123. Dr. John Homans. Male, fifty-eight years. Duration, four months. Growth occupying all the left lower jaw, involving the cheek and fauces. Left lower jaw excised from symphysis to articulation. Died in seven months with cervical recurrence.

117. Dr. John Homans. Male, sixty-five years. Duration, two months. Tumor occupying left lower jaw and tongue. Growth removed and portion of jaw. Died in three years, after second operation for recurrence.

145. Dr. W. M. Conant. Male, sixty years. Duration, nine years. Ulcer anterior portion of jaw and lip. Excision of anterior lower part of jaw with growth, and dissection of neck. Died of shock following operation.

52. Dr. E. A. Codman. Male, sixty-eight years. Duration, six weeks. Large mass on left side of lower jaw at angle, involving floor of mouth. Left lower jaw excised from symphysis to articulation, with surrounding tissues. Cervical glands removed. Death on thirtieth day with abscess of lung.

168. Dr. J. G. Mumford. Male, sixty-four years. Duration, seven years. Large tumor on right side of lower jaw, involving surrounding tissues. Right side of lower jaw excised from symphysis to angle. Died of shock following operation.

CANCER OF THE UPPER JAW.

172. Dr. J. G. Mumford. Male, seventy-three years. Duration, two years. Tumor left posterior edge of hard palate, 2 cm. in diameter. Tumor excised. Died in six months with recurrence.

143. Dr. H. H. A. Beach. Female, fifty-nine years. Duration, three months. Tumor left upper alveolus, involving hard palate. Left upper jaw excised. Died in six months with recurrence.

218. Dr. W. M. Conant. Male, forty-five years. Duration, thirteen months. Tumor involving all of hard palate and alveolus. Cervical glands, both sides. Growth thoroughly curetted and cauterized. Five similar operations done at varying periods. Died three years three months after first operation.

134. Dr. S. J. Mixter. Female, forty-seven years. Duration, three months. Tumor right upper alveolar process. Right upper jaw excised. Died in three years one month with recurrence.

127. Dr. S. J. Mixter. Male, sixty-six years. Duration, four years. Tumor right upper jaw. Right upper jaw excised with the floor of the orbit. Died in eight months with recurrence.

111. Dr. A. T. Cabot. Female, twenty-two years. Duration, one year. Ulcer of left upper alveolus and palate. Left upper jaw excised with the tonsil. No further information.

31. Dr. J. C. Warren. Male, sixty-four years. Duration, three months. Large tumor left upper alveolus, involving palate. Left upper jaw and palate excised. Died in six months with recurrence.

158. Dr. M. H. Richardson. Female, fifty-six years. Duration, two months. Tumor, right upper alveolus. Tumor and surrounding bone excised with rongeur forceps. Died in ten months with local recurrence.

175. Dr. M. H. Richardson. Male, fifty-three years. Duration, seven months. Tumor, right alveolar process of large size. Growth curetted and cauterized. Died in five months with recurrence.

CANCER OF TONSIL.

Alive and well.

217. Dr. C. L. Scudder. Female, sixty-nine years. Duration, six years. Tumor right side of soft palate. Tumor easily "shelled" out. Alive and well seven

years ten months later. Letter received from patient. Pathological report: Epidermoid cancer.

Died with recurrence.

221. Dr. F. G. Balch. Male, fifty years. Duration, two years. Tumor of left tonsil, involving soft palate. Cervical glands on left. Growth cauterized. Died in eight months with recurrence.

187. Dr. F. B. Harrington. Male, fifty-eight years. Duration, ? Right tonsil, involving soft palate. Lower jaw divided and growth excised through the cheek. Died in one year eight months with recurrence.

203. Dr. M. W. Conant. Male, fifty-four years. Duration, two months. Tumor of left tonsil, involving surrounding parts. Cervical glands. Tumor removed from behind angle of jaw. Dissection of neck. Died in five months with recurrence.

CANCER OF CHEEK.

181. Dr. M. H. Richardson. Male, fifty-five years. Duration, four months. Several small tumors of the left cheek, involving the alveolar process. Excision of left upper and lower jaws, with a portion of the cheek, following tracheotomy. Died of shock two days later.

51. Dr. J. C. Warren. Male, fifty years. Duration, three and one-half years. Tumor of left cheek, involving jaw, size of a grape fruit. Tumor curetted out. Died shortly after with recurrence.

6. Dr. J. C. Warren. Male, forty years. Duration, two years. Ulcer, size of fifty-cent piece, inside of left cheek. Excision of growth and surrounding tissues. Died in six months with local and glandular recurrence.

230. Dr. A. T. Cabot. Male, forty-eight years. Duration, two months. Ulcer one inch in diameter, inside of right cheek. Excision of tumor and surrounding tissues. Died of cancer five months later.

125. Dr. S. J. Mixter. Female, fifty-three years. Duration, five months. Tumor on inner side of right cheek, involving the jaw. Lower jaw excised, with portions of the cheek. Died in one year two months with recurrence.

223. Dr. F. G. Balch. Female, fifty-eight years. Duration, six months. Ulcer two inches in diameter, inside of right cheek. Growth excised through the mouth, and extensive dissection of the neck. Died in eight months with recurrence.

136. Dr. S. J. Mixter. Male, sixty-six years. Duration, one year. Small ulcer inside of right cheek, involving upper alveolus. Growth removed with part of alveolar process. Died seven months later of pneumonia, with local and glandular recurrence.

213. Dr. John Homans. Male, sixty-seven years. Duration, six weeks. Tumor inside of left cheek, size of walnut. Cervical glands. Growth excised and dissection of glands from neck. Patient died of delirium tremens four days later.

