that is based on clinical observation and specific conditions for its administration.

To enumerate the diseases that have been treated by large doses of quinin would be as difficult a task as it would be to recite the authorities on its use since its discovery by Dr. Duncan of Edinburgh in 1803.

The record of Case 2 shows that 115 grains of quinin were given the patient within one hour after his arrival at the hospital. This may impress many as an aggressive measure, but, regardless of any impression of this character, I believe the future will record many larger doses. Experience will, no doubt, demonstrate that the timid practitioner will reserve the application of this method as a substitute for strychnin and alcohol, which are so frequently administered during the excitement prior to dissolution.

I strongly maintain that the use of stimulants, alcohol and strychnin, prior to the stage of resolution, is a dangerous practice, as it increases the mechanical conditions that are distressing the patient instead of strengthening the disabled heart.

I find that bromid of lithium in combination with chloral controls the nervousness and delirium which is probably produced by toxemia, much better than does morphin, as the latter given in sufficient quantity to alleviate these conditions not only embarrasses respiration, but interferes with the secretions.

It would not be surprising if the near future revealed some interesting knowledge concerning the incubation period.

The absence of complications, with one exception, in the last 50 cases, has possibly been influenced by the treatment. I do not feel justified, however, in making any positive claims of this character on so limited a number of cases.

I have discarded all external applications, and dress my patients with as light-weight clothing as possible. Expectorants, excepting as a vehicle, are seldom used. A liquid diet, with plenty of plain alkaline drinking water, is advisable. The syrup of glycyrrhiza and yerba santa is an excellent agent in which to suspend quinin, and also acts as a pleasant cathartic. Carbonated waters and solid food should be avoided prior to beginning resolution, as any distension of the stomach will not only interfere with respiration, but will embarrass the heart action.

We have been taught that it is impossible to modify or to shorten the duration of this disease; but must we go on indefinitely and accept such an ultimatum, or should we, on our own responsibility, lend efforts that will secure more practical results?

To associate therapeutics with the expectant plan of treatment is objectionable on account of the lack of any specific agent; watching and waiting and expecting Nature to cure so formidable a disease as pneumonia does not impress me as rational or modern medicine.

In the 50 cases responsible for this article, the ages ranged from 7 to 56 years. In nearly 80 per cent. the right lung was attacked, principally the lower lobe.

The most prominent feature that recommends my treatment of pneumonia is the practical absence of cardiac depression and the early resolution that invariably follows. Broken or small doses of quinin and iron will not produce satisfactory results.

The 50 consecutive cases of pneumonia that I have now treated without a death were diagnosed in every instance by thorough examination.

The administration of quinin during the stage of resolution must be carefully watched, as small doses of from 5 to 10 grains will frequently produce cinchonism.

THE MOST ANCIENT MEDICAL PRACTICE LAWS.

THE CODE OF HAMMURABI, 2200 B. C.

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It has long been known that there was a celebrated lawgiver in the valley of the Euphrates called Hammurabi or Amraphel.[1] He was king of Babylon, and his rule extended over the whole of Mesopotamia from the mouths of the Tigris and Euphrates to the Mediterranean coast. There are frequent references to the code of Hammurabi in the Chaldean and Assyrian writers, and a few of his laws have been more or less perfectly known for half a century. He is supposed to have lived between 2885 and 2242 B. C., or about the time of Abraham.

Every physician will have a certain interest in knowing that nine of the 282 laws of Hammurabi refer to surgeons. These laws were discovered written on a monument of stone, eight feet high. It was found at Susa, Persia, in January, 1902, and in October of the same year a superb reproduction and translation of this oldest code of laws was published by the French government. The medical reader will be interested in the translation made by C. H. W. Johns and published in Edinburgh in 1903, or if he be more of an archeologist he will be delighted with the magnificent transliteration and translation by Robert F. Harper and published by the University of Chicago. It is worth while here to reproduce the nine paragraphs referring to medicine.:

215. If a doctor has treated a rich man for a severe wound and used a bronze lancet, and has cured the man, or if he has opened the eye of a rich man with the bronze lancet and has cured the eye of the rich man, he shall receive ten shekels of silver.

