

A TREATISE ON CRATAEGUS

The Therapeutic Uses of Crataegus are written for this Treatise by H. P. WHITFORD, M. D.
The important article by Dr. J. A. HOFHEIMER, on Angina Pectoris, with especial reference to the use of Crataegus Oxyacantha in its treatment, appeared originally (1916) in *American Medicine*, New York.

The Reproductions are by M. C. JENNINGS, M. D., and JOSEPH CLEMENTS, M. D.

The Illustrations of Crataegus Oxyacantha are from the British Flora. That of Crataegus Coccinea was drawn for this publication.

The Description, History, Chemistry, and Pharmaceutical Record are by JOHN URI LLOYD.

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Crataegus.

(HAWTHORN.)



A thicket tree, of which the species *Crataegus Oxyacantha* is abundant throughout Europe, being especially cultivated in England as a hedge. It has been successfully introduced into America, where a dozen or more species of Crataegus are native, all being marked by close relationship characters.

History -A well-known physician, the late Dr. Green, of Ennis, County Clare, Ireland, attained an extended reputation in the treatment of " Heart Disease," keeping the remedy a secret. Upon his death, in 1894, his daughter revealed the fact that this " famous" cure was a tincture of the ripe berries of Crataegus Oxyacan thus.

The first conspicuous American reference to the remedy was an article by Dr. J. C. Jennings, of Chicago, 1896, in the *New York Medical Journal*, followed by an editorial selection, 1898, which drew further attention to the drug.

Our study of the various species of *Crataegus* dates from 1896, at which time, owing to Dr. Jennings' paper, interested physicians sought our services in behalf of an authentic preparation, among these physicians being Dr. H. P. Whitford, whose comprehensive experience is recorded in this paper. Possibly we are the only pharmacists to have made a study of the various species and varieties of *Crataegus*, bark, root and, root bark, the result being that we have reason to believe that our efforts have been of much service to physicians, for notwithstanding our questioning the value of *Crataegus* and our fear it might be overestimated, the preparation under our "Specific Medicine" label has attained conspicuous reputation.

Part Used.-The part used in medicine is the ripe fruit, this being employed by Dr. Green, who used a tincture of the fruit of *Crataegus Oxyacantha*. When immature the berry, known as "haws," has a green color which on ripening becomes red. It has an astringency, and the fruit of some species possesses a flavor not unpleasant to some persons. When fully ripe, the haws are eaten by children. This is particularly true of some American varieties, one known as "mush haw" being quite palatable. The imported berry is easily obtained, and is readily imported from England, fresh, and in good condition. At first, we made only a tincture, or Fluid Extract of the imported Hawthorn berries, but comparative investigations finally led us to the conclusion that this berry is inferior to one of the American species, and accordingly we finally placed the Specific Medicine of that- *Crataegus* berry on the market. Preparations.-*Crataegus* berries are worked by different methods, and by means of different menstruums. They are sold under various labels, such as Tinctures and Fluid Extracts of *Crataegus*, and they vary markedly as found in commerce. We supply under the name *Crataegus* the afore-named Specific Medicine unless other preparations are directly specified, such as tincture of the European Hawthorn berry, or tincture of Hawthorn bark or of the root when we supply such as are designated. In this connection we will add that the bark and root were both shown by our investigations to be therapeutically valueless in the field the berry occupies.

Specific Medicine *Crataegus*.- This preparation has a brown-red color, a fragrant, wine-like or fruity odor, and a pleasant taste. It gives an acid reaction, and when dropped into water mixes without precipitation. It cannot, as is the case of so many heart tonics, be classed with poisonous remedies, for its sensible characteristics are not marked. We consider this the typical and best preparation of *Crataegus*. It can be taken in large doses for a long period without impairing digestion or producing other ill effects, and it has no cumulative action.

Medical Properties of *Crataegus*.-Prof. Felter (Amer Disp.), states that the field in which this remedy is claimed to be of value is that of "a curative remedy for *organic and functional heart disorders*, including *cardiac hypertrophy*, with *mitral regurgitation* from valvular insufficiency, and *angina pectoris*. Sometimes *spinal hyperemia* is associated with the latter, when both are said to be relieved by the drug."

Possibly the growing interest in *Crataegus* may be more comprehensively shown physicians by reproductions of the articles already referred to, together with the report of Dr. Whitford's experience with Specific Medicine *Crataegus*, than by a summary made by an editor. We, therefore, present these contributions in detail, believing that they embrace the sum of what the friends of *Crataegus* have to offer in behalf of the claims of the remedy. In this connection we will say that, as in all other cases, indicated remedies should not be neglected.

An excellent example of the value of indicated remedies in fortifying a central preparation is shown in Prof. Bloyer's article on *Cactus Grandiflora*. This we will mail on application.

THE USES OF CRATAEGUS. By H. P. WHITFORD, M. D., Bridgewater, N. Y.