RANDOM MEDICAL NOTES OF TRAVEL.*

BY GEORGE CHEEVER SHATTUCK, M.D., BOSTON.

It is with great pleasure that I find myself here to speak to you to-night. When I met Dr. Blackader last autumn in Boston he invited me to visit Montreal and to give a short talk upon any subject relating to medicine that I might choose. I replied that nothing would give me greater pleasure than such a visit, but that I was not learned in any particular line and did not feel able to make a

* Read before the Undergraduate Medical Society of the McGill University Medical School, Feb. 12, 1909.

scientific contribution at present. "But you are a teacher," he replied. I could not deny the charge, and as that seemed to settle the question I said I would see what could be done. After some consideration it occurred to me that as I had returned recently from a trip around the world, followed by a period of study in Europe, I might be able to interest you by some observations on travel and by a few words about the opportunities offered in Vienna for post-graduate study.

I left Boston in late October of 1906 with a ticket which allowed me to stop off on the way in Arizona and New Mexico at some of the points of interest. It would be pleasant to dwell on that wonderful country where the clear, sparkling atmosphere and the grand scenery make one feel that one has never really lived before, but we must hurry westward. One week out of San Francisco the ship rolls on the long, low swell of the north-east trades with a gentle breeze astern. In another week we approach Honolulu. A veritable Garden of Eden it seems to one for the first time in the tropics, so soft and so warm is the air, so bright and varied are the greens upon the brown volcanic slopes, so profuse is the foliage in the city, and so stately are the palms along the beach. Seen from the ship it is all that expectant fancy painted. But here also the apple has been tasted; epidemics have decimated the native population, and leprosy is a scourge. Thanks to sanitation, conditions are much better than they were. The hospitals in the leper colony at Molokai have been renovated and enlarged, so that by careful segregation it is hoped that leprosy may be eliminated in the future. Also the government is building laboratories in which to conduct experiments, with the hope of finding a cure for this disease. Meanwhile, speculation is rife about the future of the islands when the Panama Canal shall have been opened. The doctors say that the mosquito which transmits yellow fever is there, that conditions are ideal for the spread of yellow fever, and that if it should get through the quarantine into this virgin soil it might make a clean sweep of the native population. Considering the great success which has followed the institution of prophylactic measures in Cuba it seems reasonable to suppose that the danger is exaggerated and that even if yellow fever should break out in Honolulu, it could be prevented from spreading by prompt action of the health officers. The hospitals of Honolulu offer little of real interest to the stranger, there being comparatively few cases of tropical disease to be seen there. I was, however, interested in being told that cancer of the stomach is so unusual that gastro-enterostomy has been performed but once for this disease in the Islands, and that cancer of the breast is still less common there than cancer of the stomach. After two days in Honolulu, the following week was spent seeing the other islands and climbing volcanoes. Then ten days more passed at sea before reaching Yokohama. A Japanese steerage passenger died of beriberi one morning, the engines stopped just at noon while the ship rolled like a derelict, a canvas

bag slid over the side and the body sank before the passengers knew what had happened. Several Chinese died of tuberculosis on this voyage and were buried in the same way. When approaching their end in a foreign country they have a way of taking passage with the hope of dying in their native land. The Japs in the steerage, although proverbially a clean people at home, are some of the dirtiest in their habits under these conditions, throwing refuse of all kinds upon the floor beside their berths. Nor is this the indifference of seasickness, but appears to be the nature of the race when conventional restraint is removed. Whatever the explanation, the fact at any rate was striking when the ship's surgeon spoke of it. I should think that in these filthy, cramped surroundings, where men are stacked like books without space to move, many would contract consumption, and I doubt not that they do. One visit to the steerage satisfied my curiosity entirely.

At Tokio I presented a letter of introduction to a professor of the university, who arranged that I should meet some of the physicians of the hospital there, and that I should see what I wanted. The hospital of the university is large and well appointed for surgery, but I judged from the few attendants to be seen that the patients get little care. Many of the physicians speak more or less German, and all the bedside records are kept in German. I wanted especially to see beriberi in the acute stage, but as it occurs in Japan chiefly in the spring they were able to show me only a few cases whose legs had been slow to recover from the paralysis of the disease. With the exception of two typical cases of advanced scleroderma lying in adjoining beds no unusual disease came to my notice. More interesting to me than the University Hospital were the Imperial Institute for Infectious Diseases, the Serum Institute and the Lymph Institute, now all run by the government under the general management of Professor Kitasato. They keep some two hundred horses and cattle for making sera; they have laboratories which supply vaccine and antitoxins for the entire nation; there is a special rat- and fly-proof building for the bacillus pestis, a small hospital where cases of infectious disease are kept for study and there are laboratories where practicing physicians may come from any part of Japan to familiarize themselves with pathogenic bacteria and modes of prophylaxis by taking the course which the government offers them. The names of those who pass the examinations are enrolled upon a list from which deputy health officers are drawn in times of danger from epidemics. In separate laboratories for each are made antitoxins for diphtheria, tetanus, erysipelas, plague, cholera and Shiga's dysentery; and immunizing sera are prepared for smallpox, plague, cholera and typhoid. At the time of my visit, a new antitoxin was being developed against the venom of the "habu," a poisonous snake common in some parts of Japan, and Professor Kitasato was experimenting with a new antitoxin for typhoid, the method of making which had not then been published. Since serum therapy for typhoid was

begun at the hospital of the Institute it was claimed that the mortality had fallen to 10% from a much higher figure. As I had been told at the other hospital that the typhoid cases in Japan rarely had hemorrhages, it seemed to me that the mortality should not be above 10% even if no serum had been used, and that the lowered mortality when the serum was given may have been the result of better care in other respects. Hydrotherapy was not used for typhoid at either of these hospitals. I visited, also, a private hospital in the outskirts of the city where some thirty lepers are accommodated. Serum therapy there has given encouraging results in some of the cases, but others have not improved at all. I was fortunate in meeting, at the Institute, Professor Kitasato, who for his work on plague and as an organizer for the public health is perhaps the leading physician of Japan. I met also Professor Shiga, of dysentery fame. The former received me graciously and while we conversed for a few minutes it seemed to me that he was pleased by the visit of a stranger. Professor Shiga beamed as if brimming over with childlike good humor, and all the doctors that I met in Japan were obliging to an unusual degree.

