

to prevent the marriage of such infected persons. Here the responsibility rests primarily on the physician and on the parents. The standard for marriage in my opinion should be the same as the standard for cure as given above. No doubt either parent may have a local infection in some part of the body which will not involve the offspring. But we have no way to distinguish these cases.

The decisive time and place to apply preventive measures is, of course, after sexual contact with infected persons, and this procedure can be made effective. It has been put on a firm experimental basis by Metchnikoff in the use of 30 per cent. calomel ointment. Probably the best demonstration of its value has been given by the Army and Navy services. The attitude in the service is this: No man has a right to deprive the government of his services and become a burden on the sick report through his own misconduct. He is therefore told that if he exposes himself to infectious diseases he must take measures to prevent becoming infected. Men returning to the garrison are ordered to report at the hospital if they have been exposed to venereal diseases and to receive a prophylactic treatment. This consists of a thorough washing, an irrigation of the urethra with argyrol solution to prevent gonorrhoea and an application of 30 per cent. calomel in benzoinated lard to prevent syphilis. If a man develops disease without having used the prophylactic, he is punishable for disobeying orders. And in any case his pay is stopped while he is sick as a result of alcoholism or venereal disease, and it is now proposed in Congress to require him to make good the time lost.

That these measures can be made successful has been definitely demonstrated many times. One of the best illustrations is seen in the results recently obtained by Major Howard at the recruit depot at Jefferson Barracks, where ten thousand recruits are handled a year. In a series of 3,800 exposures, only one case of syphilis developed. Before the method was introduced the ratio of venereal disease was 227 per thousand; after introduction, among those who used the prophylactic, eighteen per thousand. Major Howard³⁰ says: "The system is entirely practicable as demonstrated by a full year's experience at Jefferson Barracks." Of course there are a great many places where the system may fail; the prophylactic may be used too late or not thoroughly enough. In one case the glans and prepuce were thoroughly disinfected, but the base of the organ was neglected and a chancre developed there. The results vary greatly with the interest of company and medical officers. The results for the whole Army, however, are encouraging. During the last year in which these measures have been used the rate for all venereal disease has fallen from 115 per thousand to eighty-five per thousand; for syphilis from twenty-five to twenty per thousand. It is difficult to say exactly how much weight the loss of pay has in making men more careful, but it seems likely that the prophylactic is the most important factor. The campaign which the Surgeon-General's Office has started on venereal diseases cannot in the nature of things be as successful as our campaign against typhoid fever; but the results are along the same lines. The more clearly it is understood that syphilis is a preventable disease, the fairer it is to penalize those who contract it. In regard to the

morality of these measures, we seem to have an excellent precedent in the practice of circumcision. The strongest argument for this practice has always been the one based on prophylaxis of disease. The operation is very commonly practiced and it is one of the rites of the race which has given the world its greatest moral teachers.

A debatable subject might arise if we had any prophylactic vaccine against the disease. But we have none and we have no prospect of any, because of the nature of the disease and lack of any acquired immunity to a second attack. All experimental attempts in this direction have failed. Salvarsan also has not robbed the disease of its terrors as was at first feared in some quarters. In spite of all our advances, syphilis remains as a sign-post for the straight and narrow road.

In conclusion, notwithstanding all the complex questions raised by this disease, let us hope that the labors of Metchnikoff, Schaudinn, Ehrlich, Noguchi and many others have not been in vain, and that science and morality can work together for the common good.

SUMMARY

1. The application of Koch's etiologic method for the study of infectious diseases, to syphilis, has greatly increased our knowledge of the disease during the last ten years.
2. A strictly medical campaign against syphilis is neither practicable nor desirable. A modified medical campaign both practicable and necessary.
3. The prevalence of the disease is still largely a matter of conjecture, and information on this point is to be obtained largely by Wassermann reaction surveys, carried out by municipal and hospital laboratories.
4. The most hopeful outcome of all the recent work on syphilis is the possibility of early diagnosis and radical cure. The possibility is still largely unrealized on account of lack of facilities in dispensaries and hospitals.
5. Our ideas about the efficiency of treatment and about a standard of cure are much more definite than heretofore, as a result of the application of etiologic tests.
6. Syphilis in most cases is a preventable disease, and this fact is an additional warrant for penalizing those who contract it.

