

Lecture.

LECTURES ON THERAPEUTICS.

IV. OPIUM.¹

BY H. C. WOOD, M.D., PHILADELPHIA,
Professor of Therapeutics, University of Pennsylvania.

WHEN opium is taken in small dose, it produces simply a sense in most persons of *bien être*, a slight, quiet exhilaration, a feeling like that expressed by Tennyson in his famous poem, "The Lotus Eater." This period of quiet exhilarated calm will be followed, if the dose have been large enough, by and by by sleep, sleep not separable in its characteristics and its accompaniments from normal sleep. When toxic doses of the drug are taken, the first stage of exhilaration is usually very short, perhaps not present at all. And then comes sleep—sleep that is deep, but not comatose; sleep out of which the patient can be aroused to fall back again immediately into quiet slumber; sleep that is accompanied by some slowing of the respirations, which become full and deep, by slowing of the pulse, which grows somewhat in force and strength as it decreases in rapidity, by quiet general muscular relaxation; sleep that is accompanied by warm skin and especially by contracted pupils. The hours go by; and if the subject be left to himself, the sleep ever deepens, the respirations become more slow, the pulse gradually changes in character, and instead of being slow and full, grows rapid and feeble, muscular relaxation becomes more extreme, the pupils get smaller and smaller until they are very pin-points, and at last by inseparable degrees the patient slides into the full-formed third stage of opium-poisoning in which collapse and coma struggle, as it were, together, or rather, work side by side to one end. The respirations now become so distant that perhaps they are only three or four times a minute, the pulse is rapid and feeble, the surface cool and covered with sweat, and at last life goes out so silently that you scarcely know when the respirations have ceased. This is the general course of opium-poisoning in the man.

Now let us look for a moment at the effects which opium produces in the lower animals. Passing by the invertebrates to frogs, we find when we give opium or morphia to a frog that the batrachian passes into a condition of tetanic excitement, violent convulsions, excessive sensitiveness of the reflex system. Three kinds of convulsions, indeed, have been marked by different investigators as occurring in frogs—certainly a convulsion which is spinal, probably a convulsion which is cerebral, and, according to some writers, a convulsion which is peripheral; above all the dominating symptoms in the frog are those which are produced by excitement of the spinal cord. Now that is so far away from what is seen in opium-poisoning in man that we have in this drug opium the one example which has been continually held up by those who deny the validity of physiological therapeutics as proving that drugs do not act upon the lower animals as they do upon man; but, gentlemen, man is an animal, and certainly nature in all things, unless, indeed, it be in the history of drug forces, works by law. Certainly when there seem to be differences of action in drugs on different species of animals, such differences of action cannot be haphazard, but must be under the control of

law. I want to dwell a little upon this point, because in opium I think we see an illustration of one of the great laws of physiological interpretation which first came to me many years ago. Passing up from the frog we get the bird, strangely unaffected by opium. At one time it was said you could not kill a pigeon with opium. That is not true. You may give a pigeon opium by the mouth, and it does not die, probably because absorption does not take place more rapidly than elimination, and so the drug does not accumulate; but if you give the opiate hypodermically, you kill the pigeon with symptoms somewhat similar to those seen in other animals. It is a difference in degree here rather than an absolute difference in kind. Give morphia to the mouse, and you see the little animal drawing himself up into a heap, walking stiffly about the table with slow painful steps, everywhere rigid, everywhere in spasm; but by and by there comes a period of sleep. Give twenty grains of morphia to the horse, and you will note a period of violent excitement—an excitement which is evidently spinal, with muscular startings and perhaps with muscular convulsions, with (in the stallion) erections of the penis and emissions of semen and every sign of spinal excitement; but by and by coma comes, and the animal dies in sleep, as the man dies in sleep. Rising up the scale of animate life to the dog, we find that the symptoms produced by this drug very similar to those caused in man—sleep quiet, and sleep out of which the dog can be roused as the man can be roused; but we note this difference, that in the dog evidences of spinal excitement are all the time present, the reflexes are overexcitable—when the animal rouses he rouses in a start, in a condition of excitement. Finally, passing to man, we get the symptoms which I sketched to you in the opening of this lecture.