My experience with this agent commenced with the commencement of its manufacture by Lloyd Brothers, of Cincinnati, Ohio. Have used the Specific Medicine exclusively in my practice since its introduction. I do not consider it a "cure-all," but no one agent has given better results in its sphere of action. In weak hearts, with consequent capillary congestion, with effusion, even where valves are so diseased as to eventually cause death, it has proved of great benefit.

A few *prominent* cases from practice will perhaps best illustrate its value. One of my first trials was in the case of a lady of Babcock Hill, N. Y., who had been suffering for a number of years with ulcerative laryngitis, bronchitis, with involvement of apex of left lung. Was expectorating grumous pus freely, pulse feeble, irregular, and over 100 per minute when it could be counted. Effusion into entire cellular tissue of body and limbs, and abdomen so distended as to interfere with proper descent of diaphragm in respiration. Had been discharged by two physicians as hopeless. No appetite, urine very scanty, could not rest from coughing. Put her upon Crataegus ten drops in wineglass of water four times a day, also very small doses of Aconite, Bryonia and Veratrum, once in two hours. Diet restricted to new milk and fresh eggs. After first week added Specific Medicine Collinsonia and Ipecac to the prescription. There was marked improvement in circulation and effusion in a few weeks, which continued until dropsy was entirely gone, and with continuance of the Crataegus alone has never returned. The throat and lung got better, and the lady is as well as most people of 70 years. A year later her husband came under treatment for disease of the heart. Had suffered for 30 years from attacks of suffocation which were increasing in frequency. Heart action very feeble and irregular; effusion in feet, limbs and one hand and arm. Attacks would last from a few minutes to six or eight hours, the intervals between growing shorter, and the attacks holding on longer. The same remedies, Crataegus, with *small doses* of Specific Medicine Aconite, Bryonia and Veratrum, as indicated, soon relieved the dropsical conditions and stopped the suffocating attacks. Patient continued comfortable under the treatment about six months, when he died from paralysis. A gentleman of Richfield Springs, N. Y., suffered from angina pectoris for a number of years. In June, 1900, he was taken very much worse, having ten attacks during a night, so severe that it seemed that each successive attack must be the last. Had been in the habit of controlling them with 1/100 grain tablets of glonoin, but at this time they seemed utterly without effect. Specific Crataegus in ten drop doses once in two hours, alternated with *small* doses of Specific Aconite, Veratrum vir., Bryonia, and Gelsemium as indicated, in half glass of water, two teaspoonsful once in two hours, alternately gave prompt relief and kept them off for two weeks when the medicine gave out.

A gentleman, of Bridgewater, N. Y., 80 years of age, had suffered from increasing heart trouble for eight or more years. In the fall of 1900, he could not lie down at all, limbs filled until the skin cracked open in many places and drip down into his shoes. The right limb about the ankle and on the calf of leg, finally had become gangrenous, the sore on calf being 3 1/2 x 6 inches and very offensive. Pulse very irregular 120 to 130. Had been eating beefsteak, potatoes, toast, preserves, etc., which I changed to milk and eggs, and finally, to milk alone. I gave Specific Crataegus in ten drop doses four times a day in water. A desert spoonful of Syrup of Phosphoric Acid an hour after the milk four times a day. A drachm of Echafolta and ten drops of Glonoin in half tumbler of water, two teaspoonful once in four hours, alternated with ten drops dist. ext. of Apcoynum two hours apart. Sores were dressed with compress kept wet with 20 per cent. solution of Echafolta. In two months dropsy was gone, and the sores were healed with the exception of the large one which was reduced to the size of a quarter of a dollar, heart was regular, strength had returned, could lie down and sleep. Was bright, cheerful, and able to take care of himself. This, my long experience as a physician teaches me, was a desperate case and a marvelous cure.

CRATAEGUS IN THE TREATMENT OF HEART DISEASE. By M. C. JENNINGS, M. D.
Case I—Was that of a Mr. B., aged 73 years. I found him gasping for breath when I entered the room, with a pulse rate of 158 and very feeble; great oedema of lower limbs and abdomen. A more desperate case could hardly be found. I gave him fifteen drops of Crataegus in half a wineglass of water. In fifteen minutes the pulse heat was 126 and stronger, and breathing was not so labored. In twenty-five minutes pulse beat 110 and the force was still increasing, breathing much easier. He now got ten drops in same quantity of water, and in one hour from the time I entered the house he was, for the first time in ten days, able to lie horizontally on the bed. I made an examination of the heart and found mitral regurgitation from valvular deficiency, with great enlargement.

For the oedema I prescribed hydrargyrum cum creta, squill and digitalis. He received ten drops four times a day of the Crataegus, and was permitted to use some light beer, to which he had become accustomed, at meal time.

