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Medicine and Pharmacy.

This volume contains the following literature in the order named:

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4. "Working Bulletins" for the Scientific Investigation of:

Manaca.

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Pichi.



THE ETHICAL RELATIONS

EXISTING BETWEEN

Medicine and Pharmacy.

WITH ILLUSTRATIONS OF AN IMPROVED METHOD FOR  
THE COLLECTIVE AND SCIENTIFIC INVES-  
TIGATION OF NEW DRUGS.

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1887.

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & COMPANY.  
DETROIT AND NEW YORK.



96-18657

## INTRODUCTORY.

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We take the liberty to submit herewith pamphlets concerning our relations as manufacturing pharmacists to the medical profession, our position toward the investigation of new drugs, with "working bulletins" upon a few of the more important remedies which have recently found professional favor, some of which have been admitted into the pharmacopœias of the United States and England.

For the privilege of this brief intrusion upon the physician's time we plead our co-operation with him in his life work of serving humanity, and base our solicitations for professional consideration upon the following grounds:

We use every endeavor to maintain the very highest standard of quality in all of our preparations, and we will admit of inferiority to the products of no other manufacturer in the world.

We observe all the rules of professional ethics, so far as they apply to pharmacy, and do not manufacture any copyrighted, patented or trade-mark preparations whatsoever, nor do we so label our products as to encourage their use by the laity without the advice of the physician.

Referring to what is hereinafter contained for any needed demonstration of the equity of our position, and trusting that a careful perusal of this volume will not be entirely profitless, we remain,

\*Very Truly Your Friends,

*Parke, Davis & Co.*

# The Ethical Relations of Medicine and Pharmacy.

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## The Physician and the Pharmacist—Definitions which Solve a Problem.

In view of all that has been written concerning the relation between Medicine and Pharmacy, the subject may be truly said to have been well exhausted. The writer can hope to do little more than briefly state the deductions of the discussion for the purpose of disclosing those scientific axioms which are somewhat hidden in the verbosity of the literature now extant.

A pharmacist, according to Webster, is one skilled in the art of preparing, compounding and dispensing medicines. To designate the mere tradesman, whose sole ambition apparently is to hand over the counter some proprietary cure-all for a small profit, the same authority furnishes the word "pharmacoplist," or one who *sells* medicines.

Viewed in the light of his relations to the pharmacist, the physician may be defined as "one skilled in the art of *prescribing* medicines."

In these definitions is found the solution of the whole problem. The physician prescribes, the pharmacist dispenses. Both to prescribe and to dispense require skill, and it is for this skill that each is recompensed. Hence arises a mutuality of interest and a mutuality of obligation. The prescribing by druggists and the dispensing by physicians is the wrong which disturbs the equilibrium of this relationship, and sets at war with each other two interests best served in firm friendship.

So important is the element of skill in the practice of these two professions, that it is recognized by both common and statutory law. Anyone professing to be a physician is legally bound to possess the ordinary skill of a physician; any one professing to be a pharmacist must exercise the skill of a pharmacist. Both are personally liable for all consequences of the lack of such skill. Nor can either the physician or the pharmacist absolve himself upon the plea of ignorance; one must *know* what he prescribes, the other must *know* what he dispenses. It will not do, therefore, to say, "I prescribed or I dispensed (as the case may be) a preparation of whose contents I knew nothing, but which was placed upon the market by a reputable manufacturer, and you must therefore look to him for redress." So far as the consumer is affected the law does not know the source of supply. It relies upon the physician and the pharmacist to prescribe and to dispense such medicines procured from such sources as ordinary skill will require. As an illustration of the strictness of this rule, we may cite a recent decision which holds that a druggist is not exonerated from the consequences following the administration of a poison in mistake for a harmless drug merely because the original container bore the label of the latter, placed there by the manufacturer. He must *know* from the physical properties of the drug itself, that the contents of each bottle upon his shelves is correctly stated upon the label. If he chooses to rely upon the manufacturer that is his lookout.

How important it is, then, both to the physician and the pharmacist that they should prescribe and dispense only those preparations which are manufactured by reputable manufacturers, and whose contents are not kept from them as a trade secrets.

## The Physician, the Pharmacist and the Public.

This much for the mutual relations existing between the physician and the pharmacist. The two sustain a common position toward the general public, which is partially summarized above. Both professions are to be regarded from a higher view than mere vocations by which men satisfy their physical wants. Both professions have to deal with health and life, and thus their calling is one of humanity. This is recognized by the public

when it provides advantages—schools of medicine and schools of pharmacy—for the education of these conservators of the public health. It is a lack of appreciation of this high relation which permits either the physician or the pharmacist to lower himself to the methods of mere trade, and bid for patronage in the same manner that a grocer strives to sell a job lot of cod fish. It is a keen sensibility of this relation which enables many a physician and pharmacist to preserve his professional dignity, even at the cost of straightened circumstances and humble lot, while he sees the unprincipled “quack” and “pharmacopolist” thrive upon public apathy and ignorance.

### Relations of Proprietary Preparations to Medicine and Pharmacy—Definitions.

These reflections naturally bring us to the consideration of the relations which “proprietary” preparations bear to both pharmacy and medicine.

Proprietary medicines may be divided into two great classes:

a.—“Patent” medicines, so-called,—secret nostrums, advertised directly to the public without disguise, and dispensed in convenient form for self-treatment, each package accompanied by descriptive matter on label or circular indicative of the application of the remedy to the treatment of disease, and worded so as to be intelligible to the public. Nostrums of this kind may be illustrated by such compounds as Ayer’s Cherry Pectoral, Hembold’s Buchu, Warner’s Safe Cure, etc. This class of proprietary medicines may be classed as *the wolf in his own clothing*, which the physician needs no caution to avoid.

b.—Proprietary Pharmaceutical Specialties—compounds of old and well-known drugs, claiming to be new discoveries in pharmaceutical science in regard to some peculiarity of their method of manufacture, the true or working formulas of which are usually trade secrets, and the names of which are claimed as trade-marks by their manufacturers, and depending for a market on physicians’ prescriptions. Such proprietary medicines are usually provided with labels and circulars containing information for the patient to enable him to treat his own case without further aid from the doctor. The proprietary pharmaceutical specialty is a “Patent” medicine in disguise, and physicians who are humbugged into using them by the crafty drummers who visit physicians’ offices all over the land for that purpose, prescribe themselves out of practice and hand over their clientele to the charlatan and quack. This class of proprietary medicines may be regraded as *the wolf in sheep’s clothing*; and the medical profession should be warned that they are admitting a very dangerous animal into the fold by prescribing them.

### Legal Objections to Proprietary Preparations.

Objections to the whole line of proprietary preparations, whether patented, trade-marked, or copyrighted, are based upon both legal and scientific grounds.

1.—It is established by law that the proper name of an article cannot be the subject of a trade-mark, and that a patent upon a *simple aggregation* of materials cannot be upheld, unless *some new result* is obtained from the aggregation.

2.—The trade-mark is a common law right of property in a *designation*, not property in an *article*. It secures to a man his particular *brands*, his marks on his goods forever. It prevents the forgery of his *commercial signature*, and the use of his trade-mark by another. Such protection inures to the benefit of the manufacturer and to the public. The word “Durham,” “May Flower,” or “Banner,” accompanied or unaccompanied by a design, indicates the distinguishing mark of some particular manufacture. A design, as a star, an anchor, or a ring, has its individual significance as pointing to some particular origin or make. To the public these marks prove a *certain manufacture*. To the manufacturer they are an inducement to keep up the standard of quality, since this trade-mark is to the public the manufacturer’s signature. In this way also the public is further protected.

3.—A patent right is an artificial right created by statute, and without foundation in

common law. It amounts to a contract between the government, as representing the people, on one side, and the inventor on the other, the government insuring to the inventor a protection in the exclusive manufacture and sale of his article for a limited term of years, upon condition that he, the inventor, first places on file in the Patent Office a *full explanation of his invention, so that at the expiration of his term of patent, the public may have the full use and full knowledge of his secret.* The design of the patent is for the benefit of the people in spreading the knowledge of new and useful arts and improvements.

4.—The trade-mark is a right in a designation. It is *perpetual as to time, universal as to space, and an inherent right to property.* The patent is the right in an article *temporarily and limited as to time, restricted as to space, and confined to the country by which it is granted,* and given only upon condition that the inventor will make *full disclosure of his improvement.* The abuse which we contend against is, an attempt, under the trade-mark law, to obtain the *control of an article itself,* and thus obtain a *patent* unlimited as to time, not restricted as to space, and without the consideration resulting to the people. The discoverer of the article "tobacco" might have trade-marked the name "tobacco," *provided it had not been the proper name of the article,* but he could not have obtained exclusive right to use the article itself. What more claim to merit has the inventor of a pharmaceutical compound who obtains his knowledge without regard to individual medicinal substances, from the text-books, combining these articles in different proportions or in different admixture, and then claims the discovery of something new, on which he may either take out a patent, or attempt to control the article itself by the registering of a trade-mark of the name of the preparation?

It might be asked that if there exists no legal basis for the protection of these articles, then why, in the first place, does the Patent office issue such patents, or register such trade-marks? and secondly, how is this discussion pertinent or appropriate? When an application is made for a patent the Patent office grants a patent, provided a *prima facie* case for a patent is made, and it does not attempt to decide finally as to whether the patent will hold in *case it is contested.* Then, too, the examiners at the Patent office do not claim to be learned in medicine, and that the invention really involves the production of a new compound they take to be true from the oath of the inventor.

### Objections to Proprietary Medicines from the Standpoint of Scientific Pharmacy.

1.—From a scientific standpoint, we regard pharmacy as a scientific profession, and as such it should conduct its operations upon a scientific platform. The following definition of science is by President Porter, of Yale College, in his work on Psychology: "Science professes to exhibit what is actually known, or may be learned, by exact observations, precise definition, fixed terminology, classified arrangement, and rational explanation." And pharmacy as a science should have no connection with secrecy or monopoly.

2.—Pharmacy should be entirely compatible with the science of medicine. The medical profession is bound by a code of ethics, in which it is expressly stipulated that there shall be no secrecy or empiricism of any kind in medicine. No scientific pharmacist should manufacture or sell an article under his own label which a physician could not, in accordance with his code of ethics, prescribe.

3.—Proprietary preparations are unscientific, and can never, under any circumstances, be admitted into the pharmacopœia, or accepted in scientific literature, for the reason that they are claimed as private property, and their formulæ, or art of manufacture, are nowhere published, but are things of trade secrecy. The pharmacy of these articles, therefore, is in danger of becoming a lost art, and their disappearance from existence is merely a question of time. What will be the effect on the literature of medicine if medicinal preparations, the names of which are incorporated in the medical text-books, no longer exist in the next century? Every new preparation introduced should be provided with a proper name, and its formula should be published in standard literature, in such a manner that any one else

can manufacture the article, so that the pharmacy of the nineteenth century may have a place in history.

4.—The terminations "ia" and "ine," which, according to scientific nomenclature, are applied, individually, to the alkaloid principles of plants, should not be applied to such pharmaceutical compounds as are composed of a variety of medicinal substances, whether active principles or not. This nomenclature is unscientific and liable to mislead; and the multiplication of these names will tend to ruin pharmacy from a scientific standpoint, while the only gainers are the individuals who make claims for protection under plea of the value of their inventions.

5.—Proprietaryship in a pharmaceutical compound tends toward misrepresentation or deceit on the part of the proprietors by concealment of the actual composition thereof. An unlimited protection gives an unlimited monopoly, and, as a matter of course, competition is prevented forever. Competition tending towards the improvement of articles of manufacture being entirely repressed, it is left to the owner of the trade-marked compound to make the article as he chooses, and to represent its formula in such manner as will *carry the impression that it is composed of more expensive ingredients than it really is*. If competition existed, such misstatements could not be made. But few are sufficiently interested in the exposition of the faults of such compounds to undergo the expense of a chemical analysis; *yet how few pharmacists can make exactly the same preparation from any of the published formulæ of these so-called trade-marked preparations, either so as to imitate the article itself or to manufacture it at a price which will enable them to compete.*

6. If this abuse is carried on to an unlimited extent, the tendency will be to lock up every possible combination of drugs which the officials of the patent office may deem to be new, and thus a physician prescribing or a pharmacist dispensing it, is liable unwittingly to infringe upon the alleged rights of some manufacturer.

7. Trade-marked pharmaceuticals are largely put upon the market by patent medicine houses, or individuals or firms of no practical pharmaceutical experience, and yet they have the temerity to assume the title "manufacturing chemists," and to claim that the governmental protection should be given to their so-called invention, and that they have rendered to medical and pharmaceutical science a service which warrants this protection! We call attention to any of the published formulæ of pharmaceutical compounds, and ask any intelligent physician or pharmacist if, in his judgment, they are entitled to protection as new inventions.

8. The tendency of monopoly is toward extortionate prices. The tendency of competition is to lower prices. We sum up the situation from a commercial point of view, then, that manufacturers of trade-marked pharmaceutical preparations seek by government protection, under a false claim of discovering a new compound, to impose upon the medical profession and thereby assure to themselves an absolute control of a saleable article at the expense of the public and the profession.

### Objections to Proprietary Preparations from a Standpoint of Scientific Medicine.

To these pharmaceutical objections to proprietary medicines may be added the following objections, made from the physician's point of view.

1. They are protected by a system which is opposed to scientific progress, and is entirely contrary to the spirit of an enlightened, philanthropic professional idea.

2. They are forbidden by the code of medical ethics which, among other things, provide that it is "derogatory to professional character for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or of others. \* \* \* \* \* It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any-way to promote the use of them."

3. The sale of these preparations has the direct practical effect of depriving the physician of patients for whom it is his legitimate province to prescribe, and on whom they are directly dependent for professional and financial success. Doctors who prescribe this class of pharmaceuticals prescribe themselves out of practice:

*a.* By enabling the patient to prescribe the same article, or similar preparations, for himself, in the future, and to thus dispense with the physician's services.

*b.* By encouraging the patient to purchase direct from the druggist, who furnishes supplies according to demand.

*c.* By patients recommending the ready-made remedy to their friends, afflicted in any similar manner, who also treat themselves henceforth without the aid of a physician. One prescription may, in this manner, sell dozens or hundreds of bottles which the physician did not prescribe, and for which he receives no compensation.

*d.* By the business monopoly and prosperity accruing to the manufacturer, if the remedy affords relief or cure. In this case the manufacturer secures the credit of the cure, but, if the remedy fails in the first instance, the censure is ascribed to the doctor for prescribing it, and confidence in his professional skill is correspondingly depreciated.

### How the Physician may Advance the Interests of Scientific Pharmacy.

The legitimate conclusion of the whole matter is that the doctor should make a distinction between that manufacturer who manufactures only legitimate medicines, and that one who, while pretending to serve the interests of the doctor by supplying him with legitimate medicines, is at the same time robbing him of his rightful patronage, by making and selling proprietary medicines (see page 5, paragraph *b*), which find their way direct to consumers without the intervention of the doctor.

We believe that, if the doctors will express their disapproval of these manufacturers who, as it were, attempt to serve both the god of professional interest and the mammon of demand for nostrums, by refusing to patronize them, and by giving their patronage wholly to those manufacturers who confine themselves exclusively to legitimate medicines, the proprietors of trade-mark pharmaceuticals would have to do either one of two things: recognize that their true interests are identical with the those of the medical profession, and secure their patronage by ceasing to make patent medicines; or else admit that they are opposed to the interests of the medical profession, that they can get along without them, ignore the doctor entirely, and cater directly to the demand of the public for nostrums.

Now we ask the medical profession which manufacturer is the more worthy of patronage, he who places before them legitimate medicines only, or he who manufactures nostrums? We ask the doctor which one it is to his individual interest to patronize? And when he has determined this question for himself, we ask him simply to live up to his conviction on this point by specifying the medicines of that manufacturer who is working *for* him, rather than of that one who is working *against* him.

The laws of ethics and of self-interest alike urge the physician to take such steps as this for his protection, and we believe that there can be no question but that the practical effect of concerted action of this nature, on the part of the physicians, would do more than anything else to stamp out the manufacture of patent medicines, advance the interest of scientific medicine and pharmacy, and the pecuniary interests of the doctor as well.

# TO THE MEDICAL PROFESSION.

## FACTS

Relative to the Connection of

# PARKE, DAVIS & Co.

With the Introduction of Various

## NEW VEGETABLE THERAPEUTICAL AGENTS.

Owing to the continued misrepresentations of representatives of competing houses, with regard to our products, and the hitherto unexplored Medical Field of the world, we have deemed it wise of placing before you the facts of the case from our point of view.

In the first place, we have no secret formula, or endeavoring to keep from the public any secret, which may lead to the introduction of spurious imitations. We have never had a secret formula, or endeavoring to keep from the public any secret, which may lead to the introduction of spurious imitations. We have never had a secret formula, or endeavoring to keep from the public any secret, which may lead to the introduction of spurious imitations.

We have also, in our various medical journals, a platform setting forth our relations individually to the medical profession, and pledging ourselves to maintain for years the position which we have assumed.

Further, we have written and published over our signatures in the various medical journals of the United States, a platform setting forth our relations individually to the medical profession, and pledging ourselves to maintain for years the position which we have assumed.

It has also been made by interested parties a device of denigrating the interest of the public in a copyright taken out by Parke, Janney & Co., our predecessors, upon the day of March 1871, upon the label of a preparation called "Coke's Anodyne." Would that this action was taken in the early history of our business, and had no reference to the production of a copy of the action of a partner at that time retiring from our business. We have since published in the medical profession a statement, which we now regret, that we claim no rights whatever under this copyright, having our competitors been manufacturing the article under the same name, if had we advised. Further, we have written to the Librarian of Congress under date of March 14, 1871, respecting the copyright.



## TO THE MEDICAL PROFESSION.

Owing to the continued misrepresentations of representatives of competing houses, with regard to our policy in developing the hitherto unexplored Medicinal Flora of the world, we ask the privilege of placing before you the facts of the case from our point of view.

In the first place, we desire to place ourselves on record, as endeavoring to remove from pharmacy any action which may tend to render inharmonious its relations to the medical profession. As a part of this policy, we have ourselves never taken out any copyright, trade-mark, or patent, or made use of any secret formula with relation to any medicinal preparation or combination issued by us.\*

We have also since the year 1877, used what influence we could bring to bear upon the medical profession in its various conventions, to adopt such an addition to its Code of Ethics as will render it unethical for any physician to prescribe any pharmaceutical preparation protected by copyright, trade-mark, patent, or secret formula. (Printed matter covering the records of the patent office and various medical opinions upon this subject, will be forwarded free to anyone making application to us for our printed matter upon the subject of trade-mark remedies.) This action was taken in the anticipation of purifying pharmacy for the benefit of science and humanity.

SECOND. We have written and published over our signature in the various medical journals of the United States, a platform setting forth our relations individually to the medical profession, and pledging ourselves to maintain for all future time the position which we have assumed.

\*Reference has been made by interested parties desirous of defeating the intent of this statement, to a copyright taken out by Parke, Jennings & Co., our predecessors, upon the 31st day of March, 1871, upon the label of a preparation called Chlor-Anodyne. Would say that this action was taken in the early history of our business, and had no reference to any protection excepting against the action of a partner at that time retiring from our concern. We have since published to the medical profession a statement, which we now reiterate, that we claim no rights whatever under this copyright, leaving any competitor free to manufacture the article and under the same name, if he deem it advisable. Further, we have written to the Librarian of Congress under date of March 18, 1881, requesting him to void the copyright.

**THIRD.** In our position of manufacturing pharmacists we have confined ourselves wholly to the manufacture and sale of pharmaceutical products, which bearing our label throughout the land, are calculated to raise or lower our reputation, according to their appreciated value in the hands of the profession. When it is considered that we have invested a large amount of capital in this business, it must be assumed that we cannot jeopardize such capital by allowing our reputation to suffer through the issue of inferior preparations of any kind, and if such issue occur it is through causes beyond our control, with due reference to the variation in the quality of material obtainable.

**FOURTH.** Our Laboratory is very extensive, and equipped with costly apparatus of the most improved pattern adapted to our purposes. Our different departments are under the charge of skilled employes, and our sole intent is to offer the medical profession medicinal preparations which cannot be excelled in point of reliability and uniformity. A leading policy in our business is to obtain crude material of the best quality. For this purpose we have agents in the various markets of the world who are under instructions from us always to purchase the best of material irrespective of price.

**FIFTH.** Relative to our policy of introducing new remedies, referred to in the opening clause of this circular, we beg to state the case as follows: That our action is primarily based upon what may be deemed satisfactory testimony with regard to the action of a new remedy obtained by us, either through correspondence with reputable physicians, or from the articles published from time to time in the various medical journals of the world. When a remedy is brought before us, seemingly of sufficient merit to warrant its trial by the medical profession, we send a special representative, well qualified in botany, medicine and materia medica, to the country to which the plant is indigenous, with instructions to obtain for us a supply, of which there can be no question as to its identity. In undertaking these enterprises we assume all the financial risk thereof. When the drug is received it is carefully manipulated in the analytical department of our laboratory, with a view to ascertaining its characteristic chemical properties. It is then manufactured into a pharmaceutical form, based upon a formula drawn from scientific deductions. We then place large quantities of this material, free of expense, in the hands of the medical profession individually, and with the various public hospitals of the metropolitan centers. This action involves us in a large outlay, and our returns are wholly due to the reports which accrue therefrom. If the drugs are pronounced unsatisfactory and worthless, the medical profession have sustained no loss excepting the time consumed in making the experiments, while we ourselves must bear the expense incidental to the operation. If the results are favorable, we in time obtain returns which will compensate us for the original outlay. Inasmuch, however, as these drugs are only protected so far as commercial enterprize may be considered, and not by the government in the way of patent, trade-mark or copyright, every article is open to competition as soon as a competing house is willing to take the risk incidental to the collection of a supply of the crude material.

SIXTH. It is self-evident that unless full information relative to all our valuable work in Pharmacology be published for the benefit of science it will be lost to the world. For the purpose, therefore, of protecting the literature of therapeutics which depends upon pharmacy for the preparation of medicine used in the treatment of disease, and thus to guarantee the employment of the names of the articles upon our list in medical text books, we have adopted the plan of publishing full information concerning them in the form of annual reports to the Smithsonian Institute at Washington, where they will be found on file in the libraries of that institution.

With regard to the results of the experimental trials by the profession, of each article, we pledge ourselves to publish reports as submitted, whether favorable or unfavorable, and point to our record in the past as an evidence of the faithful fulfillment of this pledge. In order to make our position clear we would ask your attention to the following instances, which we cite:

*Eucalyptus Globulus*.—Our attention was called to this drug in 1870 by the various printed references thereto in the medical and pharmaceutical press of America and Europe. At that time the drug was wholly unknown in America excepting to a few individuals. Our first purchase of the article was to the extent of ten pounds in the New York market, at a cost of \$1.75 per pound, gold. The full amount of this purchase was distributed to physicians in the way of specimens for trial, accompanied with what printed references thereto we had been previously able to collate from the medical journals. A demand springing up from the distribution of the circulars, for a larger supply on trial, we purchased 25 pounds more, (the entire stock at that time in the New York market), at a similar rate, which was all distributed free of cost to the profession. A gradually increasing demand resulting therefrom after the publication of these results, induced us to open direct correspondence for the importation in large supplies of this leaf. The result has been, that through our effort *Eucalyptus Globulus* has become a staple remedy of importance in the hands of the physicians and hospitals of the United States, to such an extent as to warrant its importation in the New York market in large quantities, the price having been reduced for a prime article as low as 7 cents per pound. When this price is compared with the rate at which we first purchased the article, the tendency of our effort in this direction will be at once clearly seen. At the present day all pharmaceutical manufacturers offer and sell a fluid extract of this drug freely to the profession.

*Californian New Remedies*.—A few years since we were largely interested in developing the medicinal flora of the Pacific coast, as a result of which *Yerba Santa*, *Berberis Aquifolium*, *Rhamnus Purshiana* (*Cascara Sagrada*), *Grindelia Squarrosa*, *Grindelia Robusta* and *Yerba Reuma* were placed before the medical profession. Information with regard to the greater number of these drugs was received by us through the late Dr. Bundy, an eclectic physician of Calusa, Cal. Information with regard to *Grindelia Robusta* was received through Dr. W. P. Gibbons, a prominent physician of Alameda. In 1878, for local reasons, a

paper was read before the Alameda County Medical Society by Dr. W. P. Gibbons, making a severe attack upon Dr. Bundy, the spirit of which was, first, that Dr. Bundy was an eclectic; second, that any remedies that he had introduced were for this reason unworthy the attention of the medical profession; and, third, that certain remedies, among which was *Cascara Sagrada*, did not exist under any certain name on the Pacific coast, and were, therefore, evidently intended to be used as an imposition upon the medical profession. This paper, afterwards published in the October number of the *Pacific Medical and Surgical Journal*, was used by our competitors to carry the impression to the medical profession that we had ourselves been engaged in some dark scheme for taking advantage of our patrons. Although this matter has been fully answered in the past, and understood by those interested in the subject, we prefer to state here, in justice to Dr. Bundy and ourselves, that in the first article written by Dr. Bundy, which appeared in *New Preparations*, January 15th, 1878, he distinctly stated with regard to *Cascara Sagrada* as follows: "A description of the *Cascara* I am unable to give at this time, but suffice it to say it is a shrub. At due time its botanical name will be known." Certainly no attempt of deception was herein covered. In his original paper, published in the October, 1878, number of the *Pacific Medical and Surgical Journal*, Dr. Gibbons stated with reference to *Cascara Sagrada*, "There is no such plant known to any botanist on the Pacific coast." The *Pacific Medical and Surgical Journal* of January, 1879, states editorially, "*Cascara* (bark) *Sagrada* (sacred) is the common Spanish name for *Rhamnus Purshiana*, and means simply, sacred bark."

It seems hardly necessary for us to bring up this subject again, and our apology for making reference thereto is the continued misrepresentations referred to, which are made to our discredit. If any one feels sufficient interest in the matter to apply to us for printed matter, with regard to further information relative to the *Cascara Sagrada* controversy, we shall be pleased to send him a full record, which may prove of interest.

*Cascara Sagrada* to-day is used to an enormous extent through professional sources, which in itself is a sufficient reply to any assertion which may have been made by its earlier opposers, who, from the very nature of the case, knew nothing of its merits.

*Jamaica Dogwood*.—Our attention was originally called to this drug by professional correspondents, but the only reference thereto which we could find in standard works of materia medica was in the appendix of Wood & Bache's Dispensatory. Believing the article to have merit, we wrote to business correspondents and to the United States Consul in Kingston, Jamaica, with a view to obtaining a supply. We were unable, however, to obtain any satisfactory results therefrom. A special representative was finally sent to that island, and under his personal supervision an ample supply was obtained for our purposes, and the favorable reports which have resulted from its thorough test have established the remedy on a permanent basis. In this connection we

call attention to the fact that the physiological investigations of Dr. Ott, which appeared in the *Archives of Medicine*, February, 1881, p. 69, and in the *Detroit Lancet*, June, 1880, were produced at considerable expense to us in the way of furnishing material to the investigator. Researches with regard to its microscopical investigation by Mrs. Louisa Reed Stowell, of the University of Michigan, with the necessary wood-cuts, were obtained at our request and published at our expense. These facts are mentioned to establish our statement that we are disposed to give the profession all possible scientific information which can be obtained with regard to these various remedies.

*Tonga.*—At the suggestion of Dr. William Murrell, of London, personally, and on the strength of the published experience with Tonga given in the *London Lancet*, we dispatched an agent to the Fiji Islands, at a large expense, to obtain a supply of this drug, now on trial before the medical profession.

*Quebracho.*—We have published all obtainable information with regard to this drug, including a translation of a paper published in pamphlet form by Dr. Hansen, botanist at Erlangen, Germany, producing at great expense lithographic facsimiles of the original admirable engravings.

In conclusion we offer the following:

FIRST. That we claim the confidence and commendation of the medical profession for our efforts in placing before them a large variety of drugs hitherto unknown, accompanied with the publication of expensive researches into their physiological, chemical and botanical history. We include in this list the following, in the order of their introduction: Eucalyptus Globulus, Guarana, Coca, Grindelia Robusta, Yerba Santa, Rhamnus Purshiana (Casara Sagrada), Berberis Aquifolium, Grindelia Squarrosa, Yerba Reuma, Kava Kava, Jaborandi, Jamaica Dogwood, Manaca, Boldo, Carobæ, Coto Bark, Cedron Seed, Rhus Aromatica, Quebracho, Ustilago Maidis, Corn Silk, Tonga and many others.

SECOND. Although it has been insinuated by competing houses that there was no truth in our statements that we had dispatched personal representatives to foreign countries to obtain many of these drugs, we beg to state here, over our signature, that we have three times dispatched an agent to Brazil in search of staple and new drugs indigenous to the Amazon region, and that in our interest this country has been penetrated to the extent of 3,500 miles consuming a period of at least eighteen months in the three visits.

That a direct representative of our house was sent to Mexico, consuming over four months in the mission delegated to him.

That we have three times dispatched a special representative to the island of Jamaica, consuming a period of over one year.

That we have sent a special representative to the Fiji Islands, 7,000 miles southwest from San Francisco, occupying a period of eight months, in search of Tonga.

That in search of Cheken and Boldo, the former being a new drug first recommended by Dr. William Murrell, of London, we dispatched an agent *via* Rio Janeiro and Buenos Ayres to Chili, who remained in that country six months in obtaining for us a supply of these articles.

That in the collection of medicinal plants from the Pacific coast we have depended for the most part upon the personal efforts of our own agents, who have superintended their collection in our interest.

THIRD. We call the attention of the medical profession to the fact that in pursuing this expensive system of obtaining our supplies, we assure them of the botanical identity and the medicinal quality of the preparations which we issue.

FOURTH. We ask the hearty co-operation of the medical profession with us in developing the properties of the various new remedies, in the hope that at least a few may be found of permanent benefit to science and humanity.

Parke, Davis & Co.

DETROIT, December 1, 1881.

WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

MANACA.

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ISSUED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.

WORKING BULLETIN

OF THE

MANACA

1911

MANACA

1911

# WORKING BULLETIN

FOR THE SCIENTIFIC INVESTIGATION OF

# MANACA,

(FRANCISCEA UNIFLORA.)

ISSUED IN PURSUANCE OF A SYSTEM OF COLLECTIVE INVESTIGATION  
OF NEW DRUGS ESTABLISHED AND CON-  
DUCTED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.

ANALYTICAL CHEMISTRY : Under charge of A. B. Lyons, A. M., M. D.  
PHARMACOLOGY : Under charge of F. E. Stewart, M. D., Ph. G.  
BOTANY ; H. H. Rusby, Curator of Herbarium.

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1884.

SCIENTIFIC DEPARTMENT PARKE, DAVIS & CO.

DETROIT AND NEW YORK

WORLDING BULLETIN

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PARKE, DAVIS & CO.'S  
Collective Investigation of Drugs

BY THE  
WORKING BULLETIN SYSTEM.

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This method of investigation consists of sending specimens of the drug to be investigated, either in the crude form or a preparation of the same, as the case may require, to a large number of practitioners scattered over the land, to the hospital service of the country at large and to the various scientific centers connected with our leading medical and pharmaceutical colleges, with a sketch of the drug, stating the condition of existing knowledge concerning it, classified under the various heads of the pharmacology and known as a "Working Bulletin." The Bulletin is accompanied with a printed list of inquiries which those concerned are requested to answer from their observation, after having submitted the drug to careful test. This information is then to be re-classified and published in the form of a report, which will be deposited, with a sample of the drug and its preparations, in the pharmacological department of the National Museum at Washington. It has been suggested that the National Museum, under the auspices of the Smithsonian Institution, be made a central repository for knowledge concerning drugs, so that anyone wishing information concerning a medicinal agent may obtain it by applying there for it. This we consider a valuable suggestion, and take this means of contributing our quota toward this object.

We do not claim that information collected in this way is conclusive, but that the method is a very valuable one for collecting evidence, and is a great help toward the final solution of the problem: What is the true value of the drug?