Now, what do we see? We see a gradation in the production of symptoms, from the frog in which the spinal symptoms produced by morphia are predominant, up to the man in which the cerebral symptoms produced by morphia are predominant. More and more, as we rise in the scale of life, do we find the cerebral symptoms appearing. What does this mean? Simply, that as any portion of the nervous system becomes differentiated and raised to a higher line of functional activity, it becomes more sensitive to the action of drugs. In the frog the spinal cord is all life, and the brain scarcely exists. In the mouse the brain has begun to appear. In the horse the brain has grown a little more in development. In the dog you have a comparatively high development of the brain. In the man you have the brain expanded and unfolded until it entirely overshadows the spinal cord. Under these circumstances the spinal cord in the frog is the more sensitive to the action of the drug, and the spinal symptoms come on. In the man the cerebral system is more developed, and the cerebral symptoms come on. There is law and order here as everywhere in the kingdom of nature.

I do not propose to go into any careful study of the physiological action of this drug, because there are other matters connected with opium that seem to me more important. I want to view it partly from its toxicological point of view. Especially do I feel like emphasizing this on account of some recent trials in which certain things have been said and done which seem to me entirely contrary to the teaching of science.

Let us first get this thought, that in opium-poisoning

¹ Delivered before the Harvard Medical School Association, May 11, 1893.

we have two poisons in the blood, not one. Let me tell you an instance in my personal experience to illustrate this. Some years ago I happened to be riding in the lower part of our city, when somebody called from the sidewalk and said, "Ain't you a doctor?" I said, "Yes." "Then come with me," said the person. I went up stairs, and found a girl in a violent menstrual cramp. I prescribed one-half a grain of morphia, ordering one-fourth of the prescription to be given every hour until relief, and left. Some five or six hours afterwards, while sitting in my office, I received this note: "Come at once to No. — Market Street. The medicine you gave that girl has killed her." I thought to myself, if that is the circumstance I better take the advice of Horace Greeley and go West rather than East. Nevertheless, facing the music, I went down, and entering a large room in the top of a factory, saw a bed around which were about fifty people. As I came into the room, I heard a man say, "It is all over; the girl is dead." I rushed into the group, caught the girl around the waist, threw her over my shoulder, carried her into another room and began artificial respiration. She was dead to all appearances. She had ceased breathing, but by and by under the influence of artificial respiration the color began to return to the cheeks, and in a little while semiconsciousness came on and she vomited. What had happened? Simply there had been an accumulation of carbonic acid in the blood during the long period of partial respiration under the influence of morphia, and artificial respiration had removed this carbonic acid and then the emetics which had been given had been enabled to assert themselves. After the affair was practically over the apothecary confessed he had put eight grains of morphia instead of half a grain in the prescription and the girl had emptied the bottle.

I mention this case to enforce upon you the lesson that in combating opium-poisoning we have in the advanced stages two poisons to deal with: first, the poison itself that has been taken into the stomach; and, second, the poison carbonic acid which has accumulated. And now when you have an accumulation of carbonic acid as the result of uræmic paralysis of the respiratory centre, or have an accumulation of carbonic acid as the result of paralysis of the lung or paralysis of the lower brain, don't you see you have present in that person one of the great causes of the symptoms of advanced opium-poisoning? As so I say here, as I have said before, and as has been said by others, that it is not possible to diagnose with certainty from the symptoms the existence of opium-poisoning. When the pupils are small, when we can find no other cause for the occurrence of the symptoms, we may surmise opium-poisoning, make a working or therapeutic diagnosis of opium-poisoning; but we have no right to swear away a life by saying we know a certain case was opium-poisoning because it had certain symptoms. If we are only careful enough to go no further than to say the symptoms are consonant with opium-poisoning but may come from something else, we shall not find it necessary to take back our opinion by such a statement as that of the doctor in the Harris case, who said he had seen thirty thousand cases of uræmia and four thousand cases of opium-poisoning. God save the mark!

