails, and the general absence of the disease is owing to the fact that the most of the world is daily taking, in some form, a small dose of iodine, at least enough to retain its thyroid glands in decent limits. This subject is treated of exhaustively in Moleschott's "Circle of Life," and the reader of that section is surprised at the vast array of observations which the last twenty-five years has brought in support of this theory.

In the vicinity of Guatemala there is a small colony of lepers, some fifteen in number, who are kept apart from the remaining population. The cases are found among Spaniards who are thought to be descendants of the Moors. The disease consists of a hypertrophy of the skin and the subjacent tissues, which finally ulcerate and slough. The disease is not considered to be contagious.

Among those connected with the surgical service of the Civil Hospital Dr. Monteiros holds leading rank for learning and for ability as surgical operator. His recent return from a professional tour abroad was the subject of special comment by the daily press, as well as the occasion of an ovation on the part of his medical brethren. On the day of his return several of his friends, as is the custom here, took carriages and went out several miles to meet him. The ovation, however, had an abrupt and melancholy termination, in this: that one of the teams ran away and seriously if not fatally injured two medical students.

The Practice of Medicine is better fortified here against charlatanism than in the United States. No one can practice unless he is a graduate of a school of recognized standing, and then if that school be a foreign one, permission to practice is only given to those who pass a satisfactory public examination, and present a thesis written in Spanish, the whole costing the applicant about one hundred and fifty dollars. In passing along the streets here one is struck with the almost total absence of medical signs; and even if one is seen, it is in characters so small as to be illegible at a short distance.

There is a medical school here that was founded many years ago. It is located in a picturesque building, one story high, and contains a large number of lecture rooms, among which was one very handsome apartment, for use on public occasions. In the dissecting room I found tables much like those to be found in one of the medical schools of San Francisco. The number of the tables, as well as the receptacle for dissecting material, seemed quite inadequate to the wants of one hundred students who are in attendance. The building is partly surrounded by a botanical garden, which, however, contains more ornamental plants than those used in medicine. The museum contains an excellent collection of specimens of natural history—better than one would find in connection with any medical school in our country. So much however cannot be said of the pathological collection, which was sadly meager. In the pathological museum one finds a rare example of a deformed infant, resembling closely that of Ritta and Christina, in Buffon's Museum, Paris. This child has a double head, one trunk, four arms, and four legs. Professor Meigs, of Philadelphia, never failed in his course of lectures to deliver an eloquent discourse on the Sardinian monster, in which there seemed to be duality of mind working in unison. The exhibition of Ritta and Christina brought money to the

parents; but this luckless Guatemaltecan died at birth, and its Indian father, believing its mother to be a witch, abandoned her.

Before admission to the medical school, the candidate must pass a satisfactory examination in the common branches of education; he must also possess some knowledge of the French, German, and English languages. A knowledge of Latin, once required as a prerequisite, has been dispensed with. This is singular, when one remembers the close relation existing between medical literature and that language; and besides, the Spanish is the most direct descendant of the old Roman tongue. The words of that ancient people, as a sacred *heirloom*, have been passed from lip to lip across the bosom of twenty centuries, and in many cases with slight change, except that in their transit they have acquired more precision and harmony. So close is the kindred that if Livy and Cæsar were to appear in this picturesque land of the Cordilleras, they might readily fancy they were in a Roman colony.

The curriculum of study here embraces the same subjects as in our schools; there is, however, far more time given to natural history and the physical sciences, but much less to pathology and practical discipline. The curriculum embraces six years of about ten months annual study. As seen, the time of study exceeds that of England, France or Germany.

As before said, one finds two different climates in Guatemala, the one of the coast or low lands, which is intensely hot, and the intermediate high lands, in the midst of which the Capital is located, and where one finds a mild or cool temperature; and these physical differences lend their respective impress to disease, engendering fevers of extreme virulence in the low lands, while those of the higher plains have a milder type. An approximate notion of the tempera-

ture of the high lands may be formed from the following figures taken from a table of observations made by Mr. McNider, during his stay in the City of Guatemala:

	MORNING.	NOON.	EVENING.
January	56°	68¾°	65°
June	63¼°	73°	66¾°
Yearly average	61°	73°	67°

Mr. Hall, resident American Minister, tells me that at midnight he has observed the thermometer to stand as low as fifty degrees. The average rainfall for the year is fifty-five inches. The rain commences in May and lasts for about six months, the largest fall being in September. Slight showers occur during the remaining so-called dry months. During my stay, which lasted from the 16th of January until March 16th, there were a number of showers.

Owing to the unhealthfulness of the coast, wealthy land owners seldom live there; in fact, their visits there are brief and infrequent, knowing, as well they do, that such visit is at the risk of life. On the contrary, they spend the most of the time in Guatemala City. During my stay in the city, Mr. Ramon Aguirre, one of the prominent men of the place, found it necessary to visit the coffee region adjacent to Champerico. On his arrival there he was attacked with pernicious malarial fever, and died in four days. This fever, evidently of miasmatic origin, is called here *amarillo* or yellow fever. The person attacked vomits violently, becomes intensely yellow, and as a rule, soon dies. These are the characteristic features of our Southern yellow fever, but as the disease is not contagious, and is often curable by large doses of quinine, physicians here do not regard it as identical with black vomit, or yellow fever. The experienced physicians of this country claim that they can nearly always cure the disease here, if they are called in time. Sometimes, however, the attack falls with such fulminating violence that

no remedy can stay it. Such was the case of Aguirre, who died, though he had skilled medical service constantly at his side. Those persons whose business compels them to pass much time on the coast, as a rule, find immunity from disease by constantly using quinine. For this purpose, from eight to ten grains daily, should be taken.