He made a rapid and apparently full recovery until, in three months, he felt as well as any man of his age in Chicago. He occasionally, particularly in the change of weather, takes some of the Crataegus which, he says, quickly stops shortness of breath, or pain in the heart. His father and brother died of heart disease.

Case II-Was that of a young woman. I was met in the hallway of her home, as I entered, with the announcement that she was dead. I found that she was not quite dead, though apparently so. I put five or six drops of nitrite of amyl to her nose, alternately pressing and relaxing the chest, so as to imitate natural breathing. I soon had her able to open her eyes and speak. I gave her hypodermically ten drops of the fluid extract, and in less than half an hour she was able to talk and describe her feelings. An examination revealed a painfully anaemic condition of the patient, but without any discoverable lesions of the heart, except functional.

The pulse was hardly perceptible for twenty minutes after she received the hypodermic injection; after that. lapse of time it grew slowly strong and less numerous, and at the end of half an hour was fairly good.

A chronic dysentery and indigestion, which were responsible for her trouble, having been cured, the heart trouble and nervous state gradually responded to the general improvement until, at the end of ten weeks, the girl was in a perfect state of health.

She received ten drops of Crataegus, after meals, three times a day for one month-after that only occasionally. Her heart trouble, though very dangerous, was only functional, and resulted from the want of proper assimilation of the food due, chiefly, to the dyspeptic state of dysentery. The forty other cases ran courses somewhat similar to those cited-all having been apparently cured. Yet, I am not satisfied, beyond a doubt, that any of those patients were completely cured, except those whose troubles of the heart were functional, like the second case cited. And it is possible, and even probable, that, in weather of a heavy atmosphere or when it is surcharged with electricity, or if the patient be subjected to great excitement or sudden and violent commotion or exercise, he may suffer again therewith. That the medicine has a remarkable influence on the diseased heart must, I think, be admitted. From experiments on dogs and cats, made by myself, it appears to influence the vagi and cardioinhibitory centres, and diminishes the pulse rate, increases the intraventricular pressure, and thus filling the heart with blood, causes retardation of the beat and an equilibrium between the general blood pressure and force of the beat. Cardiac impulse, after a few days' use of the Crataegus, is greatly strengthened and yields that low, soft tone, so characteristic of the first sound, as shown by the cardiograph. The entire central nervous system seems to be influenced favorably by its use; the appetite increases and assimilation and nutrition improve, showing an influence over the sympathetic and the solar plexus. Also a sense of quietude and well-being rests on the patient, and he who, before its use was cross, melancholic and irritable, after a few days of its use shows marked signs of improvement in his mental state. I doubt if it is indicated in fatty enlargement. The dose which I have found to be the most available is from ten to fifteen drops after meals or food. If taken before food it may, in very susceptible patients, cause nausea. I find also, that after its use for a month it may be well to discontinue for a week or two, when it should be renewed for another month or so. Usually three months seem to be the proper time for actual treatment, and after that only at such times as a warning pain of the heart or dyspnoea may point out.

Digitalis, in some form, should be used as an adjunct to the Crataegus.-*New York Medical Journal* 1896. M. C. JENNINGS, M. D., Chicago, Ill.

The *Kansas City Medical Record* for April, contains a paper on Crataegus Oxyacantha in Angina Pectoris, which was read before the Jackson County (Missouri) Medical Society, by Dr. Joseph Clements, on March 25, 1898.

Dr Clements himself was the patient, and he records the onset of the disease and its progress up to two years ago. The attacks came frequently, the interval varying from two to three months to two to three weeks. Dr. Clements says: "I began with six drops, increasing to ten, before meals and at bed time. In twenty-four hours my pulse showed marked improvement; in two or three weeks it became regular, smooth and forceful. Palpitation and dyspnoea soon entirely left me; I began to walk up and down hills without difficulty, and a more general and buoyant sense of security and well-being has come to stay. After three or four months use of the remedy, beginning over a year ago, and intermitting a week now and then; and an occasional use for a day or two once or twice since, every symptom of the disease has left me, so far as I can know myself. Of course, as to the permanency of these results time alone must declare; it is too recent a cure to be self confident about. As regards the modus operandi of the drug Dr. Clements says, but little is as yet known; it has been ascertained, however, that it exercises a remarkable influence over the vagus and sympathetic nerves. Shortly after its ingestion the cardio-inhibitory centers become active, the pulse rate is diminished and the intra ventricular pressure is increased, filling the heart with blood, and thus bringing about an equilibrium between the general blood pressure and the heart's impulse."

Specific Indications and Uses.-Functional and organic heart affections, with pain, dyspnoea, praecordial oppression, rapid and feeble heart action; valvular insufficiency; cardiac hypertrophy; marked anemia; venous stasis; angina pectoris; endocarditis following inflammatory rheumatism.

Dose.-One to twenty drops in water three or four times a day. In urgent cases, ten drops every hour or oftener.

