

7. The dispersion of the wounded over wide areas will increase the difficulty of prompt "first aid."

8. Field surgery will be more scientific, and require a greater variety of operations, hence the poverty stricken little cluster of instruments formerly furnished by the Government to field surgeons must have additions adapted to the new exigencies of the battle-field.

6 Sixteenth Street, Chicago.

### MEDICAL EDUCATION.

BY HENRY M. LYMAN, A.M., M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, RUSH MEDICAL COLLEGE, CHICAGO, ILL.

The present is a time of evolution and change in the methods of medical education. The country has outgrown the old system which was the best that could be provided for the hungry boys who could hardly keep soul and body together during a term of sixteen weeks of exclusion from the maternal pantry. Thus far the progress that has been made is in the way of real improvement. It might have been much more rapidly effected had the pecuniary endowments of medical education been established upon a broader foundation; but, taking everything into consideration, the teachers of medicine throughout the country have accomplished all that with their limited resources was possible. We have reached the point where eight or nine months' sessions are required at the leading medical schools, and four years of study are requisite for graduation. The next step in advance will consist in the enforcement of attendance upon four courses of medical lectures delivered during the four consecutive years of medical study. This arrangement will render it possible to adopt a course of study that shall be complete and easy of apprehension, instead of the unphilosophical curriculum covering only three years, during the second year of which the belabored student is struggling to finish his preparation in the elementary branches, and at the same time striving to cope with the advanced subjects for which he is not sufficiently equipped.

But with the adoption of the four-year course, no such helterskelter method need be followed. The first two years should be devoted to the study of the science of medicine, and the last two years to the art of medicine. The great object during the first two years should be the acquisition of a sufficient practical acquaintance with that body of classified knowledge which we now possess regarding the structure and functions of the body, and the active agents that modify that structure and function in health and disease. For this purpose the student should be carefully trained to use his powers of observation in the dissecting room and in the laboratories, where histology, physiology, chemistry, medical physics, bacteriology and materia medica are taught. This will consume the working time of two full years. Inasmuch as many of these subjects are admirably taught in the literary colleges and scientific schools of the country, the graduates of such schools and colleges may very properly be admitted to the second year of the medical course. This is additionally desirable for the purpose of attracting to the medical profession many highly educated young men who might be repelled by a requirement

that they must spend a year in reviewing what they have already sufficiently studied.

Having thus completed two years in the study of the elementary branches, the student should be examined, and only if duly qualified, should he be permitted to advance to the study of the art of medicine. Progressing in the philosophical order he should now be made acquainted with the visible and tangible forms of injury and disease. In other words he should begin the study of surgery. This should be taught in all its branches, including the principles of surgery, injuries, skin and venereal diseases, eye and ear diseases, surgical diseases of the respiratory passages. Obstetrics may now be fittingly taken up, and the principles of medicine should receive attention. Finally, those topics which require the largest experience, observation and power of intellectual discrimination should engage the attention. These are the practice of medicine and surgery, gynecology, medical jurisprudence, state medicine, mental diseases and therapeutics. The following schedule will readily exhibit this classified arrangement of subjects:

FIRST YEAR.	
Anatomy, Physiology, Histology,	Chemistry, Medical Physics, Materia Medica, Dissections.
SECOND YEAR.	
Anatomy, Physiology, Bacteriology,	Chemistry, Toxicology, Hygiene and Climatology, Dissections.
THIRD YEAR.	
Principles of Surgery, Pathological Anatomy, Eye and Ear Diseases, Therapeutics, Dental Pathology,	Principles of Medicine, Skin and Venereal Diseases. Orthopedic Surgery, Surgical Diseases of the Res- piratory Passages, Physical Diagnosis.
FOURTH YEAR.	
Practice of Surgery, Gynecology, Mental Diseases, Medical Jurisprudence,	Practice of Medicine, Nervous Diseases, Therapeutics, State Medicine.

But even the most scientific classification of medical studies will avail little if the method of instruction be faulty. The day has gone by when medical students could become learned physicians by absorption of knowledge from the atmosphere of a lecture room that had been impregnated by the breath of an eloquent professor. Like all other students, medical students must acquire knowledge for themselves by diligent work in the laboratory and recitation room. During the first and second years the greater part of the time should be passed in the dissecting room, in the chemical laboratory, in the laboratories of histology, bacteriology and pharmacy. Instead of considering their duty fully performed by a voluble description of the sphenoid bone, or a dissertation upon the functions of the supra-renal capsules, the professors should be sparing of lectures, and should confine their didactic efforts to the demonstration of such objects and experiments as can not be readily performed by the students themselves. With each professor should be associated a sufficient number of tutors whose office should be the hearing of regular recitations upon the topics assigned by each chair. Every student should be required to attend these recitations, just as if he were a freshman or a sophomore in a literary college. In this

way, accuracy of knowledge will be insured for the student, and for the tutor experience in the art of teaching. At the end of two years, if his examinations are satisfactory, the student may be allowed to commence the study of the art of medicine. During the next two years instruction by recitation should be continued by the tutorial staff, while the professors of each department should confine themselves chiefly to the supervising of the work of their subordinates, and to clinical instruction of their classes in the clinical amphitheater or at the bedside. At the end of the third year the qualifications of the class should be fully ascertained, and no one should be permitted to enter the graduating class in the fourth year until he has given satisfactory evidence of sufficient preparation for such candidacy. In this way it will become possible to avoid many of the ruinous disappointments which now occur, when all sorts of loose fish are coaxed into the graduating net only to be rejected at the final examination. The sifting of students should precede their matriculation, and should be continued during the whole of their course, instead of being postponed till the final examination, leaving the unfortunate dullard in ignorance of his fate till time and money have irrevocably vanished, with nothing to show in exchange for the sacrifice.