Before leaving Japan I must not forget to tell you of an interesting feature of the Shinto temples, the temples of ancestor worship. In every one of these, at one side of the main hall, sits enshrined a competitor of the medical profession in the shape of a deity carved out of wood. He has a wrinkled pot-belly and a benevolent expression. His name is Binzuri, and he heals the faithful by a sort of massage. As with many things in Japan which are done in the opposite way from our way, such as pushing the saw and pulling the plane, so with this massage, which is applied by the patient himself to the body of the god in the part corresponding to that of his own body where he has the pain. Judging from Binzuri's appearance, one may deduce that he has a large general practice, but that he specializes in headaches, joint pains and indigestion. Another common sight in Japan is to see hanging near a shrine an array of sandals ranging from heroic to enormous sizes. These are votive offerings from coolies whose sore feet have been cured by the divine power.

People in Japan tell you that our race cannot subsist on Japanese food alone without becoming very hungry for lack of meat. Be that as it may, I decided to try it in spite of the fact that my appetite is large and that I eat much meat habitually. I spent the last week there living in Japanese hotels in the Japanese way, wearing a kimono in my room, sleeping between quilts upon the floor, drinking tea every half hour and eating the Japanese food with chopsticks while I squatted on a cushion. The food was, in fact, far better than that served in the other hotels in the European style. The meals consisted of a huge bowl of rice, one or two small bowls of soup, several kinds of fish and some green vegetables or bamboo shoots. The soup always had an egg or some vegetables in it, except on one occasion, when the eye of a large fish stared at me out of the bowl.

There was always raw fish cut in very thin slices laid neatly together, which was intended to be eaten with a strong sauce, and had I not thought of tapeworms I think I should have liked it. It was surprising to find how easy it really is to eat most things with chopsticks, but the small fried fish with many bones presented some difficulty. I was amused to see the disappointment on my servant's face when he saw me handling the sticks with ease, and when at the end of the week I had not once asked for meat he said that he had not known such a thing to happen before in his experience. In truth, I had not wanted meat. I can only account for this myself by saying that I had eaten a great deal of what was offered and had exercised little. Although I could tell you much more of Japan, it may be that you have heard enough already, and it would lead me too far from the subject in hand.

I searched the hospitals in China at Shanghai, Hangchow and Hongkong, but except for an abundance of beriberi in Hongkong I saw little of disease that one may not find anywhere. The more interesting diseases, I was told, come chiefly in summer, or are found only in some distant place. Hangchow is a very large city where one can walk for miles through the narrow alleys that serve as streets without seeing an outward sign of the presence, or even of the influence, of the white race. Hangchow, centuries ago the capital of the empire, is still called "The Beautiful" on account of its many temples and fine pagodas. Situated as it is out of the line of foreign travel and of trade, the life there even now may be much as it was when Christ preached to the people of Israel. In the midst of this hive of Chinamen a Scotch missionary doctor, by thirty years of tireless work, has built up a hospital of considerable size, with a dispensary attached, and having convalescent homes and a leprosarium outside the city. He has won the confidence of many Chinese, without which he could have done nothing; he has raised or earned the money which built the hospital, and has run it almost single handed by training the Chinese nurses himself. He has now as assistants a young white physician and a nurse trained in England, and he hopes that he may be able to leave them in charge while he takes his first vacation at home. Patients in the hospital do not pay except for the treatment of venereal disease. Dr. Main is a connoisseur of the old Chinese porcelains and bronzes, good specimens of which are very valuable. Much money has been raised by collecting these and selling them at fairs held in Shanghai for the benefit of the hospital. But this is not all that this remarkable man has done. He instructs a class in midwifery for Chinese women and he founded and runs a medical school of sixty students. Although well along in years, far from being used up by all this work, Dr. Main is more vigorous than many a younger man; he talks of the work with enthusiasm and he even runs upstairs. For the traveler the present capital of the empire is one of the most interesting cities in the world, not only for itself, but also on account of the glamor which still surrounds it.

through Marco Polo's description of the court of the Great Khan. I visited no hospitals there and I didn't even ask if there were any. I saw the famous temple of Heaven, that huge altar of carved white marble open to the sky, where just at sunrise on a certain day of every year the Emperor, attired in sacred robes, prays entirely alone for the welfare of the whole Chinese nation. I wondered at the furelled Mongol traders riding upon their shaggy dromedaries from across the desert, marveled at the temples roofed with brilliant porcelain tiles, and stared from the great wall of the Tartar city at the golden yellow roofs of the Imperial Palace among dark groves in the Forbidden City. No European knows, or ever will know, what scenes are being enacted there, or whose influence is in the ascendant when an imperial edict comes forth. Even the once powerful Yuan Shi Kai, the energetic, farsighted, able diplomatist, has been overthrown within a short time, and by whom? No one knows. The man who comes to the front in the eyes of the world may be but a mask, a figurehead, a pawn.