Years ago I had a lesson taught me which might have cost a human life if an autopsy had not been made. In the hospital was a woman of bad character

under the care of another woman of bad character. The sick woman suddenly developed the symptoms of opium-poisoning. I was told by the chief nurse that the woman in charge had given opium, by mistake it was thought. I worked over that woman five hours, thinking that her case was opium-poisoning, and she died. The autopsy showed that the woman died from advanced kidney disease and uræmic poisoning. There was no opium-poisoning in the case; but I was not able to distinguish the symptoms from those of opium-poisoning. As showing the difficulty underlying these cases, I remember about the same time I saw two cases. One I diagnosed to be clot in the brain, and one certainly to be uræmia; and the autopsy showed that the case I diagnosed as clot in the brain was uræmic congestion with serous exudation, and the case I diagnosed as uræmia was clot in the brain. There was hemiplegia in the uræmic case, no paralysis in the case with clot. The symptoms of various paralyses of the respiratory centre are similar, and you cannot make the diagnosis with positiveness from the symptoms.

Now, gentlemen, in regard to the treatment of this condition of narcosis. The treatment is doubly interesting to us because the treatment is not simply the treatment of opium-poisoning, but the treatment of the narcotic state, whatever produced by. Of course, in the case of any poisoning the first thing we do is to evacuate the stomach, and we remember always that mustard is an emetic to be found in every house. I shall not dwell longer upon the methods of evacuating the stomach, and shall only call attention to the curious fact, that because the alkaloid apomorphia happens to have morphia in its name, the profession have been afraid of it in morphia-poisoning. Apomorphia has no physiological relations to morphia at all; and whilst we do not or ought not to rely upon it as an emetic in cases of narcotic poisoning, it is an extremely serviceable substance as an adjuvant to other emetics, because we can give it hypodermically and because it acts so certainly and so promptly.

When I was a young man, we were told always to keep the patient suffering from the narcotic state awake. We were not told why. And we all thought, at least I thought, and I think the others did, that the sleep was something that killed people. Now, gentlemen, men die from want of sleep, but never from excess of sleep. Rip Van Winkle awoke from his many years of slumber as fresh a man as when he laid himself down in the green wood of the New York hills. Sleep does not kill a man. It is nature's restorer, not destroyer; but during the period of sleep all nerve centres grow less sensitive and the respiratory centre which in the waking movement is benumbed almost into absolute quiet by the drug opium grows more numb under the sedative influence of sleep, and therefore respiration falls more during sleep. More than this, we keep the man awake in order that by his voluntary efforts he may supply the failing automatic impulse of respiration. I have seen a man with opium-poisoning seated upon a chair taking his inspirations and expirations fifteen times a minute by word of command, precisely as the soldier in the drill moves his arm by word of command. We keep our patient awake, therefore, largely that we may make him voluntarily respire. How shall we keep the patient awake? We walk patients, pour cold water upon them, flagellate them with wet towels, and some of us

beat them with clubs. I have seen the whole body of a woman almost as black as a man's coat from the beating she had received to keep her awake in narcotic poisoning. I want to call your attention to an instrument of torture that leaves no traces behind it and makes no structural lesion. I refer to the dry electric brush. If you have a powerful battery, you can produce as much nervous irritation and pain as you can by beating the patient, and this without alteration of structure. I do not believe that electricity is of any value in the treatment of the narcotic state save only for the purpose of arousing the patient.