CHAPARRO AMARGOSA IN THE TREATMENT OF AMEBIC DYSENTERY

P. I. NIXON, M.D.
SAN ANTONIO, TEX.

In recent years much has been written on the treatment of amebic dysentery. Perhaps no subject in all therapeutics has received such a diversified therapy as has this. The fact that so many drugs have been recommended is a potent proof of the efficacy of none of them. Ipecac is the drug that has been most widely used, and recently it has been supplanted by emetin (alkaloid). It is the purpose of this paper to call attention to chaparro amargosa as an amebicide.

My interest in the treatment of dysentery began with a case I saw with Dr. J. W. Nixon of Gonzales, Tex., about two years ago. At his suggestion, chaparro

30. Howard: Bull. 2, Surgeon General's Office, 1913, p. 42.

amargosa was given to the patient with the most happy results. Since this time I have used it in ten cases and am sure that it is the most efficient remedy we have at present for treating amebic dysentery, unless we except emetin.

We are indebted to the Mexicans for the name "chaparro amargosa." It means "bitter bush." It has been a domestic remedy among the Mexicans of Southwest Texas and Mexico for many years. It is said that General Zachary Taylor's soldiers learned its secrets during the Mexican War and profited no little from its use. Botanically, it is classified as *Castela nicholsoni*, Hook, and belongs to the *Simarubaceae*, of which family quassia and simaruba are also members. Putegnat¹ states that "it is hardly to be distinguished from the entire-leaved plants of the *Simarubaceae*," but places it in "the natural order *Ochnaceae*."

The first attempt to bring this remedy before the profession was made by Putegnat¹ of Brownsville, Tex., in 1883. He studied the plant botanically and chemically, recommended it as an antiperiodic and incidentally mentioned that it had been used in cases of diarrhea and dysentery. Nixon² of Gonzales, in 1893, emphasized the antidyenteric properties of the drug and established firmly its therapeutic value. He reported three illustrative cases and stated that he had had many others. Knox,³ one year later, published a personal experience and felt no hesitancy in attributing his recovery to chaparro amargosa. West⁴ of Galveston made a preliminary report on seven cases in 1895, using the fluidextract. In his words, "in every case under its use the frequency of the stools has diminished, the tormina and tenesmus subsided, the blood, mucus and ameba disappeared from the dejections. The patients left the hospital apparently cured after three or four weeks of treatment." Crittenden,⁵ the following year, cured a case of intractable dysentery of three years' standing by using fluidextract of chaparro amargosa. From 1896 to 1903 the literature to which I have access is surprisingly free from anything on this subject. Indeed, the articles which I have named are all that can be found. It is not mentioned in the *Index-Catalogue of the Surgeon-General's Library*, and there is no reference to it in the *Index Medicus*.

Chaparro amargosa is a small thorny bush, which is indigenous to Southwest Texas and Northern Mexico, growing on thin, rocky mesquite or post-oak land and having an especial tendency to be found on small, rocky hills. It grows to be a bush 2 or 3 feet in height, its size depending on the comparative richness of the soil on which it is found. Its leaves are small and lanceolate, its flowers pink and very small. The matured fruit is a red berry which is about the size of a pea.

All parts of the plant, from the root to the berry, possess the characteristic bitter taste and medicinal properties. It is on the market as a fluidextract, the dose being from 1 to 3 fluidrams before meals. My experience has been confined principally to the use of the infusion, which is prepared by boiling the plant—

roots, branches, foliage and fruit—in water for from thirty to sixty minutes. No definite weight can be used, as the weight of the plant will vary with the seasons and with its dryness. The infusion should have the color of moderately weak tea.