The information in our final report will be classified as follows: 1st—Information from unscientific sources; 2d—Information from the profession at large; 3d—Information from hospital practice; 4th—Information from scientific experts engaged in more extensive research in the physiology, chemistry, pharmacy, etc., of drugs. The last class of information may probably be regarded as the more scientific, although each class has its comparative value, and probably in the order of the above arrangement. Our first knowledge of nearly every medicinal plant officinal in the pharmacopœia was obtained from Indian medicine men, ignorant natives, quacks, and old women. Information from unscientific sources, therefore, has its value. Information from the profession at large, though not to be regarded as conclusive evidence, is of still greater value. Higher still in the scale are the results of hospital practice, for here greater opportunities are given for careful observation; but, as has been pointed out by The Medical and Surgical Reporter (Dec., 1883, p. 635—"Methods of Investigation"), the observations of

one logical mind, founded on extensive research, is probably more important than the "collective unanimity" of the medical profession at large—though even such results have too often been set aside by more recent investigations, to be regarded as infallible. Until some method has been discovered more scientific than anything yet in vogue, we must depend upon information gleaned from all these varied sources for our knowledge of the *materia medica*.

It is our method, when a drug, which has in it the promise of therapeutic worth, is introduced to our notice, to first have its physiological properties determined as thoroughly as may be through experiments on animals, after which, if it shall appear to have activity, it is subjected to chemical analysis with a view to the discovery of the nature and precise seat of its active principle. This done a pharmaceutical preparation is made of it, which is distributed to the hospital service of the country and to physicians in private practice, so that its therapeutic merits may be thus practically and definitely tested.

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## INQUIRIES FOR THE COLLECTIVE INVESTIGATION OF MANACA.

Manaca, known also as *Mercurio Vegetal*, is a plant belonging to the natural order *Scrophulariaceæ*, and is indigenous to Brazil, in which country it is largely, and it is said successfully, employed as a remedy for rheumatism. The plant is described in both of the Brazilian Dispensatories, in which its alterative properties are extolled. Our attention was first directed to it by our botanist on his return from a scientific expedition to the valley of the Amazon. Having had occasion to witness the effects of manaca in the domestic practice of the natives with whom he was thrown in contact, and being convinced that the drug possesses peculiar virtues in the treatment of rheumatism, he procured for us a sufficient quantity for such a thorough investigation as we hope may establish the value of the claims made for it.

The information which we have secured bearing on the efficacy of manaca in rheumatism is somewhat conflicting. Some reporters have discovered it to possess remarkable anti-rheumatic properties, while in the experience of others it has been quite inert. This discrepancy in the reports of equally competent observers suggests a diversity in the nature of the cases experimented on, and it is with a view to determining the action of the drug in classes of cases, the members of which present symptoms as nearly as possible in common, that we respectfully request the medical profession to participate in this "Collective Investigation." When the unsatisfactory nature of our *materia medica* as regards its remedies for the relief of rheumatism is concerned, is taken into consideration, we feel confident that there will be little hesitancy on the part of progressive physicians in engaging in this work.

In order to secure such reports as we have been advised by our medical friends will be necessary to successfully achieve our object, we take the liberty of calling attention to the following features in connection with rheumatism:

Rheumatism is supposed to be dependent upon the presence in the blood of some poisonous material which, probably, accumulates there as a consequence of mal-assimilation. This poison is said by some authorities to be lactic acid. Others believe that there are several poisons, and that they are excrementitious substances caused by the

suboxidation of the nitrogenous materials of the food. The nitrogenous elements of the food, according to this theory, owing to some fault in nutrition, are not oxidized into urea, as they should be, and in that form carried off by the kidneys, but stop short in the process, and remain in various insoluble forms, that accumulate in the blood, setting up that train of symptoms commonly called rheumatism.

In the treatment of rheumatism, guided by these views, alkalies are recommended to neutralize the offending acid; colchicum and other similar agents to increase oxidation; a diet free from meat to prevent loading the system with an overplus of fuel which it has no power to consume; baths to hasten elimination of morbid products by the skin; and diuretics, and cathartics, to persuade the skin and mucous membrane to aid in getting rid of these noxious principles.

*A. The question then is, by what method does manaca act as a remedial agent in the treatment of rheumatism?*

Popularly, and often professionally, the aches and pains so common in gouty subjects are called rheumatic. They are supposed to be due to lithic acid in the blood, and lithates of soda in the tissues. The periosteal pains of syphilis, and the darting pain of locomotor ataxia, are sometimes called rheumatism. Myalgias are commonly spoken of as rheumatism. Various arthropathies, sciaticas, and "cricks" in the back are called by this name.

*B. In this investigation it is desirable to know what is meant by rheumatism.*

There are several morbid states which so closely resemble each other that most authors classify them together as rheumatism: These are:

1. Rheumatic fever—acute articular rheumatism.
  2. Subacute and chronic rheumatism, either following an acute attack, or of a subacute or chronic character from the beginning.
  3. Myalgia, or muscular rheumatism—probably a distinct disease differing from rheumatism in essential cause, phenomena, and course of the affection.
  4. Neuralgic rheumatism—probably the result of disease and thickening of the fibrous covering of nerves due to rheumatism, and causing irritation, pain, and impaired function in those nerves.
  5. Rheumatoid arthritis. Nodular rheumatism, formerly rheumatic gout, now generally regarded as not rheumatism at all. Pathological cause not known.
  6. Gonorrhœal rheumatism. Pathologically distinct from true rheumatism.
- C. In the investigation of manaca it is desirable to know what kind of rheumatism is meant.*

In the above connection we would also call attention to certain points raised by Prof. Roberts Bartholow, of Philadelphia, bearing on the peculiarities of the patients attacked by rheumatism:

In Prof. Bartholow's experience the following three types of cases suffering from rheumatism are differently affected by different drugs: 1. Patients of considerable bodily vigor, spare habit, good muscular development and having a distinct family history of neurotic or rheumatismal disorders. 2. Obese subjects addicted to malt liquors and good living, with, but sometimes without, an inherited predisposition to rheumatic diseases. 3. Pale, feeble, anæmic subjects, depressed by poor diet and bad hygienic surroundings, including dampness and bad air.

*D. We would request observers to note in their reports the nature of the person attacked with reference to Prof. Bartholow's classification.*

We shall be pleased to furnish physicians who desire to participate in this collective investigation, with a sufficient quantity of our fluid extract of manaca for their

experiments, together with a complete file of the literature which we have collated bearing on the nature of the drug, dosage, etc., and containing such clinical reports from hospital and private practice, as have already appeared. And we would also be pleased to supply samples of the drug itself to chemists, physiologists, microscopists, or others engaged in scientific work in pharmacology, for scientific purposes.

#### METHOD FOR EXAMINATION OF PATIENT.

The following, slightly modified from DaCosta, is recommended, and, in reporting on manaca, it is suggested that it be followed as far as practicable:

Date of examination, name, age, color, place of birth, present abode, occupation or social state; in females, whether married or not, number of children, and date of last confinement. Type of patient according to Professor Bartholow's classification given above.

History. 1. History antecedent to present disease, constitution and general health, hereditary predisposition, previous diseases or injuries, habits and modes of life, hygienic influences to which exposed, etc. 2. History of present disease, its supposed exciting cause, date of seizure, mode of invasion, subsequent symptoms in order of succession, previous treatment.

Present condition of patient. 1. General symptoms, position in bed, mode of lying; out of bed, movements; aspect of body, of countenance; skin, pulse, temperature; respiration, as to frequency, etc.; tongue. General state of digestion: appetite, thirst, condition of bowels. General state of urinary secretion: sensations of patient: pain, etc. 2. Examination of special regions or functions, commencing with the one presumably the most affected. Diagnosis. Treatment. Remarks.

# MANACA.

(FRANCISCEA UNIFLORA.)

*Synonym*—*Mercurio-vegetal*.

*Part Employed*—*The root*.

*Natural Order*—*Scrophulariaceæ*.

*Habitat*—*Brazil*.

**Botanical Origin and History.**—Manacá, mercurio-vegetal, is the name given by Brazilians to *franciscea uniflora*, Pohl., nat. order *scrophulariaceæ*, a shrub, with alternate, oblong acuminate leaves, shortly petioled; flowers solitary and terminal, of a penetrating odor, resembling that of narcissus. Several plants are known in Brazil under the name of manacá; in Pernambuco, the *Durante bicolor*, nat. order *verbenaceæ*, bears this name; and in Minas and other provinces, the *admosma superflua* is known as manacá, or manacan de matte. The *franciscea uniflora* is indigenous to the greater portion of equatorial America. The root is the part employed in medicine.\*

**Natural History.**—C. Hansen Erch, M. D., Santarem, Brazil, gives the following interesting resumé, concerning the use of Manacá and other Brazilian drugs in their habitat: †

"I have followed with much interest your efforts in bringing, through the columns of your excellent journal, to the notice of the profession a number of new therapeutic agents, culled from the flora of the different countries of the world. Undoubtedly some of the remedies thus put forward, will, on trial, be found similar or inferior to some older, well-known agents, and will gradually sink back into their former obscurity, still their introduction will indirectly have been productive of much good. The physician who undertakes the testing of a new remedy, is compelled to pay the minutest attention to the case in hand, to carefully note all the symptoms as they present themselves, and to rely solely on himself, instead of on authorities, thereby unconsciously increasing his stock of knowledge and powers of observation. We are all prone to drop into what is appropriately called routine practice; it is such an easy way of getting along, and one can hardly wonder at practitioners, oftentimes overworked, falling into the habit. Still all will admit that routine practice would never advance medical science by increasing our knowledge of therapeutics.

I see it urged by many against new remedies, that we ought to study our old *materia medica* more thoroughly before we attempt making additions. Granting this to be in a measure true, are there not serious obstacles in the way to prevent it being done by the busy practitioner? To follow up the often elaborate investigations of others is a hard task, as so few new points present themselves, while to conduct an original investigation, with scarcely any facts to guide, soon becomes a positive pleasure. The many cures of

\* C. W. Hansen, M. D., Jamaica, in *New Preparations*, 1879, p. 248. John L. Erwin, of the College of Pharmacy, University of Michigan, in the *Therapeutic Gazette*, 1880, p. 222.

† *Therapeutic Gazette*, 1881, p. 325.

chronic cases effected through the agency of some new remedy, are a strong plea in favor of more extended investigations in this direction, even though the old remedies be not as thoroughly understood as they ought to be.

I have spent considerable time traveling in the three northern provinces of Brazil, Maranhão, Pará and Amazonas, the two latter covering the Brazilian portion of the immense valley of the Amazon, so noted for its many and varied vegetable productions. The province of Maranhão is called by the Brazilians the drug store of Brazil, and the three together might appropriately be called the drug store of the world, and yet, how few of the medical plants in which this region abounds are known outside of the provinces mentioned. Balsam copaiva, guarana, sarsaparilla (from smilax syphilitica), tonka beans, pareira brava, and lately jaborandi and manacá about complete the list. In the Brazilian dispensaries (Formulario Chernoviz and Formulario Langgard) a large number of other plants indigenous to this region are mentioned, but their action is little understood. In my intercourse with the Indian tribes, principally on the middle Amazon and its tributaries, I have taken pains to study the various remedies used by them, their mode of administration, etc. Some of these remedies I have been able to classify botanically by the aid of "Griesbach's Flora," but in the majority of cases I have failed to do so, there being no botany of the country, except the old one of von Martius, to which I have not been able to get access. The local appellations are very unsatisfactory, the same plant often having five or six different names in the course of five hundred miles travel. The mode of administration is more uniform. The Brazilian Indian has a great horror of everything bitter and disagreeable, and consequently nearly all their remedies are applied externally as fomentations (banhos). When they use a remedy internally, they generally take a maximum dose, repeated at intervals of one or more days. They believe in heroic medication with a vengeance, generally going to the end of the tether. Such is the case in the use of one of their remedies mentioned above, manaca, which is used under different names by all of the Indian tribes, in the diseases most frequent among them, which are rheumatism and syphilis. When our Indian is suffering from either cause, he carefully scrapes from 3j to 3jss of the root bark of manaca into half a tumbler of "cachass," the rum of the country, swallows the dose like a hero, and then returns to his hammock, to wrestle for several hours with what he describes as most acute pains in all the muscles, ending finally in profuse perspiration, and if the attack were chronic rheumatism, complete recovery, for a time, at least. Some might think that the rum played an important role, but I have seen these sons of the forest drink a pint of new rum containing 75 per cent. alcohol without winking, the only effect being an uproarious drunk.

It has not been my fortune to see the manacá in flower, but von Martius has classified it as *franciscea uniflora*, natural order solanææ, and the leaves and general appearance correspond exactly with the description given of this shrub in my "Griesbach." It is found principally in the so-called "terra firma" of the valley, though I have seen it on the "vasantes" or overflowed lands as well. I think the dose in which manacá is recommended to be given (15 to 20 drops) too small. Half a drachm to a drachm of the fluid extract ought not to be too much, taking into consideration that the woody part of the root contains much less of the active principle than the root-bark, which is the only part used by the Indians. I attribute, in a great measure, some of the unsatisfactory reports I have noticed in this journal to this fact; try larger doses next time, and if my observations on the remedy are worth anything, the result will be satisfactory, particularly in cases of chronic rheumatism. The violent purgative action attributed to the manacá I have failed to notice; it seems to me to act principally on

the skin, kidneys, and muscular nerve-fibres. At my first opportunity I shall endeavor to make a close study of the remedy.

"Before closing allow me to give your readers some observations on the different modes of administering medicines in some of the countries it has been my pleasure to visit. While you, in the United States, are trying to reduce the bulk to a minimum by elegant granules, pilules, pills and extracts, the people of Northern Europe are luxurating in large draughts of nauseating infusions and decoctions, the Brazilian uses his "banhos," and the cannibal in the Feejee Islands, takes his little dose with apparent gusto out of a cocoanut-shell, said dose being prepared for him by his "Mate ne Mate" through a tedious process of masticating the raw material, and expressing the juice and saliva,—an infusion by mouth, as it were. Occasionally the physician takes the doses himself, and transmits the effects to the patient through certain incantations. Of all these methods which is the best?"

**Chemical Composition.**—A sample of Manaca furnished by Mr. George S. Davis, of Detroit, was analyzed by John L. Erwin, of the College of Pharmacy of the University of Michigan, in 1880, who made the following report:\*

"The sample which was sent me as being the manaca, and which I analyzed, had the appearance of being parts of the stem of the plant. It consisted of five pieces, each about one foot in length, and each being about one-half inch in diameter, very tough and woody—the center being of a yellowish color and having a dark and very thin outer layer or bark. The drug, when finely powdered, has a yellowish brown color and an odor somewhat resembling that of corn meal. The process which I have followed in the analysis of the above plant, was the one reported by Mr. Henry B. Parsons in the American Chemical Journal, Vol. 1, No. 6, and the results obtained are as follows:

Moisture: 6.5 per cent.

Ash:

Total Ash, 1.3 per cent	Sol in H <sub>2</sub> O.	32 per cent. { Na Cl.
		{ K <sub>2</sub> S O <sub>4</sub> .
	Insol. in H <sub>2</sub> O	Sol. in H Cl. { Mg <sub>3</sub> (P O <sub>4</sub> ) <sub>2</sub> .
	Insol. in H <sub>2</sub> O.	" " H Cl. { Sand.
		" " K H O {
.49 per cent.		

Benzol extract:

Total ext. .64 per cent	Sol. in H <sub>2</sub> O	Organic 0.4 per cent.
		.06 per cent. { Ash .02 per cent.
	Insol. in H <sub>2</sub> O.	Sol. in H Cl. { Negative results for alkaloids.
	Insol. in H <sub>2</sub> O	" " H Cl. { Removed by animal charcoal .1 per ct. (a)
Alc. 4 per c.	" " H Cl.	a—chlorophyll and resin.
		b—resin.
		Insol. in H <sub>2</sub> O.
		" " H Cl. { Wax.
" " 80 per ct. alc.	" " 80 per ct. alc.	{ Fixed oils.
		.16 per cent.

\* Therapeutic Gazette, 1880, page

.80 per cent. alcohol extract.	
Total residue.	Powder separating on cooling, .055 per cent.
	Total organic matter and ash, 8.44 "
	Total ash .24 "
	Total organic matter 8.20 "
Total residue.	Total organic matter and ash sol. in H <sub>2</sub> O, 5.4 per cent.
	Total ash " " " .3 "
	Total organic matter, " " " 5.1 "
Sol. in H <sub>2</sub> O.	Total " " insol. " " 3.1 "
Total residue 8.3 per cent.	A. Sol. in abs. alc. 5.76 per cent.
	a. sol. in H <sub>2</sub> O } Tannin. Extractives.
	4.5 per cent.
	b. insol. in H <sub>2</sub> O, 1.190 per cent.
	b 1. sol. in H Cl. } Extractives.
	.116 per cent.
	b 2. insol. in H Cl, 1.08 per cent.
	b 3. sol. in N H <sub>4</sub> HO } Colors.
	.872 per cent } Acid resins.
	b 4. insol. in N H <sub>4</sub> H O } Colors.
	2.8 per cent. } Neutral resins.
	B. Insol. in abs. alc., 2.54 per cent.
	c sol. in H <sub>2</sub> O } Colors.
	1.5 per cent. } Extractives.
d. insol. in H <sub>2</sub> O, 1.04 per cent.	
d 1. sol. in H Cl. } Negative results for alkaloids.	
.904 per cent.	
d. 2. insol. in H Cl. } Resins. Extractives. Colors.	
.036 per cent.	
Cold water extract } Gums.	
2.72 per cent.	
Acid(H <sub>2</sub> SO <sub>4</sub> ) extract: Glucose, 10.5 per cent.	
Total acid extract, 46.27 per cent.	Starch and isomers, 17.55 per cent.
	Extract not starch, 28.72 per cent.
Alkali (N <sub>2</sub> HO) extract } Coloring compounds.	
	3.742 per cent. } Mod. of pectic acid.
Crude fibre and ash, 38.02 per cent.	
Total nitrogen, .82 per cent.	
Total nitrogen as albuminoids, 5.125 per cent.	
Recapitulation:	
Extract by benzole.....	.64 per cent
" " 80 per cent. alcohol.....	8.3 " "
" " cold water.....	2.72 " "
" " acid (H <sub>2</sub> SO <sub>4</sub> ).....	46.27 " "
" " alkali (N <sub>a</sub> HO).....	3.74 " "
Crude fiber and ash.....	38.02 " "

99 69

In the above I wish it understood that the accuracy of the results, as obtained, is probably accidental, and should not be attributed to any skill in manipulating on my part, as from the nature of the material analyzed, as well as of the process used, such accurate results are hardly to be expected.

I think the process reported by Mr. Parsons could be improved by requiring a greater length of time for the extraction by each solvent, and I think two hours for each gramme of the sample taken, in the extraction by benzol, and four hours for each gramme of sample, in the extraction by eighty per cent. alcohol—the time for the action of the other solvents being proportionately increased—would be no waste of time, but on the contrary would obviate the danger arising from the incomplete extraction of the drug by the different solvents used. I also think that more satisfactory

results, and, in fact, more accurate results, would be obtained in case 10 grammes of the sample (instead of 5 as given in the process reported), were used, as in many cases in analyzing a plant the amount extracted by the different solvents from 5 grammes of the sample, is not in sufficient quantity to apply qualitative tests for the many organic constituents of plants, and obtain definite reactions"

Dragendorff\* has discovered an alkaloid in manaca, the separation of which in perfect purity is attended with great difficulties, because of the fact that it cannot be isolated by shaking it out of aqueous solutions, and it cannot be isolated undecomposed by precipitation with potassio-mercuric iodide. He has, however, succeeded so far as to free it from foreign admixtures in such a measure, that with about one milligramme of the preparation, very energetic effects on frogs can be secured. These effects consist in: at first accelerated, later retarded respiration, followed still later by a gradual diminution of the activity of the heart. Before this symptom visibly appears, there is exhibited an uncommon excitement of the motility, and at the same time a gradual diminution of the sensibility. Some of the symptoms remind us of the picture of a poisoning with baryta.

While these observations make it appear plausible that manaca may be of service in rheumatism, attention must be called to the effects on respiration, which would ask for a very exact dosage.

The alkaloid mentioned is accompanied by a fluorescent body, which in its total relations resembles *æsculin*, but does not seem to participate in the effect."

**Physiological Action.**†—"In the modern school of therapeutics the scientific method of determining the properties of drugs is recognized as preëminently superior to all other schemes. Inconsiderate of the age or standing of a drug it has attacked each in its turn and confirmed or refuted their supposed virtues. Very naturally then, when a new drug is placed before the profession with the recommendation of forcible toxic powers, the physiological method tests its capacity and precedes its extensive employment.

Manaca, a Brazilian plant, has recently been presented to us for study, having a reputation for power but no careful indications for administration, or hints of its scope of action. With the desire and purpose of solving the latter, I enter upon this series of experimental inquiry.

To elicit the general action of the drug I will detail the phenomena observed in the initial experiments which have been carefully and repeatedly confirmed.

*Experiment 1.* Kitten, weight nineteen ounces; respiration, 46; pulse, 120. Exhibited 3 ss of the fluid extract of manaca‡ *per os*.

Two minutes: The animal which I roused from sound sleep has grown restless and constantly walks from one side of the room to the other, crying persistently.

Five minutes: The jaw twitches and the pupils are somewhat enlarged.

Eight minutes: The gait has become trembling and squatting, the hind legs bowing outward. Respiration, 12 per minute and rough in rhythm; saliva abundant and running from the mouth in tenacious strings.

Fifteen minutes: There is now distinct clonic spasm in both the hinder and fore extremities, which, with the apparent weakness, so interferes with locomotion that the animal, after repeated efforts to retain the upright posture, falls upon its side and remains

\*Prof. G. Dragendorff, Pharmaceutical Institute of the Imperial University, Dorpat, Russia, in the *Therapeutic Gazette*, 1883, p. 63.

† E. P. Brewer, M. D., Ph. D., Norwich, Conn., in the *Therapeutic Gazette*, 1882, p. 326.

‡ Throughout this article, by the fluid extract of manaca, we always refer to the de-alcoholized fluid extract.

there in the controlling grip of drug action; pulse, 90 per minute; respiration, 12; pupils dilated. The pulse, though slow, is perfectly regular and slightly reduced in force. The respiration has lost the cog-wheel rhythm and in its slowness retains regularity; the inspiration is rather more quick than expiration, which seems to depend upon the normal resiliency of the diaphragm.

Twenty minutes: The pupils are fully dilated, pulse and respiration unchanged. This state continued for about an hour, when the respiration grew irregular and faltering, running sometimes four and again eight, per minute, and finally ceased. The heart pulsed for a short time after the respiration stopped.

At once opening the body, the heart was dilated and flabby, containing in both ventricles a quantity of fluid blood. The lungs were slightly congested, and the stomach and intestines filled with frothy mucus. In the upper intestine (duodenum and jejunum) considerable bile was found. The liver was congested and the bladder full of urine.

*Experiment 2.* Kitten; weight, one pound; pulse, 120; respiration, 48 per minute; 10 minims of fluid extract of manaca exhibited.

Ten minutes: The past two minutes has ushered in a marked restlessness. The gait is quick, steady and continuous, the animal walking from one side of the room to the other, much after the style of a panther in confinement. The mouth is slightly opened, and the jaw occasionally twitches; pupils enlarged and respond sluggishly to light. Pulse 120, respiration 44.

Thirteen minutes: Constant utterance of a short, sharp cry with each expiration. Locomotion difficult and accomplished principally with the fore legs, the hind legs being bowed and heavily dragged after. Twitching of the muscles of the fore and hind legs and the jaw.

Eighteen minutes: Is unable to walk, but raises itself upon the fore legs and sways from side to side. Pulse 90, respiration 24.

Twenty-five minutes: Clonic spasm in all the muscles of the trunk. They are of short duration and closely simulate the contractions that follow the application of a mild electric current, sometimes affecting this muscle, then that, now another, etc. Pulse 90, respiration 22. Pupils fully dilated. Inspiration quick, expiration prolonged and labored; both acts evidently dependent upon the diaphragm. Consciousness seems unimpaired, the animal endeavoring to respond to its call, but is unable to regain the feet. The testimony of this conscious impulse rests upon an appropriate, though slight, muscular movement and a cry of recognition. The wailing that we recorded hitherto had at this time entirely ceased.

One hundred minutes: Pupils normal. Animal weak, but able to stand. Respiration 30, pulse 110.

Three and one-half hours: Animal perfectly recovered. Respiration and pulse normal. It is inclined to remain quiet, but has eaten freely and played with other kittens. Exhibits signs of muscular weakness on long exercise.

*Experiment 3.* Kitten; weight, twenty ounces; pulse 124; respiration 49 per minute; 5 minims of manaca, fluid extract, *per os*. The usual restlessness was observed, but not so marked as in the previous experiments, owing, no doubt, to the smaller dose of the drug. The muscular spasm of the jaw and faltering respiration follow directly. In thirty minutes the acme of action was attained, the respiration registering 35 per minute, and the pulse 110. The muscular force seemed little if any impaired and the pupils revealed only inconsiderable changes. In three and one-half hours all trace of its operation has passed away.

*Experiments 4 to 10.* Confirmed the foregoing records, but failed to disclose new symptoms. In concert they affirm a distinct impression upon important systems; the

muscular system is convulsed and voluntary power removed; the cardiac and respiratory systems inhibited and the glands generally stimulated.

The effect on each system can be induced through numerous avenues; the spinal, sympathetic or vaso-motor nerves may be the elected channel of action, again the structure of the organ itself or great nerve centers. For ease and clearness of conception the various systems will be studied separately.

#### MUSCULAR AND NERVOUS SYSTEMS.

The source of the clonic muscular spasm is important to determine, as it will delineate the origin and area of action in the production of one of the most pronounced physiological symptoms. It might arise from direct action on the intra-muscular nerves, or exaggerated reflex action of the stimulation of the motor nerves. This, however, is only susceptible of solution by special experiments, as follows:

*Experiment 11.* Cat. After severing the crural and sciatic nerves in one leg, I injected 3 ss fluid extract of manaca into the leg. In five minutes the jaw began to twitch, and in twenty minutes the full physiological phenomena were developed, and invaded all parts of the muscular system except in the leg operated upon.

*Experiment 12.* Kitten. Aided by chloroform I ligated the femoral and sciatic arteries, and thereby annulled the circulation in the extremity. Into this member I injected 3 ss fluid extract of manaca. No symptoms being manifest in an hour, I carefully loosened the ligature on the femoral artery and attentively watched the animal. In 15 minutes the jaw twitched, and in 35 minutes clonic spasm had proceeded to both extremities, also involving the heart and respiration.

Subsequently I modified these experiments on the frog, by removing the integument of the extremity after tying the arteries, and then immersed it in the diluted fluid extract. When the circulation remained intact the physiological action invariably appeared in all portions of the body except the limb with broken nervous connections. On the contrary, when the circulation was obliterated in the limb and the nerve continuity maintained, the result was negative,

*Experiments 13 to 20* confirmed the previous experiments.

It is obvious that clonic muscular spasm arises from the action of the drug upon either the brain and spinal cord, or both, for, as repeatedly demonstrated, when the continuity of the spinal nerve is broken, and the periphery of the nerves immersed in the dilute fluid extract, the whole muscular system, except the limb with severed nerves, responds specifically; the drug is conveyed to the general system by the blood system. Again, if the blood vessels are severed and the nerves left intact, there is no local or general drug action. Accordingly we assert that Manaca acts not by direct influence on the periphery of a nerve; neither are its properties conducted from the periphery to the nervous centers by its structure, but that the sole means of distribution is the blood system.

If, then, the muscular spasm is due to the distribution of the drug to the nervous centers through the circulation and its action thereon, it becomes of importance to discriminate the center or centers of its operations. This we endeavor in the following series.

*Experiment 21.* Frog, cerebrum ablated; twenty minims of the fluid extract, subcutaneously.

Five minutes: Twitching of the jaw.

Ten minutes: Pupils partly dilated; clonic spasms in the extremities.

Twelve minutes: Twitching of all the muscles of the extremities, abdomen and jaw.

*Experiment 22.* Frog: cerebrum and cerebellum ablated. Thirty minims of the fluid extract subcutaneously.

Seven minutes: Twitching of the jaw.

Ten minutes: Pupils slightly dilated; spasm in the extremities and abdomen.

*Experiment 23.* Frog: Descending aorta ligated close to the heart; spinal cord severed a little below the level of the ligature; 3 ss. of fluid extract manaca subcutaneously in the neck.

Eight minutes: Twitching of the jaw.

Fifteen minutes: Twitching of the fore legs.

*Experiment 24.* Frog: Descending aorta ligated. The spinal cord exposed by cutting away the vertebral arches, and severed below the level of the aortic ligature. 3 ss. of fluid extract manaca subcutaneously in the neck.

Ten minutes: Twitching of the jaw.

Twelve minutes: Twitching of the upper extremities.

Fifteen minutes: Pupils dilated.

Thirty minutes. No evidence of drug action on the lower extremities.

Forty minutes: A quantity of fluid extract manaca was poured into the trough created by the removal of the vertebral arches and containing the lower segments of the spinal cord. Two minutes later slight clonic spasm occurred in the lower extremities. In eight minutes their vigor was nearly equal to the ordinary poisonous action.

*Experiment 25.* Frog: After exsecting the heart and severing the head I placed the anterior extremity of the trunk into a solution of manaca.

Three minutes: Typical clonic spasm.

Twenty minutes: Spasm ceased.

These experiments and their complements (numbering five) when associated with experiments 11 to 20, fairly demonstrate the drug action on the muscular and nervous systems. On the muscular system there is primarily excitation manifested by restlessness, which deepens into muscular spasm and absolute loss of coördination. If now the animal be irritated by noise or the pain of a deep cut, it will emit a cry, but exert only the smallest muscular endeavor to escape. The spectacle is that of ordinary sensibility combined with motor paralysis. However this is misleading; unquestionably the sensibility is ordinarily acute, but the appearance of true motor paralysis is erroneous, for, if the faradic current is applied, the response is wholly normal in intensity and delicacy; this is not the case in true paralysis. Corroborative testimony is furnished in the non-action of the drug on the terminal nerves (as recorded in experiment 12), either to generate spasm, to take up and conduct the virtues to the great nerve centres, or to decrease motor power. When a spinal nerve is faradized in the drugged animal, the muscular spasm is of common vigor, but when a current is passed through the spinal cord vehement spasm follows—spasm far more powerful than in the normal animal. This remains uninfluenced by the ablation of either or both the cerebrum and cerebellum. Hence, the excitability entirely resides in the cord itself, and, we believe, results from the direct action of the drug upon the spinal marrow. In support of this assertion we adduce the fact of the total absence of the physiological phenomena from that portion of the cord where the drug is prevented from acting upon (experiment 13), and the quick appearance of the toxic symptoms on the application of the drug to the cord, (experiment 14). Reflex action is gradually diminished and ultimately lost after the ingestion of a *lethal* dose. At the advent of the full drug action the foot of a cat or frog may be immersed, without reflex action, in a solution of sulphuric acid so strong that the tissues are actually eaten up by it. There will be every manifestation of pain and a

very feeble voluntary motion at removal, yet no reflex action or power to remove it, and, at the same time, the clonic spasm will continue undisturbed in the muscles adjacent to the disintegrating process.

Briefly, the action on the muscular system is primarily, excitation, exemplified by restlessness, and secondarily, the appropriation of the muscular force to the specific action of the drug, as exemplified in clonic spasm and the loss of coördination. But all this is purely symptomatic, the real change being effected in the spinal cord, consisting of the annihilation of reflex force and the profound stimulation of the motor centres.

The brain suffers no perceptible change; neither, as far as we can determine, are its motor centre or centres acted upon, at least the muscles controlled by them are never involved in clonic spasm.

## CIRCULATORY SYSTEM.

The general drug action hitherto cited marks a distinct decrease in the rapidity of the heart's contractions. With the full sway of action the pulse of 120 per minute was reduced one-quarter in frequency and equivalently in force. But this data being insufficient for accurate conclusions, I selected eleven frogs for special study. Securing them to a board I cut away the sternums so as to expose the beating hearts. After counting the pulsations for five minutes I injected into the stomachs of eight of them, 3j of fluid extract manaca (expts. XXXI—XXXIX) retaining three undrugged for a standard of comparison. My results were as follows:

	5 minutes.	15 minutes.	25 minutes.	35 minutes.	45 minutes.	60 minutes.	Heart stopped.
Healthy Frog.....	64	62	60	58	58	58	5 hours.
Healthy Frog.....	64	62	62	62	66	60	5¾ hours.
Healthy Frog.....	60	58	58	57	57	56	5¼ hours.
Medicated Frog.....	60	56	50	40	38	24	3¾ hours.
Medicated Frog.....	60	58	54	44	42	32	2¾ hours.
Medicated Frog.....	54	52	48	42	40	30	2½ hours.
Medicated Frog.....	61	60	48	36	26	24	2½ hours.
Medicated Frog.....	62	58	56	40	26	22	2¾ hours.
Medicated Frog.....	60	58	54	50	46	40	3 hours.
Medicated Frog.....	72	68	56	46	44	42	3¾ hours.
Medicated Frog.....	64	60	56	46	42	38	3 hours.