Angina Pectoris, With Especial Reference to the Use of Crataegus Oxyacantha in Its Treatment.*

By DR. J. A. HOFHEIMER, M.D., New York.

American Medicine, New York, September, 1916.

The term "angina pectoris" is often mistakenly used as the name of a disease rather than that of a group of symptoms caused by various metabolic disturbances. There are also many medical authorities who mention at the present day two types of this disorder, a true (angina pectoris vera) and a false (pseudo angina pectoris). Those who hold to there being two types of this affection, ascribe the so-called true angina to be due entirely to an atheromatous condition of the coronary arteries; and for many years this was the only form mentioned in the medical schools.

Within the past few years there has been a gradual change in the opinion of many observers. Some approach the subject by qualifying various concomitant disorders as being among the causative factors, while many still hold to the sclerotic condition of the coronary vessel theory. Several have taken the middle course, and the writer can not but agree with them. There is no doubt more than one causative factor is at work to cause the symptom complex, which for want of a better name we call angina pectoris.

Von Leubel states that "the origin of these attacks is probably to be attributed to the *sudden anemia of the myocardium* predisposed by arteriosclerosis of the coronary arteries, and the thereby impeded blood supply to the myocardium. * * * * But it is conceivable that a similar, although less dangerous final result may also be produced by vascular spasm; hyperirritability of the cardiac nerves, and toxic influences. * * * * I do not consider it necessary formally to separate a sternocardia which has occurred, on the basis of angina pectoris vera from pseudo angina pectoris. Musser² writes that "the attack may occur in patients who are free from organic disease of the heart. It is, however, most commonly associated with some lesion." He further declares that "*hysterical or pseudo angina pectoris* can be distinguished only with extreme difficulty."

Louis Faugeres Bishops in his recent book on "Arteriosclerosis," states: "Personally I have never in recent years made a diagnosis of pseudo angina pectoris. I think this name is silly. If a man has a severe cardiac pain. he has angina pectoris. because that is the only clinical name for the worst form of cardiac pain. The simplest kind of pain can develop into the most serious."

"Angina Pectoris, with especial reference to the use of Crataegus Oxyacantha in its treatment."-*American Medicine*, September, 1916, by J. A. Hofheimer, M.D., formerly Surgeon-in-Chief, Harlem Hospital, D. P., New York, Surgeon St. Elizabeth Hospital.

If the practitioner would observe his patients who suffer from this disorder he will be convinced of the correctness of the assertion of Dr. Bishop. In the individual case we are able to notice pain of varying intensity at different attacks. Whether the pain is mild or severe, there can be no doubt of the distress from which the patient suffers, nor of the urgency with which relief should be given. What is angina pectoris? Lippincott's Medical Dictionary (edited by Dr. H. W. Cattell), gives as a definition "Spasm of the chest; a disease attended by acute pain, and syncope * * * * It is due to a sudden spasm of the systemic arteries, disease or aneurism of the aorta."

The observations of the writer have led him to believe that angina pectoris is essentially a cramp of the cardiac muscular fibers of varying intensity, which may occur at any point in the heart muscle, but apparently has its most frequent site at or about the aortic orifice, causing a partial stenosis. The predisposition to these attacks may be due to changes which have taken place in the coronary arteries, affecting the circulation in the heart muscle itself, or to some metabolic change affecting the nervous, muscular and vascular structures generally. Anginoid attacks may be induced in many ways.

Sufferers from this disorder are subjected to attacks upon the slightest muscular exertion, whether on a level surface or going up an incline; physical and mental overwork; violent emotions; unpleasant dreams, and very frequently fatal attacks have occurred during a spell of acute indigestion.

In all the cases which the writer has observed there has been a strong neurotic element as an exciting cause. The coronary vessels may or may not be diseased (if they are, the prognosis is more serious), but these vessels are *not* the only ones affected; the entire vascular system is more or less participant in the sclerotic changes going on in the economy. In fact, the general condition of arteriosclerosis which is present interferes with proper vaso-motor action, causing thereby a back pressure in the blood current, thus leading to greater distention of the myocardium. This over-distention acts as a stimulus to the inhibitory nerves of the heart; the cardiac muscle responds to this stimulus with a cramp-like or convulsive action, as is demonstrated by the palpitation, irregular rhythm and angina which follows. If this convulsive act is too prolonged or too "tonic" a sudden fatal termination will result.

It therefore becomes evident that we must search for the causes of the defective metabolism in order that we may ameliorate this condition. and remove them whenever possible; modifying diet, exercise and vocation. While the organic changes which have preceded these attacks may not be altered to any great extent by treatment later instituted, further disorganizing changes may be held in check by careful regimen, and proper medication.

The immediate relief demanded by an attack of angina has caused us to resort to the use of antispasmodics, such as amyl nitrite by inhalation, and the exhibition by mouth or by hypodermic injections of preparations containing digitalis, nitroglycerine, cactus, belladonna, etc.; and sedatives such as chloral hydrate, the bromides and often opiates.

