

the normal to a relatively and at last an absolutely deficient liver as indicated on successive days by the changes in the aldehyd reaction.

CONCLUSIONS

The clinical value of the aldehyd reaction obtained by adding the reagent to cold, freshly passed urine, and then noticing the changes in the color, at first in the cold and then on heating, is manifest, though limited at times.

The color reaction in the cold is of pathologic significance only when a distinct scarlet color is obtained.

When the reaction persists following free purgation a pathologic condition is at hand.

The reaction is most commonly present in diseases of the liver and bile passages, severe grades of myocardial insufficiency, and certain infectious conditions, as lobar pneumonia and malaria.

The reaction is not a constant one, even in apparently severe grades of the above conditions, presumably because the liver is still efficient in excreting any normal or increased amount of urobilinogen offered it.

Localized infections are more seldom accompanied by this reaction, and when it does persist in such conditions the condition of the intestines and liver should be taken into consideration.

In early grades of myocardial insufficiency of gall-stone trouble, and of liver disturbances the reaction is often a negative one. The appearance of the reaction in such cases previously negative would arouse suspicions of disturbances in the hepatic function; inversely, the disappearance of a reaction previously positive would indicate improvement.

The positive reaction is not constant in localized extravasations of blood into the tissues.

When the reaction is positive some care must be exercised in the selection of an anesthetic for operations, since it is well known that chloroform, for instance, can be a direct liver poison.

The absence of the reaction, both in the heat and in the cold, would indicate obstruction in the flow of bile into the intestines.

This condition is also obtained in cases of severe diarrhea, in the newly born, and in severe grades of destruction of the liver substance.

In conclusion I wish to express my indebtedness to the medical and surgical staff officers of the city hospital for their kind permission in allowing me to use the material at hand, to the internes—more particularly Drs. Light, Schlanser, Monroe and Mussey—also to Dr. A. E. Osmond, without whose kind assistance and skill much of the experimental work would have been impossible.

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CRATÆGUS OXYACANTHA *

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Two years ago my attention was called to this agent and since then I have used it rather extensively in order that I might satisfy myself if it had the therapeutic value claimed for it by the sectarian schools. It has been in use by the homeopathic and eclectic schools for some years, but the mass of therapeutic legends sur-

rounding it has deterred physicians of a scientific turn of mind from believing that it was likely to have any efficacy. Originally it was the secret of a quack in the south of Ireland, who by its use is said to have achieved an extensive reputation for the treatment of heart disorders throughout the British Isles. On his death he bequeathed the secret of his successful practice to his niece (if we can believe the romantic story told). She, in a true womanly spirit, could not or possibly would not keep a secret and thus made it known to medical science.

There are only two articles concerning this agent in the regular medical literature. One, Dr. Jennings¹ of Chicago, in 1896 found it such a cure-all for all cardiac complaints that the profession must have judged it to be good for none. Two years later Dr. Joseph Clement² extolled *Cratægus oxyacantha* as a sovereign remedy for angina pectoris; the article attracted no comment. In the homeopathic literature there are a number of small articles in the main grossly exaggerating its virtues and consequently of little scientific value. The homeopathic physicians use it for its drug (physiologic) effect just as they would use digitalis or quinin and not according to their so-called provings, in homeopathic doses.

For that reason the dosage in their literature is somewhat like ours. The eclectic physicians employ it quite extensively and it has been kept prominent largely through their efforts and through the work of the pharmaceutical houses of that school.

It is derived from the ripe fruit of the hawthorn (*Cratægus oxyacantha*). These berries are eaten by some people as a fruit. They must be gathered after the first frost. By some pharmaceutical houses the American species (*Cratægus coccinea*) is used and is thought by some observers to be quite as efficient as the *oxyacantha*. Concerning this the eclectics disagree. A reliable fluidextract or tincture is the best preparation. It has a fruity odor with a rather pleasant taste, is seldom rejected by the stomach, and so far as observed has no cumulative effect. Thus far the active principle has not been isolated, nor have its physiologic properties been determined by animal experimentation.

Some work of this kind is now under way at the physiologic laboratory of Fordham University and will be reported on at a later period. Thus far my own experience with it has been entirely clinical in character and has seemed to warrant its use in some of the cardiac neuroses.

The following cases are illustrative of a type sometimes benefited by this agent:

CASE 1.—*Patient*.—Mrs. M., aged 33, quintipara, negative family history, for the past eight years has had hay asthma. During the last four years she has been having frequent attacks of pain and distress in the cardiac region. In these attacks the patient thinks that she is going to die. At times they are associated with syncope; sometimes they are continuous for weeks. Physical examination during the attack is negative except for a slight lateral enlargement of cardiac dulness and a pulse of 90. There are no evidences of exophthalmic goiter. These attacks bear no relation to disorders of the gastrointestinal tract.

Treatment.—All sorts of cardiac tonics and stimulants seem to increase the trouble. Bromids quiet the nervous system and lessen the apprehension but do not affect the cardiac disturbance. The addition of *cratægus* in 20-minim doses gave the first complete relief in four years. The relief has been permanent as far as the attack was concerned, and whenever the

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1. Jennings: New York Med. Jour., Jan. 14, 1906.

2. Clement, J.: Kansas City Med. Recorder, April 7, 1898.

patient feels the oncoming attack she resorts to its use again, and always with success.