Comparing the frequency of the normal and medicated frog's heart it is found that at the expiration of five minutes an appreciable change has not yet been inaugurated, the registration being nearly or exactly the same. In fifteen minutes both have decreased in frequency, but the medicated slightly more than the normal heart. In twenty-five minutes the depression was very marked in the medicated animal and continued to fall at the expiration of forty-five and sixty minutes. Now, comparing the normal heart with the drugged heart, we find the former from four to six beats slower than when first exposed, while the latter is depressed from 20 to 40 beats per minute. The invasion is slow, the most decided impression ranging from twenty-five to thirty-five minutes after the drug's ingestion. It is also essential to observe that depression is the sole feature of its cardiac effect.

Averaging the duration of the heart's actions, 5½ hours will represent the duration of activity in the normal heart under the abnormal surroundings, while three hours

will represent the duration of activity in the drugged heart under like circumstances. The difference is represented by  $2\frac{1}{3}$  hours. Although these data are a criterion to judge of the fatality of the drug to the heart's action, it is surely misleading as to the true drug influence on the life-sustaining capacity of the heart, for in the frog the heart pulsates long after it ceases to expel its contents into the arteries, or, in other words, life in the frog actually ceases long before the heart stops beating. To avoid this possible error I noted the time at which this organ failed to wholly empty itself both in normal and drugged frog.

	Heart fails to wholly expel its contents.
Normal frog.....	3 hours.
Normal frog.....	3 1-4 hours.
Normal frog.....	3 hours.
Medicated frog.....	1 3-4 hours.
Medicated frog.....	1 5-60 hours.
Medicated frog.....	1 1-6 hours.
Medicated frog.....	5-6 hours.
Medicated frog.....	1 1-3 hours.
Medicated frog.....	1 hour.
Medicated frog.....	1 1-2 hours.
Medicated frog.....	1 1-6 hours.

The average duration of the expelling force of the unmedicated heart is 3 2-24 hours, of the medicated heart 1 5-24 hours. Hence, then, if the medicated heart ceases in one-third of the time of the unmedicated heart, two thirds of the force is destroyed; again, if the average beats of the unmedicated hearts at the expiration of an hour is 57 per minute, and for the medicated 33 per minute, a little less than one-half the frequency is curtailed. Therefore it is apparent that two-thirds of the force and one-half the frequency are depressed or destroyed with full play of the physiological action of manaca. The action on the heart of the cat is as distinctive as in the frog, the pulse reducing from 120 to 90, and in two instances to 78 per minute. In every experiment the heart was dilated and flabby immediately after death.

In nine observations on cats and frogs (*Experiments 39 to 47*), the pneumogastrics were severed just before, during and after the exhibition of the drug. When cut before the ingestion of the drug, or after the access of the full physiological effects, no change in the drug action was observed, but if cut with the first sign of cardiac depression, a rise of four to six beats per minute followed. This, however, is temporary, and in five to ten minutes after, on comparison with other animals with unsevered vagi, the heart's beat will be equally depressed as if the vagi were intact.

In four experiments with the exposed heart I directly applied the fluid extract, after the administration of a lethal dose by the stomach, but the depression was not hastened nor its intensity more pronounced. In three other experiments I applied only the fluid extract to the heart. In these cases the effect was hardly worthy of the term depression, for in twenty-five minutes the pulsations were but four to six beats slower at the onset. Therefore it is apparent that manaca has no direct influence upon the cardiac ganglia; and that the slight depression following its local use must be related to the systematic influence incident to absorption.

Summing up the determined factors for a final conclusion, we may fairly declare:

1. That the heart is slowly and persistently depressed in force and frequency.
2. That the vagi play no part in this action.

3. That the cardiac ganglia are neither stimulated nor depressed.

From whence, then, emanates the influence upon the heart? Look you unto the general action of the drug; see the slow invasion of the cardiac depression; see also the slow annihilation of the reflex force, when the one ebbs low, so also the other. Are they intimately related? Does the reflex force control or regulate the heart's pulsations? Most assuredly. Hermann and others have conceded that the conversion of potential into kinetic forces resides in the cardiac reflex centre, and that the ratio of this conversion and liberation is the ratio of cardiac pulsations. We have two score of times confirmed the relationship between the cardiac depression and the reflex depression. They progress *pari passu*. In consideration of this, we doubt not that the cardiac depression depends on the reduction of the activity in the reflex centre, thereby limiting the conversion of potential into kinetic force and retarding the "liberating force," in other words, it diminishes cardiac power by prohibiting the conversion of stored force into working force, and inhibits frequency by limiting the frequency of the discharge of force.

On the capillary system the action is only secondary and wholly due to the cardiac failure. In nineteen animals I made repeated and careful ophthalmoscopic examination, which revealed only a slight retinal blanching with the invading cardiac failure. I also closely watched the capillaries in a frog's foot over a micrometer, but with negative results.

#### RESPIRATORY SYSTEM.

The breathing is quickly and permanently affected. In Experiment 1, 3 ss reduced, in eight minutes, the normal respiration of 48 to 12 per minute; in Experiment 2, ten minims reduced, in twenty-five minutes, the normal respiration of 48 to 24 per minute; in Experiment 3, five minims reduced, in thirty-five minutes, the normal respiration of 49 to 35 per minute. These proportions hold good with all the experiments. In seven special experiments I cut the vagi either before or after injection of the drug subcutaneously. When the drug action preceded the section, death immediately followed, but if the section preceded the drug action, the animal survived from fifteen to twenty-five minutes.

The respiration is peculiar; with the appearance of muscular spasm, the inspiration becomes jerky, cog-wheel like, probably in consequence of the muscular spasm of the chest. This soon ceases and merges into quickened inspiration with prolonged expiration. The diaphragm performs both acts from the onset of the secondary symptoms until death. The parallel between the respiration and pulse must be noticed. Both are depressed from the onset, and proceed with almost equal fall until death, which always ensues from the failure of the respiration.

The operations on this system are the same as on the heart. The reflex function is at fault, it is held in abeyance and finally abolished.

#### SPECIAL SENSES.

Long before coördination is lost, the cat will deliberately walk off the operating table and fall to the floor, yet in walking on the table it will avoid a book or other article placed in its pathway. The pupils are at this time partially dilated, which fact accounts for the non-recognition of distance and the perception of an obscuring obstacle in its path. As stated, the retina is blanched when the heart failure is far advanced. Light is recognized even in advanced poisoning, the cat closing its eyes to protect them. The pupils are always strongly dilated and unaffected by light.

The hearing is unimpaired, the pet kitten attempting to respond to its name, notwithstanding the height of the physiological action.

Smell is likewise unimpaired, ammonia inhalation manifesting discomfort. Sensibility is unaffected.

#### GLANDULAR SYSTEM.

Very early in the effects of moderate or lethal doses; the salivary gland is excited and the mouth filled with saliva. The cog-wheel respiration twitching of the jaw and salivation, all appear at once, and of equal intensity, so that we cannot attribute ptyalism to the irritation of the moving jaw or the reverse.

The stomach after death contains considerable mucus even when the drug is administered subcutaneously. It partakes of a ropy nature and appears to be a mixture of saliva and gastric juice. The quantity of the former must necessarily be small, as the mouth is continuously open after the first ten minutes of action, thus rendering swallowing nearly impossible. Therefore I am inclined to believe that the gastric glands are specifically excited. The liver is slightly congested after death and the duodenum contains some bile. Possibly this may depend upon venous congestion, but from its action on man, to be hereafter detailed, I am led to seriously question it. In a case of chronic poisoning (in a cat), of three days' duration, I found this congestion far more intense than in acute poisoning.

When the drug is given for a few times, in large though not fatal doses, the intestinal secretions are somewhat augmented in quantity, but in lethal doses no apparent change takes place.

The kidneys are freely stimulated. By small and repeated doses the urine is increased in quantity. This is most readily demonstrated on man. The writer found that fifteen-drop doses, *t. i. d.*, increased the urine on the first day from the average of 1,000 cubic centimetres to 1,200 c. c.; on the second day to 1,250; on the fourth day to 1,350 c. c., where it remained stationary.

#### EFFECTS ON MAN.

I took 3j of fluid extract manaca on a full stomach. The taste was not unpleasant and soon left the mouth. Feeling no effect in twenty minutes I took ʒss. In ten minutes I felt very restless, much as the animals appear. It was impossible to sit contented and read or write. I felt like exercise, so I walked one mile and a half. Before I had completed the last half mile my legs felt heavy and tired, unusually so, and I was actually compelled to frequently stop and rest. On arriving home I laid upon a sofa, for perhaps thirty minutes, feeling a peculiar, tired sensation, not that of inordinate exercise, but more the sensation of laziness, as if it were an effort to move. In two hours from the last dose I felt perfectly well again. Towards night the saliva and urine were more than normally abundant and at night I perspired quite freely. On the next day the bowels moved as if from a laxative—semi-fluid and containing a large quantity of greenish matter, which I regarded as bile. The pulse and respiration were unaffected, the pupils, hearing, tactile sensation and reflex action perfectly normal.

*Resumé.* In the foregoing experimental inquiry we have ascertained:

- 1st. That there is no effect upon the brain.
- 2d. That the special senses are uninfluenced.
- 3d. That the spinal cord is the chief field of action wherein (a) the motor centres are stimulated, and (b) the reflex function is abolished in the full physiological effect.
- 4th. The cardiac reflex centre is depressed.
- 5th. The respiratory reflex centre is depressed.
- 6th. The glands are stimulated, especially the salivary, gastric, intestinal and cutaneous, the liver and the kidneys.

7th. The duration of action is about three and one-half hours.

8th. The infusion prepared from the ground root contains the virtues of the drug."

**Therapeutic Properties.**\*—"In its native country manaca has been extensively used as a diuretic, anti-syphilitic, purgative and emmenagogue, notwithstanding no specific indications for its use have been culled. The terms of its application given us are too general to be of large value, hence it became necessary for the practitioner to base his application on the physiological action and the meager published cases of its use. In our study of the physiological action of manaca† it was shown that the increase of the gastric juice was a constant action. With the stimulation of the mucous glands, the gastric follicles also share increased activity and augmented gastric power resulted. This action, if arrayed against disease would, seem potent in catarrhal states of the stomach. Probably the relief would not be rapidly furnished, especially to the disordered digestion, but by stimulating the mucous glands their tonicity would be enhanced and the perverted secretion transformed into normal qualities. As the membrane becomes improved the gastric follicles will share their action and the digestive capacity return to normal.

The gastric improvement being more intimately related to a healthy state of the mucous membrane than a direct gastric stimulation, little effect can be expected of this drug in simple dyspepsia.

In catarrh of the duodenum and upper part of the intestine, decisive results may be expected. When the catarrh involves the biliary duct and by obstructing the flow of bile produces intestinal fermentation or jaundice, manaca meets at every turn, the abnormalities. The mucous secretion is controlled and corrected, the liver stimulated into increased activity and the intestinal movement heightened. The action on the secretions is not unlike that of muriate of ammonia. By virtue of that occult property which is implied in the word alterative, the diseased intestinal glands are so changed that their elaborations soon partake of normal characteristics. Both manaca and muriate of ammonia are stimulants to the normal gland and produce catarrh if too long employed; likewise both correct catarrhal states, and probably do it by their stimulant and alterative properties.

In simple jaundice depending upon hepatic inactivity and associated with constipation, manaca may be of considerable service. The dose should be full and repeated at intervals of three or four hours. The portal congestion will be unloaded by the cathartic action, and the free flow of bile will favor the subsidence of the hepatic congestion.

Simple constipation may be relieved by full doses (3j-3jss of the fluid extract) but in this capacity its principal virtues are not utilized.

The diuretic properties suggest its use in such diseases of the kidneys in which the urine is scanty. Basing my opinion upon experimental inquiry, I believe that it is best adapted to chronic cases; either desquamative or interstitial nephritis. The diuretic action seems to depend upon special affinity, for there is no increase of the pulse or arterial tension or in fact any general condition to explain this action. The solution of the problem must be sought in the gland itself. The action is the same here as on all other glands: there is an affinity of manaca for them and probably the law of action on the other glands obtains here. There is local stimulation and alterative action.

Practically I have applied it to but a single case, a woman of about fifty years of age, who suffered from interstitial nephritis, which at the time of treatment had reached

\* E. P. Brewer, M. D., Norwich, Conn., in the *Therapeutic Gazette*, 1882, page 268

† See *Physiological Action of Manaca*, page 5.

the second stage, *i. e.*, contraction. The general condition was poor, the heart hypertrophied and with a mitral regurgitant murmur; the urine scanty, high colored and containing uric acid crystals. The bowels were obstinately constipated, never moving without the aid of a laxative. Various diuretics and laxatives were employed and seemed to act admirably for a time, but all quickly became inert and forced the admixing of new remedies. Having reviewed the standard diuretic and laxative remedies, I employed manaca tentatively, expecting little though desiring much. I ordered  $\pi_{xx}$  after meals, to be taken only slightly diluted, and further directed that the patient should abstain from the free drinking of water. This I appended to elicit the value of the active principle itself as a diuretic. In five days the urine was examined again. The quantity of urination had increased from three ounces to six ounces, and the patient declared the quantity of water in twenty-four hours had doubled. The uric acid crystals had disappeared; the feces were soft and the bowels moving every day. This treatment has now been continued six weeks, and the good effect still persists. Certainly this isolated case proves nothing, yet it at least serves as a crucial test of its diuretic powers.

To this time the chief application, practically, is confined to rheumatism—acute and chronic. In Brazil, where manaca is indigenous, it is extensively employed and enjoys the reputation of specific powers. In America, although a new remedy, there are reported a number of cases of its use and favorable action. Practically and theoretically this disease is the one elected to call into requisition the full compliment of the physiological action. If exhibited blindly and oblivious of the form and stage of the disease, a large measure of success will inevitably follow, for its range of power is broad and closely adapted to the rheumatic diathesis.

The term acute rheumatism is unmistakable, but that of chronic rheumatism is vague and prone to lead to error, for, it may imply rheumatoid arthritis, articular or muscular rheumatism. Ordinarily this distinction is clearly drawn and essential, that the latitude of the pathological changes may be known and the remedy selected. Unfortunately the reporters of manaca in rheumatism have ignored this distinction and have thus compelled us to be guided by the physiological properties in our selection of test cases. In order to apply manaca with some success I would be oblivious of the type of the disease, for the three types are enclosed in the circle of its action, but to reap the freest allowance of its merits, I regard the differential diagnosis of the highest importance.

In rheumatoid arthritis the diuretic, cathartic and hepatic stimulation eliminate the urates and prevent their deposition into the joints. In chronic articular rheumatism as an adjunct to the lithic elimination, the alterative action on the lymphatic glands is utilized and the products of inflammation are removed. In chronic muscular rheumatism the eliminative and alterative processes materially assist in effecting a cure, but if unaccompanied with other qualities, manaca would possess no distinctive properties nor furnish superior results to the host of remedies in use. Happily it has another action, and that directly upon the part diseased—the muscle itself. It stimulates the motor force, removes the stiffness, and *ennui*, regenerates the muscle by meeting and overpowering the advance of local debility. In the treatment of these three types of rheumatism varied action is required of the same drug. In the first elimination, in the second elimination and absorption, and in the third elimination, absorption and motor stimulation. The actions, though varied, are linked together to form the whole chain of the physiological symptoms; singly they represent a part of the grand whole. To utilize a whole or part of the physiological phenomena, we administer a full or small

dose. In rheumatoid arthritis, the least eligible type, large doses (3j) and frequently repeated (every four hours) are required until free catharsis and diuresis occur. Relief will soon be felt, but the effect will be transitory, and palliative rather than curative.

In chronic articular rheumatism, full doses should be given until the diuretic action is established, then small doses for a long period, the latter to excite and maintain the absorbent system. In chronic muscular rheumatism, small doses should be given from the onset. By so doing we shall favor elimination, absorption and motor stimulation. The last named action is only of value when produced by small doses. Physiological experiment has demonstrated two actions on the muscular system: first, motor excitation, and second, motor depression. The effects accord with the size of the dose: the small exciting and the large primarily exciting, and then depressing motor force. Hence for curative effect, we desire continued stimulation, the primary action. Three or three and one-half hours being the probable limit of action, one small dose may be wisely administered every third hour, and thereby we maintain the motor stimulation.

Excepting rheumatoid arthritis, the action of manaca is strictly curative, and even in that so far as the accumulation of urates is concerned, it is truly curative, yet it must be borne in mind that the articular deposits will not yield to this remedy, if, indeed, they will to any other. In articular and muscular rheumatism the drug action is curative; the source of the disease is sought after and removed; truly the only alleviating power possessed resides wholly in that quality to remove the cause by inculcating activity in the eliminative and absorbent systems. It contains no qualities whereby the disease may be suppressed, only to reappear with redoubled vigor. I repeat, the whole scope of its action is purely and simply curative.

In consequence of the decisive motor stimulation, its use to promote endurance is suggested; more properly, perhaps, this may be included in the general tonic action which follows its administration. In this it bears alliance with nux vomica, serving to immediately increase the tone of the system. There are many other features in which it resembles nux vomica. Both affect the motor centers of the spinal cord, nux vomica producing tonic muscular spasm, and manaca clonic spasm; both increase the gastric and intestinal juices and stimulate the hepatic secretions, manaca acting with greater force in the last three named capacities.

As a stomachic tonic manaca is not prompt in action, yet a perceptible and stable increase in strength and gastric tonicity is noticeable.

To the vital powers manaca lends no support, its tendency, especially in large doses, is to depress and destroy their functions. In small doses a different action follows, the heart and lungs are little affected, and by improving the appetite and assimilation, it indirectly supports them. A like influence is exerted on all the organs, as, for example, large doses of the fluid extract weaken the intestines and exhaust the glands, small doses strengthen and improve all structures; thus we may fairly declare the tonic effects are the sequences of small doses, and depression of full doses. Although, as stated, the recuperative virtues are not manifested early, the increased motor stimulation engenders a deceptive sense of strength, which by encouraging exercise may really aid recuperation.

The respiratory and cardiac depression consecutive to large doses may be of service in pyrexia of the sthenic type, and depending upon the presence of an excess of uric acid in the blood. But in this capacity I honestly believe that it ranks second to other drugs that act with greater rapidity and devoid of the secondary depresso-motor action.

The action on the lymphatic system in our practical inquiry gave little more than a prophesy of action, but practical application testifies to the decided action upon this system, if the drug be long continued. Throwing aside the imported repute in congestive lymphatic disease, we still possess unequivocal testimony of its value. The most emphatic of this, is found in the article of Dr. Bentley,\* who avers to have used it extensively in all diseases of the lymphatic system depending upon a congestive state. He has successfully treated secondary syphilis with this drug singly, and places perfect confidence upon its workings. He also reports success in the scrofulous diathesis.

That manaca is antidotal to the syphilitic virus we do not believe, but that it may meet the results of the action of the virus and conduct the case in a favorable path-way until the force of the diseased germ is spent, is a rational deduction from the physiological phenomena and a clear result of practice.

In the general grandular stimulation, the lymphatic circulation is invigorated, assimilation increased and the bodily condition improved; meantime elimination is active and the system is being renovated; the old tissue is broken down and replaced by new. In the process effete matter is being poured out of the system, the syphilitic tissue suffers by the change, and the disease runs its course with a more rapid pace. It is highly probable that the action in syphilis and rheumatism is one and the same in process of cure. Surely manaca can have no chemical action upon uric acid, no more than colchicum, neither has it chemical action upon the syphilitic virus. Energetic vital change furthers the result, elimination and absorption; retrogression and construction, these are the instruments and results. Is it not true that the more rapidly we die in particle and actively replace the waste, the more vigorously we live as a whole? We then resist disease, throw off constitutional taints and smother the germs of disease that lurk in our system awaiting auspicious environment for development. This is the action of manaca, it flushes the blood of deleterious particles and encourages the inlet of nourishment."

**Dosage.**\*—"Manaca is officinal in both Brazilian Dispensatories. They describe it as being a powerful anti-syphilitic, purgative, diuretic and emmenagogue, the dose being given at eight to twenty grains of the powdered root. In the province of Amazonas, no remedy is more extensively used than manaca; in the damp, shady forests, rheumatism, principally in the chronic form, is a very common disease, and manaca is regarded by all classes as the remedy. Two doses generally suffice to control even severe attacks. A decoction is made of a small piece of the root, of which one-half is taken in the afternoon, and the other at bedtime. After the second dose the patient complains of severe pains about the head and along the spine, which, after a few hours, end in profuse perspiration and sleep. In the morning the rheumatism has disappeared, and the patient is happy, till another attack calls for more manaca.

An American lady, at Santarem, informed me that she once commenced taking the manaca in comparatively small doses, but that it produced such an intense headache, that she became frightened and discontinued the remedy, when the headache soon disappeared. She described the sensation in her head as if a band had been tied so tightly around it as to produce pressure on the brain itself. In the province of Maranao, manaca is the principal agent used in the treatment of secondary syphilis, generally combined with the leaves of *bignonia Braziliانا* (Lamk), called by the natives caroba, another agent, which appears worthy of attention.

\*See page 25, cases 35 and 36.

\*C. W. Hansen, M.D., Jamaica, in *New Preparations*, 1879, p. 248.

Although having had no opportunity of trying the manaca myself as yet, I conclude from the information received from medical men and others during my residence in Brazil, that it is a powerful catalytic, with a circumscribed specific action on some morbid materials in the blood. The Brazilians in calling it *mercurio vegetal*, would seem to have accorded to it the same properties as mercury, and they are probably not far from being correct. If so, the danger attending the use of mercury would render it valuable as a substitute. Necessarily the physiological and therapeutical action of catalytics differ materially, and the only way to ascertain their value is at the bedside. It is in the various chronic forms of rheumatism that manaca becomes almost a specific in Brazil, and I consider it worthy of a fair trial in this disease. The small dose would probably be the best form of administration, five drops of a fluid extract three times daily. I append an extract from *Dic de Bot. Brasileira*.

This whole plant, but especially the root, excites powerfully the lymphatic system, eliminating morbid matter by the skin and kidneys. It is anti-syphilitic, the interior bark is nauseating and stimulates the throat. In small doses it is resolvent; in larger purgative, diuretic and emmenagogue. In large doses it is an acrid poison."

## THERAPEUTIC PROPERTIES.

### Reports From Private Practice.

**Manaca in Rheumatism.**—CASE I.\*—On January 21, 1881, I was called to see in consultation with Dr. Nathan Perry, Mr. T., æt. 34 years, who had been confined to his bed some two weeks with a violent attack of acute articular rheumatism, involving the arms, hands, knees and feet, with severe pains at times in the chest and shoulders, to such an extent that he was unable to move hand or foot; indeed he could not help himself in any way. Dr. Perry had given him all the usual remedies for this painful and obstinate disease before I saw him, including calomel, quinine, iodide of potassium, salicylic acid, etc., etc., without any relief, except that obtained by large and repeated doses of morphia. Mustard plasters to the chest, and liniment to the joints, had also been freely employed without relief. Not having the manaca with me we agreed to continue the quinine and morphine until next day, when I was to return and place him on that remedy.

Jan. 22d, 11 o'clock A. M. Found Mr. T. suffering intensely, very restless, wanting to change position in bed every few minutes; had passed a bad night, sleeping but little and that disturbed by frightful dreams. Bowels had moved well during the night, the effect of an enema that I had directed to be given at bedtime; the face was covered with profuse perspiration and this at times extending to the entire body. Pulse 110, temperature 101°, respiration 26.

Neither Dr. Perry nor myself had ever used manaca before, and we therefore commenced with a minimum dose—that is, five drops every four hours—and continued the quinine.

23d, 5 o'clock P. M. Patient is better in every respect; slept pretty well last night; pulse 100; temperature 99°; respiration 20; less pain in joints, and less trouble with the chest symptoms; can move the upper extremities very well. I remained all night, and increased the manaca doses to eight drops every four hours, except when the patient was asleep.

\*James H. Wilkes, Columbia, Tenn., in the *Therapeutic Gazette*, 1882, p. 129

- 24th, 6 A. M. Patient sleeping well. Ordered manaca continued, also quinine.  
 25th. Found my patient sitting up by the fire, and able to get out of bed without help.  
 26th. I did not see him, but Dr Perry reported that he had walked out in the yard.  
 27th. Rode  $2\frac{3}{4}$  miles on horseback after his mail, and from this time on had no more pain.

So rapid was the change in this case for the better that we doubted the effects of the manaca, and ascribed the improvement to the quinine and other remedies. Nor did either of us notice marked effect on the secretions. If the pain in the head that it is said to produce, occurred in this case, it was not complained of, neither was there any nausea. From the time we began the use of the manaca, the kidneys and bowels both acted freely, but not too much so. The skin was acting freely before we began it, and continued to do so as long as he continued to use the medicine.

CASE 2.\*—During the treatment of the above case, I had under my own care a young lady suffering from acute rheumatism, who had been confined to her bed about five weeks. I had mentioned manaca to her as a new remedy, but confessed to her that I had never used it. She was afraid to be the first to try, and refused to take it. After the case of Mr. T., above reported, I determined to try it without letting her know that I was doing so. Began the manaca in five-drop doses three times a day; withdrew all other medicines, and continued this alone, increasing after the first day one drop each dose, until she had reached ten drops three times a day. From my notes I find that the third day after commencing the manaca she sat up in bed, for the first time in five weeks, and on the following day walked around the room, all pain in the joints and muscles having subsided.

In this case she was for several weeks unable to walk much, from the fact that the tendons under the knee had become contracted to such an extent as to render her unable to use them at all. However, she suffered no more pain from the rheumatism for several months, and then but slightly. There was none of the characteristic effects of manaca produced on this patient, except in one instance, when she took the first ten-drop dose; she had just eaten her supper, and for a few minutes was very sick, and I believe vomited once. I was sent for and although I had only to cross the street, it had all passed away before I reached her room. I ascribed this more to over-eating than manaca, but did not increase the latter any farther.

CASE 3.\*—Miss S., young lady, æt. 20 years, has been the subject of attacks of acute articular rheumatism since she was a child. I had treated her myself, through two attacks, each lasting about six weeks. In March, 1881, she was again taken, the attack coming on slowly, in the joints of the fingers and toes at first, then extending to the wrist, elbows and shoulders, also knees and ankles. She had been suffering for about two weeks when I was called in and I found her unable to move in bed, or to lie down, the heart or its membranes having become involved. She had taken a dose of calomel before I was sent for and was then taking quinine and painting the joints with tincture iodine twice a day. I at once stopped everything except the iodine to the joints, and gave her ten drop doses of fluid extract manaca every six hours.

In three days from the time she commenced the medicine she was up walking about, making the most rapid recovery she had ever made in her life. The heart symptoms in this case, however, continued in a modified form for some six or eight weeks, and was finally relieved by the following:

℞ Fluid ext. cimicifuga, ℥j  
 Tr. can. Indica, ℥j  
 Iodide potassium, ℥jss.  
 Water, q. s. to dissolve potash.

M. Sig. Forty drops three times a day after meals.

CASE 4.\*—Mr. Cullen, a farmer and dairyman. Has had muscular rheumatism for 20 years, never confined to bed but suffering with "migrating pains" nearly all the time; has taken all kinds of medicines with no relief. Gave him fluid extract manaca 25 drops three times a day; was relieved by the first dose. Medicine produced a little headache the first day and a little nausea, but after that had no effect that he could notice except to ease any pains that he might be suffering with. Says it has done him more good than all the remedies he ever took.

\* Ibid.

CASE 5.\*—Mrs. D., aged about 30. Very delicate and subject to uterine troubles. Has rheumatism of feet and legs to knees. Gave her fluid extract manaca in doses of 25 drops three times a day. She complained of some pains in the head after taking it, and some nausea. Reduced the dose to 20 drops. Same symptoms occurred; then to 10, and finally to five, but still it was followed by nausea and headache. Notwithstanding this she consumed an ounce of the manaca, but with no benefit that she could discover.

CASE 6.†—April 7, 1882. Miss H., æt. 24; according to lady's statement, she had been afflicted with rheumatism for two years, a part of which time she had been under the care of physicians in this city and elsewhere. On the above date she was suffering from pain in both lower extremities, which at night became intense. Although not exclusively confined to her room, she was never entirely free from pain, her sufferings being much greater when the atmosphere was damp and there was an approaching storm. I prescribed:

℞ Fl. ext. manaca, ʒvi.  
Aquam aurant. flor., q. s., ad ʒij. M.

With instructions that one teaspoonful should be taken three times a day unless she should feel a constriction or band-like feeling around her head; if these were present, drop the noon dose. On the evening of the 10th, as there seemed to be no change in the patient, I directed four doses per day, and as a result, during the two succeeding days there seemed to be present a relaxed condition and restlessness, but the pain was not so great; on the 16th there was a marked improvement and the manaca was reduced to two teaspoonfuls per day. May 30th my patient said to me, "I am free from pain, and feel better than I have for two years."

CASE 7.‡—May 24, 1882. I visited Mrs. R.; ascertained that she had been ill-disposed for ten days and confined to her bed for four days, unable to move her lower extremities without giving vent to exclamations of pain. Previous to this time this lady had been treated for rheumatism, and her sickness might easily have been mistaken for an acute attack. I gave fluid extract manaca in ten-drop doses every two hours unless head symptoms presented, then extend to four hours. The manaca was taken every two hours until the evening of the 25th, when there was a slight improvement, and although not entirely recovered, I made my last call on the 26th, and in ten days the patient came to my office, at which time I prescribed elixir of gentian and iron and tr. nucis vomicæ as a tonic.

CASE 8.†—July 22, 1882. Mr. H., mail-messenger, æt. 21; had taken cold while bathing in the river, and an attack of articular rheumatism confined him to his bed ten days before I was called to see him. Both wrists and ankles were much swollen and painful, the right hand being double its normal size and entirely helpless. In this instance I used salicylate of soda and manaca with but little success, afterwards prescribing:

℞ Potassii iodidi.  
Fl. ext. manaca, ʒiiv  
Simp. syr., ʒijss.

M. Sig.—One teaspoonful every three hours.

My former prescription containing the manaca, I, of course, observed its constitutional effects before that of the potassa. When the desired symptoms presented I lessened the dose for a short time then again gave the full dose. I also had the eruption from the potassium, which was evidence to me that it was now proper to give two doses of this mixture per day. The patient slowly improved under this treatment and left his room on the 30th, but was not able to use his hand for some time afterwards. Counter-irritants were used on the swollen hand early in the treatment, producing but little effect.

CASE 9.†—September 15, 1882. John C., moulder by occupation, called at my office on the above date. While at his work became very warm, perspiring freely, on account of being exposed to the intense heat of the furnace. While in this condition he was accustomed to go out in the air to cool off, as he termed it. His attack of rheumatism was probably due to this indiscreet procedure. The first noticeable incon-

\* Ibid.

† S. E. Earp, M. D., Indianapolis Ind., in *Therapeutic Gazette*, 1882, p. 450.

venience was in the left ankle, then in the right ankle, and afterwards in both wrists. The patient had been in this condition for nearly a month before I saw him, during a part of which time he had been under the care of a reputable physician of this city. From the appearance of his tongue and the description of his symptoms I believed him to be threatened with an attack of malarial fever. Accordingly I prescribed twenty grains of sulphate of quinia upon retiring; also five grains of hydrarg. chlor. mite. with fifteen grains of soda bicarb. The quinia was continued for three nights afterwards in ten-grain doses. On the second day, for his rheumatic trouble, I prescribed fluid extract manaca in 20-drop doses each three hours. On the morning of the 18th, upon visiting him I saw that he was entirely under the influence of the manaca, and although suffering no pain he said that he felt very sick. I knew that this was due to the effect of the manaca and accordingly reduced the dose to 10 drops three times a day. On the 26th his condition was much improved and the trouble seemed to center in the left ankle. I continued the manaca and in addition applied electricity, using the Harris battery. Although previous to this time convalescence had been slow, now there was a marked improvement. The patient visited me last on the 30th, and is now following his former avocation. It will be readily seen that in this instance there was a malarious condition to contend with, which retarded his convalescence.