The usual winter weather of Peking is crisp, cloudless and cold, week after week and month after month, and the dry, dusty wind from the Mongolian desert absorbs every particle of moisture until the hard ground cracks. Finally, lest the frost should strike too deeply into the ground, the Emperor prays for snow, and it always snows. He did this under a cloudless sky just after my arrival in Peking. For several days thereafter dark clouds hung over the city, and finally a few flakes of snow were followed by a cold rain which sheathed the ground in ice. This was a bad omen, "the earth had taken on a coat of mail, the gods were angry." But the Emperor prayed again and a few days later a snowstorm overtook me on the Yang-tse.

Faith cure in China takes several forms. On the outskirts of Peking is the temple of the renowned Bronze Horse, who treats patients as does Binzuri in Japan. The Horse is an archaic, stiff-legged, bronze pony of nearly life size, and he is polished all over by the hands of sufferers. I wondered if they were ever in doubt over questions of comparative anatomy. Another form of faith cure is seen at the fairs which are frequently held in Peking for the sale of all sorts of household utensils, clothing, condiments, toys and bric-a-brac. In a separate booth at one of these fairs I saw a man surrounded by an odd collection of relics, among which I noticed some dried reptiles and the skull of a tiger. The man was a physician, and the black ointment he offered was a medicine containing the ingredients represented by the collection. A shotgun prescription indeed, which the polypharmacists of old might well have envied. In Shanghai my host's cook complained one morning to the lady of the house that he had been ill for a week and that he wanted a short leave of absence to "chin-chin Jos." She tried to persuade him to see an English physician, but all in vain. Burning incense in the temple, setting off firecrackers by the bunch to attract the notice of the deity to one's prayers and burning of paper

taels for the prosperity of the departed are the outward manifestations of religion which the casual stranger sees in China. One is struck by the apparent absence of feeling and the sometimes careless manner in which these ceremonies are performed, and yet a friend of mine who chanced to visit the temple on a feast day and who refused to burn incense there did so at the risk of being mobbed. In short, the cook was cured, but perhaps the dead relative excuse had been overworked. You can leave your money on the bureau and the boy will not steal it; if he finds it on the floor he will return it, but one suspects that he tells the truth only when expedient.

I traveled from Peking to Hankau by rail, then 500 miles down the Yang-tse back to Shanghai, and thence by sea to Hongkong. Peking had been dry and cold, Shanghai raw and wet, but the weather in Hongkong, although damp and chilly at times, seemed very mild by comparison. Although Hongkong in summer is like a perpetual steam bath, a funicular railway running to the top of the "Peak," a high hill which rises abruptly behind the city, enables the fortunate who live in the fine houses on the terraced slope to escape at night from the terrible humidity below, and their children, who seldom come down into the city, look as robust and brown as those of any country.

Having examined some obscure cases of fever in the Government Civil Hospital and seen the Floating Smallpox Hospital in the harbor, I visited an institution which is, I believe, unique. It is the great Tung Wa Hospital built by the Chinese themselves for the poor of their race. It has two divisions, in one of which patients are treated with the time-honored remedies of China, and in the other, under the direction of a Chinese physician trained in the United States, occidental methods are employed. At the time of my visit in March, Dr. Hawk was able to show me 30 odd cases of beriberi, which occurs in Hongkong the year round, although in summer it is much more rife than at other seasons. Having been resident of the Tung Wa for several years he has seen many hundred cases of beriberi. He considers the extreme dampness of the Hongkong summer to be an important etiological factor, and at any rate there seems to be no doubt that cold weather checks the disease. Dr. Hawk said that 40% of the beriberi cases in the hospital died, and that when cardiac symptoms had developed, his efforts to save life had been fruitless. He was inclined to doubt the possibility of permanent cure in Hongkong because he had seen a great many recurrences, some of which had come on so soon after discharge from the hospital that they might have been classed as relapses of the disease. Having no statistics on the subject, he advanced this view merely as an impression. In explanation of the very high mortality it should be stated that mild cases of beriberi do not enter the hospital. As a commentary on the Chinese remedies Dr. Hawk said that frequently beriberi patients having severe neuritic pains asked to be transferred to him in order that they might have morphia. The patients instead of having beds in our sense of the

word lie wrapped in a quilt upon a low, wooden table covered only by a straw mat. I heard in Manila the story of a Chinese woman who, on entrance to the hospital, was laid upon a spring bed. All went well until, when turning over, the patient felt the give of the springs. In terror she clutched the sides of the bed for fear of falling, and she slept thereafter upon the floor.

Before leaving China, I want to speak briefly of the conditions of medical practice in the treaty ports. Shortly before I started on my trip a friend in Boston said to me, "Why don't you start a firm of doctors, including physician, surgeon and specialists? I will pay you so much a year to keep me in good health as they do in China." In Honolulu there is at least one firm of physicians, and in Shanghai and Hongkong all the English physicians are members of firms. There are usually four partners, and every four years by going home on a vacation one of them has the opportunity of strengthening his weak points and of picking up some new ideas. The others divide the work of the absentee so that his practice is not lost, and he receives his share of the profits from the firm. The fees charged in Shanghai are so much a year for every member of a family without regard to the number of calls made. The only extra charges are for operations. The patient may choose any doctor he wants, and having chosen may call the other members of the firm in consultation or when his own doctor is away. The doctor is responsible for his patients under all circumstances. It does not matter what may be needed or what difficult operation may be required, he must perform it to the best of his ability himself. From the patient's point of view the system is a success because a doctor can be found at any time, and because in case of sickness doctors' bills do not increase. The physicians like it because they get an assured income and because it enables them to take vacations without losing their practice. Very good, all-round men are developed by this system, but it must sometimes happen that a doctor is called upon to do work for which he is not fitted. This difficulty is obviated to some extent by the fact that most Shanghai people go to England every few years and while there have their eyes examined and can have operations performed if such are necessary.