Passing next to the consideration of drugs in the treatment of narcosis, I first want to say a word in regard to oxygen. This gas, oxygen, has been more quacked with than any other substance or agency, unless it be electricity. In experiments which I have made upon the lower animals I found to my absolute astonishment that I could not perceive any difference in the blood-pressure or otherwise whether they inhaled pure oxygen or inhaled atmospheric gas. I was very much surprised at the result; but it is in accord with the fact that I have never seen any good results from the use of oxygen in disease save only under certain conditions. I do not believe that oxygen has any power as a general stimulant. I do not believe in the normal man any more oxygen is carried by the blood because more is in the lungs than normal. When you get plenty of fresh air you fill the red blood corpuscles to their normal extent, and because there is a surplus of air you cannot have more oxygen carried by them. Pouring water into a full bucket simply makes a slop.

When, however, you have obstruction of the circulation, as in advanced pneumonia, and the blood cannot get as much oxygen as it is capable of carrying, then I believe by increasing the percentage of oxygen breathed in the air you do good. But to have an effect, you have got to keep up the use of oxygen. The supposition that the taking of a few inhalations a few times a day is going to achieve good is about as reasonable as the supposition held by the profession that little doses of hydrocyanic acid at long intervals will do good. Oxygen is a useful agent; probably, in the treatment of opium-poisoning if it be used continuously and if the patient can be got to breathe it in.

Now we come to the drugs that are used as stimulants to the respiration. And here again, a year or two ago, I suddenly woke up to a new idea; and I felt as Horace Greeley did once. The story is told of Horace Greeley that there was a very egregious mistake in one of his editorials; thinking it was the fault of a proof-reader he went to him, but was shown that he himself had written it: said Horace, "Will somebody please kick me down stairs?" Now, all through the years we have been studying drugs as respiratory stimulants by estimating or counting the effect they have on the number of the respirations per minute. It is just as sensible as the studying of cardiac stimulants would be by counting the rate of the pulse. It is not the number of times the man breathes in the minute that dominates the amount of air that is breathed, but it is the size of the respiratory movements taken along with the number: it is entirely possible that a substance may hurry the respirations and decrease the excursion of the respiratory movements. Therefore I made a research in measuring the amount of air taken in and thrown out of the lungs of the dog under the influence of various agen-

cies. I found in the first place that there is no known agent which compares with heat as a stimulant to the respiratory centres, at least in the dog. I do not believe that the respiratory centre of the man is as sensitive to heat as is the respiratory centre of the dog, because, as you know, the dog having practically no sweat glands depends upon his respiration for the cooling of his body; nevertheless, undoubtedly heat is a stimulant to the respiratory centre of man, and we learn this first lesson always in cases of narcotic poisoning as in cases of syncopal states, to keep up the animal heat. Then I started to examine three drugs, namely, atropine, strychnine and cocaine. I found that each of these drugs has a very distinct and powerful influence in increasing the amount of air taken in and out of the lung. I found that atropine was in many instances, or commonly, the most active of these drugs; but I found, also, that it was not the most certain in its action of these drugs. In some experiments which I made with opium-poisoning in the animal, and in chloral-poisoning, the atropine seemed powerless to increase the amount of air taken in and out. Strychnine I found to be less active in the normal animal than atropine, but more certain in its action. Cocaine I found to almost outclass strychnine in the power and certainty of its action. Each of these alkaloids is capable of stimulating the respiratory centre in the narcotic state. Undoubtedly, strychnine and cocaine are the most universally successful in their action. I came, also, in the course of my experiments upon another fact, namely, that after you have got the full influence of one of these drugs it was possible to still further stimulate the respiratory centre by a second respiratory stimulant. Thus, I took a chloralized dog, and gave cocaine until convulsions were appearing; the respirations were increased a certain amount. I then gave strychnine, and to my surprise there was a very marked further increase in the respiration. We learn, therefore, from these experiments a very important deduction; namely, that in desperate cases we ought not rely upon any one respiratory stimulant, but use a second respiratory stimulant; and we can do this also in obedience to a law which I have been accustomed to teach my students in the university as one of the fundamental laws in regard to the combination of remedies; namely, the so-called law of crossed action. Take a drug like atropine which, we will say, acts upon the brain, heart and respiratory centre. As schematic of this action I draw a line on the board. At this point we will represent the respiratory centre by a red dot. I now take another drug like cocaine, which has comparatively little action upon the brain and heart, and draw a line that will represent its action. These two lines of action cross and reinforce themselves at the red dot, that is, at the respiratory centre. In such a way we get the greatest influence on the respiratory centre with the least influence on other portions of the system. This rule, if I have time to speak to you later, is a very important rule in the use of narcotics in the treatment of disease. The value of cocaine as a respiratory stimulant, does not rest solely upon laboratory results. The first time I used it was in the case of a man dying from pneumonia following erysipelas. We had done everything, used oxygen and strychnine, and it occurred to me to try cocaine. To all appearances, cocaine coming to the aid of strychnine, saved that man's life. It was the crossed action of the two