CASE 10.\*—As a remedy for rheumatism this drug has proven specially efficacious in my hands, but more notably in a case of inflammatory rheumatism. Mrs. —, æt. 35, had been bed-ridden for three months, with inflammatory rheumatism. All the various remedies, such as guaiacum, salicylic acid, potassium bromide, hypodermic injections of morphia, etc., had been used, previous to my being called in, without success.

I immediately resorted to the manaca as in the following prescription:

℞ Fluid ext. manaca, gtt. 40.  
Syrup, simp., q. s. ft. ʒj.

M. ft. mistura.

Sig. Teaspoonful every three hours until the peculiar effects of the drug are produced.

These peculiar effects are a sense of tightness and fullness about the head with a profuse perspiration.

The first prescription produced none of the special symptoms so I renewed the medicine, doubling the dose of manaca thus:

℞ Fluid ext. manaca, gtt. 80  
Syrup. simp., q. s. ft. ʒj.

M. ft. mistura.

Sig. Teaspoonful every three hours until the peculiar effects of the drug are produced.

This prescription sufficed, the special symptoms of the drug were produced and the patient recovered within a week.

The manaca, after the special symptoms had been produced, was continued in ten-drop doses three times a day for a week.

It seemed as if all symptoms of rheumatism disappeared directly after the peculiar effects of the drug manifested themselves by head symptoms, etc., and recovery was almost immediate, but for reasons of safety I continued to administer it in ten-drop doses three times a day, for a week, after which time all symptoms of her peculiar disease had disappeared.

I have always found in administering this drug, that it was necessary to have its peculiar effects as exhibited by head symptoms, etc., show before any accurate result was experienced.

CASE 11.†—Mrs. S., æt. 30. Has been suffering with inflammatory rheumatism for some weeks. Salicylate of soda, colchicum, cimicifuga, iodide of potassium and other remedies failed to afford much relief. Prescribed fluid extract manaca in five-drop doses every three hours. This did not have the desired effect. Increased the dose to 10 drops, four times daily. This seemed to "do the business," as she rapidly convalesced and was about her household duties in about a week's time.

\*W. J. Pepper, M. S., Connorsville, Ind., in the Therapeutic Gazette, p. 335.  
†L. B. Firth, M. D., Brooklyn, N. Y., in the Therapeutic Gazette, 1883, p. 105.

CASE 12.\*—A. E., æt. 34, was attacked with inflammatory rheumatism on December 10th, 1880. He was under treatment for about two months, and though the inflammatory symptoms had subsided, the knees and ankles remained swollen and exceedingly painful, and he could only move about with great difficulty by the aid of two crutches. At this stage he consulted me, and learning that he had at various times taken nearly all our usual remedies for such cases, I determined to try manaca. I prescribed Parke, Davis & Co.'s fluid extract of the drug, in ten-drop doses, four times a day, for two days, without any apparent change. I then increased the dose to twenty drops, and ordered it to be increased to thirty drops after two days more. At the end of the first week the pain and swelling were both much relieved, and after continuing the treatment for two weeks the patient walked into my office without crutch or cane, and declared himself entirely well. He has had no return of the disease since.

CASE 13.\*—J. G., æt. 43, had been exposed in a rain storm last March, while suffering with an acute gonorrhœa. The result was a severe attack of gonorrhœal rheumatism which resisted all treatment for two weeks. I then prescribed the manaca in twenty-drop doses, and in ten days afterward the rheumatic symptoms had entirely disappeared.

CASE 14.\*—W. R., æt. 52, had been a constant sufferer from rheumatism every winter for ten years. He suffered through the winter of 1880-81 without taking medicine, as he had arrived at the conclusion that his case was incurable. After my success in the cases reported above, I persuaded him to try the new remedy. He said he would take the medicine, but he was sure there would be no relief for him before the middle or end of May. On the 29th day of March he commenced with twenty drops of the manaca, four times a day, and at the end of the third day the pain was entirely gone. At the end of the week he could walk with perfect ease, and as there was no recurrence of the pain, he acknowledged that the medicine had cured him. He has had no trouble since, but he keeps the manaca on hand, to take in case his old enemy should appear again in the coming fall and winter.

CASE 15.†—My first experience with manaca was in the case of an old frontiersman, who, as an old rheumatic, had been exposed, as a ranger, to the rigors of mountain camp-life during the winter. When he consulted me he frankly told me he had lost confidence in medicines, as he had tried them all without benefit. Having noticed numerous favorable reports on the action of manaca I persuaded him to give the drug a fair trial. He was then barely able to walk and every joint in his body was sore and stiff, and painful upon the least motion, and his nights were sleepless and painful. I prescribed for him fluid extract (P. D. & Co.'s) in eight-drop doses three times daily, comfortable quarters and an antiphlogistic regimen. In a few days he experienced much relief. After taking the remedy about two weeks the soreness and stiffness in his joints were relieved and he walked about freely without pain, save early in the morning when he complained of some stiffness. He continued taking the prescription for about one month, steadily improving till he was cured and resumed his occupation. He has not been troubled since. I have, since this experience, never written a prescription for rheumatism into which manaca has not entered as the base, and results have justified this treatment.

CASE 16.‡—August 3d, 1882, I was called to see Alonzo Steele, æt. 36. Three years previous he had had swelling of joints, etc. He now presented a clear case of rheumatism. As he had stated that he had taken all the usual remedies for this affection, I determined to give manaca a trial. When he commenced the drug the joints of both hands and feet were swollen and so tender that he was almost helpless. I ordered him to take five minims every three hours, and increase one drop in each dose daily, until the physiological effect was produced. After he had continued in this manner for some time, not having produced any of the peculiar effects of the drug, I gave him drachm doses three times a day. After the second day marked improvement set in, and continued to convalescence. He has not had any severe attack since, and his general health is also very much improved. He felt some pain and slight swelling in left hand once since, but he immediately commenced the medicine again, and this disappeared. I have never noticed the tightness about the head from the use of the drug often reported.

\* Robert A. Gunn, M. D., in Medical Tribune, September, 1881.

† T. D. Moore, M. D., Victoria, Texas, in the Therapeutic Gazette, 1883, p. 500.

‡ O. H. Law, M. D., of Ortonville, Mich., in the Therapeutic Gazette, 1883, p. 11.

CASE 17.\* Was called to case at 6 p. m. February 20. Two years ago patient had a two months' siege with the same ailment. Has a decided rheumatic diathesis. Found him suffering from a combination of sciatic and muscular rheumatism. Ordered two glasses of hot lemonade and half a drachm of jaborandi at bedtime, a saline cathartic, and ten drops of fluid extract manaca, four times at night, and every two hours the next day. Patient's bowels moved during the night. He arose from bed and became chilled. Perspiration had been free from the time he took the lemonade and jaborandi till this time. Called the next forenoon, and he thought he didn't feel as well. It was clear that the chill he received when his bowels moved, had something to do with it. Ordered same treatment continued. The next morning he expressed himself as decidedly improved. I doubt not, had he remained in bed during the first night, he would have improved the second day. As it was a decided improvement showed itself in the thirty-six hours.

CASE 18.† A middle-aged man, who had been suffering for some time with articular rheumatism. He had resorted to other remedies and received no benefit from them. Was called to him and gave him the manaca, without any other medicine, in the usual doses. Did not see him again for several days. On my seeing him again, he said that my medicine had "done the business," leaving him cured, without a remnant of that disease remaining, he said the relief soon came on after using the remedy.

CASE 19.† A young lady was attacked with articular rheumatism; the shoulders, elbow and knee joint were principally affected with pain; swelling, with slight fever of the subacute variety. I gave her a small bottle of manaca, with the regular dose, and gave her no other medicine. I saw her again in about ten days after. She said that medicine had cured her entirely, and has had no return of the disease; expressed herself as highly pleased with the remedy.

CASE 20.§ Some months since, I procured a sample of fluid extract manaca for the purpose of testing its value in my practice. I immediately administered it in three cases of chronic rheumatism then under my charge. In each of them I had the pleasure of finding that in 24 hours, or less, its effects were noticeable in the almost entire relief from pain. I have since used it in eight cases of rheumatism some chronic and others acute, and in no case has it entirely disappointed me, while in most the relief has been steady, constant and satisfactory. I consider it a valuable addition to our therapeutic agents for the relief of this troublesome affection.

CASE 21.† The case is a lady who is habitually subject to attacks of articular rheumatism. The foot and knee were badly swollen and extremely painful, the case having progressed three days before I was called. I commenced with 5-drop doses, and increased the dose to 20 drops three times a day. At the end of the first 24 hours there was a marked change for the better, and in three days the patient was around the house superintending her work. At no time previous had she been able to get about under 6 and 8 weeks.

CASE 22.\*\* My first experience with this drug was two years ago, in the case of Mrs. D., a young married lady of marked rheumatic diathesis who had been afflicted for several weeks when she came under my care with an extremely severe attack of acute articular rheumatism. She had been treated during the early weeks by quite a distinguished homœopath, and subsequently by a member of the regular profession, without any avail. Before taking charge of the case, I had received a sample of manaca, so I concluded this case a good one to test its virtues. I did so, and with the happiest results, for the pain and swelling disappeared almost as if by magic and the patient made a rapid and good recovery, and several of the relatives of like diathesis now keep manaca in the house to use upon any indication of an attack, and apparently with perfect success. I have prescribed it in numerous other instances always with satisfactory results, so that I now regard it as a sort of "sheet anchor" in acute and subacute rheumatism.

CASE 23.†† On the 26th day of August I was called to see Mrs. A. I found her

\* F. W. Putnam, M. D., Binghampton, N. Y., in *Therapeutic Gazette*, 1883, p. 101.

† F. Foster, M. D., Sandy Hill, N. Y.; *Therapeutic Gazette*, 1883, p. 284.

§ S. L. Kilmer, M. D., South Bend, Indiana, in the *Therapeutic Gazette*, 1880, p. 262.

‡ D. Winship, M. D., Marshalltown, Iowa, in the *Therapeutic Gazette*, 1880, p. 43.

\*\* H. M. Harrison, M. D., Bushnell, Ill., in the *Therapeutic Gazette*, 1881, p. 160.

†† J. H. Taylor, M. D., Lapeer, Mich., in the *Therapeutic Gazette*, 1880, p. 291.

confined to her bed suffering a great deal of pain in her joints, which was aggravated on the least motion, making it almost impossible for her to turn in the bed. The joints were swollen and very stiff, although there was little or no fever. I learned that she had been suffering from rheumatism for about four months, it commencing in the acute form. She had been treated by a homœopath for about four months and by a regular physician for the last three months. She had taken all the usual rheumatic remedies, including salicylic acid, quite thoroughly. I placed her on the manaca, fluid extract, five drops four times a day, gradually increasing the dose up to fifteen drops four times a day. Improvement was rapid from the first. I called on the 2d of September and found her up and able to move around the house. Since that time she has continued to improve and has visited my office twice a week, and is feeling quite well most of the time, except she suffers some pain occasionally.

CASE 24.\*—Some time since a sample of fluid extract of manaca was left with me, which I have used in two cases of rheumatism with more satisfaction than any drug I have ever exhibited in that disease. To one case, that of a man some 60 years of age, with a severe type of chronic muscular rheumatism, I gave manaca in eight-drop doses, four times a day, with no other remedy except warmth to the limbs, increasing my remedy three or four drops per day. Improvement began in twelve hours after beginning the remedy, and he improved finely for a few days, when my patient took a notion that he would get along without any more medicine. He found, however, that when he stopped his remedy improvement stopped. I induced him to begin the use of his remedy again. This was followed in the course of a few hours by an amelioration of all the symptoms. After this I used the drug for two days and stopped it for one, when I found that the disease kept pace with the remedy—that when I kept my patient under its influence, improvement was steady and marked, but when it was withdrawn, the disease was at a stand-still.

CASE 25.† This case was of several months' standing and had resisted the usual treatment. I placed it on manaca and was gratified to notice a very prompt and marked relief. The improvement was such as to encourage the hope of a cure, but unfortunately an inter-current disease set in, to which the patient succumbed.

CASE 26.‡ One of very acute and severe rheumatic arthritis, attended with the high degree of pyrexia and other distressing symptoms usual in this disease. I placed him on five-drop doses of the fluid extract of manaca, which on the second day were increased to eight drops. This quantity was tolerated and there was no disturbance in the functions of any of the organs nor any irritation of the stomach or bowels. The patient complained of only a slight headache and there was none of that severe pain and sensation of crushing of the brain which is said to be one of the effects of too large doses of the drug. Under this treatment the pain and swelling subsided rapidly and steadily, and motion soon became bearable. I found no necessity for the administration of the usual remedies for the reduction of the high fever. The defervescence was gradual and satisfactory without their aid, and the patient went on to convalescence.

CASE 27.§—In the month of August 1880, I was called to visit an elderly lady who had had a severe attack of dysentery. I found her confined to her chamber where she had been for about three months, with inflammatory rheumatism, the disease having passed into the chronic form. Her fingers and some of her joints were considerably swollen and quite stiff and painful she being unable to dress or undress herself. After recovering from the dysentery she requested me to try and relieve her rheumatism. Here was an opportunity to try the effects of manaca, and some days after I called and left her some of the fluid extract of the drug of P. D. & Co's preparation directing her to take twenty drops every three hours until she felt some effects of the medicine in her head, and then to stop taking. I called the next day in the evening to see what effect if any, the medicine had had. Imagine my surprise on being met by the patient at the door down stairs. Her first salute was, "Well, doctor, your medicine has done the business." She had taken the medicine as directed until the fourth dose, when she experienced "a strange feeling of tightness about my head." She then stopped taking it, slept quite well all night and had no pain. She awoke complaining of being weak and stiff and had, as usual, to be dressed and helped out of bed. The bowels shortly

\* Dr. L. A. Vawter, Greenfield, Ind., in the *Therapeutic Gazette*, 1881, p. 91.

† C. H. Lent, M. D., Ellenville, N. Y., in the *Therapeutic Gazette*, 1880, p. 260.

‡ J. Carpenter, M. D., Martinsburg, West Va., in the *Therapeutic Gazette*, 1881, p. 409.

afterwards moved quite freely, and after the first operation she felt much better. She had had three motions at the time of my visit, after which she felt additional improvement. The swelling had subsided, she had no more pain, and was, in fact, entirely relieved from all her sufferings.

Inasmuch as relief in this case seemed to be so intimately associated with the catharsis, the idea occurs to me that it might be advisable to give some purgative medicine along with the manaca, or to follow with some purgative.

Knowing the lady to be very careless about her health, I advised her to keep the balance of the drops, and use if the disease should return. She did so, but fortunately had no occasion to use them afterwards. In this case the medicine certainly "acted like a charm."

Case 28.\*—A man *æt.* 35, who had been loading cars with wheat in sacks for a number of weeks, was taken with rheumatism of a subacute character, had tried many things without relief. Put him upon the following: *fld. ext. manaca*,  $\frac{3}{j}$ ; *syr. simp.*  $\frac{3}{j}$ ; *aqua. dest.*  $\frac{3}{ij}$ . *M. Sig.*—teaspoonful four times daily, until it acts upon the bowels, then two or three times daily. It stopped the pain in 24 hours. He could take the dose four times daily, and it only kept the bowels a little soft, but did not physic. In four days from the time he began the treatment he resumed his labors as usual; continued the medicine until taken up, took no more and remains well.

Case 29.\*—Mrs. A. had rheumatism of left knee and ankle joints, which had existed about four weeks; had taken everything recommended for it with little benefit.  $\mathbb{R}$  *fld. ext. manaca*  $\frac{3}{ss}$ . *Sig.* take 10 drops four times daily. In three days pain gone, but considerable soreness remains; continued treatment three weeks and was well. She resumed her household duties on the 8th day.

Case 30.\*—Mrs. K., rheumatism of hand and shoulder, had existed six months.  $\mathbb{R}$  *fld. ext. manaca*,  $\frac{3}{j}$ . *Sig. gtt.* x, four times daily; was relieved at once and cured in six weeks.

Case 31.\*—Harry M., Oct. 10th, rheumatism in both feet, existed for a year.  $\mathbb{R}$  *fld. ext. manaca*;  $\frac{3}{j}$ . *Sig. gttss.* xv, four times daily. In two weeks pain all gone; made a good recovery in ten weeks. Several others here have, and are using the manaca with equally good results.

Case 32.†—The 12th day of May, 1881, I received a letter from Mrs. I. E. G., of Pennsylvania, saying that her sister, *æt.* 27, had a very severe attack of inflammatory rheumatism, with swelling of the joints; that her physicians were of the opinion that she would become bed-ridden; and "that knowing I had for many years been her father's family physician, she wished me to send a prescription for her sister." Knowing from experience that some of this young lady's ancestors had suffered from the gout, my first prescription was:

$\mathbb{R}$  Potassi iodidi,  $\frac{3}{ij}$ .  
Vini colchici seminis,  $\frac{3}{ss}$ .  
Aque puræ,  $\frac{3}{vj}$ .

*M. S.* Teaspoonful t. i. d. In connection with this to take five drops of fluid extract manaca (P., D. & Co.'s) t. i. d., gradually increased to eight drops t. i. d.

In a much shorter time than I had hoped for, she reported herself cured, and she gave all the credit of the cure to the manaca.

Case 33.‡—J. McK., *æt.* 26. Has been suffering with muscular rheumatism for some time. Prescribed the following:

$\mathbb{R}$  Fl. ext. manacæ (P., D. & Co.),  $\frac{3}{ijss}$ .  
Fl. ext. cimicifugæ (Squibb's), *gtt.* xxxij.  
tassii iodidi,  $\frac{3}{ij}$ ,  $\frac{3}{ij}$ .  
Syr. simplicis, q. s. ad.  $\frac{3}{jv}$ .

*M. Sig.* A teaspoonful every three hours.

Reported in four days as being somewhat better. To test the efficacy of the fluid extract manaca, gave it alone, 10 drops, three times daily. Reported in 12 days, and discharged cured.

\* J. H. Bundy, M. D., in California Medical Journal, 1881.

† Alban S. Payne, M. D., Late Professor of the Theory and Practice of Medicine in the Southern Medical College, Atlanta, Georgia; member American Medical Association; Hon. Fellow Virginia State Medical Society, etc. Therapeutic Gazette, 1883, p. 59.

‡ I. B. Firth, M. D., Brooklyn, N. Y., in the Therapeutic Gazette, 1883, p. 105.

**Manaca in Subacute Spinal Meningitis.**—CASE 34.\*—I wish to speak of one new remedy particularly—manaca. This drug has had an astonishingly curative influence in a case of subacute spinal meningitis, sporadic, and accompanied with a strumous cachexia. The patient was unable to rest or sleep; could not bend the body (spine) without pain; great tenderness over several of the cervical and dorsal vertebræ. Of the latter there was evidence that the bones were inflamed and perhaps carious (incipient).

I gave the patient five drops of the manaca every four hours. Three days afterward I saw her. She met me at the door with a smile and then stepped across the room with seemingly little restraint from the soreness and pain. She said that soon after I left, she laid down and slept three hours. She was astonished when she awoke to find the soreness so much alleviated. She thought I must have "given her something to make her sleep." The paroxysms of pain in her head and limbs, the jerking, cramping or spasms in the muscles of the right arm and right leg, or more particularly in the forearm and near the insertion of the deltoid in the arm and in the muscles of the thigh and gastrocnemius of the leg had all vanished. The rigidity of the muscles holding the body painfully erect excepting to hold body bent to the right, was relaxed. The body can now be bent and even inclined to the left, notwithstanding the swelling, tenderness, etc., indicative of perinephritic inflammation of the left side.

**Manaca in Scrofulous and Syphilitic Complaints.**—CASE 35†.—Miss B., æt. 20 years, was seduced in May 1877 and infected with syphilis. August 22d, 1878, I first saw the patient, and prescribed for her with perceptible and almost immediate benefit to her, but I was unable to consummate a cure. Between the date mentioned and the close of 1879, she was under constant treatment, taking among other drugs, iodide of potassium, fluid extract stillingia comp., fluid extract berberis aquifolium, etc. January 7th, 1880, I gave her a pound of the fluid extract manaca, with directions to take a teaspoonful three times a day before meals. When the medicine was about half gone she appeared well. I directed an increase of 50 per cent. in the size of the dose and since all has been used there has been no recurrence of her symptoms.

CASE 36†—Another case in which I have given manaca a thorough and satisfactory trial was that of Willie C., a lad of 15 years. He was born with scrofula and his mother suffered with it during most of the pregnancy which resulted in his birth. Hers, like his, was in the form known as "King's evil." Under the immediate supervision of the attending accoucheur, the case appeared to be cured for three or four years.

When the boy was nearly two years old, he had a severe attack of "cramp-colic" which came nearly being fatal. This was followed by an exhausting diarrhœa in the chronic form, baffling the skill of two very good physicians, and resulting in epilepsy. This continued for some six months, when he came under my care. I soon succeeded in arresting both the epilepsy and diarrhœa, and he appeared well for two years, and then his scrofula reappeared. This was treated and apparently cured by another physician, as he was not then living near me. He then seemed well and grew rapidly until he was about eleven years of age, when he had a severe and prolonged attack of acute rheumatism. When this subsided scrofula and epilepsy again made their appearance. A year later he again came under my professional care. I treated his case in a variety of ways, using various drugs—electricity, medicated baths, etc.—all seemingly without benefit except to his scrofula.

Jan. 3d, 1880, I prescribed fluid extract manaca for him and his father procured him a pound. He took it in teaspoonful doses, four times daily, viz., before meals, and at bedtime. He had not used it for more than ten days when its beneficial effects were quite perceptible. There was a very pronounced amelioration in all his symptoms. His skin, which, before taking the manaca, had a dusky hue, began to clear up and assume the appearance of health, his bloated condition gave way, and his flesh became firm, his convulsions became lighter and less frequent, and the swelling and œdema of his joints, which had been a prominent feature in his case, rapidly disappeared.

By the time he had used the first bottle his convulsions had completely ceased, and he appeared entirely well. Fearing a recurrence of some of his old troubles, I had him continue in the use of the same drug in gradually increasing doses until he had

\*N. D. Gaddy, Lovett, Indiana, in the Therapeutic Gazette, 1880, p. 194.

†W. H. Bentley, M. D., LL. D., of Valley Oak, Ky., in Therapeutic Gazette, 1881, p. 47.

taken in all three pounds. I visited him a few days since and found him apparently as well and as able to do farm work as any boy of his age.

In this case I think the epilepsy depended upon the scrofulous and rheumatic condition, and that manaca, through its eutrophic properties, removed the causes and thus the epilepsy ceased. I have prescribed manaca with equally gratifying results in several other cases, but as none of the other patients have been well so long as the two above mentioned, I think it best to await results.

We want absolute truth in medicine, and should never report cases until we are sure of the results of our practice. I have prescribed manaca frequently within twelve months, and from my experience with it in scrofula, syphilis and chronic rheumatism, I consider it one of the most powerful alteratives in our materia medica.

## REPORTS FROM HOSPITAL PRACTICE.

CASE 37.\*—Mary Murphy, æt. 40, Irish, single, a domestic; admitted January 23, 1883. Patient has had chronic rheumatism off and on ever since she had rheumatism first, nine years ago. At the present moment the first and second metacarpo-phalangeal articulations of the left hand are tender and swollen, as are all the metatarso-phalangeal joints of the foot. Says she suffers much from cough, etc., but examination reveals nothing but chronic bronchitis.

℞ Fl. ext. manaca, gtt. xx., t. d.

Jan. 24. Knees also are beginning to become affected. No fever.

Jan. 27. Knees much better. Less pain.

℞ Manaca, gtt. xl., t. d.

Jan. 29. Marked improvement in all her joints.

Feb. 3. Rheumatism fast disappearing.

℞ Manaca, ʒj. t. d.

Feb. 7 Improving.

℞ Manaca, ʒij., t. d.

Feb. 14. Slight stiffness of legs only is left. Ordered passive motion and massage.

Feb. 24. She can move all her joints perfectly freely; no pain and but very slight disability. She was then taken off manaca and put on ʒss. doses of tinct. ferri chloridi.

CASE 38.\*—Christiana Schlund, æt. 57, German, widow, washerwoman; admitted March 16, 1883. Patient has chronic rheumatism in marked degree; she was put at once on manaca, fluid extract, ʒss., t. d., and tonics.

March 26. Improving; pains in joints of legs going away.

March 29. Good result; much better. The patient was here lost sight of.

CASE 39.\*—Mary Devine, æt. 19, English, domestic; admitted October 27, 1882. Patient has suffered for two years from chronic rheumatism, affecting chiefly the knees and the metacarpal and phalangeal joints. She was treated with alkalies, local frictions of green soap and alcohol, etc., without much result.

Nov. 20. Ordered gtt. v. ol. gaultheriæ, t. d.

Nov. 21. Ol. gaulth. increased to gtt. x., and ether frictions ordered.

Nov. 25. *Statu quo*. Knee joints—especially the left—swollen and very painful.

Nov. 28. Some improvement.

Dec. 6. Has been taking ol. gaulth. steadily since November 20 with but slight effect. Ordered gr. xv. sod. salicyl., t. d.

The amount of salicylate was then run up till she was taking ʒiss. a day, without result. The iodide of potash was then ordered—and with that and massage and

\* Reported by Dr. W. S. Gottheil, House Physician Second Medical Division Charity Hospital, New York, in *Therapeutic Gazette*, 1883, p. 410.

general treatment she improved so as to be able to sit up and even to walk around with assistance. There, however, the improvement stopped—her joints remained swollen and painful—and the disability did not improve.

Jan. 23. Ordered manaca, fluid extract, gtt. xx., t. d.

Jan. 27. Very much better. Continued treatment.

Feb. 1. Manaca increased to gtt. xl., t. d. Manaca was gradually run up to ʒj., t. d., without effect. Colchicum, tinct. ferri chlor., in large doses, and all manner of local means were tried, as well as a thorough course of manaca again, without much result. When I lost track of the case, March 1, 1883, she was in very much the same condition she had been in for weeks, knee joints and joints of fingers swollen and painful, and great disability, so that only with difficulty could she stand on her feet at all.

CASE 40.\*—Lawrence Foley, æt. 38, Irish, single; admitted March 8, 1883. Patient first had rheumatism eleven years ago and had suffered from it since. Present attack began one month ago. Hips, chiefly, are affected. There is considerable disability. He was put on a full dose of salicylate of soda and improved moderately.

March 13. Put on manaca ʒj., t. d.

March 14. Rheumatism worse. Right ankle is beginning to swell. Says the other medicine stopped his pain and this does not.

March 15. Getting worse.

March 19. Some improvement to-day; can walk better. Ordered manaca ʒij., t. d.

March 20. About same; slight improvement. Ordered manaca ʒss., t. d.

March 22. Improvement continues.

March 26. Pains bad again. Ordered manaca ʒvi., t. d.

March 29. Patient taken off manaca, there being no permanent result, and put on sod. salicylate again.

CASE 41.\*—John Ward, æt. 17, single, Irish; admitted March 9, 1883. Patient has suffered from rheumatism for the last three weeks, of a moderately severe type; never had it before. He entered hospital unable to walk or stand, complaining especially of pain and tenderness in the left knee, which is rapidly becoming worse. His left knee-joint is swollen, hot and very tender. Right knee is affected to a less extent. Other points, at present, unaffected. Temperature 100 3-5°.

℞ Ext. manaca, fld., ʒij., t. d.

March 12. Pains in knee less. Continue treatment.

March 13. Pains going fast; can move the joint.

March 20. Pain and disability gone. Patient transferred to help.

CASE 42.\*—Thomas O'Brien, æt. 36, Irish, married, porter; admitted March 19, 1883. Patient has had rheumatism off and on ever since his first attack, 2½ years ago. He enters hospital complaining of pain in both ankles and knees and his right elbow. There is no swelling or deformity, and but slight stiffness.

℞ Ext. manaca, fld., ʒj., t. d.

March 20. No better. Ordered manaca ʒss., t. d.

March 22. Complains of considerable dizziness to-day. Manaca stopped.

March 26. Giddiness completely gone. Manaca resumed, ʒss., t. d.

March 29. Pains quite unaffected. Manaca stopped and patient put on sod. salicylate.

CASE 43.\*—Joseph Hughes, æt. 30, U. S., printer; admitted March 26, 1883. Patient had an attack of acute articular rheumatism six years ago, which lasted five weeks. He never had any trouble from that time until seven days ago, when, after some dissipation, he noticed pains and swelling in both his knees. This has been getting worse, and his ankles also have become affected. On admission, temperature 101°, pulse 108°, respiration 30. Both knees and left ankle are slightly swollen and very stiff and painful. No cardiac complication.

℞ Ext. manaca, fld. ʒj. t. d.

March 28. Same condition; no improvement. Is entirely bed-ridden; in fact, can hardly stir in bed.

\* Ibid.

March 29. Suffers considerably. Temperature 100 1-5°, pulse 120, respiration 30. Ordered manaca ʒii q, 4 hours.

March 30. Pains have left his right knee, and are now in the left elbow and both shoulders. Temperature 101½°, pulse 115, respiration 20.

He was taken off manaca and put on gr. xv sodii salicylas, with xxx gtt. tr. hyosciam, t. d.

March 31. Is in a profuse perspiration. Temperature 99 2-5°, pulse 90, respiration 24. Pain is going fast, only a little left in shoulders.  
Patient not followed further.

CASE 44.\*—William McManus, æt. 38, Irish, married, stableman, admitted March, 8, 1883. Has had two previous attacks of rheumatism, the first an acute one. Had another last summer which laid him up for seven weeks; the pains were then chiefly in his hip and shoulders. He enters complaining of pain and stiffness in shoulder and hips; other points but little affected; no fever.

March. 13. Put on fl. ext. manaca ʒi t. d.

Mar. 19. Very much better, pains almost gone, continue treatment.

Mar. 20. Manaca ʒii t. d.

Mar. 22. Discharged, pains almost gone, good result.

CASE 45.\*—Thos. Burns, æt. 50, Irish, laborer, admitted Feb. 19, 1883. Patient was transferred from penitentiary with subacute rheumatism of both knees. He never had rheumatism before, and his present attack began 10 days before admission into the hospital. He improved rapidly under the salicylate treatment up to a certain point, but it did not seem to cure the pain and stiffness in the knees. Passive motions, frictions, etc., were used.

Mar. 14. Ordered fl. ext. manaca ʒi t. d.

Mar. 15. Same. Continue treatment.

Mar. 19. Feeling better, right leg especially is stiff and painful; ordered manaca ʒii t. d.

Mar. 21. Much better, can walk well; ordered manaca ʒss t. d.

Mar. 22. Discharged; able to walk very well.

CASE 46.\*—Thos. Butler, æt. 55, Irish, driver, admitted Jan. 22, 1883. Patient gives a history of subacute rheumatism, attacking him some ten months ago, and has suffered from it off and on since then. Lately his left knee and hip have been chiefly affected. At the present moment he complains only of stiffness and pain on motion in these two joints. The knee is somewhat swollen, but the man otherwise is the picture of health.

R Fl. ext. manaca, gtt. ʒo, t. d.

Jan. 29. Knee feels and looks very much better, but there is no improvement as yet in the hip; continue treatment.

Feb. 1. Same.

R Manaca, gtt. ʒo, t. d.

Feb. 5. Motion very free in knee; hip improving.

R Manaca, ʒi t. d.

Feb. 8. Improvement continues, can walk with considerable ease.

R Manaca, ʒii, t. d.

Feb. 12. Doing well; continue treatment.

Feb. 15. Discharged; nothing remains but the very slightest stiffness of the hip.

CASE 47.\*—Kate McGrath, æt. 20, U. S., domestic, single, admitted Jan. 31, 1883. Patient enters ward complaining of pain and swelling of both joints of great toe of her right foot. No other joints are affected, and no history of acute articular rheumatism can be obtained. The parts have been affected a week; they are considerably swollen and tender, but there is hardly any redness of the surface or local heat; no fever; cannot stand on foot. Lead and opium wash was ordered locally, also

R Fl. ext. manaca, gtt. xx, t. d.

Feb. 1. Pain prevents her sleeping; ordered treatment continued, and ʒii sol. morph. (U. S.) at night.