216. If the patient be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a rich man for a severe wound with a lancet of bronze and has caused the rich man to die, or if he has opened an abscess of the eye of a rich man with a bronze lancet and has caused the loss of the rich man's eye, one of his hands shall be cut off.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave.

220. If he has opened the abscess of a slave with a bronze lancet and has made him lose his eye, he shall pay half the slave's price in money.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If the patient is a poor man, he shall give three shekels of silver.

223. If he is the servant of a gentleman, the master of the slave shall give two shekels of silver to the doctor.

It appears from these laws that the physician and surgeon occupied a distinct social position in the ancient Assyrian society, and that even in those remote periods the surgeon was considered worthy of compensation. He received from the rich man a larger fee than from the poor man. He evidently made a good living, because he is supposed to have a slave to render for a slave and the money to pay for half the value of a slave in case a slave should lose his eye at the surgeon's hand. We may believe that in those remote days the abdomen was occasionally opened, because the fee for treating the sick bowel of the gentleman is distinctly mentioned, but no penalty is given outside of the general one in paragraph 218 for a failure to cure.

In the succeeding paragraphs of this code the veterinary is

1. Genesis, xiv, 1.

mentioned, and he receives compensation in a much smaller degree for his services, and he is obliged also to suffer when he fails to cure.

In the preceding paragraph of the code, 209, an interesting law is promulgated: "If a man has struck the daughter of a gentleman and has caused her to miscarry, he shall pay ten shekels of silver for the miscarriage." It will be noticed that this is the price of a capital operation on a rich man.

Taking the code all in all, one is compelled to look on the civilization of the Euphrates 4,000 years ago as marvelously similar to our own except possibly for its lack of bookish culture. The view of life which is given in the code is imperfect, but many outlines of that civilization are sketched in a master hand. They had means of transportation, common carriers and public servants, who were under more obligation and stricter rules and regulations than private individuals. They had storehouses, commission merchants, money lenders and borrowers of money and renters of real estate, and in many respects their laws in relation to these economic factors were more humane, equitable and reasonable than our own.

At this particular juncture one might ask if the commission business existed among physicians and surgeons in the valley of the Euphrates. But on this point the code is silent. If the man with the bronze lancet had runners out, either in the guise of female booksellers and male peddlers of patent preventatives, or commission men practicing among the Elamites or in the suburbs of Babylon, no cases of the kind ever came to adjudication and monumental inscription in the market place of Susa.

A number of laws are devoted to the relations of man and wife, to fidelity and infidelity between them, and to other sexual and household economic affairs. They form a very considerable part of the code, paragraphs 129-184 inclusive. Noticing an abstract in THE JOURNAL, November 12, page 1485, in which Baudouin is said to be awaiting with interest the article yet to be written on the husband of the medical woman, I wish to recall the fact that a matter of this sort was recognized by the code of Hammurabi, and that several paragraphs were necessary to regulate the conflicting relations of such a husband and wife. In paragraph 144 is the first mention of the relations of such a husband to such a wife, namely: "If a man has espoused a votary and that votary has given a maid to her husband, and she has brought up children, and that man has set his face to take another wife, one shall not countenance that man; he shall not take another wife." Paragraph 145: "If a man has espoused a votary and she has not granted him children, and he has set his face to take another wife, that man shall take another wife; he shall cause her to enter into his house. That other wife he shall not put on an equality with his wife." In two succeeding paragraphs it denies the woman the privilege of selling such a maid who has borne children to her husband, but allows her to sell one who has not borne children.

If it were possible, if by any means it could be brought about, the attention of the conferences, dioceses and houses of bishops ought to be called to these paragraphs of the code, 129-184, and carefully considered in their bearing on the prevention of marriage of either party after divorce or the prevention of divorce itself.