## A REMINISCENCE OF THE NICARAGUAN FILIBUSTERS.

BY L. C. LANE, M.D.

SAN FRANCISCO.

Acceptó con gusto la leche, queso y pan de maíz que le ofrecieron: mientras él devoraba estos manjares, ocupado exclusivamente en satisfacer la primera necesidad de la naturaleza, no se caraba de modo alguno de sus discursos.

(He accepted with pleasure the milk, corn bread and cheese which they offered him, and while he ate this food, occupied wholly in satisfying the first wants of nature, he took no heed of their discourse.)—From Campo Alange's *Novela*: "Pamplona y Elizondo."

When an Assistant Surgeon in the United States Navy, in 1858, and connected with the sloop of war *Decatur*, the writer was on the western coast of Central America, at the close of General Walker's invasion of Nicaragua. The older reader will remember this freebooting expedition, which was composed of bold, reckless, fearless and unscrupulous fortune hunters; and whose operations, as was evident to the writer, had the sanction of President Buchanan's administration, and the aid of the Navy, as far as it was possible to go without arousing international suspicions. And in this movement the sloops of war *Decatur* and *St. Mary*, and frigate *Merrimac*, so famous afterward in the Confederate service, quietly acted their respective parts. These vessels were moving from port to port for the purpose of aiding or protecting Americans who might be found in distress.

On the arrival of the *Decatur* at Punta Arenas, the Pacific port of Costa Rica, our commander was informed that a body of American filibusters, who had been conquered by the Costa Ricans, were held as prisoners at that place. These men were young; few of them had reached the age of 30 years; they were half naked and of cadaverous paleness, for in their blood, to an undue measure, the leucocyte had replaced the red globule. As prisoners, they were fed by the Costa Rican Government; and for this purpose were provided for in the manner which the robber would usually receive from him whom he

had failed to rob, viz.: they were each given a dime a day with which a sufficiency of bread, bananas and plantains could be purchased to stave off, or rather prolong, starvation. And as dessert, each evening their eyes feasted on a sunset picture unequaled by nature or painter in Italy. It is probable that in that scene of sublimity, cloud-forms tinted with opal, amber and rose, did little towards appeasing the fierce qualms which tormented those starvelings.

The predominating diseases of these men, apart from numerous minor lesions received in sacrificing to Venus, were malarial fever and an ulcer of peculiar and unusual characteristics.

The fever was of remittent or intermittent type, and was much milder in form than that which occurs at the North in the robust subject who has been exposed to malarial influence. From the writer's observation every white immigrant from the temperate zone to Central America soon fell a victim to this fever. After a few years' residence there they became emaciated, bloodless and spiritless. A few succumbed at once and died soon after arriving in the country. A Minister to Guatemala from the United States died in two weeks after reaching his destination. To live there the Northerner must be provided with quinin, and from time to time, take enough to counterpoise the malarial poison with which he is becoming saturated.

The ulcers with which the filibusters were affected were seated chiefly on the arms and legs, and their causation and commencement were to be found in some lesion which was of a trivial nature; for example, the prick of a thorn, the bite of an insect, and in a few cases the wound had arisen from a knife-thrust or gunshot missile. In the Central American forest one encounters at every step trailing vines and shrubs which are armed with small spines or thorns, the contact with which lacerates the skin. And in these men such wounds quickly enlarged, and assumed the form of an unhealing ulcer.

These ulcers presented characters which the writer has not seen elsewhere. They consisted of half-formed tissue which, in the exuberance of its growth rose two or three lines above the adjacent surface. They were of a pale yellow color, and so non-vascular that when touched they did not bleed. This pseudo-formation differed widely from any form of granulative tissue, and in appearance it resembled a thick emulsion rather than an organized animal tissue. In fact, it was a new type of structure, so low in organization that it was the analogue of a fungoid plant, and was no more sentient than the latter. This fungoid neoplasm had arisen in the human body that was saturated with malarial poison, half starved and living on a non-nitrogenous food.

The commander of the *Decatur* gave orders that a few of these men who were in the worst condition should be taken on board and cared for. A small number were selected, and were given treatment. Little was done except to place them on the man-of-war's rations, and under this improved regimen, and simple cleanliness, the ulcers vanished like magic. These cases afford an illustration that food and not medicine may give health to the sick, reversing the initial sentence of Celsus.

Of the men who were left ashore in Punta Arenas, a considerable company took a large boat and came alongside of the *Decatur*, hoping thus they would