Feb. 2. Pains better to-day; swelling has diminished; continue treatment.

Feb. 5. Doing very well; can stand on foot.

Feb. 10. Can walk with perfect ease, swelling gone; lead and opium stopped, manaca continued.

Feb. 17. Went out on pass and eloped.

CASE 48.\*—Michael Pio, æt. 34, Italian admitted January 19, 1883. Patient's history not obtainable, he speaking no English. Has had rheumatism four times; at the present moment the left knee and ankle are moderately swollen and stiff; shoulders and elbows are also affected, to a slight degree. There is no cardiac lesion, and no febrile movement.

℞ Fl. ext. manaca, gtt. xx. t. d.

Jan. 24. Is improving every day; swelling is going down, pain on motion decreasing, continue treatment.

Jan. 30. Doing very well indeed; can walk without a stick.

℞ Manaca, gtt. xv. t. d.

Feb. 2. In same condition, a moderate amount of disability remains.

℞ Manaca, ʒ ij t. d.

Feb. 6. Patient has had a relapse. Knees, shoulders and elbows are as bad as they were at first. Pulse 96, temperature normal, swelling increasing again.

℞ Manaca, ʒ ij t. d.

Feb. 8. Improving again; continue treatment.

℞ Manaca, ʒ ss t. d.

Feb. 13. Left knee very painful, rheumatism not improving.

Feb. 14. Somewhat better. The supply of manaca here gave out, and the patient was treated with blisters locally and salicylate of soda internally. He gradually improved, and was discharged on March 2, with, for the time at least, almost perfect use of his joints.

Twelve cases in all were treated with this drug, all cases of chronic rheumatism; of these good results were obtained in seven cases; in one a moderate effect was observed, and four cases were not benefited at all.

	DISEASE.	TIME OF TREATMENT	MAX. DOSE.	RESULT.
1.	Chronic rheumatism.	1 month.	ʒ ij t. d.	Good result.
2.	" "	13 days.	ʒ ss t. d.	" "
3.	" "	9 days.	ʒ j t. d.	No result.
4.	" "	16 days.	ʒ j t. d.	" "
5.	" "	11 days.	ʒ j t. d.	Good result.
6.	" "	10 days.	ʒ ss t. d.	No result.
7.	" "	5 days.	ʒ ij ʒ br.	" "
8.	" "	14 days.	ʒ ij t. d.	Good result.
9.	" "	8 days.	ʒ ss t. d.	" "
10.	" "	24 days.	ʒ ij t. d.	" "
11.	" "	18 days.	ʒ ij t. d.	" "
12.	" "	16 days.	ʒ ss t. d.	Moderate "

\* Ibid.

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# WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

# GRINDELIA ROBUSTA.

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# GRINDELIA ROBUSTA.

*Synonyms*.—Hardy Grindelia, Wild Sunflower, Gum plant, Yellow Tar-weed.

*Part Employed*.—The Leaves and Flowering Tops.

*Natural Order*.—Compositæ.

*Habitat*.—California.

**Botanical Origin and History.**—Grindelia belongs to the nat. ord. *Compositæ*. It perennial, throwing up a simple stem during the first year, which dies in the fall, subsequently from two to ten stems are evolved, as the root attains age, these stems becoming suffruticose or shrubby. About the first of May its spherical involucre appear on a branched stem, and they are soon covered with a milk-white resinous exudation. The flowers begin to expand a few weeks later, when they exhibit hemispherical heads with yellow florets, not unlike a small sunflower. There are twelve species described by Gray,\* two of which are common throughout California—the *G. robusta* and the *hirsutula*. These are easily distinguished, *G. robusta* growing on salt water marshes and in swampy inland localities, *G. hirsutula* occupying dry hillsides and fields. The leaves of the former are smooth, oblong, obtuse, coarsely, if at all, serrate, and clasping the stem. The stem of the latter is hairy, leaves oblong, somewhat pubescent, sharply serrate-toothed. The resinous matter which exudes from the heads, and to some extent is developed in the leaves, is slowly soluble in water; freely so in alcohol and ether. *But all the soluble matter of the plant is not taken up by alcohol, and as yet it is undetermined whether its active principle is contained in the resin or in the juice, or in both.*†

The official plant is a polymorphous species, very smooth, pale, usually stout; the leaves are one or two inches long, brittle when dry, vary from broadly spatulate or oblong to lanceolate, are sessile, the upper ones often clasping, with a heart-shaped base; obtuse at the apex, more or less sharply serrate on the margin, nearly smooth, or bearing scattered glandular hairs of a pale-green color, finely dotted, and the upper surface sometimes covered with patches of a glossy resin. The involucre is about one-half inch broad, and near the tips of the scales beset with short, flattish, many-celled glands. The akenes are from one to three-toothed at the apex, and have two or three, rarely five, awns for the pappus. The odor is balsamic, the taste pungently aromatic and bitter. The variety *latifolia* is a robust and broad-leaved form, the leaves being often three to four inches long. The variety *angustifolia* has rather fleshy and narrow leaves, the upper ones being nearly entire, and all narrowed at the base. The variety (?) *rigida* is more glutinous, the leaves rigid and coriaceous, some of them sharply serrate. All these plants have the tips of the involucreal scales at length rigidly spreading. The plant is common along the Pacific Coast and inland on the mountains.‡

**Adulterations and Substitutions.**§—Dr. A. H. Kinnear, of Metamora, Ill., reports a case of substitution to which we call attention from the fact of the frequent occurrence of similar examples. The drug (*Grindelia robusta*) failed to produce its characteristic effect, and subsequent investigation developed the reason for it. Dr. K. says: "After Mr. C. had used up the first pound of the preparation, he requested me to order him two pounds more, so as to have a supply on hand of the same kind that he first had, more from fear that he might

\* Synoptical Flora, Vol. I, Part II.

† W. P. Gibbons, M. D., of Alamada, Cal., in the Therapeutic Gazette, 1881, p. 433.

‡ Stillé and Maisch, National Dispensatory, 1884, p. 748; see also Professor's Goss Newer Materia Medica and The United States Dispensatory, 15th Edition, page 726.

§ Therapeutic Gazette, 1880, p. 8.

not be able to get the genuine article when he wanted it; his fears being, that as the market would soon be supplied with an abundance of *Grindelia robusta* by various manufacturers, all claiming theirs to be genuine, spurious articles would soon be thrown upon the market. This prediction proved only too true; having been very generous with the supply on hand, dividing with others who were similarly affected, he was soon out of the medicine with the exception of about half an ounce.

"Believing himself cured, he neglected to procure a further supply at that time, but, sometime in the latter part of October, he felt symptoms of his asthma returning, and called on me for some grindelia. On giving him two ounces, which was about all I had left of a pound that had been procured a short time before, he returned the medicine the next morning, declaring that some mistake had been made; that the medicine did not taste at all like grindelia; that there must be something wrong; that it burned his mouth, throat, and stomach like pepper, while that which he had first taken had a nice smooth and pleasant bitter taste. As it was my intention to visit Peoria in a few days, I invited Mr. C. to accompany me on a call at the house from whom the last sample given him had been obtained. He did so, and the investigation demonstrated the fact that the preparation I had obtained was a very unsuccessful imitation of the genuine article.

"I mention the latter facts in the case to illustrate the erroneous views which physicians are sometimes led to entertain of a drug on account of the preparation they employ. This is a very practical consideration and the dangers of imposition are sufficient to place the profession on their guard. The moral is: Never condemn a remedy until you are satisfied—the reputation of the manufacturer being the best guide—that the article employed is what it purports to be."

**Preparations.**—Fluid extract of the leaves and flowering tops; dose,  $\frac{1}{2}$  to 1 fluidrachm, (2 to 4 C. c.)

Solid extract; dose, 5 to 18 grains (0.33 to 1.1 grm.)

Elixir grindelia robusta; each fluidounce represents 2 drachms of grindelia robusta; dose, 2 to 4 fluidrachms (8 to 15 C. c.)

Pil. ext. grindelia robusta, 3 grs.; dose, 1 to 3 pills.

Concerning the manufacture of the fluid extract, Messrs. Parke, Davis & Co. report: "Our preparation is not made after the U. S. P. formula, but in accordance with the suggestion of Dr. W. P. Gibbons, who was the first to call the attention of physicians to this remedy. He stated that alcoholic preparations of grindelia did not produce the therapeutic effects which he constantly obtained where the drug was extracted with an alkaline aqueous menstruum. Until clinical evidence is adduced showing that an alcoholic menstruum produces a more efficient preparation, we shall continue to furnish that which has hitherto given universal satisfaction. Our fluid extract can be combined with syrups and aqueous fluids without precipitation—an obvious advantage."

*Adaptations and Substitutions*—Dr. A. H. Kinney, of Montreal, Ill., reports a case of asthma to which we allude from the fact of the frequent occurrence of similar examples. The drug (*Grindelia robusta*) failed to produce its characteristic effect and he says: "After Dr. C. had made independent investigation developed the reason for it. Dr. K. says: 'After the first pound of the preparation he requested me to order the next two pounds more, so as to have a supply on hand of the same kind that he first had, more than he might

*Synopsis of the Materia Medica of the United States Dispensary, Vol. I, Part II*  
W. B. Saunders, M. D., Philadelphia, Pa., 1888.  
The United States Dispensary, 100 North Second Street, Philadelphia, Pa.

## THERAPEUTIC PROPERTIES.

### Reports from Hospital and Private Practice.

**Report 1.\***—During April and May last, at St. Peter's Hospital I used a fluid extract of *grindelia robusta*. It is not satisfactory to report so few observations, but they show sufficiently, perhaps, the value of the large claims made for the medicine.

1st. No purely spasmodic asthma was treated.

2d. An old asthmatic woman, who had marked emphysema, took 15 minims of the medicine every two hours for a fortnight. It did not disturb the stomach, and a gradual and decided relief in the number and severity of the paroxysms was observed.

3d. A man with chronic bronchitis, for four months, and severe paroxysms of asthma, who had taken, without relief, iodide of potassium and anodyne expectorants, and inhaled the fumes of nitre paper, was promptly and permanently benefited by the *grindelia* 15 minims every three hours.

4th. During the two months every case of bronchitis, acute or chronic, or in phthisical patients, were given the *grindelia*, usually 15 minims every two hours.

Frequently the medicine would, after a few days, produce headache, and would have to be suspended. It was usually well borne by the stomach.

5th.—In cases of asthma, in private practice, I have used *grindelia*. In one with marked benefit; in one with none at all.

The first was a female, who had been for years subject to attacks of acute bronchitis, with asthma. Formerly I treated her with iodide of potassium, tonics, and cod-liver oil. In two attacks the *grindelia*, only 15 minims every two hours, has relieved cough, expectoration, and asthma much more satisfactorily than the former treatment. Finally, in all cases the medicine has been used without combination, that there might be no uncertainty as to the effects due to it.

Expectoration, cough and respiration were usually favorably modified, but not in a degree markedly different from the effects of various other treatments.

**Report 2.†**—Mrs. J. C., æt. 23, native of Ireland. Has had asthma for two years. Constant dyspnoea and cough, increasing on exertion at night. Examination of lungs showed only sonorous and sibilant rales over chest. No emphysema could be diagnosed. Patient treated for three weeks with potass. iodide in large doses (as much as 40 grains daily), and antispasmodics, with no improvement in either cough or dyspnoea. Patient was then placed upon fl. ext. *grindelia robusta*, min xxx., four times a day, and in two days there was marked improvement. This improvement has continued for three months, and the patient is perfectly comfortable while taking the medicine. The lungs still show rales, but not nearly so marked as before.

Two other cases (treated at the dispensary) with constant, slight dyspnoea, worse on exertion, the chest showing sibilant and mucous rales, were benefited by 30 minim doses of *grindelia*, four times a day, and have not returned since.

Three cases (dispensary) of asthma of a spasmodic nature, only occurring at times, with no dyspnoea between the paroxysms, were treated in the same manner for three weeks, with no improvement, either in diminishing the frequency or severity of the attacks. Physical examinations of chest gave negative results in all these cases.

Mrs. P., æt. 35, U. S. Has suffered for some years with attacks of spasmodic asthma, occurring more or less frequently while in Brooklyn, and is perfectly free from them when residing inland as far as the centre of the state. No treatment has done more than to palliate, except the iodide of potassium, in such doses as to produce acute and gastric disturb-

\*Avery Segur, M. D., in the *Therapeutic Gazette*, 1882, p. 157.

†Charles E. De Le Vergne, M. D., in the *Therapeutic Gazette*, 1882, p. 158.

ance. Physical examination of lungs negative. Half-drachm doses of fluid extract *grindelia robusta* failed entirely to relieve.

**Report 3.\***—CASE I.—Gus. Stonehouse, æt. 58, Scotland; married; newsdealer. Admitted May 17, 1881, discharged June 20, 1881.

Eight months previous to admission, had begun to be troubled with shortness of breath and smothering. Had lived in Brooklyn several years previously, and could not account for sickness in any way. Was not much troubled with coughing except during paroxysms. These paroxysms occurred at regular intervals about 2 and 4 A. M., or after any sudden exertion. Had been on many different kinds of treatment.

At first I put him on tincture stramonii, and faithfully tried this, without success. At the same time got his alimentary canal into good working order. Next tried belladonna and lobelia inflata. Then tried cigarettes of potass. nitras., with some benefit.

The respiration at this time was the usual wheezy, asthmatic one, with a few mucous rales; most marked on the left side. The left pupil was smaller than the right.

At this stage he was put on *grindelia*. At first I used the formula of Dr. Rochester, but soon discarded it. Gave the *grindelia* alone, or mixed with equal parts of glycerine.

At first 3 ss. of *grindelia* was given g. 4 h. between paroxysms, and every fifteen minutes during them. After a little the frequency was increased between the paroxysms to every three and then every two hours.

The improvement was at once marked and rapid. No other medicine was used. Patient seemed to cough up more freely, and the sputa was less tenacious and thick. I did not notice much decrease (though there was a little), between the difference of the pupils.

Before he was discharged the breathing had lost its wheezy character, and the rales were gone. The patient could run up and down stairs, and take long walks, without discomfort. He still woke up at 2 A. M., from long habit (of his trade), but the paroxysm was practically gone, or one dose was enough to banish it. He said he would return if again troubled. Has not since been heard from. A recovery.

CASE 2.—Bronchitis asthma. James Conly, æt. 30; St. Johns; laborer. Admitted August 9, 1881; discharged September, 1881. Visiting physician, Dr. Paine.

Patient a fisherman and dock-hand by trade. He gave a history of obstinate cough lasting over two years, which had got much worse during the last two months, reducing him so much in strength and weight that he could no longer work. He complained that his cough was much the worse about 6 A. M., and that even more distressing was the smothering. During a coughing spell, which came frequently, he became absolutely black in the face. On auscultation, found heart normal, whole chest full of moist rales, both in large and small bronchi. There was no history or signs of phthisis. He had been under a variety of doctors without benefit—most gone through pharmacopœia. He was put on fl. ext. *grindelia robusta* glycerine ℥i. ℥ii. ℥. Sig. ʒi; g. 4 h. Afterwards g. 2 h., and at 6 A. M. ʒi., 15 minutes.

The improvement was almost instantaneous. The cough became much easier, and soon diminished in quantity. The sense of smothering departed. The rales first left the lesser, and gradually the larger bronchi. Patient rapidly regained strength and weight, and departed quite recovered, and exuberantly grateful, with the above prescription in his pocket. The only thing that had done him any good. *Grindelia* was the only drug used.

**Report 4.†**—CASE I.—Miss W., æt. 24; nativity, United States; occupation, hair dresser.

History.—General good health; mother suffers from nervousness; aunt on maternal side had asthma; patient has had repeated attacks of spasmodic asthma for ten years; attacks are frequent and very severe, occurring with great intensity during fall and winter; for some years was obliged to leave the city and reside in the south, where she was entirely free from disease; had been under observation for the past eight years; various remedies have been tried with variable results, but the most successful treatment has been moderate doses of potassium iodide, and small doses of arsenic.

In September, 1881, an attack occurring, she was induced to try the *grindelia robusta*. She reported relief from the remedy, but complained of nausea while taking the drug. In subsequent attacks she obtained no relief from the agent, and, of her own accord, resorted to the potassium iodide, with marked relief.

CASE 2.—Mr. B., æt. 44; nativity, United States. History in brief.—He had spasmodic asthma for 12 years, resulting in well marked changes in chest wall and emphysema;

\*Wm. M. Thallon, M. D., in the *Therapeutic Gazette*, 1882, p. 158.

†J. A. McCorkle, M. D., in the *Therapeutic Gazette*, 1882, p. 158.

general good health; asthmatic attacks are influenced by the state of the atmosphere—an east wind being a sure precursor of an attack, unless warded off by medicine. Was called to attend him four years ago. After trying the usual remedies in various combinations, I found potassium iodide, in 10 to 15 grain doses, the most effectual treatment.

I gave him a saturated solution of potassium iodide, and directed him to take the equivalent of 15 grains at the outset of an attack, and repeat every three or four hours until relieved. He followed my directions implicitly, and for three years I did not see him, as during the period he suffered but little from asthma. In November, 1881, was called, and found him suffering extreme agony, and begging for relief. The attack came on in the night, with such severity that the nearest physician was called, who at once prescribed *grindelia robusta* every hour. He took the medicine without the slightest benefit. I saw him at 1 p. m. the following day, and finding the *grindelia robusta* ineffective, advised him to resume the iodide treatment, which he did, with the effect of producing marked abatement of the distressing symptoms before evening—a good night's rest, enabling him to resume his work the following day.

CASE 3.—Mr. H., æt. 30; nativity, Germany; occupation, lawyer. History: General health excellent, regular habits, with the exception of being an inveterate smoker. Has suffered from attacks of spasmodic asthma for three years. Heretofore has derived great benefit from the use of potassium iodide during the spasm. Had an attack in October, 1881. Was induced to try *grindelia robusta* in the usual doses, and after giving it a trial of 36 hours, he gave it up in disgust, and I fear with a feeling that I was trifling with his suffering. From my observation of *grindelia robusta*, I am led to the belief that in pure spasmodic asthma it is of little value. In the catarrhal forms we might expect better results, on account of the oleo-resin it contains, and its demulcent properties.

Report 5.\*—CASE 1.—Mr. H., æt. 70, a sufferer from asthma for many years, applied at dispensary for treatment, August 19, 1882. Paroxysms generally occur periodically, and are very severe when they do occur. Has tried almost everything prescribed by physicians, and recommended by others, with but little success in relieving the paroxysms. Auscultation shows valvular lesions. Patient is anæmic and debilitated.

Prescribed the following:

℞ Tr. ferri chloridi, ʒj.  
Syr. simplicis, q. s. ad ʒij.

M. Sig.—A teaspoonful every four hours, in a wineglassful of water. Alternate with this the following:

℞ Tr. digitalis, ʒjss.  
Glycerinæ, ʒij.  
Aquæ, q. s. ad ʒij.

M. Sig.—A teaspoonful.

For the paroxysms gave the following:

℞ Tr. lobeliæ com., (Am. Dispensatory) ʒj.  
Tr. ol. anisi, ʒij.  
Syr. tolu, q. s. ad ʒij.

M. Sig.—A teaspoonful every two hours during the paroxysms.

September 9. General health somewhat improved, but asthma as bad as ever. Paroxysms as severe, and occurring as frequently. Discontinued from mixture, continued the digitalis and gave the following in alternation:

℞ Tr. lobeliæ comp., ʒij.  
Potassii iodidi, ʒij. ʒij.  
Syr. tolu, q. s. ad ʒjv.

M. Sig.—A teaspoonful.

September 26. Reports no improvement. Gave the following:

℞ Fl. ext. *grindelia robusta*, (P., D. & Co.'s).  
Syr. tolu, ʒi.

M. Sig.—A teaspoonful every two hours during the attack, and every four hours during intervals.

September 30. Thinks he derives some little benefit from the last medicine. Prescribed:

℞ Fl. ext. *grindelia robusta*, (P., D. & Co.'s) ʒij.  
Potassii iodidi, ʒij. ʒij.  
Syr. tolu, q. s., ad ʒiv.

M. Sig.—A teaspoonful every three hours.

October 31. Is much improved. Paroxysms occurring at long intervals, less severe

\* L. B. Firth, M. D., of Brooklyn, N. Y., in the Therapeutic Gazette, 1883, p. 104.

and of shorter duration. Continued treatment. Also six drops tincture digitalis three times daily.

November 25. Has had no paroxysm since his last visit. Iodide of potassium disagrees with him. Prescribed the same mixture with the iodide of potassium omitted and three drachms tincture digitalis substituted.

December 2. Has had one slight paroxysm since last visit. Due probably to sudden atmospheric changes, etc. Seems to be much improved in general health. Continue same medicine.

Patient has not reported up to this date, February 1, 1883.

CASE 2.—Mr. C., æt. 47. Has had chronic bronchitis for some years and occasional attacks of asthma. Called at dispensary for treatment October 8, 1881. Prescribed:

℞ Fl. ext. yerbæ santæ (P., D. & Co.'s), ℥ iss.  
Fl. ext. grindeliæ robustæ (P., D. & Co.'s), ℥ ij.  
Glycerinæ, ℥ ss.

M. Sig.—A teaspoonful every three hours.

October 11. Does not seem much improved. Prescribed the following:

℞ Fl. ext. grindeliæ robustæ,  
Fl. ext. yerbæ santæ,  
Tr. lobeliæ comp., ʒʒ ℥ ij.

M. Sig.—A teaspoonful every two or three hours.

October 28. Is somewhat improved. Has had no asthmatic attack since last visit. Continue treatment. Take the medicine every four hours.

November 19. Reports improving. Has had one attack since last visit, but it was milder than usual. The bronchitis seems to be less troublesome. Continue the same four times daily.

December 6. Still improving. Has had no attack of asthma since. Prescribed:

℞ Fl. ext. yerbæ santæ (P., D. & Co.'s),  
Fl. ext. grindeliæ robusta (P., D. & Co.'s),  
Glycerinæ, ʒʒ ℥ ij.

M. Sig.—Teaspoonful three times daily.

December 27. Has not been troubled with asthma since, but is still troubled with bronchitis. Continued the same with this alteration:

℞ Fl. ext. yerbæ santæ, ℥ ij.  
Fl. ext. grindeliæ robustæ, ℥ ij.  
Glycerinæ, ℥ j.

M. Sig.—A teaspoonful three times daily before meals.

Also, emulsion cod-liver oil, a tablespoonful after each meal.

February 11, 1882. Is greatly improved. Has not been troubled with asthma and is nearly cured of the bronchitis. Continue small doses of the fluid extract yerba santa.

April 15. Discharged cured.

CASE 3.—A boy named J.W., æt. 15. Called at dispensary for treatment October 10, 1881. Has been suffering with asthma since he was five years old, when he had rubeola et pertussis. Prescribed:

℞ Fl. ext. grindeliæ robustæ (P., D. & Co.'s), ℥ i.  
Potassii iodidi, ℥ iss.  
Syr. pruni virg., q. s. ℥ iv.

M. Sig.—A teaspoonful every four hours.

November 16. Has had no attack of asthma since. Continue treatment.

December 28. Has had one attack of asthma since last visit. Continue treatment minus the iodide of potassium.

February 11, 1882. Left off taking medicine in the early part of January. Has had two asthmatic attacks since. Prescribed:

℞ Fl. ext. grindeliæ robustæ (P., D. & Co.'s), ℥ j.  
Tr. ol. anisi, ℥ ij.  
Syr. tolu, q. s. ad ℥ iv.

M. Sig.—A teaspoonful three times daily, before meals. Also, emulsion of cod-liver oil with wheat phosphates, a teaspoonful after each meal.

May 20. Has been free from asthma. Discontinue cod-liver oil, and take small dose of the fluid extract grindelia robusta. Requested him to report in three months should he continue to improve and have no occasion to report before.

August 29. Has had no attack. General health excellent. Discontinued all medicines. Asked him to report again in three or four months.

December 12. Has not been troubled with asthma, although been exposed to all sorts of weather. Suggested cod-liver oil through the winter and report in a few months.

**Report 6.\***—**CASE 1.**—We have employed it successfully in a case of difficult breathing, dependent upon valvular lesion, where other remedies had entirely failed of giving relief. It was in the person of an old lady, æt. 60. She had been under treatment with another physician, at the place she was visiting, for some six weeks, but with no apparent benefit. Nightly, at about 2:00 a. m., there was a return of the asthmatic spasms, and longer sleep was impossible. Indeed, for the last two weeks previous to our seeing her, she had not essayed to lie down at all, but got her rest in a sitting posture in the bed.

For a day or two we had her upon the usual remedies for such cases, but with no success. We then combined digitalis with the grindelia, fluid extract, and on the third night, with the help of a five-grain Dover's powder, a full nights' rest was secured. The remedy was continued in drachm doses three times daily, with the twenty-drop doses of tr. digitalis, for some two weeks, since which time (now some three months), she has been as comfortable as one could reasonably expect.

**CASE 2.**—Was in the person of a shoemaker above middle age, who had asthma and chronic bronchitis. He had tired of paying doctor's bills, so we took him as a "trial case." The grindelia powder proved a complete success. He has had no paroxysms since the third day after its use. He now keeps a bottle by him, and, at our advice, on any sudden change of weather takes a half drachm dose of the fluid extract three times a day, for a day or two, as a prophylactic. Whether the remedy does act as a prophylactic we cannot really say, for possibly he might not have a return of the attack were he to discontinue its use. We have asked him to make the trial, but he does not care to take the risk.

**Report 7.†**—Hay fever, or autumnal catarrh, commences with me August 16th, and continues until about the 20th of September, or till after a hard frost. The trouble begins by violent sneezing and a constant running, at the eyes and nose, of a thin, hot, colorless discharge. During the first two weeks of the trouble I am frequently compelled to remain in a darkened room for days at a time. After the first week the trouble in the head is considerably lessened, but a dry, hard cough sets in, and I suffer with spasms of asthma, at night only. As the trouble progresses, the cough increases, and the spasms of asthma become more frequent and severe, until it becomes almost continuous, day and night, and of the most unyielding character. The disease leaves me as suddenly as it came. Many times I suffer one night from the most severe spasms, and the next night will sleep quietly and soundly all night, and remain free from my enemy until the following August, unless I take a severe cold.

When in Philadelphia in September, I met a friend, who, seeing I was suffering from asthma, suggested grindelia robusta. Of course, I was familiar with it, and knew for what it was recommended; yet having tried so many remedies and cures, I had little heart to try any more. My friend brought me a two-ounce bottle of the mixture, with instructions to take it. With little confidence I began its use, and before I had taken one half of it, I was free from asthma and slept well all night. The next day I took it every two or three hours until it was all gone, and I remained entirely free so long as I was under the influence of the grindelia. I cannot say too much in its praise: anybody who will try it will be surprised to know what comfort it will give them. I have given the remedy in several instances, one where a gentleman had been a sufferer for twenty years. It gave him immediate relief, and he is virtually cured. The formula I used is:

℞ Fluid extract grindelia robusta. ℥ 4.  
 " " Rhei. " "  
 " " Sennæ, ℥i ℥ 1.

Take a dessert-spoonful every half hour during the spasm, and when relieved continue the same dose at intervals of three hours.

**Report 8.‡**—**CASE 1.**—I have used the fluid extract grindelia robusta in several cases of chronic pneumonia, bronchitis, and structural diseases of the air passages, and in acute attacks of pneumonia, complicated with hepatic affections, hydrothorax, etc., and have been pleased with its salutary effects in every case. In shortness of breath, occasioned from anemia, and especially in bronchial disease, it improved the patient promptly from the first dose given. One case, that of dropsy, first of the chest and afterwards of a general character, and upon whom I operated for hydrocele, was æt. 64 years, and was unable to breathe when in a recumbent position. His son told me he thought it useless to send him any remedy, as he could not live. I, however, prescribed a teaspoonful of the fluid extract of grindelia robusta every three hours until relieved. It had a salutary and beneficial effect in this case, and he is improving daily.

\* New Preparations, 1877, No. 1, p. 8.

† J. H. Richardson, 52 Lake street, Chicago, in New Preparations, 1877, No. 1, p. 9.

‡ W. T. Cleland, M.D., Kewanna, Ind., in New Preparations, 1877, p. 9.

**CASE 2.**—The second case was that of a young lady who was prostrated with an acute attack of pneumonia, complicated with bronchitis, chronic disease of liver, and was anæmic and nervous. After active treatment to overcome the inflammation, I advised a syrup made of the fluid extract *grindelia robusta*, which she has been using over a month. Her father told me yesterday that he never saw any medicine have as speedy an effect and as beneficial a one. As far as I have had an opportunity to observe its effects, I am positive that in all chronic diseases of the air passages it is an effective remedy, acting upon the secretion, increasing the appetite, producing refreshing sleep by quieting the nervous system, and improving the respiratory organs more effectually than any remedy heretofore discovered or introduced.

**Report 9.**\*—I have been using an extract of *grindelia robusta* and *yerba santa* in a number of cases, and find it to be the best remedy I have yet found for asthmatic and other forms of spasmodic cough. The mixture I have been using is:

℞ Fl. ext. *yerba santa*.  
Fl. ext. *grindelia robusta*, ℥℥ f ʒ i.  
Syr. *prunus virginiana*, f ʒ ii.

Mix. S.—Teaspoonful three or four times a day. It gives almost immediate relief in spasmodic cough.

**Report 10.** †—I have had occasion to use the *grindelia robusta* in some cases of asthma with heart complications with very satisfactory results.

**Report 11.** ‡—*Grindelia robusta* is superseding all other remedies in my hands in the treatment of chronic asthma and hay fever, of which I have several cases on hand, more especially one case of long standing, who has used nearly all known remedies, and traveled extensively, but without permanent benefit, who is now using the remedy with great benefit, and has not had a recurrence of attack in several weeks.

**Report 12.** §—Some time ago I sent to you for some fluid extract *grindelia robusta* for trial in my practice. I used a part of it for my wife. She had been suffering with asthma for some twenty years and is not cured, but is better since she has used the *grindelia* than she has been for some time before. She did not enjoy a good night's sleep last summer from early spring till late fall, but since she has used the above remedy she has been free from symptoms of the disease more than one-fourth of the time.

**Report 13.** ¶—This plant is remarkably demulcent, relieving irritated surfaces very promptly. It is very soothing to old irritable ulcers, given internally in doses of 30 gtt., three or four times a day, and the fluid extract one part, glycerine three parts, applied to the ulcer on lint. It is a valuable remedy in gonorrhœa, gleet, and other mucous discharges. As a remedy in asthma, combined or alternated with the Indian cup plant and *ailanthus*, it will be found to act promptly. One writer reports it a superior remedy for iritis of any form. I have used it in several cases of chronic and subacute bronchitis, combined with the *yerba santa*, and have never found anything to equal these two remedies in bronchitis; chronic bronchitis, and the cough of chronic catarrh, are controlled by it readily. It is quite an acquisition to the *materia medica*.

**Report 14.** ¶¶—Alexander R——, æt. 40 years, occupation farmer; health, previous to late sickness, fair. During exposure to rain and cold some two months previous—in April—took what he considered a severe cold, accompanied by cough, with frothy, tenacious expectoration, with asthmatic attacks, developed in the evening, which with the coughing and expectoration, continued all night. He frequently passed the entire night sitting. Temperature 100°, with sweats at night. Previous to this attack he had never had asthma. The small bronchial tubes are filled with fine mucous rales. His days are spent in comparative comfort; but he is losing strength fast and growing pale and bleached. He has had treatment with some neighboring physicians, but he says he is getting worse. On June 25th he consulted me. The disease seemed to be asthmatic, accompanied by bronchial irritation, with free secretion of mucous. I therefore determined to put him upon *grindelia robusta* and *yerba santa*, fluid extract, of each half teaspoonful every three hours during the day. The effect seemed marked and decided. He says, "that medicine seemed to open things up!" His temperature is now normal; he sleeps well, coughs but little, and is still

\*John W. Thraillkill, M.D., Professor of Anatomy and Physiology in the American Medical College of St. Louis, in *New Preparations*, 1877, No. 3, p. 21.

†N. W. Thomas, M. D., Des Moines, Iowa, in *New Preparations*, 1877, No. 3, p. 21.

‡Edgar C. Skinner, M. D., Belle Isle, N. Y., in *New Preparations*, 1877, No. 3, p. 21.