My routine treatment is as follows: The patient is kept in bed if practicable; the diet is restricted to liquids and semisolid articles; an ounce of magnesium sulphate is given three or four hours before treatment is begun and repeated every two or three days; 6 or 8 ounces of the infusion are given by mouth half an hour before each meal and at bedtime; rectal enemas of from 500 to 2,000 c.c. of the infusion are given in the knee-chest posture twice daily, and the patient is instructed to maintain this position for five or ten minutes, and afterward to retain the solution as long as possible. The length of time the fluid will be retained varies with the irritability of the rectum and the persistence of the patient; in some it will be only a few minutes, while others will be able to retain it indefinitely. If the large bowel contains fecal matter it is well to irrigate it with normal saline preliminary to giving the enemas. It is advisable to continue the treatment for a week or two after the subsidence of all symptoms.

The infusion as well as the fluidextract has an intensely bitter taste, but it is a "clean bitter," and no difficulty is experienced by patients in taking it. The bitter taste is easily overcome by eating a piece of bread or drinking a little coffee if necessary. As a matter of fact, the bitter taste is not undesirable, because of its tonic and stomachic effect. No nausea or other untoward symptoms have followed the administration of this drug and so far as is determined it exerts no detrimental influence on the human organism, even in large doses.

The active principle of chaparro amargosa has not been satisfactorily isolated. Putegnat¹ extracted an amorphous bitter principle to which he gave the name "amargosin"; but his work has not been confirmed. Tannin is not responsible for the action of the drug, as the detannated fluidextract is no less potent than the original fluidextract. Probably the therapeutic action depends on an alkaloid or a glucosid and this, when once isolated, may possibly be administered hypodermically.

I give the results of a few experimental observations to show the amebicidal action of chaparro amargosa: Under the microscope, 1:10,000 dilution of the detannated fluidextract at body temperature caused all *Entamoebae histolyticae* to cease moving instantly and to assume a spherical shape with sharp differentiation of ectoplasm and endoplasm; 1:100,000 dilution required from thirty to sixty seconds to accomplish the same result, and 1:1,000,000 from one to three minutes.

This drug is not indicated in ordinary diarrhea and is probably without action in other parasitic intestinal infections. One case of *Strongyloides intestinalis*, one of *Balantidium coli* and three of *Cercomonas intestinalis* were uninfluenced by it. One case of the last-named was apparently cured; this patient gave a history typical of amebic dysentery; but as no amebas could be found, it was not so classified.

This communication is based on the treatment of ten cases. Part of these were seen with other physicians, to whom I know take the opportunity to express my indebtedness.

1. Putegnat, J. L., Jr.: *Castela nicholsoni*: Its Characteristics and Proximate Analysis, New Remedies, New York, 1883, xii, p. 102.

2. Nixon, J. W.: *Chaparro Amargosa*: A New Treatment for Dysentery, Texas Sanitarian, August, 1893.

3. Knox, R. T.: *Chaparro Amargosa*: A New Treatment for Dysentery, Texas Med. Jour., November, 1894.

4. West, H. A.: Discussion of paper by Ashton, Tr. State Med. Assn. of Texas, Galveston, 1895, p. 124.

5. Crittenden, W. I.: *Chaparro Amargosa* in the Treatment of Chronic Dysentery, Virginia Med. Jour., June, 1896.

REPORT OF CASES

CASE 1.—*History*.—O. V., farmer, aged 43, first seen Oct. 6, 1911, was having the first attack. The onset occurred two months previously with frequent and bloody movements and pain in the abdomen. The patient was in bed for three weeks. The symptoms decreased for three weeks, but became troublesome ten days before the patient was seen, when there were six or eight bloody stools a day, tenesmus and pain in the rectum. The appetite was poor, and there was nausea but no vomiting. The patient had lost 40 pounds in weight. He had taken various medicines without effect.

Physical Examination.—The patient looks ill; he is very anemic. The temperature is 100, the pulse 96. The general examination is negative. Proctoscopic examination is negative except for slight congestion of the rectal mucosa. The stools are mostly blood and mucus and have a characteristic "flesh-like" odor. Many characteristic *Entamoebae histolyticae* are present.

