use the spirit of wine. To give brandy or port, is to give we know not what. What would be thought of a practitioner ordering his patients to take a few tumblers of sea-water whenever he wished to give the iodide of potassium? or ordering them to take mineral waters whenever he wished to administer iron? Yet such is the practice with regard to alcohol. We give it for all diseases, and in unknown strengths. Such prescribing is not worthy the sages of a learned profession. Our medicines are so numerous, that it is unnecessary for objectors ever to use alcohol, while the moral and religious aspects of the question require the practitioner to exercise the utmost caution in administering such a powerful and destructive drug.

ON PLEURITIC EFFUSION.

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(Continued from p. 580 of last number.)

THE above reported cases present many features of great pathological and practical interest; and they prove, as before remarked, that pleuritic effusion, even when in considerable quantity, is not to be looked upon with such dread as it was formerly contemplated. In the great majority of instances, it is amenable to treatment, and in many cases patients now make a full recovery, who would, if they had been subjected to the inert means formerly adopted, unquestionably have perished. Of the foregoing eighteen examples, twelve were males and six females. That men are more prone to pleuritic inflammation than women, most writers do not fail to point out; and this tendency of the former may doubtless be accounted for by their greater exposure to vicissitudes of temperature, and being more accustomed to indulging in alcoholic and fermented liquors. With regard to age, three were under 10 years, three from 10 to 20, five from 20 to 30, three from 30 to 40, three were 40, and one 65; the greatest number thus being in the third decade. Twelve made a full recovery, four were greatly relieved, and only two died. In one of those fatal cases (6) the gravest symptoms had shown themselves when he came into the hospital; there was distressing dyspnoea, the heart was thrust out of its position, the legs had become cedematous, and a general dropsical tendency was apparent. The introduction of the trocar, which in two places was attempted, did not reach the fluid, because, as inspection afterwards revealed, the lung was broadly adherent to the thoracic wall. If this operation had been performed at an earlier date, it would doubtless have conferred great relief to the distress under which he suffered, though it might not, perhaps, have fully arrested the progressive phenomena of his phthisical condition. The other patient who died was a pale, debilitated woman, whose vital energies had, by previous illness, been much lowered, and she sank by asthenia rather than from any effects of the shock produced by the operation. In six, the effusion was in the right, in twelve, in the left side. All authors agree that this event is of most frequent occurrence in the last named half of the thorax. In thirty-six fatal cases, given by Hasse, nine were double (hydrothorax?), ten in the right, and sixteen in the left, side. Of fifty-six examples by Mohr, nineteen were in the right, and thirty-seven in left. Copland, Hughes, and Hamilton Roe, notice the same fact of predilection for that side. MM. Rilliet and Barthez assert that, in children, pleurisy, in the uncomplicated state, is more frequent in the right than in the left side; whilst, in complicated cases, it is most frequent in the left. Again, it has been maintained that paracentesis is not equally favourable in both sides of the chest. In a work published by Aran, some years ago, he affirmed that, in right effusions, thoracentesis produces only a temporary benefit, that the fluid reaccumulates, or tuberculosis follows. Hippocrates believed more recoveries resulted from opening the left than the right side. Trousseau says he cured a large number of pleurisies with effusion in the right chest. This physician also believed that right pleurisy is very generally of tuberculous origin. Bowditch's experience in this particular is opposed to the opinion of Trousseau. The first-named writer found that, in twenty-five cases, fourteen were of the right, and only eleven of the left side. Of the former number, only one had tubercles, and in that the pleurisy was cured. The result of tapping in Bowditch's cases was, that twice as many recovered from tapping of the right as of the left side. With regard to what I have said relative to the frequency of effusion in the left thorax, it may, perhaps, mainly be explained by the fact, commonly acknowledged, that the left pulmonary apex is more prone to tubercular deposits than any other part of the lungs; and, as we know that secondary pleurisies often are followed by serous, sero-purulent, and purulent collections, thus it is that these products are most commonly found in this cavity.

In fourteen out of the eighteen cases, the average time under treatment was 59.9 days. The time, however, elapsing before recovery eventuates, is necessarily, most various. This will depend upon many circumstances, such as the nature of the disease by which the effusion is produced; the kind of liquid which is poured out; the age; the amount of vital energies inherent in the patient, and, consequently, the degree of absorptorial power in the system; the mode of treatment which has been selected; the period which has passed before medical agents have, or instrumental aid has, been brought to bear on the case; and the thickness, extent, and tenacity of the false membranes which have been formed. The restoration to health is doubtless far more speedy when the effusion is merely serous than when it is sero-purulent, and much more especially so when it is purulent. When thoracentesis is performed in empyema, the cure is often very protracted, because this kind of sequel implies a secondary or chronic form of inflammation in the serous membrane. In some cases, in which paracentesis was performed without delay—before time was allowed for false membranes to form, and bind down the lung and lessen the power of absorption—I have known recovery to be remarkably rapid. The modern practice is to tap early, and not to leave it until the powers are weakened and as a last resort. Since Trousseau advocated early interference, there has been much more boldness and decision. In one gentleman, in whose case I was consulted many years ago, a fistulous opening continued for between six and seven years; the sinus then gradually closed, and for twelve years he has been in robust health.