rather than the simple action of either. Possibly, some of you may know I brought forward the value of strychnine in the treatment of narcosis from ether-poisoning before the Berlin Congress, and shortly after that one of our female physicians in Philadelphia (Miss Clara Dercum), having read the address essayed the use of strychnine in opium-poisoning after the failure of atropine, and obtained the most beneficial results. After all, gentlemen, however, the one great treatment of the narcotic state, the treatment which has been almost neglected, is artificial respiration—not artificial respiration, however, as it is ordinarily practised. Of the ordinary methods of artificial respiration, I believe Sylvester's is the best; but when I made experiments upon animals poisoned with chloroform, to my astonishment I found it almost impossible to kill the animal with these anæsthetics if I used artificial respiration. I have taken a dog, stopped heart and respiration with ether, used artificial respiration, restored the dog to life, killed him again with ether, restored him to life, and done it half a dozen times in half an hour. What is the difference in the artificial respiration as we do it in the laboratory and in the sick-room or the hospital? In the hospital, we simply compress a man and let what air can get into him. In the laboratory, we blow a dog up, and, of course, the air is expelled by the elasticity of the chest. Forced artificial respiration, like that of the laboratory, is the thing for the treatment of narcosis. I found out that Dr. Fell, of Albany, had preceded me; he, acting on purely clinical or theoretical grounds, had introduced forced respiration in the treatment of morphia-poisoning with the greatest success. All his cases, I believe, have recovered; and in one twenty grains of morphia had been taken, and the woman was kept alive many hours after there was complete paralysis of the respiratory centre. Just so long as you can keep the heart beating by means of forced respiration, there is hope, because though the respiratory centre be absolutely paralyzed, movement of blood and elimination goes on, and by and by the man whom you are keeping alive will free himself from the excess of opium. Fell's apparatus, which I have here, had a bellows with which he pumped air into a reservoir, a valve by means of which he could control the going in and out of the air. He then passed the air over a lamp in order to heat it. He connected this reservoir of the hot air with the trachea of the patient, always performing tracheotomy. In this way he had no trouble. Now, it occurred to me that tracheotomy, probably, was not necessary, and that so much machinery was probably, also, unnecessary; and so I devised an apparatus consisting simply of a repetition of that designed in the physiological laboratory, using, however, a face-mask and not performing tracheotomy. I have never used this on the living man, but in the corpse you have no trouble in blowing up the lungs by this simple apparatus. Then, again, I tried intubation. Here is a modified intubation tube. This, connected with the ordinary bellows, enables you to blow up the lung of the man without performing tracheotomy. There is one thing which ought never to be forgotten, namely, to put into the rubber tube between the bellows and the mask or intubation tube a little metal tube having a small orifice in it, so that if you make with the bellows too much pressure on the lungs you will not tear them, but the excess of air will find its way out through the tube, whilst during respi-

ration the patient breathes out through the opening. This whole apparatus, costing but a few dollars, ought to be in every hospital and, so far as I know, is in none.

