friction of his body with cod-liver oil was employed; and he lay constantly in a flannel dress, kept saturated with the oil. In a few days after the adoption of this treatment, he began to revive, and convalesced rapidly. He was kept in the hospital three or four weeks longer than was at all necessary for the cure, and was at last discharged, in a plump healthy condition of body, on August 9th.

CASE II. John J., aged 16, was sent up from the same place on September 29th, to undergo a similar operation, and fell under the care of the same surgeon. He had suffered from symptoms of stone for twelve years, and was extremely emaciated. It was at first determined to allow a week or two to elapse before the proceeding, in order that the boy might become habituated to the air and system of the hospital; but it was shortly found expedient to operate at once, the boy's sufferings at each movement in bed and effort to pass urine rendering life miserable to him. A large mulberry calculus, weighing six drachms and twenty grains, was accordingly extracted, through a remarkably narrow subpubic arch, on October 3rd. The boy got well quickly, and went out of the hospital of his own accord, cured, on the 28th of the same month.

Original Communications.

THE PATHOLOGY, DIAGNOSIS, AND TREATMENT OF CARDIAC DISEASES.

By W. O. MARKHAM, M.D., F.R.C.P., Physician to St. Mary's Hospital, London.

VI.—TREATMENT OF PERICARDITIS. GENERAL REMARKS; BLEEDING; MERCURY; OPIUM; GENERAL AND LOCAL TREATMENT; PARACENTESIS OF THE PERICARDIUM; PERICARDIAL ADHESIONS.

[*Continued from page* 891.]

Salts of Potash. Extended observation has proved that in the treatment of acute rheumatism there is no remedy which has such a powerfully beneficial influence over the disease as the salts of potash, when administered in sufficiently large doses. The proof of this assertion is to be found in the results of our daily practice; and in the concurrent—I may say, universal—testimony of competent observers in different countries.* The remedy, indeed, is entitled to be considered as something of a specific in this disease, so constantly are the expected results found to follow its proper use. From one to two scruples, according to the age of the patient, of the bicarbonate of potass are to be given for the purpose every second hour, as prescribed by Dr. Garrod. A marked amelioration of the symptoms is generally—though, I admit, not invariably—observed to follow its administration in the course of about twenty-four or thirty six hours; in fact, whenever the urine becomes alkaline.

Now, inasmuch as we are bound, in all reason, to believe, that the *materies morbi* which produces the rheumatic arthritis is identical with the *materies morbi* which produces the rheumatic pericarditis, we should, to follow out a rational treatment, anticipate that this remedy would be also efficacious in preventing, or arresting the progress of, the pericardial inflammation. The fact is not, for obvious reasons, easy of demonstration, but observation most certainly tends to show the correctness of the conclusion. The authority of many competent observers might be cited in support of the opinion thus expressed by Dr. Garrod: "Besides the influence on the duration of the articular affection which has been alluded to, I cannot help thinking that an effect is likewise produced on the cardiac disease, to a very considerable and important extent. In no case did the affection of the heart ensue after the patient had been more than forty-eight hours under the influence of the medicine; and it has appeared to me, that even when present on admission into the Hospital, or coming on within a short period, its progress was powerfully checked by the treatment, and prevented from producing the terrible mischief which, when uncontrolled, it so frequently induces; this I should be inclined to ascribe to the altered condition of the blood, and especially of that portion giving rise to fibrinous deposits on the peri- or endocardium." (*loc. cit.*)

My own observation fully bears out Dr. Garrod's statement; and, necessarily, therefore, leads me to the conclusion that we possess no remedy more efficacious than this, in the treatment of acute rheumatic pericarditis, *quoad* the diathetic character of the disease. Its action is, we must suppose (from its manifest influence over the arthritis), the neutralising of that poisonous element, whatever it be, which occasions the local inflammations—the arthritis and pericarditis; arresting the progress of the inflammations, when they have already seized upon parts, or anticipating and preventing the seizure.

Opium. I have already mentioned, that the pain and sufferings which afflict the patient during the progress of acute rheumatism are sometimes very grievous to bear; they are especially so, when severe arthritic affections coexist with the pericarditis. In cases of this kind, it is absolutely necessary to tranquillize the nervous system. We must remember, that the shock of violent and sudden pain will occasionally destroy life; and that a lesser degree of it, unceasing and severe, will likewise kill, by wearing out and exhausting the vital powers of the patient. Now I have warned the student, in speaking of bleeding, that the vital powers of the heart are apt to fail suddenly in pericarditis, through paralysis of its muscular structure. For a double reason, therefore, should he strive to remove or subdue the effects of this other exhausting influence—the pain.