These drugs have but a transient effect, and frequently the fear of an attack may develop a pernicious habit in a patient who has been given relief upon a former occasion by the injection of morphine.

Nitroglycerine is one of the most active antispasmodics, and is the drug best suited for the immediate relief of the present attack, but it does not effect a cure.

It is handy for the patient to carry and is easy to take, by simply allowing a granule containing 1-100 to 1-250 of a grain to dissolve in the mouth, which it does instantly. The effect of this drug is obtained in a few seconds after taking; it imparts a slight tang to the tongue, and a sense of fullness in the head, which lasts from several minutes to a longer period. The headache which occasionally accompanies the exhibition of this drug may be considerably modified by ascertaining the minimum dose required in a given case in order to secure prompt relief.

Another drug to which my attention was called several months ago for the relief of these cases is the *Crataegus oxyacantha* (English hawthorn). I have used this drug frequently since it was first brought to my notice, not only in cases of severe angina pectoris, but also in many other cardiac disturbances.

Crataegus oxyacantha is a drug seldom mentioned in the textbooks of the "old school," as I have found after a fairly thorough search in many works on materia medica, without even finding the name of the plant spoken of. Therefore a brief resume of the history of this preparation may not be amiss:

Crataegus oxyacantha was first brought to the notice of the medical profession in the United States through the publication of an article on that subject by Dr. M. C. Jennings, of Chicago, in 1896, and again in 1898⁴ (See pages 6 and 7.)

The medicinal virtues of hawthorn, however, were first made known to the profession through an Irish physician, Dr. Green, of Ennis, County Clare, who died in 1894.⁵

Dr. Joseph Clement⁶ claims that *crataegus oxyacantha* is a sovereign remedy for angina pectoris. Dr. Thomas F. Reilly, professor of applied therapeutics at Fordham University Medical College, read a paper⁷ on this subject before the A. M. A. in June, 1909. He quotes the history of many cases to whom he had administered this drug, and states "in a few cases of noncompensating valvular disease, with symptoms in which there is an idiosyncrasy to the use of digitalis, it has afforded decided relief. * * * * * *Crataegus* is essentially a mild cardiac tonic. It is perfectly safe and has no poisonous effect. It can do no harm in aortic disease, and it is worthy of a trial in these troublesome cases. In fatty degenerations and in heart lesions associated with high arterial pressure it should be a useful agent."

Jennings, in his first paper, states his conclusions from its use in over forty cases, that "it appears to influence the vagi and the cardioinhibitory centers, and diminishes the pulse rate. * * * * * The entire central nervous system seems to be favorably influenced by its use; the appetite increases and assimilation and nutrition improve, showing an influence over the sympathetic and solar plexus. Also a sense of quietude rests on the patient, and he who before its use was cross, melancholic and irritable, after a few days of its use shows marked signs of improvement, in his mental state." Strange as this last statement may appear, from actual experience I have been able to verify the marked sedative effect of *crataegus* upon the general system. Among the books referred to the writer has found the following statements about *crataegus*.

The United States Dispensatory⁸ merely gives two lines to this drug as follows: "The unripe fruits of the various species of *crataegus* or hawthorn, especially the *Crataegus oxyacantha* (English hawthorn) are used for their astringent and *reputed* cardiac properties."

The American Dispensatory⁹ has an article by Dr. Felter, who writes, "It is a curative remedy for organic and functional heart disorders, including cardiac hypertrophy, with mitral regurgitation from valvular insufficiency, and angina pectoris."

Fyfe's (Eclectic) *Materia Medica*¹⁰ mentions the indications for giving *crataegus* to be "cardiac neuralgia; palpitation; intermittent pulse with increased rate; extreme dyspnea on slight exertion, usually accompanied with pain in the cardiac region; valvular deficiency, with or without enlargement. *Crataegus* is a remedy of great power in both functional and organic wrongs of the heart. In angina pectoris and in valvular deficiencies most wonderful results have been obtained from its exhibition after the failure of some of the best known heart remedies."

Further references were also found attesting the beneficial action of crataegus in *Ellingwood's Therapeutist*, written by Dr. Ruff,¹¹ and Dr. R. W. Sharp.¹²

Since my own attention has been brought to the effectiveness of this drug, I have had considerable personal experience in its use, and have prescribed it in several cases, always with good results. The preparation which I have used has been the Specific Medicine of crataegus oxyacantha manufactured by Lloyd Bros., of Cincinnati.