The traveler here soon learns to duly appreciate the value of cinchona. Take away its alkaloid extract, quinine, and in less than two generations the low lands of Central America would relapse to barbarism; without this precious safeguard, steamship lines would never have been established here, nor would Northern engineers have been able to penetrate the tangled fastnesses of the dense woods, to survey routes for railroads. Hence medicine, in the discovery of the virtues of Peruvian bark, has contributed the most potent factor towards the advancement of civilization in these regions where nature so stoutly resists its progress. Humboldt, in his "Ansichten der Natur," shows that this discovery is wholly due to our profession; for instead of its being an aboriginal remedy, he found in his travels among the Andes that the Indians, when attacked with fever, could not be persuaded to take this Peruvian bark.

As epidemic diseases, cholera and small-pox occasionally present themselves in Guatemala. In a village not far from the Capital, a few years ago, there was an invasion of cholera. As such a thing had hithertoo been unknown its appearance on this occasion was attributed to the foreigners having poisoned the water, and this belief took such strong hold of the native mind that several of the foreigners deemed it prudent to leave the place for a time. Small-pox, during my visit, was prevailing epidemically in some of the northern villages, yet owing to the medical profession encouraging vaccination, and likewise to the assistance rendered by the

Government in the same direction, the disease was arrested.

The advantages of vaccination have received further proof and illustration in this country. Among the Indians it is difficult to accomplish vaccination, the same prejudice existing among them concerning it as one finds in certain places further north; hence where small-pox appears among the Indians it is very fatal, while the most of foreigners who have been vaccinated escape the disease. Still, despite these plain facts, which are in accord with European and Mexican experience, one finds in all parts of the world a few minds who will not accept them. As instances of such recalcitrant minds are Hammernjk of Vienna and Guerin of Paris. The former headed a deputation a few years ago that petitioned for the abolition of compulsory vaccination, while to-day the French Academy of Medicine often hears a harangue from Guerin against vaccination; and, true to his convictions, I saw that Guerin did not isolate small-pox patients from others in his wards, showing an indifference as though he thought that the disease was non-contagious. As analogues to these malcontents are those who claim that Shakespeare did not write his plays, who deny that Newton discovered the law of gravitation, or Harvey the circulation of the blood, or Columbus America. Such men would fain steer against the irresistible stream of truth, and hope to gain notoriety from the consequent wreck of their puny barks. Latin America, notwithstanding its intense devotion to orthodox medicine, has recently been favored with the advent of such an illy compounded genius, who indulges his pen in occasional diatribes against vaccination, and advises as a preventive to take homeopathically prepared pillets of vacinia. Instead of going with the Vicar of Wakefield across lots to the church he would with the Vicar's wife reach thither by a road three miles around—that is, on his wall-eyed infinitessimal colt

he would reach the blood through the circuitous route of the stomach and bowels. Those who accept Hahnemann's sacred Trilogy, that all existing disease originated in itch, barber's itch or syphilis, will probably not find it hard to believe that the vaccine germs which are launched on this eventful pil-primage down their throats will be lucky enough to find a point at which they can debark somewhere along the winding shores of the alimentary canal.

Some years ago there was erected in the City of Guatemala a monument to commemorate Jenner's discovery of vaccination. Is it not an opprobrium to the north that only in this remote corner of the earth has there been just recognition of this great discovery.

A singular fact, and which has been the subject of much study by Dr. Stoll, a very intelligent physician of Guatemala, is that the art of mesmerism is known and practiced by the Indians of Guatemala. Dr. Stoll is preparing a work upon one of the Indian races here, in which this subject will be thoroughly treated of. This is another fact to be added to those which Figuier has collected in his "History of the Marvelous," in which it is shown that sorcery, witchcraft, somnambulism, hypnotism, table-rapping and mesmerism are branches of one common tree, in the trunk of which are bound up all the races of humanity.

Among Americans who deserve special mention in connection with the west coast of Central America, is Captain J. M. Dow. This gentleman, now agent of the Pacific Mail Steamship Company, at Panama, about 1856 commanded the Columbus, a small steamer that made monthly voyages along the coast, stopping at the leading ports. Through the intelligence and industry of Captain Dow, commercial relations were inaugurated with these States, which, small at first, have grown to large proportions, and have been the means of giving to the Uunited States those advantages which England

has had the shrewdness to grasp and monopolize on the west coast of South America. As an example of the development of trade, may be mentioned that in the commencement the yearly amount of coffee exported from Guatemala was but thirty thousand sacks; now there are annually shipped three hundred thousand sacks. Besides his services to commerce, Captain Dow has made valuable contributions to natural science in the discovery of new species of plants, fishes, and animals. As an addition to botany, he has discovered in Costa Rica one of the most beautiful orchids of tropical America, which has been named after him by foreign scientific authorities. In the Gulf of Fonseca he has found a fish having four eyes, and which is viviparous; and finally, he has found a species of tapir previously unknown. Such work on the part of one so busily occupied with other matters so foreign to scientific pursuits, is in the highest degree praiseworthy. His work has been duly recognized both at home and abroad. In England, where proper caution is exercised in awards to merit, he has been admitted to membership of one or more of the learned societies.

This article would be incomplete without special mention of Dr. Fenner, who came from New Orleans to Guatemala a few years since, and through his high attainments in medicine has reached the first position in his profession. Besides being the consultant usually asked for where especial skill is required, Dr. Fenner has had the rare fortune to reach a near place to the government, so that no one is on more intimate terms than he with General Barrios—that remarkable man whose fearless heart, upright character, and unfaltering patriotism have safely conducted Guatemala through so many perils, and at this hour are causing most eyes to turn towards him as the one most competent to rule, in the event of these five republics entering into one common union.