Physicians as Statesmen.—The medical profession is fairly well represented in the Canadian Senate as well as in the Canadian House of Commons. According to the *British Medical Journal*, there are nine physicians in the former and fifteen in the latter body. France is still the country where medical men are most prominent in politics; in the Senate there are thirty-nine, and in the Chamber of Deputies fifty-one. Many of them, however, like M. Combes, M. Clemenceau, and M. de Lanessan, are politicians first and physicians only to the extent of holding a diploma. The *Lancet* states that in the Italian parliament, which was recently elected and is now in session, there are twenty-two medical deputies, representing wards in eighteen provinces of Italy. The list includes several well-known names, such as Baccelli and Santini for Rome, Celli for Cagli, Sanarelli for Bibbieno, and Rummo for Benevento.

Special Article.

IMMUNITY.

CHAPTER I.

PARASITISM, INFECTIOUSNESS, CONTAGIOUSNESS.

Parasitism.

Parasitism is the condition in which a plant, or an animal being, lives on or within another living organism. A true parasite always derives its sustenance from the tissues of its host.

Some parasites may live on a host without causing appreciable damage, that is, they are non-pathogenic parasites. In this case they may derive their nutrition from some of the excreted non-living products of the host, living as pure saprophytes,[1] or the amount of nutritious substance which they obtain from the host may be so little that the health of the latter is not impaired.

There is another large class of organisms, however, which under the proper conditions cause severe diseases in the host. For example, there are many pathogenic microbes which live in and on the skin without doing harm, but if certain ones reach the deeper tissues, they may institute pathologic processes. Any organism which is able to cause pathologic tissue changes or to set up abnormal symptoms is classed as a pathogenic parasite. The abnormal processes which they set up are our infectious diseases.

Infectious Disease.

An infectious disease is one which is caused by living organisms which have in some way been introduced into the tissues of the body. Accordingly the word has reference to the nature of the cause of the disease. It is from the Latin *inficire*, meaning to place in or into.

Infestation and Infection.

Where living organisms exist on a body surface, as the skin or intestinal tract, the surface is said to be infested; the skin, for example, is infested with pediculi. One may also say that the intestinal tract is infested with tape worms, but here the distinction between infestation and infection is not to be drawn so sharply; surely when the larvæ penetrate the intestinal wall and reach the circulation or distant organs we must speak of infection. But even the adult tenia as it exists in the intestines may cause erosions of the mucous membrane or may perhaps burrow a slight distance into the wall, a condition which approximates the action of the larvæ in passing through the wall; accordingly at some point the distinction between infestation and infection would have to be an arbitrary one. It is more convenient to confine one's self to the word infection.

Contagiousness and Infectiousness.

Confusion sometimes arises in using the words infectious and contagious. A contagious disease is one which may be transmitted to another by direct or by indirect contact with the one who is suffering from the infection; the word has reference to the manner of transmission of an infection. Non-infectious diseases are never contagious. Contagiousness is well illustrated in those diseases in which the transmission takes place through the air, as seems to be the case in smallpox and scarlet fever. Here there may be a contagious zone of atmosphere surrounding the patient, in which the virus is present, and by which the agent reaches the lungs of one within the zone. Contagiousness is even more striking when it takes place through the medium of some inanimate substance, such as clothing or toys, which were previously within the contagious zone or in direct contact with the patient. Such substances, fomites, were formerly thought to be of great importance in the spreading of yellow fever; a theory which has been entirely exploded by the proof that this disease is spread by the bites of infected mosquitoes.

1. A saphrophyte is defined as a vegetable organism which lives on dead organic matter. An organism which is habitually saphrophytic may be under the proper conditions a pathogenic organism (bacillus of malignant edema). And, on the other hand, a pathogenic parasite lives a saprophytic life, when it grows in our artificial culture media.