Histories of a few of the cases treated with this drug follow:

Case I.-Dr. X., age 55, rheumatic history; mitral regurgitant murmur present for several years, accompanied by cardiac dilatation. He had noticed for the past two years infrequent attacks of dyspnea upon slight exertion. About May, 1915, he was subjected to these attacks more frequently. His work necessitated mounting several flights of stairs daily, and he noticed by the time July arrived that the slightest exertion would cause attacks of severe precordial pain, which would radiate to the left shoulder and arm. If the effort was persisted in, these pains would shoot up the side of the neck and into the face. A month later he was unable to walk a short block without being distressed. His sleep also became disturbed, and attacks of orthopnea and angina were of almost nightly occurrence.

A well-known specialist, who saw the case in consultation, advised absolute rest, and a practically non-protein dietary, forbidding all animal foods. He also suggested that the patient should take occasional doses of castor oil in combination with menthol and tincture of iodine (formula of Dr. G. K. Dickinson, of Christ's Hospital, Jersey City)¹⁸ also to use nitroglycerine tablets or pills, each containing 1-225 grain, as frequently as the attacks occurred, or preceding any anticipated exertion.

These directions were followed assiduously for over two months, without any noticeable benefit being derived therefrom. The patient grew weaker daily, and could barely walk from one chair to another in his room without having anginoid attack. There was at this time a constant sense of soreness over the left side of the thorax, and in the arm and hand of that side. His sleep had now become so disturbed that it was impossible for him to assume the recumbent posture (as change of position at once precipitated an attack), and he was compelled to secure what rest he could in a Morris chair, aided by several doses of bromide and chloral, occasionally augmented with small doses of codeia. Meanwhile he became very weak, nervous, hysterical and melancholic. The nitroglycerine gave but temporary relief, and frequently in less than half an hour the attacks would recur.

As apparently most of the so-called heart sedatives and regulators had been tried, without any lasting result or even marked improvement in the doctor's condition, at Dr. Thomas F. Reilly's suggestion a trial was made of crataegus oxyacantha. It was first given in combination with aconite. This, however, disagreed with the patient, who had shown an intolerance to aconite upon a former occasion, and the crataegus was therefore given alone. The first dose used was twenty drops of the "specific medicine" (Lloyd's), taken three times daily in water; this being gradually increased later until it was taken in fifty-drop doses.

Two days after commencing the exhibition of crataegus improvement was noticeable in the patient's condition. The intervals between attacks were longer, and he was able to obtain more sleep, though still in the sitting position and occasionally aided by bromides. He was allowed a more liberal diet, though the protein content was kept considerably lower than before his illness began. In the latter part of December (about four weeks after beginning to take crataegus) the patient was able to go up and down one flight of stairs with but slight distress, and he resumed a portion of his office work. Walking would yet occasion twinges of precordial pain, but their severity was greatly modified. The nitroglycerine was taken only if the pain was severe, and many days would now elapse without its use being necessitated. It was not until the latter part of February, 1916, that he had improved sufficiently to be able to sleep in the recumbent position in bed.

At the time of writing this paper (July, 1916) the doctor has been able to resume his practice, and has performed several surgical operations within the past month without suffering from the anginoid attacks.

At the commencement of his severe attacks his blood-pressure registered 220 mm. Hg., systole; the urinalysis showed albumin, heavy trace; urea 8 1/2 grains per fluid ounce, and no casts. Since taking the crataegus the blood-pressure has fallen to 175 mm., and there is a marked diminution in the cardiac murmur, which formerly was very loud; the albuminuria has entirely disappeared. He continues to take the crataegus in forty-drop doses three times daily, and is able to go three and four weeks without necessitating the taking of the nitroglycerine.

While this case is not entirely cured, the sclerotic changes which had taken place previous to following this line of treatment still being largely in evidence, yet the further changes and cardiac spasms are held in check by the methods at present adopted. These include care of diet, relief of any intestinal stasis which may be present, moderation in occupation and exercise, and the taking of crataegus regularly.

Case II.-Mr. J. G., aet. 49. History of chronic bronchitis, with emphysema and bronchial asthma. No specific history. Urinalysis shows a trace of albumin, no casts, and urea 10 grains to the ounce. Blood pressure, 200 mm., cardiac action irregular, with pulse averaging 96- 100 per minute; dyspnea upon slightest exertion. February 16, 1916, commenced taking crataegus in 10-drop doses every four hours. February 24, general improvement. Blood pressure, 145 mm. March 6, breathing and cardiac action considerably improved. Blood pressure, 140.

Soon after this, as the patient was feeling so much better, he concluded to discontinue treatment. On May 11th he again consulted me, complaining of his symptoms, which had again developed after he had "taken cold."~ The bronchial and cardiac conditions were similar to that found at the examination in February. His pulse at this time was 90, and the blood pressure was 180 mm. He was given crataegus in 20-drop doses with 10 drops of saturated solution of kalium iodide. May 15, patient's blood pressure to-day was 160, and his pulse, 76. May 23, condition unchanged; added tincture of digitalis in seven-drop doses to the crataegus. May 26, reports that he feels considerably better, and is able to sleep without interruption now from 10 p. m. until 5 a. m. June 6, improvement continues; patient states that "he feels lighter and breathes better." Pulse soft and regular, at 78 per minute; blood pressure is 140 mm. July 11, blood pressure is down to 135 mm., and urine is free of albumin. Is continuing taking crataegus, 30 drops twice daily.