In this, as in so many other diseases, long restlessness and sleeplessness, the results of pain and suffering, are unfavourable symptoms. Sleep, then, must be procured; and, administered to this end, opium will act with all its magic charms. Indeed, it has been thought that opium has an effect which reaches beyond the immediate object sought for,—beyond the procuring of rest and the alleviation of pain. Judging from the manifest signs of improvement in the inflammation, which occasionally follows its administration, some observers have ascribed to the drug a direct influence in arresting the inflammation.* The quantity of opium administered, must be measured by the degree of pain suffered; and the large doses of it which even young children will take with impunity, in these cases, is surprising. I have seen this remedy very extensively used, for this purpose, in St. Mary's Hospital, by my colleague, Dr. Sibson. The opium he gives to an adult, in doses of one grain, mixed with half a grain of compound colocynth pill, every two, three, or four hours, sometimes every hour, for many hours together, until the main object of its administration—relief to the patient's sufferings—is obtained. It is very rarely, that any of what are considered the ill-effects of opium are observed to follow this use of it. It is not found to "lock-up" the secretions, or to contract the pupil. It acts favourably on the skin, as an "eliminator"; it takes the patient pleasantly—"jucundè"—through his disease; and is often followed by a rapid convalescence.

Whether the opium has any directly beneficial influence over the local inflammation has yet to be proved. The solution of such a question is manifestly one of exceeding difficulty. In the cases of Dr. Sibson above referred to, the drug was never exhibited alone; and probably few physicians would consider themselves justified in so using it. Whenever I have seen it given, or have used it myself to produce, and keep up, a quiescent and soporific state, the potash treatment has been always simultaneously followed out. Besides this, we have yet to learn, how the pericarditis would eventuate, if left entirely to itself; and we must remember, that acute rheumatic pericarditis very rarely ends fatally, *in a first attack*, under any kind of treatment. But, if it be difficult to determine, whether the good effects of the opium result altogether from the allaying of the pain and nervous excitement, which, in young, weakly-constitutioned individuals, are especially severe in this disorder; or, if they result in part, also, from the direct influence of the drug over the inflammation—however this

* The following are a few of the authorities who may be referred to on this point:—Dr. Basham gives from one to three ounces of nitrate of potash in four pints of water during the twenty-four hours. (Med. Chir. Soc. Trans., 1848.) Gendrin also gives nitrate of potash. (Med. Gaz., 1848.) Dr. Golding Bird used the acetate of potash in doses of half an ounce in the twenty-four hours much diluted. Dr. Swett administers one drachm of the tartrate of soda and potash every two or three hours, until the urine becomes alkaline. (New York Med. Times, 1854.) Dr. Garrod's method is to give two scruples of the bicarbonate of potash every second hour, night and day, in a wineglassful of water, "until the joint-affection has ceased for three or four days." (Med. Chir. Trans., 1855.) To this excellent paper, I would especially call the attention of those desiring particulars in this matter.

* Dr. Graves, in speaking of a case of acute pericarditis, says: "The treatment consisted of opium in large doses, one grain every three hours; it succeeded admirably, and seemed to expend itself solely on the disease, not producing the ordinary symptoms, headache, hot skin, furred tongue, or constipation." (Lect., ii, 161.)

may be—of the good effects themselves, thus produced by the drug, I cannot doubt for a moment.

During the whole treatment of pericarditis, the secretions should be duly attended to. The bowels should be regularly relieved, and the action of the skin and kidneys maintained. Frequent purging, however, must be avoided; for the partial exposure to cold, which is its necessary consequence, and the extreme pain and suffering which movement is apt to occasion in these cases (especially when the coexisting inflammation of the joints is severe), sometimes more than counterbalance, by the nervous excitement and general disturbance they produce, the good which the purging might be supposed otherwise to bring about, as a process of elimination.

The *general* treatment, then, of rheumatic pericarditis is in the main—at least, during its first periods—the treatment of acute rheumatism. But the local inflammation demands especial consideration. In the commencement of the inflammation, the local abstraction of blood, proportioned to the degree of local pain, the strength of the patient, and the period of the disease, is generally of service. Should there be signs of severe pulmonary and cardiac congestions, then small venesections will be required for their relief. Warm fomentations or poultices should be constantly applied over the præcordial region. This method of bringing warmth to the inflamed part is of very great service; it gives much relief to the patient; and is worthy of more attention than is generally given to it in this country. The beneficial effects of blisters have been doubted by some observers; but I have so often seen them followed by mitigation of the local pain, and apparently also by diminution also of the pericardial effusion, that I do not hesitate to use them, when the first acute periods of the inflammation have passed away. They do not prevent the application of poultices or fomentations.

At this period of the disease, another most important object, arising out of relation of the inflammation to the heart, presents itself to our consideration.

In every case of pericarditis, indeed, whether rheumatic or non-rheumatic, and at all periods of the inflammation, we should carefully watch for signs of the heart's failing powers. Weakness, in this disease, is apt to manifest itself suddenly. This warns us to be cautious, in the first instance, that we do not injure the patient by depletion; and it also warns us not to delay too long the use of stimuli. There are cases, especially of the non-rheumatic class, in which stimuli are requisite from the very beginning of the attack; the condition of the system, under which the pericarditis has arisen, demanding their use.