Treatment and Course.—The day after treatment was begun, the patient felt much better and had only one movement, which contained mucus but no blood. There were no living amebas. One clump of what appeared to be dead amebas was seen. At the end of a week the patient went home free from all symptoms. There had been no recurrence two years later.

CASE 2.—H. L. R., farmer, aged 55, first seen Nov. 13, 1911, was having the second attack. The first attack lasted four months. The present trouble had continued three months, with from two to twelve bowel movements a day. There were extreme abdominal pain and rectal tenesmus. The patient had lost 20 pounds in weight. The symptoms were not affected by silver nitrate irrigations or starch and laudanum enemata.

Physical Examination.—The patient is very thin and anemic. The temperature is 99, the pulse 84. The general examination is negative. In the left iliac fossa one can feel the sigmoid as a tender elongated mass. No ulcers can be seen in the rectum. The stools are semisolid, yellow and flecked with blood and mucus. Moderate numbers of motile *Entamoebae histolyticae* are seen.

Treatment and Course.—This man was sent to the hospital where he spent a very restless night; ½ grain of morphin hypodermically was necessary to control the pain. He threatened to go home unless something was done. Chaparro amargosa was begun the following morning and by evening he felt much easier and slept all night. There were no stools until the second day, and then no living organisms could be found. On the morning of the second day the patient was found smoking a cigarette and said that he felt better than he had for months. He went home at the end of a week, feeling well and having gained 5 pounds. A letter four months later stated that he had gained 26 pounds in weight and that he was free from all symptoms. There had been no return two years later.

CASE 3.—D. F., aged 45, a refugee from Mexico, first seen Dec. 6, 1911, had had four attacks of dysentery in the past year, each attack lasting three or four weeks. The symptoms were eight or ten bloody stools a day, pain in the abdomen, tenesmus and loss of 10 pounds. Injections of linseed oil, ichthyol and silver nitrate, and medicines by mouth had not modified the symptoms.

Physical Examination.—The patient is rather pale and thin, and there is slight general abdominal tenderness. The temperature is 98.6, the pulse 90. The stools are almost pure mucus, flecked here and there with blood. Many blood- and pus-cells and many motile *Entamoebae histolyticae* are found.

Course and Treatment.—The patient was treated with chaparro amargosa by mouth and by rectum. He did not have a single bowel movement except when the injected fluid was expelled or when Epsom salt was taken. No blood or mucus was seen and no amebas could be found. The patient was feeling well and the appetite was fine. He reported two weeks later and I considered him well. This patient is at present a member of President Huerta's cabinet, and even under such exciting circumstances has not succeeded in precipitating a return of his dysentery.

CASE 4.—A. R., boy, aged 9, was first seen Dec. 24, 1911, during the first attack. There were abdominal pain, tenesmus,

blood and mucus in the stools, and there had been from two to four movements a day at intervals for six weeks. Paregoric and salts by mouth and ice-water enemata had alleviated but not cured the condition.

Physical Examination.—The general examination is negative. The stools are semisolid, containing blood and mucus; there is a characteristic foul odor; microscopically, blood- and pus-cells and *Entamoebae histolyticae* are detected in large numbers.

Treatment and Course.—Routine treatment was given. Injections were retained from half an hour to two hours. No bowel movement occurred except when the fluid was expelled. Blood and mucus disappeared at once and no living amebas could be found after the first treatment. The child gained 4 pounds in a few weeks and has remained perfectly well up to the present time.

CASE 5.—Mrs. E. M. H., aged 62, first seen April 15, 1912, had shown symptoms of diabetes for several years and had had eight previous attacks of dysentery in the past three years, lasting from one to three weeks. There had been very acute symptoms for ten days; from ten to twenty bloody movements a day, tenesmus, abdominal pain and nausea.

Physical Examination.—The patient is acutely ill. The temperature is 101.6, the pulse 120. The urine contains sugar and acetone. The stools are almost pure mucus and pus, flecked with blood. Many amebas are found.