The remaining portion of my hour I want to take up with a discussion of certain points in regard to the practical-use of opium. Opium is, as we know, *par excellence* the sleep-making substance, the best of all somnifacients. It has, however, certain drawbacks to its use. I shall only point out what you all know, that when there is pain, opium is after all the one narcotic upon which you can rely, because in some way which is entirely inexplicable to us at present it relieves pain. We have been using opium through these many centuries for the relief of pain in innumerable instances and yet cannot formulate any reason or explanation of the way in which it relieves pain. It does not stop pain by putting the patient to sleep, for often it relieves the pain without producing sleep. Very commonly, however, when the patient is not suffering from violent pain you can avoid the disagreeable effects of opium by combining it with chloral; and the mixture of chloral and morphia or opium makes the best narcotic combination that we have. Under the law of crossed action we get the double influence of these two drugs upon the cerebrum, with a minimum of influence from the small dose of chloral upon the heart and a minimum of influence of opium upon the stomach and intestines. Where we want simply to overcome sleeplessness from restlessness and nervousness, I think sulphonal is the best of all narcotics we have, the safest at the time, and least dangerous so far as engendering the habit is concerned, and also the one which, when taken consecutively for a great length of time, seems to leave little or no influence upon the general system. A very important use of opium is for the purpose of allaying irritation; and here I want to put in a word for what some of you, especially the gynecologist, may consider to be out-of-date therapeutics, namely, the value of opium in the treatment of peritonitis. I believe myself that salines are very valuable in peritonitis; but I am an absolute believer also in the value of opium. I can remember in the course of my practice six violent cases of peritonitis without obvious cause, severe, general, heroic peritonitis, in which I used the opium treatment with success, and I have never yet seen a case die. Of course, I am not speaking of surgical, septic or perforation peritonitis. Probably the opium acts in these cases by benumbing the nervous system so as to prevent the symptoms we know as those of shock, the symptoms of reflex centric irritation and reflex centric paralysis. Opium, also, is especially valuable when we have to deal with inflammation of the intestinal tract of a paralyzing nature. I am sure that inflammation or irritation of the intestines may be so severe as to paralyze the muscular coat and produce symptoms of complete obstruction without there being any other organic change. Under these circumstances opium acts not as a constipating agent, but as a relaxant. I saw some years ago a case which illustrates the point I have in mind. I was sent for, to see a woman in the middle of the night. She had been one of the unfortunate victims of the deluded or deluding gentlemen I spoke of at a previous lecture. She had eaten pork and cabbage and corn for breakfast, cabbage and pork and corn for dinner, and corn and cabbage and pork for supper. In the night she was seized with a horrible

abdominal pain which she relieved somewhat by pressing into the belly with the top of a chair — evidence that the pain was at that time due to irritation and spasm. She was treated with globules for twenty-four hours, and had a frightful peritonitis when I saw her. I covered her abdomen with leeches, and before the leeches were off she began to have diarrhœa. First came corn and cabbage and pork, and then pork and cabbage and corn, and then corn and pork and cabbage, until at last that which in life had been so ruthlessly divided in the separate meals, lay side by side in peaceful rest. The history of that case was simply excessive irritation, spasm, inflammation of the mucous coat passing to the muscular coat, involving the whole intestinal wall and finally giving rise to a general peritonitis. Opium given in the beginning to the point of narcosis would have saved that woman the attack of peritonitis, provided, of course, it were combined with castor oil or some other mild laxative to act upon peristalsis after irritation had been subdued. I gave that woman as high as seventy-five grains of opium in a day during the peritonitis, and she got well after many months' illness.

Let me, in passing, say a word about the method of administration of opium when used in these heroic doses, — I was taught this lesson by dear experience. I gave a patient opium for peritonitis, leaving word to stop the remedy so soon as any symptoms of opium narcosis developed, but was sent for to find the patient suddenly overwhelmed in a fatal narcosis. Then I found the opium had come from a drug store which had descended from father to son, and that not only the drug store but the opium pills had descended: these hardened bullets had accumulated in the stomach and softened into one mass, then rapid absorption, then fatal poisoning. Therefore, whenever you use opium freely, see to it that you give the drug in liquid form and in chief part hypodermically, so that no opium can remain in the alimentary canal to be absorbed after the administration of the drug has been suspended.