CASE 2.—Patient.—Mrs. H., aged 28, has been having attacks of pain over the precordia for the past year. These attacks are not connected with any gastric manifestations. The pain is of a squeezing character, is continuous and is made worse by any form of excitement. Examinations show a moderate blood-pressure and a mitral systolic murmur at apex.

Treatment.—The patient received some benefit from digitalis but the pain continued. Twenty minims of the cratægus given every four hours for two weeks caused the pain to disappear entirely and thus far, after three months, it has not returned.

In a few cases of non-compensating valvular disease, with symptoms in which there was an idiosyncrasy to the use of digitalis, it has afforded decided relief.

Notwithstanding the claims of the sectarians, I cannot satisfy myself that it has any decided diuretic action. In healthy individuals there is no appreciable rise in blood-pressure following its use. In disease I am not yet satisfied as to its blood-pressure-raising qualities. In a few cases there was an elevation of 10 mm., but it is a question whether it was due to the drug or to the rest and quiet.

In using this agent we must always keep in mind that it will not cover the whole field of cardiac therapeutics. In cases that resist the action of the digitalis group, there is but a faint chance that it will do good. In such cases it should be tried rather in combination than alone, as it seems to act better as a synergist. Most of us have had the experience of occasionally finding digitalis useless at first, but satisfactorily effective when combined with some other agent. Cratægus is essentially a mild cardiac tonic. When the heart is in a weak and irritable condition, following grip or in neurasthenia with a marked arrhythmia of the respiratory type, agents of the digitalis group are almost invariably badly borne. This is often a result of the digestive disturbance they so frequently entail. Here the cratægus often acts surprisingly well.

It is a perfectly safe agent with no poisonous effect. It can do no harm in aortic disease, and it is worthy of trial in these troublesome cases. In fatty degenerations and in heart lesions associated with high arterial pressure it should be a useful agent. It is better given during or after meals in doses of from 10 to 30 minims of a good fluidextract or a dram of the tincture. (The sectarian preparations of this agent are generally reliable.)

I frequently combine it with 20 grains of bromid and find that the effect is much intensified in the irritative conditions spoken of above.

As we all know, digitalis, the king of the heart, has many imperfections and shortcomings, and there is a constant search for agents to fill in the lacunæ left by these deficiencies. Sometimes these substitutes have for a time a vogue almost equal to that of the original.

More sober judgment always has shown the falsity of such claims. This agent fills one of these lacunæ and in no sense can it take the place of digitalis as a universal cardiac tonic.

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Hookworm Disease.—Stiles (*Public Health Reports*) finds no hookworm disease among the employees of the New England cotton mills, and believes the subject of child labor in the South, on account of that disease, presents a different aspect from that of child labor in the North. He would, however, place a 10-year-old daughter in the spinning room of a cotton mill rather than on the average small tenant farm in the South, as the disease is entirely due to soil pollution.

THE THERAPEUTIC MANAGEMENT OF ARTERIOSCLEROSIS BASED ON THE PRESENT VIEW OF ITS PATHOLOGY *

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Functional and structural derangement in the walls of arteries are the fundamental cause of many syndromes seemingly attributable to other pathologic conditions. The functional and structural states of arteriosclerosis are undoubtedly the prime cause in certain syndromes of the gastrointestinal system, of the nervous system and cardiovascular system not formerly so accredited. Recent studies in the clinical evolution of arteriosclerosis, especially in connection with that chief symptom, hypertension, have shown the early recognition and effectual treatment of this disease process to be of far-reaching importance.

With the purpose in view of setting forth this side of the subject this paper is presented. No new facts are to be added to our knowledge, but in the paper an effort will be made to call attention to the clinical aspect of arteriosclerosis in its broad sense and to indicate the remedial measures for its therapeutic management. It is unfortunate that the average medical mind should content itself with considering arteriosclerosis simply as an affection of the palpable arteries of the body. Arteriosclerosis, as now considered, embraces the whole arterial tree from heart to capillaries, whether they be in the brain; myocardium, kidney, liver, mesentery, intestines or extremities. As this broad view is presented it should not be thought to mean that arteriosclerosis shows itself only as a general disease. It is frequently symptomatically recognized as a local condition without the involvement of other parts.

THE STAGES OF ARTERIOSCLEROSIS

To approach this subject in a limited paper it would seem wise to treat the subject from a clinical standpoint and to apply the therapy to its clinical stages. A French¹ clinician has divided arteriosclerosis into four stages, which seems to place the several aspects of the disease in convenient form for our consideration.

1. *The Arterial Stage.*—By some this is called the stage of presclerosis, latent sclerosis or functional sclerosis. It is characterized by contraction of the arteries and by more or less spasm in the arterial wall, due to the toxins in the blood. It is held² that successive repetition of such accumulation of toxins in the bloodstream circulating for a long time in direct contact with the intima of the arterial wall excites that structure, and, later, the medial coat, to functional contraction. This abnormal contraction of the arterial wall is followed, in due course of time, by a superelevation of tension; at first more or less temporary, or transitory; later, more constant. Hypertension³ thus begun, with the intoxication, is productive of fixed arterial changes in the vessel wall. Some observers³ consider hypertension a result and not a cause of arteriosclerosis.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Huchard, H.: *Formes cliniques de l'artério-sclérose*, Paris, 1909.

2. Clombe, C.: *L'artério-sclérose: sa pathogénie et son traitement*, Lyon méd., 1907, cix, 433.

3. Huchard, Rosenbach, Broadbent, Allbutt et al. contend that hypertension is a cause of arteriosclerosis, while Chantemesse, Hayem and Lancereaux combat this theory.