In Hongkong, as in Shanghai, the profits of physicians' firms are divided, but fees are charged for every visit instead of for the year's attendance, and an attempt is made to divide the different kinds of practice among the members of a firm instead of insisting that every man shall do everything. But this arrangement must, of necessity, make difficulties, when, for instance, the member goes home who has been doing the eye and ear work. Specialism had not appeared in Shanghai at all when I was there, but I think it is beginning to come in outside the firms at Hongkong. However well the firm system may work in small communities, I think that if the foreign cities continue to grow it must break down or limit its scope before long in China. In that case the general practitioners would be able to make a

living without undertaking everything, and they would probably part willingly with some of the responsibilities which rest upon them under the old system. In regard to the suggestion of my friend that I start a firm in Boston, it seems to me, in a city where there are already nine or ten recognized specialties, and where medicine and surgery are being still further subdivided, that the practical difficulties of managing a firm to undertake all kinds of practice would be prohibitive.

Leaving Hongkong for Manila, I arrived about the first of March, intending to stop not more than a week, but through the kindness of physicians there the week stretched to two months and a half. I began some research in the government laboratory of the Bureau of Science, and while thus engaged the opportunity was offered me to take a trip among the islands on a government steamer, chartered by the Director of Health to collect lepers for segregation in the colony at Culion. As you may imagine I did not let slip such an opportunity for seeing the islands, and as I had been studying chronic ulcers in Manila I was enabled to extend my observations over a larger territory and to see a much greater variety of cases. By steaming day and night for two weeks all the large islands but one were visited, some thirty landings were made and nearly two thousand miles of water were traversed. The leper suspects had been gathered in advance at the places where we stopped, the microscope was set up on the beach or in a convenient shed, and every patient that might possibly have leprosy was carefully examined for bacilli. When there were nodules in the ears a drop of blood from a nodule generally showed an abundance of bacilli, but in early cases we found that scrapings from minute ulcers in the nose were likely to yield positive results when other lesions were negative. Nasal scrapings from a few cases showed an occasional large acid-fast organism which may have been the tubercle bacillus. This is not surprising as many of the patients undoubtedly had phthisis as well as leprosy. Typical lepra bacilli sometimes had to be searched for again and again before they could be demonstrated, and a few cases were diagnosed clinically in spite of negative microscopic results. Very few cases of the anesthetic type without nodules were seen, so that diagnosis was generally easy without the confirmation of the microscope. There was, however, a group of cases presenting horrible ulceration, scarring, destruction of bone and muscle, scar tissue formation, contractures and crippling to a degree seldom reached in leprosy. None of them had lepra nodules and none were anesthetic; some had dactylitis in the active stage, others showed the outcome of it in disabled, useless hands; some had swollen, ulcerated legs, and some showed the end result thereof in complete crippling. When compared with each other the cases showed a striking similarity of lesions. There was a well-marked tendency to symmetry and to ulceration wherever bone lies close under the skin, as on the forehead, over the joints, the forearms, hands and

lower legs. Repeated careful search for the bacillus of leprosy in a series of these cases gave uniformly negative results. Scrapings from the ulcers showed a great variety of bacteria, but neither smears nor sections of tissue showed anything that could be considered important etiologically. A few cases showed a variety of spirochetæ. There was a large deep staining one with few curves that was believed to be spirochetæ refringens, a small lighter staining one of variable shape, and a still finer one with many short curves. Very few of the latter form were seen. They may have been the treponema pallidum, but were not so identified because their reaction to Giesmsa's stain was not, in all respects, characteristic. As spirochetæ of various shapes have been found repeatedly in open ulcers of different sorts, and as they occurred in only a few of these cases, the spirochetæ were not believed to be of etiological importance. To have tried the Wassermann test on the above group of cases would have been most interesting had we been prepared to do it on the steamer. The clinical diagnosis was malignant syphilis in the tertiary stage, and it was supported by the fact that a few cases brought back for treatment improved rapidly while taking potassium iodide. I do not consider that this clinches the diagnosis, however, because many chronic ulcers heal rapidly under simple cleansing alone. The diagnosis is more fully discussed in a paper embodying the results of my work which was published in the *Philippine Journal of Science*.¹ In several villages there were large numbers of these cases but no true leprosy was seen. As in many of the smaller towns and villages there are no physicians and no medicine, this terrible disease had run its course unchecked. A few cases were seen in which the destruction of tissue in the nose and pharynx was so great that gangosa was considered as a possible diagnosis, but all these cases were believed to be luetic. I remember one of them, a woman who had lost her nose and upper lip, so that the roots of the teeth were uncovered and it was possible to look directly into the sphenoidal sinus, there being no septum or turbinates to obstruct the view.

