

clothing, if hung up and not packed tightly together, can be rendered non-infectious or free from pathogenic bacteria.

One of the most valuable applications of the formaldehyde method is its use in disinfecting rooms which have previously been used by consumptives. The dust from such rooms has been known to kill guinea pigs, and clinical experience has also shown that infected rooms, especially in large institutions, have often been the real cause of many successive cases of pulmonary tuberculosis. It is believed that environment and not heredity is at the root of many of these cases; and the spread of this disease can be greatly limited by the use of this method.

Although we do not know what causes scarlet fever, yet reasoning from analogy we can conclude that the use of formaldehyde will destroy the infectious materials which have been left in the rooms of patients suffering from the various exanthematous fevers. Diphtheria is generally spread by the direct transference of the diphtheria bacillus from one mouth to another, often through an intermediate infected object. Since Wright,<sup>6</sup> however, has demonstrated the presence of virulent diphtheria bacilli in cultures taken from the dust of the shoes of nurses in diphtheria wards, a thorough disinfection of the rooms which have contained such cases should always be practiced.

The attempts to disinfect such bulky structures as mattresses and pillows by formaldehyde have not been very successful and these can be better treated by means of the Doty<sup>7</sup> steam vacuum chamber. Sprague<sup>8</sup> has performed some experiments, however, which show that clothing can probably be entirely disinfected by means of formaldehyde. He used the Kinyoun-Francis apparatus, which consists of an iron cylinder with a capacity of 1090 liters. This is connected with a vacuum apparatus and a formaldehyde generator. After first causing a vacuum, the gas is introduced in quantities varying from 5 to 20 per cent. of the total air space. The destruction of many bacteria, placed in mattresses, pillows and even between the leaves of books, convinced the experimenter that articles of clothing and bedding could be properly disinfected if simply placed upon the racks which the iron disinfecting chamber contains.

In conclusion, I believe that the votaries of preventive medicine are at last to be congratulated in possessing a substance whose sulphurous-like fumes will destroy pathogenic bacteria.

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## ERYTHOXYLON COCA AS A HEART TONIC.

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After the 1871, San Francisco, meeting of the AMERICAN MEDICAL ASSOCIATION, I went to the Yosemite Valley and ascended the Cap of Liberty, 12,500 feet above sea level. I remember the ascent, which was so steep that I had to pull myself up by the bushes! The diminished atmospheric pressure was such that I could not climb more than forty feet at a time. My pulse ran so high that I could not

count it. My heart beat so violently that I felt it would stop if I did not pause, and my whole body was bathed in sweat. As my heart was somewhat enlarged and so weak that its usual beats were forty per minute, I suppose I ran an imminent risk of losing my life, but as a result I had herpes zoster. This California mountain experience helps me to understand how climbers have vertigo on the summit of the Andes—about the overwork and fatigue of couriers traversing mountains difficult to travel—how such persons have been toned up and refreshed before, during and afterward by the coca tonics, and how Dr. Beverly Robinson could say that coca is a heart tonic.

But for coca the South American miner would weaken at his severe labor. "Negroes can not work in the Peru mines. They all die. Only the natives can endure, and even then it is necessary to relieve them often and that they should chew coca." (Lanquerue.) "When the Indian has a good supply of coca he undertakes, without the slightest fear, the most difficult and the longest voyages." "At the siege of La Paz, in Bolivia, 1781, most soldiers famished, and, put on forced marches, died, save those who used coca leaves." Dr. Liebermann, Surgeon in Chief of the French Army, says that he has found coca very successful in long tedious campaigns. Dr. Scaglia speaks of the great benefit from coca where the muscles have lost their tone and vigor.

The heart is a muscular engine indispensable to life. Severe muscular exertion taxes the heart to supply force. It is an autonomic organ. As the heart is covered with nerve ganglia and connections, it may be said to cardiate as the brains cerebrate.

Heart failure is a term lately become fashionable in death reports. Whether the term is correctly used or not, physicians should carefully study all agents that strengthen the heart. Strictly "heart failure" means failure from lack of nerve force. Cut the sympathetic nerve and the heart would fail, the nerve section having been the prime cause, but the heart has intrinsic powers from its own nerves. When a medical student I removed the heart of a snapper turtle and twelve hours after it had not ceased to beat. Its dynamis must have come from the cardiac plexuses.

Heart failure certainly does not mean a cause of death where a foreign body, as a knife or bullet, has made the heart fail; nor where fatty degeneration, atheromatous or calcareous deposits, valvular lesions, atrophy, hypertrophy, endo- or pericarditis, etc., exist, though these complicating neurasthenia of the heart, will help on its failure. It is time that the idea that heart diseases are beyond cure was abandoned. They are as amenable to treatment as scarlet fever.

*Coca, direct action.*—Mantegazza says the coca stimulates the heart. He increased his pulse from 65 to 124 by a dose of 55 to 74 c.c. Gazeau and Moreno corroborate this. Dr. Beverly Robinson says, "among well known cardiac tonics and stimulants for obtaining temporary good effects, at least, I know of no drug quite equal to coca." The writer has found coca to give tone and relief to a weakened heart almost immediately.