§J. W. Harvey, M. D., Mansfield, Parke county, Ind., in *New Preparations*, 1877, No. 3, p. 21.

¶Prof. Gross' *New Materia Medica* (New Preparations, 1877, No. 4, p. 17).

¶¶Dr. Geo. Griffin, Kickapoo, Kansas, in the *Medical Brief* (New Preparations, 1877, No. 4, p. 17).

gaining ground rapidly. I set this down as one bit of evidence of the value of those medicines in bronchial affections.

**Report 15.\***—The *grindelia robusta* I have tried in several cases of long standing of asthma, with both bronchial spasm and congestion, and am free to say it has more than met my expectations. If its success continues, it is a remedy none can properly appreciate, save those who have suffered with that distressing malady.

**Report 16.†**—Mr. H., æt. 65, of plethoric temperament and robust constitution, and of temperate habits, has had asthma for twenty years, and has been treated by all the usual remedies with only temporary relief. Last March he took a severe cold, which increased the asthmatic difficulty, and also produced a pneumonic fever with cough. I abated the fever with chlorate potass., ipecac and lobelia, but it did not have much effect in relief of the asthma. I concluded to try the *grindelia* fluid extract exclusively. I put him or ½ drachm doses every three hours. In twenty-four hours a marked change took place for the better, and he steadily improved, and in two weeks was quite well. He has been so to the present time. I think it a potent remedy in this affection, and also in acute pneumonia and bronchitis, either acute or chronic. I am well pleased with its action thus far.

**Report 17.‡**—If there is asthmatic breathing *grindelia robusta* assists materially.

**Report 18.§**—CASE I.—I desire the profession to know the value of *grindelia robusta* in asthmatic affections, as proved in my own and other cases. My age is 39, robust constitution, weight 190. For seven years, commencing in July or August, and terminating in October or November, I have been afflicted with hay asthma. From July 14th to August 1st, 1876, my distress was greater than ever before—I was obliged to sit in a stooping posture every night; could not even rest my shoulders against the back of the chair, though I was able to attend my usual business during each day. I had made use of every remedy known to the profession, but without satisfactory results. Those only, who have experienced such distress, can imagine my suffering. My attention was called to *grindelia robusta* by my friend, Dr. Leonard. As no dose was specified, I prepared the following:

℞ Fl. ext. *grindelia robusta*, ʒj.  
Syrup simplicis, f ʒij.

M. One teaspoonful at the commencement of a paroxysm, gave complete relief in from three to five minutes. Continued the remedy (same dose) three or four times daily, for a few weeks. The "season" of 1877 has passed with only a slight attack. Only a few doses required to give complete relief.

CASE 2.—Frank L., æt 8 years—afflicted with asthma from birth—worse from July to October. Complete cure effected by using two prescriptions as above. Have prescribed it in other cases with similar results.

**Report 19.¶**—Dr. Lichty spoke of the remarkable success he had had with this remedy in a severe case of asthma in an old person. At the second dose of the fluid extract—one drachm was given—the patient was completely relieved.

Dr. Leonard also spoke of its efficacy in his hands. At least nine out of ten cases of asthma would be benefited by its use. His prescriptions now, for any bronchial or lung troubles, included *grindelia robusta* in them.

Dr. Mulheron, one of the editors of the Michigan Medical News, also remarked favorably upon the use of this remedy in an old and confirmed case of asthma that he had seen.

**Report 20.¶**—I have tried *grindelia robusta* in a very old and grave case of asthma, after failing with other reliable remedies, and it is curing this case rapidly.

**Report 21.\*\***—I have used the *grindelia robusta* in a number of cases of obstinate asthma of long standing, and in every case it has been of good advantage, far excelling all other remedies; and in one bad case I believe it has cured.

**Report 22.††**—I cannot speak in too high praise in regard to *grindelia robusta* in asthma, or in any affection of the air passages, where fever is not too violent. In fact, it is the best remedy I ever used in common catarrh or chronic bronchitis. My manner

\*S. A. Butterfield, M. D., Indianapolis, Ind., in New Preparations, 1877, No. 4, p. 17.

†Geo. W. Mallory, M. D., Lowell, Mich., in New Preparations, 1877, No. 4, p. 17.

‡W. A. Wilcox, M. D., St. Louis, in New Preparations, 1878, p. 9.

§R. Wilson Walters, M. D., Chagrin Falls, Ohio, in New Preparations, 1878, p. 9.

¶Proceedings of the Wayne County Medical Society (Detroit).

¶I. J. M. Goss, M. D., Atlanta, Ga., in New Preparations, 1878, p. 37.

\*\*J. J. Scott, M. D., White Rock, Kansas, in New Preparations, 1878, p. 37.

††W. T. Cleland, M. D., Kewanna, Ind., in New Preparations, 1878, p. 37.

of using the fluid extract *grindelia robusta* is as follows: To two fluid ounces *grindelia robusta* I add four ounces syrup squills compound, and in common catarrh or a tightness across the lungs, with difficulty of breathing, I have found nothing as effectual, in every case tried.

**Report 23.\***—*Grindelia robusta* is as near a specific for asthma in all its forms as any medicine can be. It is a valuable adjunct in treating all diseases of the respiratory organs, either functional or organic.

**Report 24.†**—For something over a year now my usual cough mixture in cases of bronchitis, or even in certain stages of pneumonia, is the following:

℞ Ext. yerbæ santæ fl., ʒj.  
Liq. potassæ, ʒj.  
Ext. grindelæ robustæ, fl.  
Tr. opii camph.  
Syr. scillæ, vel.  
Syr. ipecacuanæ, ʒi.

Mix. S.—Teaspoonful every three hours.

I think this formula a great improvement on the usual one of ipecac, senega and squills, unless a depressant effect is needed, as in the *first* stages of pneumonia. In the hacking cough of phthisis and in the cough from enlarged heart the *grindelia robusta* is an excellent adjunct; and in asthmatic coughs and other difficulties I have found the drug to be almost *ne plus ultra*. This is pretty strong language, but a large experience in the use of it leads me to adopt the phrase.

The yerba santa, an excellent bronchial remedy, from its richness of balsamic principles, is easily precipitated when water (as syrup) is added as an excipient, and for some time bothered me a good deal in making an eligible prescription of it. I found on experiment, however, that a small amount of liquor potassæ overcame the tendency to precipitation, and this accounts for it in the above prescription. Besides this, it is not objectionable in itself; as an alkali it tends "to cut" viscid mucoid discharges.

**Report 25.‡**—In regard to *grindelia robusta*, permit me to say that I have prescribed it to some extent as a neurotic tonic in nervous asthma, or similar conditions of the capillary bronchial tubes, owing perhaps to the want of a normal functional activity of the inhibitory nerves presiding over the muscular structure of these minute tubes. These cases, in my view particularly, are greatly benefited by the *grindelia robusta*, given in drachm doses of the fluid extract once in six hours, continued, perhaps, for several days.

**Report 26.§**—In a case of asthma occurring in a girl of six years, I prescribed the fluid extract of *grindelia robusta* in ten-drop doses every three hours. It relieved the paroxysms to such an extent that the mother omitted it after the little patient became easy, "so as to save it for the next time." After three months the paroxysms are less severe and less frequent than formerly.

**Report 27.¶**—**CASE I.**—Yerba santa I have used, with *grindelia robusta* in asthma, with irritation of the bronchial mucous membranes, with good success. One, a young man æt. 25, has often, for seven or eight years, been confined to the house for two or three weeks at a time, unable to pursue any outdoor employment. Commenced taking the above in September last; has not had an attack since; thinks himself cured.

**CASE 2.**—Miss R., æt. 17, subject to severe attacks of asthma, with cough and bronchial irritation; has spent winters south by advice of physicians, supposed to be unable to endure the sudden changes of our northern climate. Commenced taking yerba santa and *grindelia robusta* in October last; attended school during winter without an attack, and is apparently cured.

**Report 28.¶**—**CASE I.**—For a long time this patient generally passed the night in his chair, with the torture incident to his disorder. At this juncture a friend sent him a bottle of syrup of *grindelia*, assuring him that a number of other persons affected with asthma had been cured or relieved by its use. Dr. Ayres permitted its use as an experiment, and the patient, taking a wineglassful on going to bed, slept soundly during the night, for the first time in several months. He continued the medicine regularly for four months

\*Geo. W. Mallory, M. D., Lowell, Mich., in *New Preparations*, 1878, p. 39.

†Dr. C. Henri Leonard, in the *Michigan Medical News* (*New Preparations*, 1878; p. 47).

‡D. C. Holly, M. D., Vernon, in *New Preparations*, 1878, p. 64.

§John C. Stewart, A. M., M. D., York, Me., in *New Preparations*, 1878, p. 65.

¶W. G. Elliott, M. D., Pontiac, Mich., in *New Preparations*, 1878, p. 66.

¶Dr. Gibbons in the *Medical and Surgical Reporter* (*Therapeutic Gazette*, 1881, p. 431).

with the same results, when a slight return of the disease occurred, instant on unusual fatigue and exposure. Thus, for the entire year, he enjoyed comparative comfort. The sequel of the case is not recorded, but I understand the disease subsequently returned, and that the medicine failed in producing its former good results.

The publication of this case excited considerable interest among California physicians, and grindelia was sought for and administered in numerous cases of asthma. I have been unable to collect any record of these cases, but the conclusion is that its use was not followed by satisfactory results, inasmuch as the remedy was discarded and forgotten in a short time.

In 1868 I commenced the labor of compiling a Medical Botany of the Pacific coast. The history of the grindelia being fresh in memory, I visited the drug stores in San Francisco, in only one of which I found it. The whole plant had been gathered in an immature condition, and it had grown upon hilly land, as was manifest from its being without radical leaves; further than this it was not the robusta. The only preparation in the market was a fluid alcoholic extract, prepared from specimens such as just described. It thus became manifest, 1st, that the properties of the plant were not represented in this immature species; and, 2d, that the alcoholic preparation would be incompatible.

CASE 2.—About this time I met Dr. E. T. Barber, of Eureka, who reported to me a severe case of asthma of several years' standing, which routine remedies had failed to relieve. He administered the syrup of grindelia, combined with iodide of potassium, and continued its use for several days. The paroxysms disappeared, and for 18 months there had been no recurrence of them.

CASE 3.—Soon after I was called in the night to J. B., who had suffered several years with asthma—violent and alarming paroxysms recurring about every fortnight. He was so alarmed at the unusual severity of this attack, that he concluded to abandon his son-in-law as his physician. He would not permit me to leave his bedside for two hours, when the paroxysms began to abate. Next day I prepared him a bottle of grindelia in strong infusion, of which he took four ounces a day. This was six years ago, and he has had no return of the disease.

CASE 4.—The next case was a lad, H. B., 12 years of age, who had been suffering from asthma for three or four days. He was subject to periodical attacks. I administered half an ounce of the strong infusion, to be repeated every two or three hours. The first dose gave him relief in a few minutes. This was three years ago. Since then he has had two other attacks, both of which were relieved as promptly as the first.

CASE 5.—A. T., a child 10 years old, of strumous habit, was attacked severely by asthma about two years ago. She had been subject to frequent paroxysms, which her mother mistook for croup, and had administered remedies therefor. I prescribed grindelia infusion once in four hours. The second dose relieved her completely. Last year she had another paroxysm, which disappeared after the second dose. During March, 1874, she had another, which was unusually distressing. Half an ounce of the infusion once in two hours relieved her completely after the third dose.

CASE 6.—In December, 1871, I was called to I. L., æt. about 30. For years past he had been subject for nearly six months of the year to violent paroxysms of asthma, which would recur every night about bed-time. He had removed from San Francisco to Alameda in hopes that a change of climate would be beneficial, but no favorable results had thus far been realized. I found him suffering from great dyspnoea; he had frequent coughs, and was expectorating bloody mucus; this condition of his system was the sequel of a severe cold of about 10 days' standing. The hæmorrhage yielded to treatment by sub-acetate of lead alternated every two or three days with aromatic sulph. acid, but as soon as the hæmorrhage ceased his usual paroxysms of asthma returned. I gave him grindelia, without any good effects. He slowly recovered his normal condition of health and resumed business, still a victim to his distressing complaint. In December, 1872, he had another attack similar to the first, but not so threatening, from which he slowly recovered; but nothing which I prescribed relieved his asthma. In September, 1873, he again took a severe cold, which was succeeded by cough and blood expectoration. This attack was lighter than the others, and as soon as his paroxysms of asthma returned, I gave him two grains of extract grindelia combined with half a grain of extract stramonium, once in four hours. The second pill was followed by emesis, by which a considerable quantity of tough, transparent, granular mucus was thrown up, following which, material relief from the asthma was experienced. The pills were continued twice a day for several days, and marked alleviation of his ordinary symptoms was experienced. On account of the unpleasant effects produced by the stramonium, he shortly afterwards abandoned the use of the pills, and relapsed into his old habits. In October, 1873, he was threatened with

another attack of sickness, and I immediately prescribed the syrup of grindelia combined with extract stramonium in the proportion of one grain of the first to one-fourth of a grain of stramonium. This proportion seemed to answer the indications; he was confined to the house for two or three days, and resumed his duties without any material inconvenience. Since that time he has been taking this prescription for three or four days in each month, and although catarrhal and bronchial affections have been very severe and persistent during the past winter, he has enjoyed great immunity from severe attacks of asthma, and more robust health than for six or eight years past. On the whole, this case, complicated as it is with disease of the lungs, so that recovery cannot be expected, is materially benefited by use of the grindelia, not so much by relieving the spasms of the bronchi, as by arresting fresh attacks of bronchitis before its inflammatory action extends to the small ramifications of the air tubes.

CASE 7.—I. McG., recently arrived in California; subject from childhood to hurried respiration after active exertion, and to copious expectoration of opaque mucus; caught fresh cold before landing from the cars; has considerable dyspnoea, with prolonged and wheezing expiration, which can be heard six feet distant; constant, short cough, but with little expectoration. I regard this as a case of chronic bronchitis, in which the diameter of the small tubes has been permanently contracted; a fresh cold supervening produced the asthmatic symptoms which were so conspicuous. In this case I prescribed the grindelia syrup in combination with about 5 grains of bromide of ammonium, to be taken four times a day. Three days after the wheezing had subsided, and the prolonged expiration was heard only on close proximity; the cough had nearly left, and expectoration was copious, but easy. In three weeks after he returned home, feeling better than he had for several months past.

CASE 8.—Dr. E. F. Colsey, of Columbia, Ga., has suffered for years from asthma, for the relief of which he had exhausted all known remedies. He wrote to me in November last with a request to send him some grindelia, as a last resort, which I did. I received a reply dated January 15th, 1874. Extracts from this letter will be all sufficient: "I have had several opportunities to give the grindelia a trial, in every one of which where there had been sufficient time, its effect has been truly wonderful." "I want you to send me a pound of the extract as prepared by yourself." "Do not neglect or delay this, as I am entirely out, and I feel at a loss without it—indeed, in my own case, I am so dependent upon it that I am nervous at the thought of not having it. It is the most prompt and stimulating expectorant I have ever used."

It will be perceived that there are two or more distinct forms of asthma represented in these cases. Nos. 2, 3, 4, 5 and 8 are purely spasmodic; No. 1 was probably complicated with pulmonary disease; No. 6 is hopelessly so complicated, and No. 7 is the result of chronic bronchitis. In all of them except Dr. Barber's case and in cases 6 and 7, the grindelia was prescribed uncombined with any other remedy. The object of this was to obtain a proximate idea of its true therapeutic value. This accomplished, it may be frequently advantageous to obtain the action of alternatives or sedatives in combination with it. Thus, minute doses of calomel, in many cases, will add to its expectorant property; iodide of potassium will promote constitutional results; bromide of ammonium is especially useful in allaying laryngeal irritability after the lungs are relieved from mucous secretions. The good judgment of the physician will perceive the indications to be answered, other than those pertaining to the remedy itself.

But these cases do not conclude the record of trial. Reasoning from its known effects as an expectorant and antispasmodic, last year I used it, first in one case, subsequently in six others, of pertussis. I am not conscious that it had any effect in curtailing the duration of the disease, but its prompt action as an emetic, without producing the distressing nausea incident to most other emetics, was really remarkable. After emesis was produced, its administration in smaller doses arrested the secretion of mucus, and the paroxysms of coughing were comparatively light. I was so well satisfied of its useful action in the first case, that I used it in all the others as the specific treatment. Subsequently, in unnumbered cases of influenza, and bronchial catarrh and bronchitis, accompanied with distressing cough, its value has been clearly demonstrated.

In all the cases here presented I gathered the herb and prepared the extract, not wishing any doubt to hang over the species of the plant used or the preparation of the remedy.

The mode of preparing the extract, or of making the infusion, should here be stated. The extract is prepared by exhausting the official portion of the plant of its resin and other soluble ingredients by digesting in water, containing about one ounce of borate of soda to three pints of liquid, and subjecting it to pressure; repeating the operation, straining the liquid through flannel, and evaporating to the proper consistence. To

make the infusion, 4 ozs of the heads and terminal leaves are put in two pints of water, in which has been dissolved 3ij of borate of soda.

**Report 29.\***—Dr. L. A. Canfield (deceased) of Monterey, Cal., was the first to call the attention of the medical profession to the therapeutic action of *grindelia robusta* in cases of "oak poisoning." The directions for its employment are as follows: Mix one or two teaspoonfuls of the strong fluid extract of *grindelia* with half a tumbler of cold or tepid water, and apply freely with a sponge or cloth dipped in the mixture to the parts affected. One or two applications will often suffice for a cure, but if the disease has been of long duration, several days may elapse before entire relief is obtained. In severe cases of poisoning, cloths dipped in the solution may be bound upon the parts, and if necessary, more of the fluid extract added. The most obstinate case of poisoning will be overcome by this mode of treatment, and immediately after the first application the most surprising relief is experienced.

**Report 30.†**—This drug is a good sedative to the mucous membrane of the air passages. In chronic bronchitis and the cough of phthisis I have had most excellent results from its use; acting as a cure in chronic bronchitis; relieving the pain of and the frequent desire of coughing in phthisis. I have not yet used it in asthma, but have known of its affording relief in one or two instances.

**Report 31.‡**—I have to report the successful use of *grindelia robusta* in eight cases of hay fever last year, and I am preparing the medicine for other cases who have applied to me in consequence of my successful relief, and it is hoped cure, of my last year's cases.

**Report 32.§**—CASE 1.—My first case was my own daughter, a young lady who is inclined to pulmonary congestion. She had a bad attack of it, complicated with bronchial irritation. I commenced with one-half drachm doses every three hours of *grindelia robusta*, and in 24 hours the cough ceased and convalescence ensued. I was struck with the almost instantaneous relief given, and prescribed again for another case in a worse condition than the former, and it cured it likewise; at other times a week's treatment with Dover's powders and cough medicines did not produce such favorable results. I saw at once the peculiar action of the remedy, and now combine it with all my expectorants, constituting it as my special factor in all cases.

CASE 2.—I had a case of a child three years old this winter, double pneumonia. I almost despaired of it, but with other treatment prescribed ten drops of *grindelia* and *yerba santa*, combined, every two hours during three days, and it resulted favorably.

**Report 33.||**—So far as I have had occasion to test the *grindelia robusta*, it has yielded excellent results, greatly benefiting a most severe and obstinate case of asthma which had defied all the usual and many unusual remedies. It was in this instance especially efficient in preventing the recurrence of the paroxysms when administered continuously for several weeks.

**Report 34.††**—I believe *grindelia robusta* will continue to maintain the excellent character it has borne as a specific in asthma. I am much pleased with its action in such cases.

**Report 35.\*\***—Observing the good effects of *grindelia robusta* in the treatment of asthma, I was led to believe it would be serviceable in pertussis—as they are allied affections—and resolved to give it a fair trial on the first favorable opportunity. Fortunately I had not long to wait, for in a short time a number of cases came under my care, and I administered the remedy in various combinations, with very satisfactory results. The article does not control the paroxysms as completely as some others, but it so modifies them and lessens their numbers, that they become in a short time more tolerable, and restoration is more rapid and permanent under its use than under any other article which I have used. The number of cases to which I administered it with uniform results was sufficient, in my opinion, to establish its merits, and I shall hereafter consider it as one of my best remedies in treating that troublesome affection.

**Report 36.†††**—Mrs. ———, æt. 35, married 32 years, mother of six children,

\*James G. Steele, San Francisco, Cal., in *New Preparations*, 1878, p. 24.

†E. S. Baker, M. D., in *American Medical Bi-Weekly* (*New Preparations*, 1879, p. 19).

‡Lewis Dodge, M. D., Chicago, Ill., in *New Preparations*, 1879, p. 35.

§Wm. Goodrich, M. D., Delaware, O., in *New Preparations*, 1879, p. 58.

||Boardman Reed, M. D., Atlanta City, N. J., in *New Preparations*, 1879, p. 12.

††C. A. Bryce, M. D., Richmond, Va., in *New Preparations*, 1879, p. 113.

\*\*C. H. Hasner, M. D., *Arkansas Medical Journal* (*New Preparations*, 1879, p. 44).

†††*New Preparations*, 1879, p. 29.

plump, somewhat inclined to obesity, of very fair and florid complexion, generally speaking, healthy, and of uncommon strength and endurance, bodily and mentally, had, since her menses made their first appearance, always had a very copious flow, lasting three or four days, and the menses with great regularity flowed every 21 days. About two years ago she underwent the "change of life." Immediately after the menses stopped, vaginitis set in, and she says that the burning and itching she suffers day and night is beyond all description, and it has resisted every remedy that came within her knowledge. The flow of a whitish acrid fluid has also persistently continued. When the case was explained to me I recollected that *grindelia robusta* was highly recommended. I therefore put up:

R Extractis *grindeliæ robustæ* fluidi, ꝑj.  
Aquæ pluviæ, ꝑiv.

M. S. Apply an injection with a common glass vaginal syringe twice or three times a day, and apply the mixture to the parts inflamed externally by wet cloths, changing three or four times a day.

About a week afterwards patient reported success to my wife, saying: "Your stuff is boss! Have spent the first few days for years without suffering. Hope it will last." She was advised to keep the mixture about the house, and to apply it at the slightest symptom of vaginitis.

**Report 37.\***—At a recent meeting of the Suffolk District Medical Society, Dr. Pattee called attention to the beneficial effects of the drug in certain pulmonary affections, and remarked that most of the fluid extracts sold in this market were said to be worthless. Dr. Pattee had used the tincture in bronchitis, asthma and whooping-cough, in doses of half a drachm or more, repeated every one or two hours. The effect was said to have been curative in thirty cases of whooping-cough, after three or four days, without the occurrence of relapses. The dose for a child two years old would be about ten drops.

**Report 38.†**—In March, Mr. J. N. B., a well-to-do farmer (whose mother was under my care suffering with pleuro-pneumonia), inquired: "Doctor, why can't you do something for me?" On directing my attention to him, suffering severely with all the symptoms of hay asthma—he had just come in from the barns, where he had been foddering his stock—I learned that every winter for the past ten, he had suffered fearfully in the same manner, each succeeding winter worse than the previous, until it was a dread to him to even go in a barn where hay was stored, and that he had consulted various physicians without receiving any benefit, and taken many "patent" medicines without relief. I had with me a bottle of *grindelia robusta* and yerba santa, equal parts combined, which I was using in a case of partial aphonia, complicated with asthma, and I thought I would give it a trial in this case. Prepared:

R Fl. ext. *grindeliæ robustæ* et *yerbæ santæ*, coch. parv., j.  
Aquæ puræ, coch. parv., xj.

M. Sig.—A teaspoonful every twenty minutes until relieved, then at intervals of three hours until cured.

May 1. Saw Mr. B. He informed me that he took the first twelve teaspoonfuls. The three first gave prompt and efficient relief, but continued the use until the twelve were used. Prepared the second twelve, but found it necessary at first to take but one teaspoonful a day, and now takes one at intervals of from five to eight days, and suffers no more from the difficulty. He wants to know why some of the other physicians in this part of the country did not know what to give years ago.

**Report 39.‡**—The thought occurred to me that it might be well to couple with *grindelia robusta* some preparation of yerba santa, this having acquired considerable reputation of late in the treatment of bronchial affections. Accordingly, the next time asthma was submitted to my care, I prescribed as follows:

R Elixir *grindeliæ robustæ*, ꝑxij.  
Glycerole of yerba santa, ꝑiv.

M. et Sig.—From two teaspoonfuls to one tablespoonful four times a day.

The result exceeded my most sanguine expectations, and I will give the brief details of three cases:

CASE 1.—Mrs. L. M., æt., 37 had suffered from asthma fifteen years. During this period she, like almost all asthmatics, had tried many remedies with no practical relief. Coming to me August 4, 1878, I gave her the medicine to which I have just referred.

\*New Preparations, 1879; p. 46.

†C. H. Yelvington, M. D., Susquehanna, Pa., in New Preparations, 1879; p. 141.

‡Frank Allport, M. D., in the Medical Record (New Preparations, 1879; p. 186).

Before commencing treatment she was robbed of the latter part of almost every night's rest. About two o'clock in the morning the sitting posture, and the smoking of a preparation for the relief of dyspnoea, became imperatively necessary. The loss of sleep consequent upon these procedures had their legitimate effect upon her system. Emaciation and general debility followed, and her careworn and anxious countenance plainly indicated the suffering she was undergoing.

The first night the medicine was taken refreshing sleeping till six o'clock in the morning resulted. From that time to the present she has not lost a night's rest from this cause, nor felt more than a very slight indication of a return of asthma, notwithstanding she has suffered in the interim several times with a severe cold. She has gained flesh, is much improved in general health, and says the medicine has been and is to her of invaluable worth.

CASE 2.—Mrs. L. P., aged 32, was an asthmatic for ten years. Emaciation was very marked, her rest habitually broken, and her bowels were obstinately constipated. Coming to me November 4, 1878, I gave her *grindelia robusta* and *yerba santa*. During the first two days the relief was slight, but improvement then became decided. At this juncture the breaking up of housekeeping caused a severe and continued cold, and her asthma became nearly as bad as ever. The remedy was continued, however; the patient recovered from the attack; and has not felt any indications of a return of her malady up to the present date; her bowels have become regulated, and her general health and emaciation very much improved.

CASE 3.—Mrs. A. V., aged 50 years, and asthmatic for 18 years. She had been so intense a sufferer as to become a confirmed morphine eater; she commenced the treatment already referred to December 4, 1878. Immediate relief was obtained.

It is not necessary to cite more instances; those already given are but fair illustrations of other cases in which I have used the remedy. I have prescribed it about 20 times, and in only two instances (and these were cases of a very complicated nature), where patients have followed my directions has it failed in producing good and (up to the present writing) permanent results. After the medicine has been taken in large doses for a few weeks the quantity may be gradually reduced, and at last altogether discontinued. I have noticed in some cases that considerable nausea and looseness of the bowels were temporarily produced.

Report 40.\*—I have used this medicine in several cases of chronic pneumonia, bronchitis, and asthmatic troubles, whether depending upon cardiac lesions or structural disease of the lungs or bronchial tubes, and my patients were invariably benefited by it to some extent.

CASE 1.—Mrs. F., æt. 48, had chronic pneumonia of about two years' duration, with considerable purulent expectoration. Physical examination of the chest revealed flatness of the entire left lung. She suffered with considerable dyspnoea, and used all the expectorants, oils, anodynes, tonics, alteratives and alkalies in existence with little benefit. She was given one teaspoonful of the fluid extract *grindelia robusta* every two or three hours, or more frequently when her cough was less severe. The expectoration diminished, and her appetite and general health improved so that she is better now than she has been for a year.

CASE 2.—Mrs. R., had pneumonia about eight months ago. She has flatness of the right lung, and partial consolidation of the base of the left remaining. I treated her in the acute stage of pneumonia, and am treating her now. She had many remedies given her without any benefit. I placed her under the fluid extract of *grindelia robusta*, giving her a teaspoonful every two hours. She was put on this treatment about three weeks ago, and as long as she had been under it she slept better, has less cough and dyspnoea, and is in all respects better than she has been for nine months.

CASE 3.—Has cardiac enlargement, with valvular lesions and chronic bronchitis. This patient formerly derived much benefit from the fluid extract of gelsemium and extract belladonna, but lately could not be so relieved. He was placed under the *grindelia*. In this case, as in the former, the patient was relieved in a few days. His heart trouble of course remained the same, but his bronchitis was seemingly entirely cured.

Report 41.†—CASE 1.—G., æt. 60, a Frenchman, has suffered from the ulceration of the leg ("old sore leg") for twenty years, and in all this time it has never been healed, notwithstanding it has been treated by good physicians, and in hospitals. Providence sent him in the right time to try this medicine.

Condition Sept. 16.—Leg very much swollen, especially about the ankle joint, where it somewhat resembled elephantiasis; the color was a purplish black; two large

\*C. J. Rademaker, M. D., in the Louisville Medical News (New Preparations, 1876, p. 6.)  
†Eclectic Medical Journal.

ulcers over the tibia, one measuring two, the other three and a half inches in longest diameter, and at least half an inch in depth; the secretion was abundant and fetid; he suffered severe pain in the ulcers and leg, and could hardly get about.

I prescribed the grindelia, ten drops three times a day internally and a local application of  $\frac{1}{2}$  oz. to 8 oz of water, to be applied as a wet dressing twice daily. He was using a roller, but so imperfectly that it did no good, and yet not so badly as to do harm. To show the amount of local application I may say that the eight ounce mixture lasts him a week.

There was a decided improvement from the first. At the end of a week the leg was free from pain, the swelling much reduced, the color decidedly better, and the ulcers lessened in size one third. To-day I find one ulcer healed, the other about the size of a half-dollar, and healing, and the old gentleman getting around on his feet with comfort.

CASE 2.—Dr. Lord, of Dillsborough, Indiana, sent his student to the city with an urgent request that I visit him at once, as he was suffering severely from asthma, and had had no rest for five days; the physician and the friends thought the case a dangerous one. I was absent from the city, and Dr. Hannah sent down the grindelia for trial. Ten drop doses were given, with decided relief from the first, a good night's rest, and entire relief in a short time.

Report 42.\*—CASE 1.—Chronic bronchitis of twenty-five years' duration with frequently recurring attacks of asthma; the weather of the past summer and fall, with great humidity of the atmosphere aggravating these attacks in violence and frequency. When the medicine was first given, during the early part of December, the patient was recovering from a terrible paroxysm of asthma. Within a few days respiration was much easier than it had been for years. Not only were the intervals between the attacks materially lengthened, but these were rendered milder, and this relief has continued to date.

CASE 2 is that of a German shoemaker, H. F., who eight years ago had pneumonia. Two years ago he commenced coughing and losing flesh rapidly; dullness soon became evident at the apex of the right lung. Under codliver oil he improved and ultimately regained his health. Last fall, however, after a thorough drenching in a shower of rain, he had bronchitis, which became chronic, and it was mitigated only by the usual anodynes and expectorants. Soon asthma engrafted itself upon the original disease, when opium, lobelia, arsenic, nitre-paper, chloral hydrate, bromide of potassium, etc., were in turn given without benefit. The relief obtained in case one induced me to try it here. The result was more marked, as the patient expressed himself entirely well in twelve days from its administration.

CASE 3.—A delicate lady in whom the progress of tuberculosis was arrested by codliver oil. In this case there was enlargement of the heart. A violent bronchitis followed a change of clothing during the pleasant weather of the Christmas holidays. The dyspnoea was very distressing, and to add to the danger of the case the patient was four months advanced in pregnancy. The patient made a rapid and satisfactory recovery. She remained well three weeks, when she was again attacked, and is now in a very dangerous condition—the medicine mitigating the severity of the symptoms, but not giving the decided and prompt relief afforded in the first attack.

CASE 4.—I was called to this patient at night during a paroxysm of asthma; learning that she was the subject of asthma for a number of years; attacks aggravated by the climacteric period upon which she had entered, both in frequency and severity. The grindelia was ordered, but could not be obtained at the time as the druggists were not generally supplied; consequently chloroform was given to relieve the violent and almost ineffectual attempts at respiration. The paroxysm was relieved, but the breathing at the morning visit was still laborious and wheezing. The grindelia was procured meantime, and the patient ordered to take it immediately. The case progressed well and rapidly. This lady—one of unusual intelligence and considerable experience in nursing the sick, to which she is prompted by her active Christian charity—declares she could not sleep comfortably without having the medicine in the house.