The town of Manbajao in the island of Camiguin is noted for its progressive spirit and for the industry of its people. The hillsides all about the town are under cultivation, the streets are lighted at night with kerosene and there is a town water supply, put in by the Filipinos themselves. Here a dramatic incident occurred which impressed itself on my memory. After the leper suspects had been examined we were told that another patient was on the way from an outlying village. In the evening a dugout carrying two men and a young girl came alongside. It was evident from the neatness of her dress that the girl had left a comfortable home. She looked the picture of health. She neither cried nor showed a sign of fear, but her state of mind was evident from her drooping aspect. The men waited with gloomy faces while the examination was going on, and nothing having been found except a little

ringworm they were told to take the girl home again. On hearing this her forlorn figure was suddenly transformed. She straightened up, smiling and laughing vivaciously. In reply to questions one of the men said that he was the girl's brother, and chief of his *barrio* (or village), that he had quarreled with superior authority and had been told that his sister must go to Culion as a leper. It is hard to imagine how these people, ordinarily so mild, so simple and so polite, can be so brutal and yet look so gentle. Taking lepers away from their homes seems a cruel errand, but the majority of them were poor, neglected, miserable old people who were glad to be taken care of, so that unpleasant scenes were few. Many of the people seemed extraordinarily indifferent to their fate.

One of the best-known men in the Philippines is the health officer for two large islands, on one of which he lives, in a village where he is the only white man. This man has had a most interesting career. After graduating in medicine he passed some time as an interpreter at the American embassy in Paris. During our war with Spain he went to the Philippines as a contract surgeon. When the telegraphers of the army in Samar were taken sick Dr. Cullen was called to headquarters and asked if he could send the messages. He sent them. When the troops were withdrawn he settled down in Samar, where he lives now. He speaks Castilian Spanish and several Philippine languages, he has filled his house with scientific instruments and he knows how to use them. He has charted certain rocks, piloted government vessels in the waters of Samar, and sent meteorological observations to the Weather Bureau; he prepares his own medicines from the commercial drugs, and he goes into court as a lawyer, besides covering a large territory as a physician. His charming personality his kind heart and his willingness to use his talents at any time in the service of others have won for him so many friends that he can get for the asking anything that there is. For instance, if he wants to go from Samar to Leyte he borrows a launch, and while our boat was coaling he borrowed a large steamer for the day in order to visit some towns at a distance. When the government wished to treat with the outlaw chiefs in the interior of Samar, Dr. Cullen went alone and unarmed to find them because no soldier could have done so and returned alive.

Before leaving the Philippines I want to speak briefly of the opportunities for scientific work in Manila. Manila is at the present time one of the most interesting places medically that can be imagined. Great fields of medicine are being opened up, and many more are still untouched. One can take up almost any line of scientific work and push rapidly to the frontier of research. There are a number of men working there now who publish from time to time papers of unusual interest and great practical importance. They have done much to aid the Bureau of Health in its efforts to improve conditions in the Philippines. A great deal has been accomplished already and much more is expected in the future. A spirit of

¹ Vol. ii, no. 6.

optimism pervades these men; they radiate energy, and they offer every encouragement to others to take part in the work and to win a share of the glory. It was a revelation to me to find so far from the sources of such things a commodious, modern research laboratory, well equipped for the study of disease along pathological, bacteriological or chemical lines, trained laboratory assistants cutting, staining and mounting sections, media of all kinds at hand, a well-filled storeroom ready to supply additional materials, and an expert taking photomicrographs with an excellent instrument mounted upon a cement pier. Such is the Bureau of Science Laboratory.

The Bureau has four divisions occupying the laboratory building together, namely, those of ethnology, biology, chemistry and that of mines.

All the divisions have published important work, as a glance at the files of the *Philippine Journal of Science* will show. The journal has just completed its third year. During the first year several supplements were added to it, and in the second year it became so large that it was split up into three sections, devoted respectively to general sciences, medical sciences and botany. Although the pages of this journal comprise a few articles by eminent physicians in India and by the leaders of research in Japan, yet the bulk of its publications are written by men working in the Philippines. Containing as it does much new work and some that is deserving of the highest praise, the journal was well received by the world from the outset of its career.

Another interesting feature of the Bureau of Science is its serum laboratory, where many kinds of immunizing and curative vaccines and sera are made in large quantities. Great numbers of routine examinations also are made in the laboratory for the Bureau of Health and for private physicians; for example, examination of stools for cholera, Widal tests, etc. In this way also the Bureau of Science co-operates with that of Health. The reports of the Bureau of Health give some statistics which, by reason of the remarkable successes achieved in the fight against disease, are of the greatest significance to those interested in sanitation. A brief summary of this work by Dr. Heiser,² the Director of Health for the Islands, was published recently in the *Journal of the American Medical Association*, and more recently still Dr. Edwin C. Shattuck³ has reported in detail the work in Bilibid Prison, where a high mortality was reduced to a low one by elimination of intestinal parasites from all the prisoners. The laboratory work for the prison was done by Philip E. Garrison, who published the results of his many thousand stool examinations in the *Philippine Journal of Science*.⁴ He found a great variety of parasites, of which the hookworm was considered the chief offender. It was present in 52% of all cases, and the ameba coli was found in 23%. Eighty-four per cent of all the prisoners had parasites of some sort,

and many had several varieties, so that the total number of infections reached 186%. Dr. Heiser does not do justice in his short paper to his subject. He gives no idea of the variety of difficult problems that have been solved successfully, but the reports of the Bureau tell the story. Dr. Heiser is planning two extensive campaigns, one against tuberculosis, the other to rid the entire population of the Islands of intestinal parasites; a tremendous undertaking indeed. He speaks of it jocosely, but I think he will do it. That the parasites raise the death-rate by lowering vitality has been demonstrated at Bilibid Prison. That the death-rate in the provinces can be lowered by pure water is demonstrated wherever artesian wells have been driven. This work is being pushed as fast as possible. For an interesting review of the results of military and civil sanitation in the Philippines one may read an article on the subject by W. S. Washburn which appeared in the *Philippine Journal of Science*.⁵