Treatment and Course.—The patient improved steadily from the first treatment. The bowels moved five times the first day, three times the second and only once on the succeeding day. The temperature came down to normal following the first treatment and remained normal. At the end of a week the patient was up and about and felt well, though there continued to be sugar in the urine.

CASE 6.—A. R., Mexican, man, aged 29, first seen June 24, 1912, had had symptoms of dysentery for two years, with only one intermission of three weeks. There had been from six to twenty bloody stools a day and the patient had lost 30 pounds.

Physical Examination.—The general examination is negative except for slight tenderness in the sigmoid region. The stools are semisolid and contain much mucus. A moderate number of *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

Treatment and Course.—This patient went home and used the treatment himself. He returned in two weeks and reported that his recovery had been rapid and complete. There has been no recurrence.

CASE 7.—A. L., Mexican, man, aged 22, first seen June 24, 1912, had had acute bowel symptoms for three weeks. The appetite was poor, there had been nausea, vomiting, from six to twenty movements a day, severe intestinal pain and tenesmus, and blood and mucus were present in the stools. The patient suffered great weakness and had lost 20 pounds in weight. Bismuth and the usual antidiarrheal remedies had done no good.

Physical Examination.—This reveals an anemic, undernourished man. There is slight general abdominal tenderness. The stools are of fluid consistency, containing much blood and mucus. There are a moderate number of active *Entamoebae histolyticae*.

Treatment and Course. The patient greatly improved after the first treatment. There were no bowel movements till salts were taken. No motile organisms could be found. The patient improved steadily. He gained 2½ pounds in five days and had no further symptoms. He remained well for three months, when he was lost sight of.

CASE 8.—B. H., negro, man, aged 24, first seen March 3, 1913, had had symptoms for six weeks; from six to fifteen bloody stools a day, pain in the abdomen, poor appetite, malaise, fever and loss of 5 pounds in weight. He had obtained no relief from the usual remedies.

Physical Examination.—The general examination is negative. A small stool passed in the office contains much blood and mucus; a few characteristic *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

Treatment and Course.—The patient was begun on 2 drams of the detannated fluidextract of chaparro amargosa before

each meal, and he did not have a single dysenteric stool afterward. He was seen ten months later and felt as well as ever. No amebas or *Cercomonades intestinales* were found in the stool.

CASE 9.—W. C. N., merchant, aged 46, was first seen June 4, 1913. Onset had occurred four years before. He had slight dysenteric symptoms at Pleasanton, Tex., for three or four months. He went to Mexico and there became acutely ill. There were from five to twenty bloody stools in twenty-four hours, high fever, sharp abdominal pain and tenesmus. He lost 35 pounds in weight. He was brought on a stretcher to El Paso, where he stayed in a hospital three months and received all sorts of treatment, including ipecac. He improved but was not cured. He had continued to have recurring attacks of dysentery which were liable to follow work or over-eating. The stools were never free from mucus. When seen, the patient had from five to ten bloody stools a day.

Physical Examination.—The patient is sparsely nourished; the complexion is sallow; the mucous membranes pale. The general examination is negative except that the sigmoid is palpable as a firm tender mass. The stools are yellow, liquid and contain no blood or pus. A moderate number of very active *Entamoebae histolyticae* are found.

Treatment and Course.—Chaparro amargosa was given by mouth and by rectum. This was followed by immediate improvement; there was one formed movement the first day and one the second; there was no pain in the abdomen. Only one active ameba seen after treatment was begun. The patient says that for the first time in months he does not "have to run" when he rises in the morning. Treatment was continued for two weeks. At the end of a month he felt fine and had gained 8 pounds in weight. The bowels were moving once daily. No amebas could be found in the stools and there has been no recurrence.

CASE 10.—W. G. L., a carpenter, aged 52, first seen Jan. 6, 1914, reported the onset as having occurred eighteen months ago with acute symptoms which lasted two months. There had been from twenty to twenty-five bloody movements a day, very severe abdominal pain and tenesmus, fever, nausea, general malaise and weakness. Since this time he had never been free from symptoms, though at times he had been somewhat better. He had not had a normal stool since the onset. When seen he was having from ten to fifteen bloody stools a day; there had been fifteen stools the day before. He had lost from 20 to 30 pounds weight. The patient felt very weak and was troubled much with palpitation of the heart.