Case III.-William G., Jr., aet. 18. Had recently been refused a policy in a well-known life insurance company, on account of "cardiorenal disease," albumin having been found in his urine. He is a robust appearing young man, five feet eight inches tall, and weighs 163 pounds. He has never had any serious illness, and his family history is excellent.

Examination of the heart reveals cardiac dilatation with a faint mitral systolic murmur, due to insufficiency. Blood pressure, 135 mm., and pulse 96. He admits that he frequently has noticed palpitation and slight precordial pain, especially after walking quickly. Several urinalyses have been made, showing uniformly high specific gravity (ranging from 1025 to 1040); increased acidity, and albumin present in a few specimens, especially in the evening urine, and only after partaking of a meal of high protein content, containing meat or eggs. No casts nor sugar found at any examination.

February 13, gave alkaline diuretics and specific medicine crataegus in ten-drop doses three times daily. March 5, slight improvement in cardiac action. No albumin. March 19, continued improvement. Now taking only crataegus in fifteen-drop doses twice daily. April 16. has been re-examined by insurance company's doctors and has been issued a policy. July 9, he has been steadily taking crataegus twice daily since last note. Examination to-day shows a heart regular in action, without murmur; pulse, sitting, 75; after hopping, 90. No distress over cardiac region; blood pressure, 130, and urine free of albumin.

Case IV.-Mrs. A. W., aet. 39, primipara. April 10, the patient had to be assisted up the stoop to my office. Her present distress was intense; pains over the heart; orthopnea; livid countenance, and anxious facies.

For the past month she suffered frequently from similar attacks, and was unable to walk more than a block or two without their recurrence. They always occurred upon assuming the recumbent posture; and at times she noticed sibilant rales, but had very little cough or expectoration. Occasionally there were vertiginous spells; appetite was good, and bowel action regular. There was no rheumatic history. Auscultation revealed no adventitious pulmonary sounds; respirations were 36 per minute; pulse, 105; temperature; normal. The cardiac area was greatly enlarged, with tremulous action and a decided trill on palpation over the apex. Blood pressure, systole, 260 mm., diastole, 165 mm. Urinalysis shows specific gravity, 1020; faint trace of albumin; urea, 7 grains per ounce, and no casts. She was ordered to rest in any position most convenient to her comfort, and to take tincture of digitalis, five-drop doses, in combination with crataegus, ten drops, every four hours. Also to take a tablet of glonoin, 1-200 grain, whenever attacks recurred. April 17, the patient states that she can now lie down in bed without distress, using only one pillow. To-day she walked to my office (a distance of eight blocks from her home) without suffering the former discomfort. Her blood pressure registered 220 mm., and pulse is 90 per minute. There is still slight tachycardia, but the heart sounds are normal. Digitalis increased to ten drops and crataegus, to fifteen drops four times daily. April 28. continues to improve. May 9, reports that she "feels fine," and is doing her own housework and has had no further attacks. Urine free of albumin; blood pressure, 215 mm., and pulse 86. Advised that she should continue taking crataegus alone in fifteen-drop doses four times daily. July 22, heard from patient through one of her family, who reports that she had gone to the country, and that she still takes crataegus, but has not had an attack since last noted.

Case V.-Mrs. G., aet. 45; has been suffering from tachycardia, arrhythmia, double mitral murmur and aortic stenosis. Her pulse ranges from 90 to 190 beats per minute. She has complained of "palpitation and heart pains" for over a year, noticeable upon the slightest exertion; her appetite is poor; constipation, and occasionally headaches.

Sometimes dyspnea is present and at such times she is unable to assume the recumbent position. She was advised to relinquish all work, and lie down as much as possible. Codeia, digitalis and strophanthus were given to her to ease the pain and regulate the heart action. Castor oil was administered as needed to maintain good bowel action. While the pulse rate was lowered, the pains and other discomforts would make themselves manifest upon the slightest exertion. January 6, 1916, I began to use crataegus in her case; first giving it in ten-drop doses every four hours, and gradually increasing it up to twenty-drop doses. , March 27, she reports only slight distress upon walking, and is able to perform light house hold duties. She is also now able to sleep in bed with her head low. The double mitral murmur is still heard; her pulse is 90 (after having walked to my office) ; and general improvement in her physical condition is noticeable. Gave a chalybeate tonic in addition to continuing the crataegus. May II, improvement continues. June 5, patient shows great improvement in her appearance, and states that she suffers from no discomfort at present, although she has walked to my office from her home after having worked at ironing clothes for over an hour. Pulse, 78; heart murmur very faint, and patient has gained over five pounds in weight. ,

Case VI.-Mrs. J., aet. 57; has had frequent mild anginoid attacks for more than a year. Examination shows an intermittent pulse at irregular intervals; rough systolic mitral murmur; blood pressure, 175 mm., systole, and pulse 78-90. After taking crataegus a few weeks the angina disappeared, and the pulse became more steady and regular. Her son, a physician, reports that she continues to improve, and is only taking crataegus; also that while formerly there was a slight albuminuria this has now disappeared.