As already remarked, pleuritic effusion may be unilateral or bilateral. It may, however, be observed as a rule for our guidance, that liquid in both cavities, in nearly all cases, implies hydrothorax, when there is a different clinical history, and there are different subjective and objective symptoms; and hydrothorax is signally the episode of organic and constitutional disease. It is a sequel not having foregoing inflammation, nor is it accompanied by notable febrile phenomena; it is generally, as I have remarked, traceable to cardiac or renal changes; the heart is not displaced, and there is often pericardial dropsy; paroxysms of dyspnoea or threatened orthopnoea come on; and it is generally that condition which, after long and gradual alteration of structure, supervenes as the herald to dissolution. In one-sided effusion there has, in the majority of examples, been cognisable inflammation. Not unfrequently the inflammatory symptoms have been but indistinctly pronounced, and sometimes they have been scarcely pronounced at all. But careful inquiry generally elicits the acknowledgment of there having, at an earlier date, been sharp pains, or some condition which directed the patient's mind to his chest. He will say, that about such a time he had stitch in his side, accompanied with cough; that it was regarded as being rheumatism; that he could lie less easily on one side than on the other; that he was at some particular date unwell, after which the more disturbing symptoms passed away. Or, what is far more commonly the fact, there has been veritable pleurisy in the primary or the secondary form. In seventeen out of the eighteen cases above recorded, pleuritic inflammation had preceded. Primary pleurisy may eminently be regarded as unilateral; and double effusion as the sequel of pleurisy, is as before asserted, quite exceptional. When occurring in the left side, fluid in the pericardium may, by extension of the inflammation to the cavity of that organ, be the accompaniment; or pericarditis with effusion, as in case No. 9, may be the forerunner of left-sided pleurisy. Instances of double pleurisy do sometimes present themselves, when they are of the secondary form and the consequents of adynamic, malignant, or exanthematous fevers. When such examples are met with, there is a debased condition of the circulatory fluids, the exudative product is aplastic, and unlike those exudates which characterise the fibrogenic materials which in the sthenic types prevail.

It is not an uncommon thing for the presence of fluid in the pleural sac to be overlooked or unsuspected, and more especially in latent examples of pleurisy. In all instances in which there is an account of foregoing acute thoracic disease, with embarrassment of respiration on increased exertion remaining, or a feeling of uncomfortableness on lying on one particular side, the chest to the base should be thoroughly examined. For the want of such caution, I have known the complaint to have been quite passed over, and grave consequences ensue. When the presence of fluid is not detected, but long remains, the chances of cure become far less speedy and much more uncertain. The mechanical disturbance which a large quantity of liquid in the chest confers to the heart and lungs, is one of the most prominent of the symptoms. In no less than fifteen out of the eighteen cases now given, dyspnoea in greater or less degree was proclaimed. In some cases, a very small amount of effusion—even a very few ounces—will cause oppression, and, as the fluid increases, the breathing will become easier. In these exceptional examples, it would seem that the exudation, at the first, acts as an irritant, and that, in the course of time, the cavity becomes tolerant of its

presence. We also know that, sometimes, hydrothorax supervenes with great rapidity, without being accompanied with any notable amount of acceleration of breathing. The inability to lie on either side is a symptom, as remarked, which never should be disregarded. In several of the above examples, the patients at once spoke of this fact; and, by lying in a particular posture, the uneasiness and sense of weight and oppression can be well understood. When the breathing is mainly carried on by one lung, and to recline on the sound side and thus diminish the costal mobility, and for the incarcerated fluid to also gravitate from above downwards and thus still further to press upon the organ, the respiration must necessarily become greatly interfered with. Notwithstanding that dyspnoea, as now insisted upon, is a common and a cardinal symptom, yet it must be held in mind that a large quantity of fluid may, in some exceptions, be collected in the pleural sac without such symptoms being at all marked, and almost without any degree of inconvenience being produced. The absence, therefore, of oppression is not so far to be depended upon as to put us at ease, under the notion that no effusion exists. The physical examination of the chest should not be deferred.

[To be continued.]

REPORT

OF THE

COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION TO INVESTIGATE THE ANTAGONISM OF MEDICINES.

By JOHN HUGHES BENNETT, M.D., F.R.S.E.,
Chairman and Reporter.

VI.—ANTAGONISM BETWEEN TEA, COFFEE, COCAINE, THEINE, CAFFEINE, AND GUANINE, ON THE ONE HAND, AND MORPHIA ON THE OTHER.

THIS investigation is divided into three parts: 1. An inquiry into the physiological properties of cocaine, the active principle of the plant known as *Erythroxylon coca*, of theine, of caffeine, and of guaranine; 2. An inquiry to ascertain whether or not the active principles theine, caffeine, and guaranine, act as antagonists to fatal doses of morphia or opium; and 3. An inquiry to ascertain whether or not strong infusion of tea or decoction of coffee, when introduced into the stomach, act as antagonists to fatal doses of morphia or opium.