Physical Examination.—The patient looks sick. The tongue is coated and the mucous membranes are very pale. The temperature is 98.6; the pulse 90. Hemoglobin is 50 per cent. The abdomen is slightly distended and tender over all. The sigmoid is markedly thickened and tender. A stool passed in the office is almost pure blood and mucus, containing a great many active *Entamoebae histolyticae*.

Treatment and Course.—One liter of the infusion of chaparro amargosa was given by rectum each morning and 8 ounces by mouth before meals and at bedtime. The bowels moved three times the first day and once each day subsequently, and this after 1½ ounces of Epsom salt on the first day. All pain and tenesmus ceased after the first treatment. A small, semisolid yellow stool passed the morning of the second day was free from blood macroscopically and microscopically, and no amebas could be found in it. All symptoms including palpitation, ceased from the very first. The patient gained 3 pounds in two days and was able to go to work on the fifth day—something he had not been able to do for eighteen months.

SUMMARY

This is a report of ten cases of undoubted amebic dysentery of from three weeks' to four years' standing. Nine patients were given the infusion of chaparro amargosa and one, the detannated fluidextract; all were cured and there has been no recurrence so far as can be determined, the period of freedom from symptoms ranging from ten months to two years, omitting the last case; in only one case was a living ameba

found in the stools after treatment was begun; these cases averaged less than two days before the stools became normal; there were no liver abscesses or other complications; experimental data prove the amebicidal action of chaparro amargosa no less surely than do the clinical results, the drug undoubtedly having an elective affinity for the protoplasm of *Entamoeba histolytica*.

EXPERIENCE WITH CROTALIN AT THE OAKBOURNE EPILEPTIC COLONY*

N. S. YAWGER, M.D.
PHILADELPHIA

The treatment of epilepsy by the injection of rattlesnake venom has attracted some attention. Those of us who are connected with the Pennsylvania Epileptic Hospital and Colony Farm have been besieged by inquiries as to its value. Information was sought in person and by telephone, and letters were received from different parts of the country. The glowing reports heralded throughout the land in the lay press reached our patients and their families, some of whom almost insisted on our using crotalin. The matter became somewhat troublesome and, since we were without personal knowledge on the subject, there seemed sufficient reason for our giving the venom a trial.

Observations on epileptics made under colony supervision should be useful, since the life there is the most regular and healthful possible. Patients are not left to report on their own condition—a method of gathering information which may be most unreliable. Attacks often occur while patients are asleep, and frequently there are manifestations during the day of which these persons are unaware. Again, seizures may prevent them from reporting regularly to the physician. These conditions and others detract from the value of the work when the patients are not kept under close observation.

For the purpose of this study a fair group of patients having idiopathic epilepsy was selected for three months' treatment. Afterward came the work of leveling up to determine as nearly as possible just what effect crotalin had on these patients. This was a difficult problem, and a few words parenthetically may not be out of place.

Epilepsy is perhaps the most peculiar disease known. Aside from their epileptic phenomena and characteristic temperament, some of these patients are in moderately good physical condition. All paroxysms may cease for a time without known cause and in very rare instances a spontaneous cure has occurred. An acute illness usually holds the seizures in abeyance, and pregnancy occasionally does the same. Some epileptics have attacks only when asleep, and there are a few whose disease is never suspected. Seizures may be so mild as scarcely to be observed even while the patient is watched, or status epilepticus may supervene at any time, and this condition is often fatal by the third attack. About one out of ten epileptics has frequent insane episodes which occur precipitately, and there is no more dangerous form of insanity. Self-consciousness may be lost suddenly,

* Read before the Philadelphia County Medical Society, April 15, 1914.

* From the Pennsylvania Epileptic Hospital and Colony Farm and the Department of Neurology of the University of Pennsylvania.