From the foregoing cases we can see that crataegus oxyacantha acts as a valuable sedative and regulator of the heart and blood vessels.

It is the writer's belief that it acts mainly through its influence upon the inhibitory nerves of the heart, and thereby through the entire vasomotor system. It does not increase blood pressure by stimulating the heart, but seems, on the contrary, to establish an equilibrium between the heart and the blood vessels; thus *regulating* the blood pressure and reducing it if it be too high. It likewise slows the heart action, without having any depressant effect.

As Dr. Reilly has stated,¹⁴ "its action is non-poisonous," and it can be given without fear of digestive disturbance, as it is very agreeable to the taste. The action of the drug is slow unless given in large doses; but I think it wiser to give the drug in steadily increasing dosage until the desired effect is obtained, and to maintain that dose for an extended period, which should be determined by the results. It is well to note that occasional doses of digitalis in combination with the crataegus adds to the efficiency of both drugs, especially is this true if there is any nephritic involvement or considerable cardiac dilatation. Transient albuminuria is a frequent concomitant of the symptom complex of angina pectoris, and in all my cases this has either disappeared entirely, or has been greatly lessened after the exhibition of crataegus.

Diet should also be carefully considered. A limited protein dietary in the plethoric cases, with a more liberal one to those who show evidence of anemia, is desirable. Withdrawal of the proteins will often cause a shock if the supply is reduced too radically, and a marked feeling of exhaustion follows, reacting badly upon the patient.

High proteid poisoning is like any other stimulating systemic poisoning, and is best dealt with by a gradual diminution until proper conditions are approximated. The proteins of some foods seem to have a more energetic or poisonous action upon the economy than that of others. Each individual also apparently has a personal idiosyncrasy, and it is necessary to study this factor as no general rule will suit all cases.

Every patient who is subject to anginoid attacks should be taught to study himself with reference to the articles of diet which most readily "agree" with him; not those which taste best nor those which he craves. The physician can aid by supplying the patient with a suitable diet list, of sufficient caloric value, but of lower proteid content than that which the patient formerly indulged in. Thus with proper food supervision; moderate exercise; regulation of digestive and excretive function; normal sleep, and mental occupation without exhaustion, supplementing the exhibition of *Crataegus oxyacantha* we will go a long ways toward effecting a marked amelioration of the conditions which tend to cause angina pectoris.

BIBLIOGRAPHY.

- 1 Von Leube's "Special Medical Diagnosis," page 58.
2. Musser's "Medical Diagnosis," page 590.
3. Bishop's "Arteriosclerosis," pages 174-175.
4. N. Y. Medical Journal, January 14, 1896.
5. Treatise on Crataegus, J. Uri Lloyd, 1905.
6. Kansas City Med. Recorder, April 7, 1908.
7. Journal of A. M. A., January 8, 1910.
8. U. S. Dispensatory, p. 1383, edition 1908.
9. Drug Treatise No. 11, Lloyd Bros., 1905.
10. Fyfe's "Essentials of Materia Medica," pages 101-102.
11. Ellingwood's "*Therapeutist*," Vol. 8, No. 4, page, 142.
12. Ellingwood's "*Therapeutist*," Vol.6, No. 2, page 66.
13. Bishop's "Arteriosclerosis," page 99.
14. Journal A. M. A., January, 1910.

From the original Specific Medicine Crataegus label:

Specific Medicine Crataegus is a tonic to the heart and blood vessels. It is adapted to both functional and organic heart disorders characterized by pain, oppression in the heart region, shortness of breath, rapid and feeble heart action, with evidence of cardiac hypertrophy, valvular insufficiency, and profound anemia.

It has given excellent results in cardiac hypertrophy, with mitral regurgitation from valvular insufficiency, in valvular deficiency without hypertrophy, in tachycardia, cardiac neuralgia, pericarditis, endocarditis, myocarditis, so-called rheumatism of the heart, dropsy depending upon weak heart action, and in apoplexy, vertigo, spinal hyperemia, and venous stasis.-Ellingwood.

Specific Indications and Uses: Functional and organic heart affections, with pain, dyspnea, precordial oppression, rapid and feeble heart-action; valvular insufficiency; cardiac hypertrophy, marked anemia; venous stasis; angina pectoris; endocarditis following inflammatory rheumatism.

Dose: Specific Medicine Crataegus, one to twenty drops in water, three or four times a day. (Increase dose as desirable.)