The use of opium for the ordinary purposes of therapeutics is so well known to you that I hardly think it worth while to occupy your time with speaking of it. It does, however, seem worth while to say a few words in regard to the use of opium among children. I had the most bitter lesson of my life on this point. I gave my own child, who was then about eighteen months old, a grain and a half of Dover's powder. The result was a narcosis in which the boy lay for eight hours in such a condition that no one knew whether he would live five minutes longer. The lesson I want to draw is that in children preparations should be used concerning which there can be no doubt as to the amount of opium given. Dover's powder is a mechanical mixture of opium with other ingredients, and if the druggist make a mistake or be careless and the powder be not thoroughly mixed, the child may get double the amount of opium that you are expecting.

The symptoms which are produced by opium in children differ from those of the adult. Usually collapse is developed very early in children; and the very curious statement is made in Althouse's work on nervous diseases, that in children and in adults of the lower races of men morphia very commonly produces convulsions. If this be correct, you see how closely it tallies with the explanation I gave in the beginning of the lecture as to the explanation of the action of opium

upon different animals. In many persons opium produces great nausea and depression; especially is this so in cases of nervous women. Undoubtedly morphia is better here than opium; but the watery preparations of opium and the deodorized tincture are better than morphia. A clinical discovery made many years ago by Professor DaCosta I have found to be invaluable, namely, that bromide of potassium will in nine cases out of ten put aside the depressing effects of opium. I do not know why this is; but I know that if you will give bromide of potassium sixty grains to every grain or grain and a quarter of opium, you will save very much to your patients.

Finally, a word in regard to the opium habit and its treatment. When a mother uses opium the child in the womb has the opium habit at the time of birth. It has been commonly noted that when children are born in women who are opium-eaters the child seems at first perhaps perfectly well, but in the course of a few hours goes into collapse and dies. Now, I believe that the collapse in these cases develops because the child has not had its usual stimulus of opium and that the child should be given directly after birth doses of opium that are entirely beyond those which one would think of giving to children under other circumstances.

In the treatment of the opium habit one point always must be remembered, namely, that whilst alcohol influences the moral nature in certain directions, opium makes a man or woman a liar. The lying faculty is enormously stimulated by this drug opium; and therefore there is no use in taking charge of an opium-eater unless you have him under circumstances in which you know that lying will not avail him. You must have the person under absolute surveillance and care.

You can withdraw the opium very gradually, or rapidly, or at once. My own experience is against very slow withdrawal of the opium. It is a misery long drawn out; and the chances are that the will and nerve of the patient will give way in the weeks necessary. On the other hand, the sudden immediate withdrawal of opium is attended with danger of collapse. I have never seen a case of opium habit in which I could not withdraw the opium in ten days to two weeks without the production of symptoms that were at all dangerous, and I have seen cases in which people took opium in enormous amounts. I will mention one case, to show the method I think should be employed. A woman took three pints of paregoric a day. Of course, I had both the opium and the alcoholic habit to deal with. I simply had the druggist mix five or six gallons of paregoric without opium. The taste was exactly that of paregoric, and every time the woman took two or three ounces, some of the paregoric without opium was put in the place of that withdrawn from the demijohn containing paregoric. By and by the opium habit was overcome; and it became then an easy matter to get rid of the habit of alcohol. The treatment of the symptoms in these cases must be as they arise. Cocaine certainly seems in many cases to have a very marked beneficial effect upon the stomach. Solution of gold, much lauded, I have not tried enough to give a positive opinion concerning; but I have seen it apparently do some good in the alcoholic habit. I have never tried it in the opium habit.

A HOSPITAL ship is about to start for the coast of Labrador. Dr. Grenfell is in charge of the medical arrangements.