*Coca, indirect action.*—Back the heart with a good stomach and you strengthen it. If you disbelieve this, starve until you are faint and then eat a good beefsteak, which is the best food heart strengthener. According to Boerhaave, coca is a food. He states

"that the saliva charged with all the bitter and mucilaginous principles of coca, carries to the stomach, in addition to vital strength, a true nutritive, which is digested and converted into an abundant chyle and is then converted into the material necessary to sustain the human body," that is, it sustains the heart as beef does. Weddell says that an Indian who chewed coca leaves and worked hard all day without food or drink, at night ate as if famished, devouring in one meal food enough to last him two days. In this case coca gave an increased power of digestion and hence more sustenance for vitality. These things being so, coca should be more used in heart failure from direct weakness, and in many cases might well replace the conventional digitalis, which advances the treatment of heart diseases no more than it was forty years ago.

According to Dr. Laffont, the action of coca's active principle on the sympathetic nervous system causes, 1, an augmentation of the functional activity of all the muscles of organic life; 2, excites functional action of the cerebral and spinal nerve centers, increasing intellectual and muscular activity; 3, causes an action on the protoplasm of the extremities of the sensory nerves, whereby they cease to transmit impressions. One and 2 include the heart and further evidence the action of coca to be a heart tonic.

*Intestinal and stomachic gases* are deemed, in America, a prolific cause of functional disturbances of the heart. When relief is not afforded by the removal of gases in excess and long continuance, death from heart failure may occur. The idea is that the cardiac nerve centers are paralyzed and overwhelmed, and fail from absorption of the noxious gases. Water, drank hot, causes contractions of the muscular fibers of the alimentary canal, even when more or less paralyzed, relaxed or distended and thus allows the gases from the fermenting food to accumulate more and more. In the intestines the peristalsis is downward, but in the stomach it is upward and opens the shortest outlet for the imprisoned gastric gases. Ptizans, so much used, are chiefly hot water. Hot water is a remarkable agent of relief from gaseous cardiac paresis. The dynamogenic action of the active principles of coca on the smooth-fibered muscles added to that of hot water as a vehicle, must be of great advantage in the partial paralysis of the involuntary muscular fibers of the heart.

People will eat fermenting food because it tastes good. Count Rumford and the French believe that all food which is palatable is nutritious. They allow the gustatory to overrule the chemico, histologic, physiologic and pathologic food tests. The heart suffers because most popular palatable foods ferment into gases, which, in excess, are poisonous and probably cause more deaths from "heart failure" not traceable to organic lesions, than any other one predisposition. Sugar is a great gas-maker in the alimentary canal. For this reason, in cases of flatus, the fluid extracts of coca and the coca leaves are preferable, especially in cases of enfeebled digestion, as these preparations exclude the grape and cane sugar fermentations.

*Anemia.*—Coca is well borne in anemias. It must be a benefit to a heart weakened by the deficiency of blood. Coca does this by promoting the appetite and digestion and by thus making more blood. Good blood-making food must not be omitted. The action of coca has been compared to that of strychnia, one of the very best of heart tonics but dangerous. Of two remedies it is better to use the safer.

*Coca in angina pectoris*, which is caused by the obliteration, partially, of the coronary arteries, the first that arise from the aorta and supply arterial blood to the heart itself. This obliteration is due to an atheromatous, crystalline or gravelly deposit in the muscular coats of the coronary arteries. These deposits appear as small, white, tough, shining cuboids or diamond shaped bodies made up of cholesterin or other crystalline matters that should have been eliminated from the body by the urine, feces or sweat. Probably they would have been eliminated had the system possessed water enough to keep them in solution. These arterial deposits mechanically cut off, more or less, the blood supply and thus the cardiac tissues are not properly nourished.

Again, these obstructions produce fatty degeneration of the heart muscles by retarding and impeding the circulation, which is one great cause of fatty ill (English idea).

I believe in the autonomy of the heart—that it knows when its rights are invaded and that the spasms, colic or neuralgia of the heart sometimes arise from its efforts to keep life going on a too small capital of dynamis or vital force, just as intestinal or stomachic colic comes from food too hard to digest.

The heart has no rest save between its beats. Partially cut off its blood, which is its life, and you weaken it. The weakened muscles are necessarily overworked. All overworked muscles are liable to cramp. Hence the cramp or spasm we call "angina pectoris." The most sensible way to relieve it, is to use the remedies known to strengthen the muscular fibers of the heart and stop eating the food which produces the abnormal crystalline deposits in the arteries. Also use water enough to keep the systemic salts in solution. Coca deserves more attention, as it has been favorably employed from time immemorial with less bad results than tobacco or alcohol by people of reported astonishing longevity, and this favorable employment demonstrated by the physical changes in the body, in its use by the same person from youth to old age. Digitalis has not a less hurtful history than coca.

It is a mistake to regard heart diseases, angina pectoris among them, as incurable. Nature will cure almost any diseased organ or tissues if she has the means furnished by proper food, time, judicious medication, wise expenditure of nerve forces and by the causes (mainly bad feeding) being removed. At the Berlin X International Medical Congress, the writer presented his views of the curability of this class of diseases. The more remedies we can add to the list of heart tonics the better.

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## AN INDIVIDUAL DRINKING CUP.

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Since the universally acknowledged advantages of the solitary or individual drinking cup are so readily recognized the adoption of a cup whose introduction into common and general use would not impose a burden or hardship on the user is an object much to be desired and if obtained to be promptly commended.

It is to be admitted that the agitation on hygienic lines has been most successfully conducted through the medium of the church communion cup, and that the success attending its introduction at this most sacred function has quite generally been satisfactory to those participating and most able to judge. That