After spending most of the hot season in the Philippines, I left Manila for Singapore the middle of May. I liked the climate of Manila, enjoyed the work and had come to feel very much at home there. I paid a hurried visit to Java, traveled up the coast of the Malay Peninsula to Rangoon and from there to Calcutta. In Calcutta the first showers of the season were falling, but a few miles inland the ground was parched and cracked and the horizon was obscured by dust. The cattle were nothing but skin and bone, few people were to be seen upon the roads and everything seemed to be waiting for the rains to break. I stopped first at Benares, of which Mark Twain has truly said it "purports to be dirty and it is." When I had walked about the town and had seen something of the pastimes of its people I wondered that any could survive. The ghats are crowded daily with filthy Hindoos who bathe, wash their belongings and drink out of the sacred Ganges. The smoke of funeral pyres rises a short distance away, and the ashes and unburned remains are swept into the river. In a dirty temple I saw a stagnant pool with slime upon its surface. To this pool it is said the sick, regardless of what disease they may have, come to drink, and hope for cure. There is a stone in the well which is believed to have grown considerably since it fell in. The bodies of those dying of smallpox, I was told, instead of being burned, are sunk in the river with stones and often float up afterwards. I noticed many people in India who wore small, round patches of paper stuck on their temples. The explanation given was that these were good for headache. In Bombay I visited the Maratha Plague Hospital with Dr. Choksy, a Hindoo. He showed me about twenty convalescents, saying that in the dry season there is much less plague than at other times. He believes the antiplague serum of the Pasteur Institute in Paris is distinctly beneficial in most cases and that a considerable percentage of lives are saved by its use. He gives 100 ccm. on each of two consecutive days, then less if the case is doing well. He

² Jour. Am. Med. Asso., Jan. 9, 1909.

³ *Ibid.*, Jan. 16, 1909.

⁴ Vol. iii, no. 4.

⁵ Vol. iii, no. 6.

injects the serum near the bubo and incises the buboes if they suppurate.

On the voyage between Bombay and Suez I had some interesting talk with a surgeon of the Army Medical Service, who had spent many years in India. He said that Oriental sore was very locally distributed in India, that it was seen now chiefly in the northwest provinces and that in Delhi, where it used to be so common as to have been called Delhi sore, it has disappeared. Plague is not troublesome to the army, as it rarely attacks Europeans. Epidemics are easily stopped if the people move away for a time. When in Delhi my guide there told me that several members of his family had died in a recent epidemic, that most of the people had moved away and that since their return there had been no more plague. The surgeon said that the barefooted attendants in the plague hospital do not contract the disease, and that he attributes its spread to fleas. Epidemics of plague are more severe in alternate years. Cholera gives little trouble now, thanks to precautionary measures, but typhoid is the scourge of the British army in India. Fortunately it is not of a malignant kind. A fact hard to explain is that it is rarely seen in natives. The surgeon said he could only account for this by supposing that they all had it in early youth and that thus the survivors were immune. He told me also that the baboos are particularly subject to diabetes, that tuberculosis of the intestines and peritoneum is common and that in the northwest provinces cataract is enormously common, so much so that one surgeon up there does something like one thousand operations for it per month. Kala azar is locally distributed, not very common anywhere and is not spreading. Chronic ulcers and phagedena are not common in India, but cancrum oris is. There is some Madura foot, and ainhum is seen occasionally. Calcutta has much elephantiasis, and the ships bring to it diseases of all sorts from ports throughout the East. All three kinds of malaria are locally distributed in India, and as a result of ravages of this disease the name of one station had to be changed. That was, of course, years ago, for at the present day means would have been found to check the disease. All attempts on the part of the British to carry out sanitary measures are viewed with suspicion by the natives, so much so, indeed, that the English have been accused of causing impotence by poisoning the wells and even of having brought the plague to kill off the native population. That they have stopped the burning of widows, the use of the Juggernaut car, and that they shoot the crocodiles who come to fatten on the pilgrims at Benares are, I suppose, additional grievances. We all, I think, resent the least curtailment of liberties or privileges to which we are accustomed, even when the restrictions are designed for our safety. For example, I shall never get over the resentment I feel on being locked into a European railway carriage or forbidden to jump onto a moving street car.

Having reviewed the most interesting part of my trip I shall skip now to Vienna, where I

arrived in July, 1907, and remained for nine months. It may be worth while, for the benefit of those of you who are planning post-graduate study in Europe, to describe briefly the opportunities offered there. Although I visited Berlin, Heidelberg, Paris and London, I worked in Vienna only. Vienna is the most popular of the continental cities for English-speaking students, but there are many in Berlin and Munich, and Heidelberg and some of the smaller university towns attract a few.

The small towns are advantageous because they have few foreign students, so that the professors are flattered by the advent of a stranger and take pains to give him of their best. They ask in return that he shall complete some piece of work, which, when published as from the clinic of Professor So and So, will reflect credit upon him. A capable man can get in close touch with the professor in a way that is impossible in the great centers, and, as you all know, most of the small universities have a few teachers of genius with whom it is an inspiration to work and who are not infected with commercialism. For a man of scientific bent I think that a period of work in one or more of the small places, followed by visits with letters of introduction to certain men in the large universities, would be an ideal program, but to carry it out satisfactorily two years are needed. Life in the small towns aside from work is deadly dull I am told, whereas in the capitals of Europe one can find entertainment and develop new interests which are worth cultivating.