CASE 5 has cardiac enlargement with valvular lesions, and not only a consumptive history, but the right lung is the seat of considerable tubercular deposit. The diminished lung structure, already overtaxed by the additional duty imposed upon it by the two causes mentioned, was further impaired by the recent attack of bronchitis. The respiration was difficult and laborious, and the patient, unable to lie down, had to be propped up with pillows; here the same result followed—*i. e.*, so far as a relief of the superadded trouble was concerned. Of course the heart beat as tumultuously as ever, the tubercular deposit held its own, but the grindelia lightened the burden.

\*Dr. John E. Crowe, in Louisville Medical News (New Preparations, 1876, p. 5).

CASE 6.—A stout man, a railroad "boss," contracted bronchitis in the fall of 1874, which persisted to April, 1875, and recurred in fall of the year. After exposure during an entire day to a beating rain, he was seized about four o'clock the following day, with a sense of suffocation or "smothering," as he expressed it. I saw him shortly afterward; breathing difficult; lips blue; countenance anxious; pulse 120, small; respiration 40; short panting; moist rales over both lungs. The usual mode of treating this patient would have been inhalation of medicated vapor, anodynes, ammonia, and perhaps poultices, and the usual result is a protracted, lingering cure. I therefore determined to order *grindelia* and watch its effects. Within eight hours the respiration fell to 28, and the pulse to 100, and in four days the patient was entirely well. I have used the medicine in five other cases similar to those detailed, with the same results.

**Report 43.**\*—In cases of poisoning by the rhus, *grindelia robusta* has not, in my hands, verified the expectations of its introducers. It is demulcent, as well as stimulant, and makes an excellent dressing for vesicated surfaces. For burns, the herb bruised and applied frequently over the injured parts, relieves the pain, soothes and calms the sufferer, and often sleep follows where formerly intense torture had existed, making in these cases a far better dressing than anything I ever used. It is one of the best remedies we have in uterine catarrh, or the catarrh of the urinary organs. In subduing the intense burning and itching of vaginitis, as well as painful priapism, it is of great value. In the first, tincture or fluid extract, of the strength of one tablespoonful of either to about four tablespoonfuls of water, should be used as an injection three or four times a day, and cloths should be soaked in it and applied to the pubes, as hot as can be borne. In the other, a direct application should be made of the bruised plant, in the form of a poultice, if possible, changed frequently. In a few hours marked beneficial results will be noticed.

But it is in iritis that the greatest victories are won, no matter how what the cause, whether gout, rheumatism, scrofula, or violence. It seems, in its effects on the diseased iris, to be almost a specific.

CASE 1.—Mr. C., æt. 35, applied to me for treatment. "His right eye was much swollen and protruding, the iris very much contracted and irregular on its edges. There was intense pain through the whole ball of the eye. The conjunctiva was very red, and its blood-vessels distended. The lids were swollen and tinged. He had been in poor health for some time, but had followed his usual avocation, that of teamster, till yesterday. I applied leeches, put him on mercury, and employed the usual cooling lotion of the organ. This course was thoroughly followed for several days, with no appreciable benefit. He could not rest without an opiate. The case was anything but a promising one. As he sat in my office, complaining bitterly of the heat and pain, begging me to do something to give relief, I thought of the *grindelia*, some of which was on the table before me. I immediately acted on the thought, and soaking some thin cloths in a mixture of one tablespoonful of fluid extract to four of water, I applied it, with directions to keep it wet. He remained in the office several hours, to avoid the intense glare of the sun (it being in the country). When I returned there was marked amelioration of the symptoms. In the morning, for an old asthmatic difficulty from which he had suffered, I gave him some of the fluid extract of *grindelia*, with directions to take one teaspoonful four times a day. In thirty-six hours the patient was convalescent from both troubles.

CASE 2.—Mr. G., an old man sixty years of age, received an injury of the left eye while in the hay-field. After using home remedies for two days, without benefit, he came to me, suffering intensely with all the symptoms of iritis as strongly marked as in the other case. Having met with such good success, I commenced immediately with the *grindelia* externally and internally, as before. In twenty hours the pain and inflammation had nearly ceased, and in a few days he resumed his business.

These two cases, which I have selected from numbers of others on my record, I give as specimens of my experience with it as a remedy in that truly formidable disease. I gave my experience at an early day in my investigation to a friend, Dr. A., who reports to me that in his hands it fully sustains my opinion of it. In cancer of the stomach it quiets the distressing nausea and retching attendant on all stages of that disease better, perhaps, than any other remedy. It acts as a gentle stimulant, relieving the feeling of prostration, and at the same time quieting the nervous system to such an extent that sleep often follows its use, when opium and other narcotics have failed to accomplish that purpose.

**Report 44.**†—I come forward with my voluntary testimonials to the splendid virtues of *grindelia robusta* and *yerba santa* in the treatment of asthma and bronchitis. Given in

\*Henry M. Fiske, M. D., in *Pacific Medical Journal* (New Preparations, 1876: p. 4).

†D. L. Field, M. D., Jeffersonville, Ind., in *Therapeutic Gazette*, 1886, p. 44.

the proportion of two-thirds of one and one-third of the latter in cases of such character when chronic, nothing equals their efficacy. In fact, the results from the first trial surprised me.

**Report 45.\***—This drug has a marked influence upon the mucous membrane, and it has been found very useful in asthmatic and other pulmonary affections. This remedy acts kindly when combined with yerba santa in pulmonary troubles, or in anasarca with jaborandi. Dose of fluid extract, thirty to sixty drops.

**Report 46.†**—It is with *grindelia robusta* I am most pleased, as I have not yet seen it given in a case of chronic asthma in which relief did not speedily follow. There are many afflicted with this affection in our district, and the field here is large. I have used it for three persons suffering from asthma. No. 1 was a boy 8 years old, subject to fortnightly returns of three days' duration, and I gave him 15 drops fluid extract in an equal quantity of syr. ipecac, repeated every three hours. The first dose materially relieved him, and after taking the third dose he has been free from his asthma ever since, now full seven weeks.

No. 2, a man æt. 67, has had severe asthma for the last 25 years; gave him 30 drops fluid extract with same quantity syr. ipecac, and 10 grains bromide of ammonium in water  $\frac{2}{3}$  ss, repeated every four hours; this was at 8 o'clock at night. At 9 o'clock next morning he presented himself free from asthma, and says he has tried almost everything, but the above was the only thing that had such rapid effect.

No. 3 was a case of nervous asthma, in which I gave the man 25 drops of fluid extract in water, to be repeated every three hours, if necessary. He only took one dose, which cut short the attack.

**Report 47.‡**—The *grindelia robusta* is a remedy I have been prescribing in cases of asthma complicated with bronchitis, and in such cases I believe it to be a very useful remedy, as it in some instances produces very good effects. In some cases of uncomplicated asthma there does not result as much benefit, as the success in other cases lead us to look for, and this uncertainty no doubt arises from our want of a proper analysis of this drug, and a careful and extensive set of physiological experiments carried out with its active principles, or its proximate elements, to make ourselves acquainted with its modus operandi and the nervous centres upon which these proximate principles act and from which these effects are directed to the several tissues and parts of the lungs.

**Report 48.§**—Having seen an advertisement of this drug on its first introduction, I sent to Mr. Mack Webber, of Oakland, California, for a sample of the solid extract, which I tried on an inveterate case, one which had baffled all of the many attempts which I had made to relieve it. It was one of those cases in which there is no dispute as to the propriety of a resort to a "new remedy." Even one of our fastidiously conservative brethren would scarcely have objected to its use in this case, provided, always, that he could be assured that there was nothing poisonous or injurious in the drug. This patient was aged 56, and had been afflicted with bronchitis and paroxysmal asthma for a quarter of a century. A long course of iodide of potassium alternated with muriate of ammonia, had allayed the bronchitis very materially, but had no influence on the asthma. I gave her a drachm of the solid extract of *grindelia robusta*, made up into 30 pills, one of which was ordered to be taken every three hours. To say that the effect was magical would sound extravagant, but that is the only objection to the use of the word. After two pills had been taken there was marked relief of the paroxysm, and on the evening of the day on which she commenced taking the medicine, she fell asleep, and slept until four o'clock on the following morning without waking. She awoke at this hour with an impending return of the paroxysm, but a single pill warded it off. The medicine was continued until the 30 pills were taken. It was followed by complete immunity from attack for three weeks, a very unusual experience for this patient. On the recurrence of the attack she sent for some more pills, and I gave her 30 more, the taking of which was followed by results quite as satisfactory as those following the first lot. *Grindelia robusta*, in the form of the fluid extract, now has its permanent place in the old lady's cupboard, and it has never yet disappointed the hope with which she takes it when admonished of an attack of her dreaded enemy. I reported this case to the Wayne County Medical Society, some five years ago. On the strength of this report a number of the

\*F. V. Fleor, M. D., in the Transactions, Youngstown, Ohio (Therapeutic Gazette, 1880, p. 181).

†A. E. Remington, Bull's, Rangitikei, New Zealand, in Therapeutic Gazette, pp. 195, 270.

‡T. M. Curl, M. D., Fellow of the Linnean Society, England, Rangitikei, New Zealand, in the Therapeutic Gazette, 1880, p. 273.

§J. J. Mulheron, M. D., Professor of Materia Medica and Therapeutics, Michigan College of Medicine, in the Therapeutic Gazette, 1880, p. 30.

other members submitted the drug to a trial, and subsequently several flattering reports were presented.

**Report 49.\***—I had an attack of hay fever on the 8th of October, and in a few days had tried all the remedies I could find recommended, but all to no purpose. It then struck me to try grindelia, and I sent to the drug store for one ounce. The first dose gave me ease, and in two hours I took the second dose. Feeling no symptoms of the disease, I concluded that I was cured, and so it proved, for I had no return of the symptoms. I have treated four other cases successfully with it. *Grindelia robusta*, in my opinion is an efficient remedy for hay fever and asthma.

**Report 50.†**—I have used the fluid extract *grindelia robusta* in asthmatic troubles very extensively. I find it has a better effect by giving from 10 to 15 drops every hour or two, or even every half hour, if the fit of asthma is severe, than to give larger doses. In continuing the remedy for some time, I have seen better results than from any remedy I have met with. Where much bronchial irritation is present I combine with it *yerba santa* with very satisfactory results.

**Report 51.‡**—I have prescribed *grindelia* in many cases of spasmodic asthma, and in no instance has it failed to relieve the paroxysms, while its administration between the attacks is useful in warding off seizures. I can highly recommend *grindelia robusta* as a remedy in asthma.

**Report 52.§**—On taking the chair of diseases of heart and lungs in one of the dispensaries here some two years and a half ago, I naturally met with quite a number of cases of asthma, and having for some months faithfully tried the various approved plans of treatment, which I had used with more or less—usually less—success in private practice, I determined, simply as an experiment, to see what could be done with *grindelia robusta*. It must be remembered that the majority of cases first treated were of long standing; and among a class of people whose hygienic surroundings were, as a rule, bad, and whose occupations, in some instances, were extremely obnoxious to the disease. Notwithstanding this, however, the result of the treatment was more than gratifying. The writer is not one who is much inclined to talk about cures, but in no single instance, and that, too, covering a comparatively large experience, has it failed to effect a prompt and decided relief. Up to the present date, including both private and dispensary practice, I have used it in over 60 cases of which I have made note, and nearly as many more without any record. It has seemed to be of equal efficacy, whether employed for simple spasmodic or for inflammatory asthma. In two cases of cardiac asthma, when combined with the other remedies, it has relieved the dyspnoea as nothing else would. It is useful both during the paroxysm and in the intervals, although it is to be given differently in the two instances. For the former it should be administered in half-drachm doses of the fluid extract every fifteen minutes, until the spasm is relieved. At other times it is to be given in 15 to 20 drop doses, at intervals of from 4 to 6 hours, and continued for from a week to ten days, when, except in very obstinate cases, it will have accomplished what was intended, and the patient will experience relief for a period of six or eight months, and in many cases longer. At the approach of another attack the use of the drug for a few days will be found all that is necessary.

My usual dispensary formula for its administration is as follows:

℞ Potassi bromidi, ʒ ss.  
Fl. ext. *grindeliæ robustæ*,  
Syr. *ipeacuanhæ*, ℥ʒ ij.  
Aque puræ, ʒ ij.

M. S.—Teaspoonful every four hours.

This had better be varied in private practice, as it is decidedly nasty to the taste. In my experience I have rarely had to give more than one bottle of this mixture until after the expiration of the time mentioned above. *Grindelia robusta* has also proved of singular benefit in hay asthma. In one case in particular of this nature, where the patient, a lady, had been a great sufferer from this affection for 38 years, and had tried everything without any relief, it acted like a charm, and I received a note of thanks from her which would have made the fortune of a patent medicine man.

I have used it now exclusively for all asthmatic affections occurring in my practice, for over two years, and have never been disappointed in it. Others may not be so fortunate,

\*J. M. Haralson, M. D., Brighton, Mo., in the *Therapeutic Gazette*, 1880, p. 331.

†A. J. Fuller, M. D., Bath, Me., in the *Therapeutic Gazette*, 1880, p. 95.

‡A. H. Ketchum, M. D., Narasta, Texas, in the *Therapeutic Gazette*, 1881, p. 54.

§T. M. Rochester, M. D. Proceedings Medical Society County of Kings, N. Y., *Therapeutic Gazette*, 1881, p. 228.

as there is a great deal in getting used to any remedy and learning just how to vary its administration and dose for each individual case. The writer's experience, however, is excuse enough for his occupying a portion of your time this evening, and he believes that *grindelia robusta* will prove of very great assistance in a number of what might otherwise have been exceedingly obstinate cases. A number of my friends in the profession have used it and report good success. In one case, in the practice of Dr. McHaughton, where it was given to a child during a paroxysm, although it relieved the dyspnoea, it also seemed to have a decidedly depressant effect. This is the only instance where I have seen or heard of its having this action, and I am inclined to think it due in this case to some idiosyncrasy of the patient.

As regards the preparation used, I have always employed the fluid extract, but think that, owing to its unpleasant taste, if there be a solid extract it would be preferable to give it in pill form.

In conclusion, let me say a few words as to the probable action of *grindelia robusta*. I do not believe that it is a specific. My observation of its effects induces me to consider it primarily as an anti-spasmodic, with possibly especial reference to the spasm of the bronchioles. Secondly, it is a stimulant expectorant, and this is probably why, in conjunction with its anti-spasmodic properties, it is so peculiarly useful in inflammatory asthma. Thirdly, it may be regarded, in a certain sense, as a bronchial tonic. Judging from its action, it looks as though it might prove useful in pertussis, but my own experience with it in this affection has not been sufficient to warrant an assertion to that effect. I have used it in a few cases in dispensary practice, and the mothers have told me that the children's paroxysms were not so severe or frequent while taking it, but this is only hearsay evidence.

I have used it, however, with marked benefit, in a great many cases of bronchorrhoea and chronic bronchitis, as an adjuvant to other measures.

**Report 53.\***—During the summer of 1879 I met a lady, æt. about 46 years, who had been a sufferer from asthma for 30 years previously. She had also been a sufferer from what she called cramps in the stomach, some attacks lasting for several days, and of great severity, life being despaired of during many. Several different physicians had seen her at these times, but none knew what her trouble was. I mention this for it may have been a barrier in the treatment of asthma. She had applied to many physicians for aid, but temporary relief was all she got from any. Finally, as I was visiting in her neighborhood, I suggested she should try *grindelia robusta*, one-fourth teaspoonful every 20 minutes during the paroxysm, and every four hours during the interval. It acted as a powerful stimulating expectorant, and seemed of much good, but it caused such nervous excitement that I caused her to lessen the dose to one-half the quantity; effects the same, diminishing the quantity to one-fourth, then to three-drop doses, but she stated that even in those small doses she could could not take it. On my asking how she felt after taking a small dose, she said: "I feel as though I were all afire, something pulling me all to pieces, just as if I wanted to jump out of my clothing. I cannot eat, sleep, nor enjoy any comfort, except a lessening of the difficulty of breathing." I ordered a discontinuance of the remedy. I thought that perhaps her other troubles were the hindrance mostly to its successful action. She was not under my direct care. I used the fluid extract (P., D. & Co.'s). I have used *grindelia robusta* in both acute and chronic bronchitis, with the most satisfactory results. In fact, I met with better effects from its use in these affections than with any other remedies. It seems to lessen the pain and the cough sooner than ordinary remedies. I used the fluid extract with an equal quantity of syr. simplex. drachm doses every two or four hours. Some cases of acute bronchitis are shortened to 60 and thirty-six hours duration. Being an invalid during the past 21 months, I have not had any marked cases of asthma to try its effects on lately.

**Report 54†.**—I have tested the fluid extract of *grindelia robusta* in quite a number of cases, I can fully corroborate from my experience the statements made by the majority of those who have employed it, regarding the efficiency of this medicine in cases of chronic pneumonia, chronic bronchitis, hay fever in complication with even severe paroxysms of asthma.

The case of Miss L. T., æt. 27 years, illustrated to me the occasional salutary effects of *grindelia robusta* in the most convincing manner. She has been a sufferer from hay fever for the past 10 years, and while at the onset of the affection the paroxysms would leave her for some time entirely, they became gradually so frequent and severe that she was troubled almost continuously by day and night, and was unable to leave her house.

\*R. Ande Blair, M. D., Waterford, Pa., in the *Therapeutic Gazette*, 1881, p. 289.

†G. Meeker, M. D., Newark, N. J., in the *Therapeutic Gazette*, 1881, p. 373.

She had been under the treatment of some of our most noted physicians, but without obtaining any apparent relief, until she commenced, by my directions, the use of fluid extract *grindelia robusta* (P., D. & Co.'s). This medicine acted so favorably on her, that she admits openly that she never received such a decided benefit from any previous treatment. Some time has elapsed since she has taken any medicine, and she has been free from attack and is doing well.

**Report 55.\***—Asthma, two cases, slight improvement. Bronchitis, two cases, no improvement. In cough of phthisis it was followed by some benefit.

**Report 56.†**—Having observed remarkable remedial properties of *grindelia robusta* in an obstinate case of asthma under my observation, I take pleasure in adding a report of the case to the large accumulation of testimony already offered in favor of the Californian drug. The patient, Mr. John W. Glenn, civil engineer and architect, of Austin, Texas, is a gentleman of fine scholarly attainments, and so amply qualified to express an intelligent opinion, that I cannot do better than to submit the following statement of his case from his own pen:

I have been for nearly 20 years an occasional sufferer from asthma, some of the attacks characterized by such violent paroxysms as have probably never been exceeded. My physique is good; temperament, *nervo-bilious*; habits, good; vitality, very large, age 43. Never impaired my nervous or physical capital by excesses; have had yellow fever twice, and, during childhood and youth, all the customary diseases incident to that time of life. All things considered, I am probably a patient on whom medicine could operate as free from collateral embarrassment as any man living. At your suggestion I procured about two ounces fluid extract *grindelia robusta*, to be taken in doses of from 20 to 30 drops, and in about one week after was awakened about 1.00 o'clock at night with a very distressing paroxysm. Mrs. Glenn gave me 30 drops in about two tablespoonfuls of water. Within a very few seconds after taking it, the strain of the paroxysm disappeared, and excessive expectoration resulted. In about 20 minutes thereafter the paroxysms began again, and in exactly one-half hour Mrs. Glenn gave me 20 drops more, with the same result as before, with this addition, that in about 20 minutes after taking the second dose, nausea was experienced, followed by vomiting, and soon after a profound and satisfactory sleep of about 12 hours.

On two occasions since I have taken 20 drops when first threatened, and in each case drove it off. Indeed, so pronounced was its influence in my case, that I have sent word to several others who are afflicted with asthma that when attacked to send for me, and I would give of what I had as long as it lasted. My purpose is to satisfy my mind as to its value in such a number of cases as will divest the matter of all doubt.

**Report 57.‡**—*Grindelia robusta*, the remedy which has been introduced in the treatment of spasmodic asthma, has been used at the Charity Hospital, N. Y., with favorable results, but in a manner different from what might have been expected. It was supposed that, if the agent relieved the spasmodic condition in asthma, it might prove of service in the cough of phthisis, and for this purpose it was given to a large number of patients in the medical wards. It was also administered in a case of asthma. In the asthmatic patient no benefit was obtained, but in the phthisis cases considerable relief to the distressing cough was noticed in the majority of them.

**Report 58.§**—About four years ago, shortly after their introduction, and while treating a number of cases of chronic bronchitis with very indifferent success by means of the old orthodox cough mixtures, I began using the *yerba santa* and *grindelia robusta*. At first I used *yerba santa* alone, and obtained very satisfactory results. About that time the medical journals contained numerous reports of the singularly beneficial effects exerted by *grindelia robusta* in asthma, and it occurred to me that it would be a valuable addition to a cough mixture, especially when designed for the relief of the very annoying cough attending bronchitis, a cough which, while the person is up and moving around during the day causes almost no inconvenience, but as soon as the recumbent position is assumed, commences with greater or less severity and continues sometimes for hours, depriving the sufferer of much needed repose, and proving a source of annoyance both to patient and physician. Accordingly, I began using the following, viz.:

\*Charity Hospital, Blackwell's Island, N. Y., in the *Therapeutic Gazette*, 1881, p. 87.

†Dr. Wallace, Superintendent Texas State Lunatic Asylum, in *New Preparations*, 1870, p. 85.

‡Charity Hospital, Blackwell's Island, N. Y., in *New Preparations*, 1879, p. 99. (See subsequent report from this hospital—No. 55, above.)

§Dr. E. Steuver, in the *Medical News*, Nov. 24, 1885 (*Medical Age*, 1885, p. 500).

℞ Fl. ext. grindelie robustæ.  
Fl. ext. yerbæ santæ, ꝥꝥ f ʒj.  
Syrupi tulutanæ vel. simplicis,  
q. s. ad f ʒiij.

M. Sig. ʒj to ʒij every hour or two when needed for cough.

This combination gave very satisfactory results in the great majority of cases; indeed, in some instances it acted like a charm, instantly controlling the cough and relieving the tickling in the throat and bronchial tubes.

I have now used the preparation about four years in a large number of cases, and have obtained very gratifying results. In one instance I administered it to a medical friend, who was suffering from an attack of so-called "mountain fever," accompanied by bronchitis and harrassing cough; and so prompt was the relief afforded, and so highly pleased was he with the remedy that he has used it almost exclusively as a cough mixture in his practice since that time. I have repeatedly used the preparation for cough and irritation of the bronchial tubes in my own case, and it always afforded prompt relief.

Many other cases might be cited with the same results, but enough has been said to indicate its field of usefulness. While I have not noticed so decided an amelioration of the cough due to chronic bronchitis or phthisis pulmonalis, as of that due to acute chronic bronchitis, still in many cases considerable relief is obtained. I have now under treatment a lady about 70 years old, suffering from an aggravated chronic bronchitis, the symptoms of which were markedly alleviated by this preparation. Whether our high altitude (6,730 feet above sea level), and light, dry atmosphere, have anything to do with the results obtained, I am unable to say; but if the preparation yields as good results in a lower altitude and damper atmosphere as I have obtained from it here, it will confer a real benefit if used in properly selected cases.

The preparation is free from any unpleasant effects, such as headache, constipation, etc., which frequently follow the use of cough mixtures containing opiates. I have noticed no unpleasant effects following the use of small doses, but when large doses are administered temporary nausea may supervene.

**Report 59.\***—The effects of a trial of grindelia robusta in my own person have been marvelous. I have been suffering from a slight bronchial catarrh which often became unpleasant through the asthmatic attacks following, slightly increased. I have so relieved myself by the daily use for three days, of three doses of 25 drops of the new drug, that I feel as though I had never been ill.

A patient of mine who suffered much from a severe chronic bronchial catarrh, emphysema, and frequent asthmatical attacks, has been so much relieved by the use of the same extract for the period of eight days, that she is at a loss for sufficient thanks. The same woman who a short time ago passed whole nights out of bed, struggling for needed breath, and who could secure only slight ephemeral relief by the use of morphine and all possible expectorants, after only an eight-days' use of the extract of grindelia robusta, is now in the enjoyment of each night's peaceful sleep, and has so much improved her bronchial catarrh, that by careful examination, scarcely a trace thereof is to be found.

**Report 60.†**—Mrs. C., aged 37, had been suffering with asthma for some time when her husband applied to me for treatment. The attacks were so severe that she was unable to obtain rest, frequently having to be up from midnight till day.

I gave the following prescription:

℞ Fl. ext. grindelia robusta, ʒj.  
Fl. ext. lobelia, ʒiii.  
Fl. ext. belladonna, ʒiiss.  
Iodide potassium, ʒiiss.  
Syr. tolu, q. s. ad. ʒiv.

M. S. Teaspoonful as needed to keep down the attacks.

About three weeks later the husband reported that his wife, after taking a few doses of the medicine, had not had a single paroxysm—that she had been completely relieved. I would be glad to hear the experience of others.

**Report 61.‡**—Such has been my experience with grindelia robusta that I have come to include it in all my cough mixtures, when the seat of the irritation is the middle or upper portions of the air passages. In asthmatic cases its action is simply perfect, and its influence over the condition which, I think, obtains in asthma, was beautifully illustrated in a case which had its origin in strychnia, administered in medicinal doses. The patient,

\*Dr. Anton Misner, Kreis-Physicus, Lala Set-Groeth, Hungaria, in the Medical Age, 1885, p. 492.

†N. L. Clarke, M. D., in the Medical Age, 1885, p. 537.

‡John F. McCann, M. Sc., M. D., in the Medical Age, 1885, p. 59.

according to my theory, had a tendency to asthma, which the strychnia stimulated into activity. The grindelia afforded almost immediate relief from the attacks, although I am not aware that there is any physiological antagonism between the two drugs. It is its property of relieving the irritability of bronchi which, doubtless, makes grindelia robusta the valuable drug that it is in coughs.

**Report 62.\***—**CASE 1.**—By the use of grindelia robusta I have been enabled to relieve and cure many cases of asthma and bronchitis which had been treated by the usual remedies, with no good results. In one case of asthma of 20 years' standing I commenced treatment by giving 30 minims of the fluid extract of the drug every three hours, and with instructions to the patient, if he felt the usual hard breathing returning, to use the mixture more frequently until relieved. The result is that the patient has not had the least asthmatic trouble since he commenced the use of this remedy.

**CASE 2.**—This patient is 49 years old and has had asthma, with bronchitis, 21 years. The seizures have been so frequent and so severe during the last two years that he had not been able to obtain scarcely any sleep in the recumbent position. He has used almost every known remedy, but with no decided relief. I commenced treating him by giving:

℞ Fl. ext. grindelia rob., ℥j.  
Fl. ext. yerba santa, ℥ss.  
Simple syrup, ℥ss.

**M. Sig.**—Take one teaspoonful of this every three or four hours during the day and oftener at night. He was relieved considerably very soon, and after continuing this for over a week I made him a prescription of:

℞ Fl. ext. grindelia, ℥j.  
Fl. ext. belladonna, ℥ij.  
Iodide of potassium, ℥ij.  
Simple syrup, ℥j.

**M. Sig.**—One-half teaspoonful every four hours, to be increased if necessary. After one week's use of this he was much better—was able to sleep soundly all night and improved rapidly. He has on hand a bottle of the mixture, and whenever he feels the least symptom of hard breathing uses it and entirely controls the asthmatic trouble as well as the bronchitis.

I have also used this remedy in many other cases with success. When after giving it a fair trial alone and it does not entirely relieve them I combine it with iodide of potassium. This combination improves the therapeutic effects of both remedies in the treatment of asthma.

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\*J. G. Skaro, M. D., Rock Dell, Minn., in the Therapeutic Gazette, 1883, p. 11.

# THERAPEUTIC INDEX.

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THUS 62 iii REFERS TO CASE 3 IN REPORT 62.]

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WORKING BULLETIN

CASCARA SAGRADA

WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

Cascara Sagrada.

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ISSUED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.

THE THERAPEUTIC INDEX

WORKING BULLETIN

Cascara Sagrada

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.

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# WORKING BULLETIN

FOR THE SCIENTIFIC INVESTIGATION OF

# CASCARA SAGRADA,

(RHAMNUS PURSHIANUS.)

ISSUED IN PURSUANCE OF A SYSTEM OF COLLECTIVE INVESTIGATION  
OF NEW DRUGS ESTABLISHED AND CON-  
DUCTED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.

ANALYTICAL CHEMISTRY: Under charge of A. B. Lyons, A. M., M. D.  
PHARMACOLOGY: Under charge of F. E. Stewart, M. D., Ph. G.  
BOTANY; H. H. Rusby, Curator of Herbarium.

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1885.

SCIENTIFIC DEPARTMENT PARKE, DAVIS & CO.

DETROIT AND NEW YORK.



## CONCERNING THE COLLECTIVE INVESTIGATION OF DRUGS BY THE WORKING BULLETIN SYSTEM.

This method of investigation consists of sending specimens of the drug to be investigated, either in the crude form or a preparation of the same, as the case may require, to a large number of practitioners scattered over the land, to the hospital service of the country at large, and to the various scientific centers connected with our leading medical and pharmaceutical colleges, with a sketch of the drug, stating the condition of existing knowledge concerning it, classified under the various heads of the pharmacology and known as a "Working Bulletin." The Bulletin is accompanied with a printed list which those concerned are requested to answer from their observation, after having submitted the drug to careful test. This information is then to be re-classified and published in the form of a report, which will be deposited, with a sample of the drug and its preparations, in the pharmacological department of the National Museum at Washington. It has been suggested that the National Museum, under the auspices of the Smithsonian Institute be made a central repository for knowledge concerning drugs, so that anyone wishing information concerning a medicinal agent may obtain it by applying there for it. This we consider a valuable suggestion, and take this means of contributing our quota toward this object.

We do not claim that information collected in this way is conclusive, but that the method is a very valuable one for collecting evidence, and is a great help toward the final solution of the problem: What is the true value of the drug?

The information in our final report will be classified as follows: 1st—Information from unscientific sources; 2d—Information from the profession at large; 3d—Information from hospital practice; 4th—Information from scientific experts engaged in more extensive research in the physiology, chemistry, pharmacy, etc., of drugs. The last class of information may probably be regarded as the more scientific, although each class has its comparative value, and probably in the order of the above arrangement. Our first knowledge of nearly every medicinal plant officinal in the pharmacopoeia was obtained from Indian medicine men, ignorant natives, quacks, and old women. Information from unscientific sources, therefore, has its value. Information from the profession at large, though not to be regarded as conclusive evidence, is of still greater value. Higher still in the scale are the results of hospital practice, for here greater opportunities are given for careful observation; but, as has been pointed out by the Medical and Surgical Reporter (Dec., 1883, p. 635—"Methods of Investigation"), the observations of one logical mind, founded on extensive research, are probably more important than the "collective unanimity" of the medical profession at large—though even such results have too often been set aside by more recent investigations, to be regarded as infallible. Until some method has been discovered more scientific than anything yet in vogue, we must depend upon information gleaned from all these varied sources, for our knowledge of the materia medica.

It is our method, when a drug, which has in it the promise of therapeutic worth, is introduced to our notice, to first have its physiological properties determined as thoroughly as may be through experiments on animals, after which, if it shall appear to have activity, it is subjected to chemical analysis with a view to the discovery of the nature and precise seat of its active principle. This done, a pharmaceutical preparation is made of it, which is distributed to the hospital service of the country and to physicians in private practice, so that its therapeutic merits may be thus practically and definitely tested.

# INQUIRIES FOR THE COLLECTIVE INVESTIGATION OF CASCARA SAGRADA IN THE TREATMENT OF HABITUAL CONSTIPATION.

**Definition.**—Habitual constipation, as a term referred to in this working bulletin, may be defined as a functional inactivity of the intestines, the result of various morbid conditions of the system. This excludes constipation due to mechanical obstruction.

*Question 1.*—*What is the cause of the constipation?* “Habitual constipation is produced by various causes. It may be brought about by the peculiar nature of the diet. It may depend upon a deficiency or a faulty composition of the intestinal secretions, or upon disorders of those neighboring glands which pour their secretions into the intestines. It may result from impaired power of the bowel to propel its contents, the consequence either of some mechanical interference with its action, or of nervous influences, or of exposure to the poisonous effects of certain substances, as of lead.”—Da Costa.

*Question 2.*—*What are the patient's habits as to amount and quality of food and drink?* Cases of constipation frequently occur from insufficient food or drink, or because of food deficient in the elements of waste. Proper attention should be paid to these important points in the employment of Cascara Sagrada in the treatment of habitual constipation.