This attention to the condition of the heart in pericarditis is a point upon which Dr. Stokes has especially insisted; and, there can be no doubt, most wisely. He is "convinced that patients are often lost from want of stimulation at the proper time." The following are the particular signs, which he has given, as indicative of a weakened condition of the organ: a feeble, intermittent, and irregular pulse, especially when it has not had these characters from the first; turgescence of the jugular veins; change in the heart's sounds, particularly feebleness of the first sound; pallor, coldness of skin, œdema, and faintings.

Here I would again impress upon the student the facts: that, inflammation is a sign of weakness not of strength; that in every inflammation where exudation has taken place, there is a process of absorption and reparation to be gone through, if the parts affected are to regain their integrity; and that for the proper furtherance of this process, vital force is absolutely necessary. Sinking or weakness of the vital powers should, therefore, be carefully anticipated in all inflammations; but especially so in pericarditis, because, here the paralysing effects of the inflammation fall directly upon the central organ of the circulation. Light and easily digestible nourishment—milk and weak broths—should therefore be assiduously administered during the earliest periods of the inflammation; and stimuli, when the acute period has ceased, and the process of absorption has commenced, or whenever the signs of enfeebled circulation begin to show themselves.

Observation, indeed, certainly seems to prove, that rheumatic pericarditis is an inflammation which rather attacks those of weak than of strong constitutions; that it is more common in the delicate and young, than in vigorous persons at the prime or middle periods of life; and that the degree of inflammation—that is, the general febrile re-action and the local exudation—is also greater in them than in the strong. The disease is sometimes especially severe in young females, and in such cases, the violence of the inflammation is shown by the abundance and rapidity of the pericardial exudation.

From all which considerations, this corollary necessarily results, viz., that in the treatment of pericarditis, the administration of our remedies must be measured by the general condition and the idiosyncrasy of the individual attacked, rather than by the intensity or other peculiarity of the local inflammation. And herein—in seizing upon the special points of the individual case, and in modifying the remedies to meet their requirements—lies that peculiar practical tact which distinguishes the skilful physician.

[*To be continued.*]

CONTRIBUTIONS TO CLINICAL SURGERY.

By Oliver Pemberton, Esq., Surgeon to the General Hospital, and Lecturer on Surgical Pathology at Sydenham College, Birmingham.

VI.—Excision of the Knee.

[*Concluded from p. 979.*]

The foregoing cases illustrate most of the complications which are likely to be encountered in undertaking the operation of excision of the knee. They afford an example of death from pyæmia, from shock, and from prolonged suppuration. They also show that inflammation of the shaft of the femur and secondary hæmorrhage are events liable to take place as sequences of the proceeding, whereby the recovery of the patient, and the utility of the limb to be preserved, are perilled in the gravest degree.

Of 160 cases of excision of the knee performed up to December 1858, of which particulars have been gathered by Mr. Price (*Med. Times and Gazette*, April 1859), there were 32 fatal cases. Of these, 8 died of pyæmia. This places pyæmia at the head of the list of the causes of death after the operation. It is, however, not a rate of mortality from this one special cause comparable with what occurs in amputation of the thigh for chronic disease, from a similar one. (*Upon the Causes of Death after Amputation.* T. Bryant. Med.-Chir. Soc., Feb. 1859.) Hence we have no cause to fear that there is anything in the operation of excision of the knee specially favourable to the development of pyæmia.

Case II was well suited to the operation, so far as could be ascertained during life. The disease was evidently of a scrofulous character, having its earliest origin in the cancellous structure of the articulating extremities. The boy's general health was also satisfactory, considering his strumous diathesis and long residence in the hospital. Moreover, the condition of the knee, exhibited at the *post mortem* examination, was everything that could be expected or desired, considering the short period which had elapsed since the operation; promising, indeed, in all respects, the most favourable result.

It should here also be remarked as singular, that, although there was effusion of pus into so many joints, yet there was none to be detected either between or around the sawn extremities of that one which had been the seat of operation.

In Case III, the operation was undertaken in the hope that an useful limb might be obtained in the place of a deformed one. The child, however, died of shock, three days afterwards. I believe that the chloroform had quite as much, if not more, to do with this result than the so-called shock of the operation. All observers concur in noticing the small amount of shock following this proceeding, as a general rule—a circumstance that entirely accords with my own experience, as, with this exception, out of twelve instances in which the operation has been performed in the General Hospital, no other case exhibited its occurrence. Of the 160 cases above referred to, but four succumbed to shock or the immediate effects of the operation—a proportion so small as at once to remove all doubts on the subject.

Deformity of a limb, as in this case, may call for the excision of the articular extremities, even where all active disease has subsided; and in adults—for, in the face of our present experience, we cannot speak with confidence as to children—where rectangular anchylosis or dislocation of the leg-bones backwards is the result of the cure of the earlier disorder, there can be no question that we have a large class of cases that