The complete ignorance that existed with regard to all these points rendered an extensive preliminary investigation necessary. It was carried out by Dr. Alexander Bennett, but was watched, and the results confirmed, by the Committee.

1. The Physiological Properties of the Active Principles, Cocaine, Theine, Caffeine, and Guaranine.

The general results from thirty experiments on frogs, mice, and rabbits, as to the physiological action of cocaine, were as follows.

1. The physiological actions of erythroxylon coca are due to its proximate principle, cocaine.

2. Cocaine is a powerful poison, inducing a series of symptoms affecting the nervous, respiratory, circulatory, and vaso-motor systems, which terminate, if the dose be large enough, in death.

3. Cocaine, in small doses not ending fatally, produces—1, cerebral excitement, not succeeded by coma; and 2, partial loss of sensibility.

4. In large doses, cocaine produces—1, cerebral excitement; 2, complete paralysis of sensibility; 3, tetanic spasms and convulsions; and 4, death.

5. Cocaine paralyses the entire posterior columns of the spinal cord, also the entire system of peripheral sensory nerves; but the anterior columns of the cord and the peripheral motor nerves are not paralysed.

6. Cocaine frequently produces convulsions of a clonic character; but occasionally it causes tetanic spasms, which latter are sometimes so severe as to produce opisthotonos. There is, at first sight, a resemblance between these spasms and those following the administration of strychnine; but, in the case of strychnine, the action of the poison is limited to the spinal cord, the reflex function of which is so much excited that the slightest touch from without, causes powerful spasms. A poisonous dose of cocaine, on the other hand, paralyses the sensory

nerves, so that external irritations do not affect the cord; but, notwithstanding, there are strong spontaneous spasms, which are probably caused by the reflex action of the drug on the cord itself, and which spasms are not to be considered as reflex in their nature.

7. Cocaine does not produce muscular paralysis.

8. Cocaine at first increases, then impedes, and lastly stops, respiration.

TABLE XXXV.—Experiments with Cocaine.

No. of Experiment.	Animal.	Doses in grains.	General Effects.	Result.	Post Mortem Examination.
380	Frog	1-128th	Slight weakness of limbs.	Recovery	
381	Frog	1-64th	Weakness of limbs.	Recovery	
382	Mouse	1-32nd	Weakness of limbs; slight congestion of cutaneous surface.	Recovery	
383	Frog	1-32nd	Considerable weakness of limbs; respiration impeded.	Recovery	
384	Mouse	1-32nd	Gradual weakness of limbs, ending in complete paralysis; cutaneous congestion; loss of reflex action; prostration.	Death	Congestion of meninges of brain, skin, and viscera. When brain, spinal cord, nerves, or muscles, were irritated with electricity, muscular contractions ensued. Posterior columns irritated, no contractions; anterior columns irritated, strong contractions.
385	Frog	1-32nd	Ligature of the heart; right calf of leg injected. After no movement on irritation, on pinching left calf movements of entire body, including right leg.	Death	
386	Mouse	1-32nd	Same as No. 384; in addition, tetanic spasms.	Death	Same as No. 384.
387	Frog	1-16th	Gradual prostration; paralysis of limbs and loss of reflex action.	Recovery	
388	Frog	1-12th	Weakness of limbs at first; paralysis of limbs after. Loss of reflex action; stoppage of respiration; congestion of skin; stasis of blood in capillaries.	Death	Same as No. 384.
389	Frog	1-10th	Ligature of femoral artery; symptoms same as No. 388; No difference in two legs.	Death	Same as No. 384. No difference between two legs.
390	Frog	1-10th	Observation on lower part of spinal cord, which was exposed. Same as No. 388.	Death	Same as No. 384.
391	Frog	1-10th	Observations on upper part of spinal cord, which was exposed. Same as No. 388.	Death	Same as No. 384.
392	Frog	1-10th	Spinal cord exposed during life. Any part of cord touched with needle, strong muscular contractions. Other symptoms same as No. 384.	Death	Same as No. 384. When posterior columns were irritated with point of needle, no muscular contractions; when anterior columns were irritated, contractions ensued.
393	Frog	1-8th	Same as No. 388, but more rapid.	Death	Same as No. 384.
394	Rabbit	3+2+2+2+3	From first dose, congestion of ears; from second dose, slight cerebral excitement; from third dose, great irritability, no loss of sensibility; from fourth dose, congestion of ears increased; from fifth dose, depression, staggering gait. Numbers of respirations and pulsations of the heart—1st increased, and 2nd diminished. Temperature: 1st diminished, & 2nd increased.	Recovery	
395	Frog	1-32nd	Same as No. 384. Number of respirations—1st increased, 2nd diminished, and 3rd stopped.	Death	Same as No. 384.
396	Frog	1-32nd	Same as 384. Pulsations of the heart—1st increased, 2nd dimin., & 3rd stopped.	Death	Same as No. 384.