Berlin is best suited to the man who, having a year or more at his disposal, wishes to put most of his time on some particular branch, but wants to combine it with some other work. In Berlin one finds the greatest number of teachers of world-wide reputation and the highest average standard of work. It is a disadvantage that the hospitals are widely scattered and that many of the best courses conflict so that to take a variety of courses means much loss of time, but one may study pathology in the morning, for example, and some other subject in the afternoon. Men who have worked in Berlin say that it is difficult to find exactly what you want and to get started there, but that having done this one is well repaid for the time and trouble expended. One may take up one of three sorts of work, namely, work in a clinic, a laboratory or courses in special subjects. Profitable clinical work is more easily obtained in small towns than in Berlin, but laboratory work in pathology is excellent there. Paris is said to be the best place for bacteriology, and Müller in Munich attracts many students of chemico-pathology.

To attend regularly the university courses designed for undergraduates one must matriculate, but occasional visits are allowed without formality. The Ferien-Kurse, offered in March and October during the vacations, are intended for physicians only. They are popular and often overcrowded. The majority of courses taken by foreigners are given by the "*privatdozenten*," many of whom have positions in the clinics and laboratories. A course lasts generally four weeks and is

limited or unlimited as regards number of students according to the nature of the work. Ten is the usual number for a course, except, as in gynecology, where this number would be too great. Complete lists of university and private medical courses are sold at the bookstores.

There is in Berlin an association, organized in 1903, which is composed of English and American students. It is called the Anglo-American Medical Association of Berlin. The objects of the association are "to further the interests of all British and American physicians coming to Berlin for study, to advise them regarding the post-graduate work in the university, clinics and hospitals, and to assist them in finding comfortable locations." Meetings are held every Saturday at 7.30 in the Heidelberg Restaurant, and all newcomers are welcome there. Excellent papers on current medical topics are read at these meetings by prominent physicians of Berlin, and among the contributors are many professors of the university. The society publishes yearly a small book of information about the courses most popular with its members. The book includes a list of hospitals, laboratories, *pensions* and teachers of German, as well as a list of members of the association. There is also a committee of the association whose business it is to supply new members with any additional information in their power.

In Vienna there is a similar association called the American Medical Association of Vienna. Its organization is more complete, its membership is larger and its scope greater than that of Berlin. It has grown rapidly of late and plans are on foot to rent a suite of rooms. Arrangements have been made with the university to give the members of the association certificates bearing the seal of the university, upon which are inscribed titles of the courses taken and the signatures of the teachers under whom the work was done. Some of the more popular courses have been put under the control of the association. As these courses are applied for months in advance a set of eligibility rules has been drawn up in order that places may be assigned in the fairest way. Precedence depends on the length of time spent in Vienna as determined by the date of signature in a book kept at the headquarters of the association. The book may be signed by any physician or student wishing to take these courses whether he belongs to the association or not, so that no one is unjustly debarred. There are weekly meetings throughout the winter, as in Berlin, and an Orientation Committee composed of members conversant with the different lines of work may be called on at any time for information. As most of the courses are given in the great Allgemeine Krankenhaus there is the advantage of centralization so that one can take courses in a variety of subjects without loss of time, and the hours of courses are so arranged that the entire day can be filled with them. There are a few courses given in English, but they are not up to the standard of those given in German. If one does not find at hand the sort of course wanted, one makes arrangements

for a course which shall fulfill the requirements, posts a notice describing the proposed course at the headquarters of the association, and generally within a few days the vacancies have been filled by signatures. A great many courses are started in this way in Vienna and some also in Berlin. The booklet of the association, although far from complete, gives a list of courses recommended by the association under the following heads: Anatomy, pathology, embryology, principles of immunity, bacteriology, internal medicine, nervous diseases, surgery, gynecology, obstetrics, diseases of the eye, the ear, the nose and throat, pediatrics, skin, and genito-urinary diseases. On the list are specialized courses in diseases of metabolism, gastro-enteric diseases, radiography and radiotherapy, hydrotherapy, cystoscopy and other "scopys," laboratory methods and hematology. I will spare you the rest as I think this list is long enough to give an idea of the variety of opportunity in Vienna. The usual cost of a course of twenty lessons in Vienna for ten men is 40 k. or about \$8 for every man. Courses of twenty-five hours or limited to a smaller number of men generally cost more, and some of those in which much clinical material is required, as, for instance, in gynecology, are rather expensive. The winter is the busy time in Vienna. Very few courses are offered in the summer and it is hard to find good work there at that season. A man who is not familiar with German, or who has less than a year at his disposal, can, I think, spend his time to better advantage in Vienna than elsewhere.

Unfortunately, a commercial spirit has been growing up among the teachers in Vienna so that their tendency is to give less and less, and to ask more and more in return. The American Medical Association exercises a salutary influence on this kind of thing by dropping from its list the notorious offenders. The larger the association and the better its organization the greater will be its power to win fair treatment for all and to safeguard the individual against extortion. I do not mean to say that all the teachers in Vienna are of this class,—far from it,—but I believe that many of them charge as much and give as little as they dare. If this be true, it is the duty of every English-speaking student who goes to Vienna to join the association at once and to throw his influence into the scale for fair play.

Although I feel very strongly that those who can work to advantage in Europe gain much by doing so, yet I am equally sure that many who go there would learn more in an equal time by post-graduate work on this side of the water. If a man is to profit by work in Vienna he must know something of the language on arrival or stay long enough to learn a little of it, and then he must stay on long enough after that to broaden his point of view, to catch something of the scientific spirit of the teachers, and to grasp some of their methods. Those who do not meet these requirements frequently run down the best courses because unable to appreciate them.