*Question 3.*—*Does the patient take a proper amount of muscular exercise?* It is a well-known fact that “when the voluntary part of the muscular system is inactive, the involuntary is apt to sympathize, and a general stagnation is apt to follow.”

*Question 4.*—*Is the patient suffering with anæmia or general debility?* Impoverished blood is not capable of generating that amount of nervous energy sufficient to carry on the functions of the alimentary canal. Anæmia and general nervous debility will often account for habitual torpidity of the bowels.

*Question 5.*—*Is the patient engaged in absorbing mental occupation?* It is a physiological law that continuous employment of one organ will deprive other organs of their proper supply of blood and nervous energy, and thus result in impaired function. This is specially true with regard to the brain in its relation to the alimentary canal.

*Question 6.*—*What is the condition of the liver and its secretion?* So much stress has been laid upon deficient bile as a cause of habitual constipation that a thorough investigation of this point is desirable.

*Question 7.*—*What is the habit of the patient in regard to defecation?* A habitual neglect of the calls of nature is one of the most prolific causes of constipation, and a regular habit should be established if a cure of the condition is expected.

*Question 8.*—*Is the patient subject to profuse perspiration, excessive urination, or other discharge of the fluids of the body in undue amount?* Any cause depriving the secretions of water will result in constipation.

*Question 9.*—*Is the patient suffering with any organic disease, and if so, state what?* Organic diseases of various kinds are prolific causes of constipation by their drain on blood and vital force. An organic disease of the stomach, resulting in impaired digestion is a cause to be carefully noted.

*Question 10.*—*Atonic dyspepsia is a frequent cause of constipation. Is it in the case you are treating?*

# CASCARA SAGRADA.

(RHAMNUS PURSHIANUS.)

*Definition*—The Bark of *rhamnus purshianus*.

*Synonyms*—*Cascara sagrada*; *cascara sagrada*; *sacred bark*; *sacred tree bark*.

*Natural Order*—*Rhamnaceæ*.

**Botanical Origin.**—Natural Order—*Rhamnaceæ*. Tribe—*Rhamneæ*. *Rhamnus purshianus* (*cascara sagrada*) is a small tree indigenous to the Pacific coast of North America. Its name was given in honor of the renowned Prussian botanist, Frederick Pursh, who, in 1814, first gave it such a description as fixed its place in botany, his investigations being made on specimens received by him direct from the habitat.

The plants of this species of the *rhamnus* attain dimensions of from ten to twenty feet in height, measuring through their trunk from six to nine inches. The leaves are ovoid in shape, from three to five inches in length, by about half an inch in their greatest width. They are borne on leaf-stalks about an inch in length. The margin of the leaf is regularly dentate with numerous small, serrate teeth, except at the base. When young, the leaves are covered with a dense pubescence on the under surface, but when old they become glabrous and bright green. The flowers are small and white, and appear after the leaves have matured, being disposed in close, umbellar clusters, on pubescent peduncles, slightly longer than the leaf stalks. The fruit is a plain, round, black berry, about a quarter of an inch in diameter, and contains three seeds.

*Rhamnus purshianus* differs from other species of the *rhamnus* family in that it is a larger tree and bears a larger fruit. The difference is peculiarly marked as between it and the *rhamnus catharticus*, with which species it has been often confounded.

The following statement, compiled from a report of Messrs. Parke, Davis & Co., of Detroit, who were prominent as the introducers of the drug to the notice of the medical profession, contains besides an account of a controversy which excited considerable professional interest, some points touching on a certain obscurity which surrounded the botanical origin of the drug on its first introduction:

Several of these plants attracting the attention of Dr. J. H. Bundy, physician residing at Calusa, Cal., were employed by him with much satisfaction in his practice. One of these plants, *cascara sagrada*, became the subject of much controversy. Dr. Bundy (since deceased) was a man of scholarly

attainments, and withal a very successful practitioner, though not belonging to the school



Cut showing gross appearance of  
Cascara Sagrada Bark.

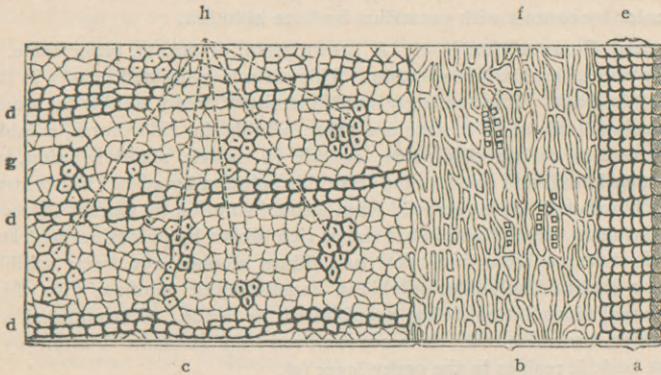
designating themselves "regular." As a successful "irregular" physician, Dr. Bundy excited much professional jealousy among the rival schools in the neighborhood of his abode. Another drug was introduced to the notice of the profession at about this time (*grindelia robusta*) by a gentleman, prominent in position as a member of the "regular" school, and living in the adjoining town of Alameda. Every condition essential to a bitter rivalry between these two gentlemen was by these circumstances engendered. Rivals in school, rivals in business, and rivals in the special work of their choice in the introduction of new drugs, there was born an animosity which culminated in an attack on Dr. Bundy, by Dr. Gibbons, and led to a very acrimonious feud. At this time we were attracted also by the reports of the great value of *Rhamnus Purshianus*, and determined to introduce it more generally to the notice of the medical profession. The first information we received in regard to the drug was from Dr. Bundy, and through his agency we were enabled to obtain a limited supply. Tests in the practice of careful observers in all parts of the country confirmed our belief in the peculiar virtues of the plant, and a large demand, created by our distribution of Dr. Bundy's literature, finally necessitated our sending an expedition to investigate the habitat of this new drug, to obtain, if possible, a sufficient supply to meet our increasing orders. A new factor was thus added, by our association in the matter, viz.: business rivalry, and a dispute arose which extended to the medical press and scientific circles all over the United States. The pivot on which turned all this controversy was a name. *Rhamnus Purshianus* was introduced by Dr. Bundy under the common Spanish name, *cascara sagrada*. This not being the botanical name of the plant, and the botanical name not being known to its introducer, it was not published. A nidus was thus formed woven from professional and trade jealousy in which reposed an egg which hatched into vituperative crimination. Dr. W. G. Gibbons, of Alameda, read a paper before the Alameda County Medical Society, making a severe attack upon Dr. Bundy, the spirit of which was: First, that Dr. Bundy was an eclectic; second, that any remedies that he had introduced were for this reason unworthy the attention of the medical profession; and third, that certain remedies, among which was *cascara sagrada*, did not exist under any such name on the Pacific coast, and were, for that reason, evidently intended to be used as an imposition upon the medical profession. This paper, afterward published in the October, 1878, number of the *Pacific Medical and Surgical Journal*, was used by our competitors to carry the impression to the medical profession that we had ourselves been engaged in some dark scheme for taking advantage of our patrons. Attempts were also made to throw the drug itself into disrepute as being of no particular value, and only placed on the market to secure the transient demand created by flashy advertisements. Dr. Bundy stated distinctly in his introductory paper, which appeared in "New Preparations," January 15, 1878: "A description of the *cascara* I am unable to give at this time, but suffice it to say it is a shrub. In due time its botanical name will be known." And in another communication, "that the shrub is a native of the Pacific coast. Dr. Gibbons, in his paper, said: "There is no such plant known to any botanist on the Pacific coast." The question then was one of veracity between Dr. Bundy and Dr. Gibbons, and not a question in which we were involved at all, except from the fact that we introduced the drug more generally under its Spanish name for want of something better. The point at issue was finally settled, however, by the *Pacific Medical and Surgical Journal*, which stated editorially, January, 1879: "*Cascara* (bark) *sagrada* (sacred) is the common Spanish name of *rhamnus purshianus*, and means simply, sacred bark." And in regard to the virtues of *cascara sagrada*—*rhamnus purshianus*—it is only necessary to refer to the great and lasting demand for this drug from professional sources, and the universal testimony of the medical profession throughout the United States.

Full information in regard to the controversy about the name and botanical origin of

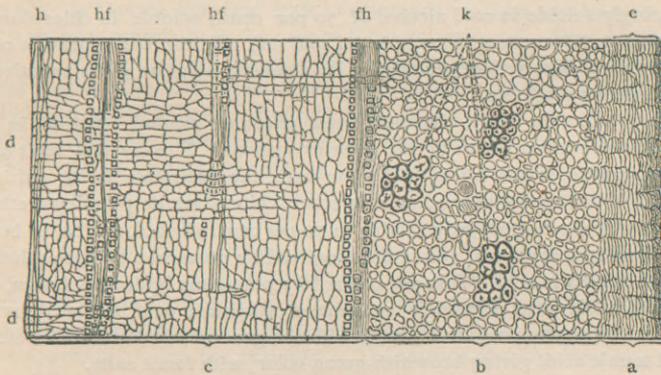
Rhamnus Purshianus will be found in the library of the Smithsonian Institute at Washington, under the caption of "United States Professional Court, W. P. Gibbons vs. J. H. Bundy.\*"

**Microscopical Structure.**†—The examination embraced (1) the structure of the bark, and (2) the chemical constituents of the bark.

(I.) The structure of the bark. The corky layer (*a*). This consists of the outer epidermis of dark-brown withered cells, then several rows of cells filled with a dark red coloring



TRANSVERSE.



LONGITUDINAL.

Microscopical Structure of Cascara Sagrada Bark.

matter (*e*), and in the more recent bark, a row or two of cells containing chlorophyll. The red color (*e*) is soluble in ether, alcohol, potassium hydrate solution (with dark-brown color), insoluble in acetic acid.

(II.) The middle bark (*b*) is made up of parenchymatous cells, which are filled with small starch grains. There are visible, also, in the transverse section, several groups of cubical

\* A copy of this pamphlet will be mailed to any address upon application.

† New Preparations, February, 1879, p. 27. Albert B. Prescott, M. D., Professor of Organic and Applied Chemistry and Pharmacy, University of Michigan.

crystals (*f*), and, in the longitudinal section, groups of very thick-walled yellow cells (*k*). These cells (*k*) are not noticeably affected by the ordinary reagents.

(III.) The inner bark (*c*) consists principally of yellow medullary rays (*d*), separated by bast parenchyma (*g*), through which are scattered numerous yellow bast fibres (*h*). As seen in longitudinal sections, these fibres (*h*) are frequently surrounded by small cubical crystals (*f*), which appear not to be affected by hydrochloric acid.

Almost the entire inner bark (III), and parts of the middle bark (II), are turned cherry-red color by contact with potassium hydrate solution.

**Chemical Composition.\***—1. A brown resin, of strong, bitter taste, colored vivid purple-red by potassium hydrate solution. This resin is contained mostly in the middle and inner layer of the bark. It is sparingly soluble in water, freely soluble in alcohol and dilute alcohol, scarcely soluble at all in absolute ether, soluble in chloroform, soluble in benzole (of coal tar), and in carbon disulphide; soluble in caustic alkali solution, with splendid color above mentioned, and precipitated from this solution by acids. Concentrated sulphuric acid colors it blood-red. It is removed from alcohol solution by animal charcoal.

2. A red resin, nearly tasteless, colored rich brown by potassium hydrate solution. It is insoluble in water, soluble in alcohol and dilute alcohol, not freely soluble in ether, or chloroform, or carbon disulphide; soluble in caustic alkali solution, with the brown color above mentioned, this solution being precipitated by acids. Concentrated sulphuric acid deepens its color, brownish-red. It is not removed from alcoholic solution by animal charcoal. In the bark, it resides in the corky layer (*a*).

3. A light yellow resin, or natural body, tasteless, colored bright red-brown by sulphuric acid, not colored by potassium hydrate solution. It is insoluble in water, soluble in hot alcohol, sparingly soluble in cold alcohol of 70 per cent., soluble in chloroform, in carbon disulphide, and to some extent in benzole (of coal tar). In the concentration of its solution, it deposits in pale orange yellow granules. Its alcoholic solution gives negative results with the general tests for alkaloids.

4. A crystallizable body, obtained from absolute alcohol solution, in white double pyramids, and some other forms of the dimetric system. The crystals melt and then sublime, at a temperature a little above the water-bath, the sublimate being partly crystalline. This substance is not appreciably soluble in ether, chloroform or petroleum ether; is slowly soluble in absolute alcohol, slightly soluble in 70 per cent. alcohol, soluble in benzole (of coal tar). It is neutral to test papers, and is not dissolved by potassium hydrate solution, by acetic acid, or dilute sulphuric acid. It is not colored by potassium hydrate solution, concentrated sulphuric acid, nitric acid, Froehde's reagent, or sulphuric acid, followed by dichromate. The alcohol solution gives negative results with the general test for the alkaloids.†

5. A tannic acid, giving brownish-green color, with ferric salts.
6. Oxalic acid.
7. Malic acid.
8. A fat oil, of yellowish color.
9. A volatile oil, not abundant, bearing the characteristic odor of the bark.
10. Wax.
11. Starch, in abundant quantity.

The proportional quantity of the resins, 1, 2 and 3, is indicated pretty nearly by the

\* Prof. Albert B. Prescott, M. D., Professor of Organic and Applied Chemistry and Pharmacy, University of Michigan, in *New Preparations*, February, 1879, p. 23.

† The crystals of this substance were repeatedly obtained as follows: The alcohol extract of the bark (previously exhausted with ether) was dissolved by water, this solution precipitated by lead acetate, the washed and drained precipitate suspended in absolute alcohol and the lead removed.

quantity of resin extract as follows: An acidulated alcohol solution of the bark was neutralized (with ammonia), and evaporated, the residue dissolved in dilute potassium hydrate solution, this solution precipitated by dilute hydrochloric acid, and the precipitate drained and dried by gentle heat. (The filtrate contained some resin, 1, and the precipitate retained, of course, the dissolved substances not washed out.) This crude resin extract (chiefly bodies 1, 2 and 3), was about ten per cent of the weight of the bark.

The substances numbered 3 and 4 appear particularly to deserve further chemical investigation, which I hope to be able to give them. The chemistry of the rhamnaceæ is of decided interest, especially within a few years past. *Rhamnus frangula*, the European buckthorn, or black alder, has been reported by Lieberman and Waldstein (1876) to contain emodin, a well determined constituent of rhubarb, allied to chrysophane, and chemically a derivative of anthracene. Further, the investigators just named find it nearly, or quite certain, that frangulin is capable of ready change to emodin, by glucosic fermentation. This may be associated with the well-known fact that the bark of the *rhamnus frangula* changes in therapeutic properties by storing. It has both emetic and purgative action in the first year after gathering, but when two years old retains only the purgative power—one much like rhubarb—so that some authorities positively direct that it be not used until two years after gathering. The glucosic fermentation of frangulin into frangulic acid has been known for some time, but the like formation of emodin, a constituent of rhubarb, seems a step nearer some chemical explanation of the change of medicinal power characteristic of the bark. The material worked by Lieberman and Waldstein was a large quantity of residual extract of a large quantity of *frangula* bark worked by the manufacturer Merck.

The chemical constituents of *rhamnus purshianus*, though not determined in this analysis to be, in any compound, identical with constituents of *rhamnus frangula*, yet show several similar reactions, especially in the case of "brown resin, 1." The rhamnaceæ very probably contain, in different species, allied bodies, some of them related to others as parent and product, but having practically distinct medicinal powers. These powers, of course, are known only by physiological and therapeutic trial.

#### Dose of Cascara Sagrada and Eligible Formulæ for its Administration.—

The dose of fluid extract cascara sagrada as a laxative is from five to 30 minims, increased, if necessary, twice a day, night and morning. The minimum dose should be commenced with and gradually increased until the stools are softened by it, and then the administration should be continued in that dose for several months before it is discontinued, which should be done in gradually decreasing doses. In the treatment of constipation by means of cascara, patience is an element of success. The patient must be impressed with the fact that the object of treatment is rather to permanently remove the cause of the constipation than to temporarily remove the symptom. The remedy should never be increased to cause catharsis. When for any cause a cathartic may be deemed necessary or desirable, there are others, as, for instance, rhubarb, or some resinous cathartic, which are to be preferred.

#### ELIGIBLE FORMULÆ.

##### IN HABITUAL CONSTIPATION.

R Fl. ext. cascara sagrada  
Syr. sarsaparilla comp.  
Glycerine, ℥ss ʒj.

M. Sig. Teaspoonful three times daily.

Dr. J. H. Bundy, who first introduced cascara sagrada, was accustomed to use, with gratifying success, the following formulæ:

CONSTIPATION WITH DEFICIENT SECRETION.

- ℞ Fl. ext. cascara sagrada,  
Syrup.  
Water, ℞ ℥ i.

M. Sig. A teaspoonful three or four times a day.

DYSPEPSIA WITH CONSTIPATION.

- ℞ Fl. ext. cascara sagrada, ℥ i.  
Fl. ext. berberis aquifolium, ℥ i.  
Syrup (or ext. malt), ℥ ii.

M. Sig. One teaspoonful three times daily.

CONSTIPATION WITH GASTRIC IRRITABILITY.

- ℞ Fl. ext. cascara sagrada, ℥ ss.  
Fl. ext. berberis aquifolium, ℥ i.  
Acid. hydrocyanicj dil., i. ℥  
Syrup (or ext. malt), q. s. ad. ℥ iv.

M. Sig. Teaspoonful after meals and at bed time.

CONSTIPATION WITH DEFICIENT MUSCULAR TONE OF STOMACH AND BOWELS.

- ℞ Ext. cascara sagrada, ℥ i.  
Ext. of malt, ℥ ii.  
Syrup, ℥ ii.

M. Sig. Teaspoonful three or four times daily.

This list of combinations might be made very extensive, as cascara sagrada has few incompatibles.

# THERAPEUTIC PROPERTIES.

## Reports from Private Practice.

REPORT 1.\*—At a recent meeting of a prominent London medical society, Dr. Reid read a paper upon the value of cascara sagrada. After discussing the opinions of different writers on the subject, and commenting on the fact that very little had been written about the action of the drug, Dr. Reid gave the opinions he had formed of it from analysis of 33 cases, in which he had taken careful notes. He found, 1. That the result was all that could be desired in 27 cases of obstinate and habitual constipation, complicated in many cases by various forms of dyspepsia, and in people usually of sedentary habits, most especially females.

2. That the effect was most beneficial in three cases of hæmorrhoids.

3. That the drug was of no service, even in very large doses, in one case of obstinate constipation, although it did not cause pain.

4. That it had to be discontinued in two cases on account of its causing pain and sickness.

The conclusions arrived at were as follows:

1. Cascara sagrada was a most useful remedy, both regarding its immediate effects and after-results in obstinate and chronic cases of constipation.

2. It was better to prescribe it in continuous small doses rather than in occasional large ones.

3. Cases were met with in which, even in large doses—at any rate, in the form of the fluid extract—the drug had not been of service.

4. No rule could be laid down by which one could ascertain whether the drug would suit or not; but, when pain was produced, in all probability it was owing to too large a dose being given.

5. It was of great service in cases of hæmorrhoids, when other aperients had failed.

REPORT 2.†—The fluid extract is the most reliable preparation of cascara sagrada; it acts upon the hepatic secretions, and circulations, the whole gastro-intestinal canal, stimulating its morbid condition, and the neighboring glands to healthy action. As a cholagogue it is invaluable. In chronic constipation its action is good, producing full, easy, pleasant stools, without any tormina, tenesmus, or nausea. The liquid extract, combined with the tincture of iodine painted on the hypogastric region, daily, until the bowels are moved easily, has given the same result after repeated trials on patients suffering from habitual constipation. As a remedy for dyspepsia it is superior to many others of its class, being pleasant to take, and producing no nausea.

REPORT 3.‡—The tincture of cascara sagrada, prepared from the bark of rhamnus Purshianus, indigenous to Oregon and California, produces perfectly normal and solid stools without irritating the intestinal mucous membranes. Its action is prompt and harmless even after a protracted use. The dose is half a teaspoonful for an adult, twice or three times daily, if a moderate action only be required. It is scarcely sufficiently bitter to call for a flavoring vehicle. Its proper place in the pharmacopœia is between rhubarb and senna, but it has the advantage of acting in smaller doses than either of them.

REPORT 4.§—Of all the remedies, rhubarb will, doubtless, continue to hold a first place among the comparatively safe and certain anti-costive medicaments (the tincture and infusion being the most useful preparations), while among the new, cascara sagrada seems growing in credit and favor, if we may trust its testimonials; not to refer to the large use now made of the rhamnus purshianus in this country. It is an American plant, obtained on the Pacific coast, and was first introduced into practice in 1878. It has lately been made the subject of experimentation on the continent, and has proved to be of singular efficacy in the treatment of constipation, if we may credit the favorable report of Dr. Eymeri, of Val de Grâce, who has recently published a pamphlet on the subject. Eymeri regards it as a cholagogue as well as an intestinal stimulant; by its resins and volatile

\*British Medical Journal, April 11, 1885.

† Dr. H. C. Glanville, in the London Lancet, May 9, 1885.

‡ Dr. Senator, in the Wiener Med. Bl., Jan. 8, 1885.

§ Editorial in the Boston Medical and Surgical Journal, March 25, 1885.

oil, it seems to act on the entire secretory apparatus, as well as on the muscular fibre. The above mentioned writer reports numerous cases in hospital and private practice, most of them coming under his own observation, where cascara sagrada, given in the form of a powder, or as a fluid extract (the latter form being preferred), gave most gratifying results. He concludes that this medicine should have the preference over cathartic medicaments, as being less liable to do harm if its use is long continued, as being tonic as well as aperient, as causing neither griping nor nausea and diarrhoea in its action. These conclusions are substantially the same as those formulated by Bundy, who is credited with the introduction of cascara into this country. Making all due allowance for exaggeration, we have, doubtless, in the sagrada a valuable addition to the materia medica, though it does not always prove a certain remedy, any more than any other drug.

REPORT 5.\*—Although the various species of rhamnus contain nearly the same active principles, they differ in their medicinal action. Rhamnus frangula, administered in the form of a decoction, is very popular as a mild laxative. The common buckthorn, or rhamnus catharticus, is much more active, rather drastic in its effects, and is regarded as a hydrogogue cathartic. Intermediate between these in medicinal activity stands the species *R. Purshianus*, or cascara sagrada. Its action as a laxative is always prompt and without the least tendency to cause "griping." Indeed, we have no remedy which can be relied upon, where vegetable laxatives are indicated, to act as efficiently as cascara sagrada without causing disagreeable disturbances or engendering undesirable symptoms requiring a constant resort to purgatives. Its value is especially apparent when administered to correct these symptoms (termed "habitual constipation") in small and repeated doses. In common with other drugs of similar character cascara sagrada has frequently been discarded as an unreliable agent, because failing to act in special cases where any other vegetable cathartic would also have failed to be of service. To obtain the best results from the remedy the bark must be neither too young nor so old as to bear an excess of cork, and must be of comparatively recent collection. A great deal of cascara sagrada as found in the market is almost worthless. Preparations from the bark, the fluid extract for example, should be prepared with menstruum sufficiently aqueous to extract the principles soluble in water, and yet at the same time of sufficient alcoholic strength to extract the resins soluble in alcohol, and to prevent these from precipitating in the finished extract. From the fact that the constituents of the bark are so complicated, liquid preparations from it frequently precipitate, and their activity correspondingly diminishes. A concentrated preparation in the dry form may possibly be prepared from it, bearing the same relation to the drug and produced by the same method as in resin of podophyllin. This would be a very desirable preparation, and may be termed *rhamnin*, which, we think, would be more appropriate than "cascarin."

REPORT 6.†—In presenting this paper on cascara sagrada as almost a specific in that most frequent and subtle malady—constipation—it will be necessary for me to refer to the causes of it, and reason how this agent is curative in that direction. Habitual constipation is the only form to which I shall direct attention, as that phase which arises as a symptom of other difficulties, such as obstruction, etc., has no bearing on the subject in hand.

The nature of the diet; deficiency or a faulty composition of the intestinal secretions; disordered glands that pour their secretions into the intestines; impairment of muscular power, which leads to deficiency in their propelling power, which may result from nervous or mechanical influences; congestion of the portal circulation; normal secretion of intestinal juices interfered with; deficiency in biliary secretions of a healthy character; congestion of mucous membrane of intestines, and last and the most frequent causes—resisting the calls of nature from carelessness, or circumstances that prevent the obedience at the proper time, etc. The constant habit of taking cathartics is a source of much mischief, and were we treated in the manner that the gastro-intestinal tract generally is, we, too, would fail to work, and find ourselves prostrate. I employ a fluid extract of the cascara, using one ounce in a four-ounce mixture, in combination with other remedies, or alone, as the case may require. It acts upon the sympathetic nervous system, especially upon the solar plexus, stimulating the nutritive and assimilative forces, increasing the digestive processes generally. It acts upon the secretory system in a marvelous manner, especially where the secretions are deficient and perverted; and this seems to be one of its

\* Editorial in the Western Druggist, June, 1885.

† Dr. J. H. Bundy, of Calusa, Cal., in New Preparations, January, 1878; p. 1.

special indications. When you have a case in which the constipation depends upon the above condition:

R Fl. ext. cascarae sagradae.  
Syrup simplicis (or ext. malt).  
Aque, ℥iij ʒj.

M. S. A teaspoonful three or four times daily is all that is wanted to perfectly regulate the want of, and to change the perverted secretions. It acts upon the hepatic secretion and circulation peculiarly, but more positively than anything I ever gave before; peculiarly, because it produces no impression upon the system in the way of nausea (or derangement of any other function), pain or inconvenience whatever, and my patients speak of it in the highest terms, as being as nice to take as it is pleasant in its action. Constipation dependent upon defective, or perverted or excessive action and secretion of the liver, as above stated, yields at once to its action. It acts as a tonic with the most marked effect upon muscular tissue generally, but more especially upon the stomach and bowels, remarkably increasing the tone and activity of the above secretion. It is the remedy where the tone, as stated, is deficient, and where it has been produced by constantly taking pills to relieve the constipation, which only is increased by such a measure. This condition is readily changed, and a healthy action set up; muscular power and tone restored, and this done, the propelling power or force is regulated. It changes the character of secretions by regulating the action of neighboring visceral glands, as well as those of the upper portion of small intestines, overcoming congestion of the mucous membrane of the bowels and stomach, completely restoring their tone and muscular power. To cure cases of constipation, the result of carelessness, requires perseverance on the part of the practitioner, and a strict course prescribed as to avoiding cathartics, and attention to calls of nature promptly.

A description of the cascara I am unable to give at this time, but suffice it to say it is a shrub, and in due time its botanical name will be known. I combine it, in hepatic troubles, with nux vomica in proper doses, also with nitro-hydrochloric acid, dilute, in suitable quantities, but more generally give it alone. In bad cases of dyspepsia with constipation:

R Fl. ext. cascara sagrada, ʒj.  
Fl. ext. berberis aquifolium, ʒj.  
Syrup (or ext. malt) ʒij.

M. Sig., one teaspoonful, three times daily. In dyspepsia, where the food and everything else is thrown up:

R Fl. ext. cascara sagrada, ʒss-ʒj.  
Fl. ext. berberis aquifolium, ʒj.  
Acid hydrocyanic dil., ʒj.  
Syrup (or ext. malt), q. s.

to make a four ounce mixture.

M. S. A teaspoonful after meals and at bed time. It may be combined in many ways with different drugs, which the practitioner will soon see if he studies the pathological conditions carefully and I need say no more on this point. It will act as a cathartic if given in one- or two-drachm doses; but this should never be resorted to if you wish to cure constipation. The dose I have given above does sometimes act so, but I invariably order at first a less dose. When it does not, after five or six days, seem to start the peristaltic action, give a little more.

I have written this paper in reply to the many letters received from physicians, asking how cascara may be used, and those who read carefully will find full information. I have not given cases from the fact of their being so numerous, and constipation so prevalent. Will write further hereafter.

Cascara, as a remedy for dyspepsia and constipation, will never have an equal. Those who understand the action of the gastro-intestinal tract—considering it as a whole, the digestive tract—need but little in the way of explanation, and probably will ask few questions. Have you a case of constipation in which the patient has taken "Ayer pills," or some other pills of the same kind, until they have destroyed all the muscular tone of the bowels and the stomach also? I prescribe:

R Fl. ext. cascara sagrada, ʒj.  
Ext. of malt, ʒij.  
Syrup simplex, ʒij.

M. S. Teaspoonful three or four times daily, and wait upon the bowels twenty minutes at least, every morning and evening, as the case may be, and you will have no trouble in curing any case of constipation caused by abuse or destruction of tone from cathartics.

Have you a case of constipation occasioned by want of secretion from the gastric follicles? Give:

℞ Fl. ext. cascara, ℥j.  
Fl. ext. berberis aquifolium, ℥j.  
Ext. malt, ℥ij.

M. S. Teaspoonful three or four times daily.

If you have a case of indigestion in which your patient throws up everything taken, give:

℞ Fl. ext. cascara, ℥j.  
Ext. of malt, ℥ij.  
Fl. ext. berberis aquifolium, ℥j.  
Acid hydrocyanic dil., ℥j.

M. S. Teaspoonful directly after meals, or oftener if there is pain or distress, with belching of gas or wind from the stomach. If there is simply constipation, give the cascara alone. If with any of the above symptoms there seems to be a sluggish liver, give nux vomica in proper quantity, if the cascara does not seem to influence it properly. I speak of nux vomica as simply a resort if need be, but nine times in ten you will not resort to it. If the dose of cascara recommended does not produce the desired effect, or produces too much action, it is expected that the physician himself will and must exercise some judgment in its administration, as in all drugs, and that he will carefully watch its action in every particular. The subject under consideration is one of great importance, and one that more frequently, perhaps, baffles the skill of the best physicians than any other malady, and one that the doctor is generally more willing to let pass by than any other, from the fact that somehow he does not succeed in his treatment, and the patient becomes tired of constantly being physicked now and again for the torpid condition of the liver and bowels, but wants something that will restore the general tone of the bowels without cathartics, and in the cascara, with the above combinations, no practitioner will be disappointed, if he observes the pathological indications carefully, and in no other way need the practitioner expect to succeed with any remedy.

To sum up, as a whole, the action of cascara, let me say that it is indicated where there is laxity, or a want of tone in muscular power or glandular secretion, and that of the mucous membranes also. Many letters I have received from different portions of the United States confirm my own statements in its regard.

REPORT 7.\*—Having had my attention called to cascara sagrada, by my friend, Dr. Bundy, I have been using it in a number of cases, with the following results:

Case 1.—A gentleman, about 35 years of age, generous liver, but entirely temperate; had been affected for years with inactive liver and constipation, with very stubborn ulceration of the rectum. His skin was sallow, strength feeble, etc. He has been having constant and varied treatment, without relief. I prescribed cascara alone, with directions to use one teaspoonful once or twice a day until the bowels opened, then in reduced doses sufficient to secure a natural action, but to fall short of producing catharsis. He being a stock broker, I sent to him not long after, on some business connected with a mine. After answering the business, he added: "Send me another bottle of that medicine; there is more money in it than in the mine." He continued the use of cascara a little longer, and is now gaining flesh, skin clear, bowels regular, liver active, and the ulcers of the rectum very much better, and steadily improving.

Case 2.—A lady in San Francisco, middle-aged. Has had constipation so stubborn that for years she has had no action of the bowels without an injection of water; hemorrhoids and prolapsus of the bowel so bad, that this action was always secured just before retiring at night, in order to have the benefit of a recumbent position, to allow the bowels and tumors to resume their natural position. I prescribed cascara alone, with directions as in the other case. After the use of two ounces she sends me word that she has not been so well in years; bowels regular, and the hemorrhoids and prolapsus so far relieved as to render her comparatively comfortable.

\* S. E. Pearce, M. D., Oakland, Cal. in New Preparations, July, 1878, p. 57.

I have prescribed the remedy in quite a number of other cases, with results which have led me to the following general conclusions:

1. In cases where there is torpor of the liver, with an atonic condition of the stomach and bowels, it is the very best remedy I have ever tried. 2. That the more concentrated the remedy, the more active it is, even though the same amount be given. Indeed, I have in several cases, when the constipation has been but moderate, given it in a diluted form, and have found that it greatly increased the difficulty; but the administration of a concentrated preparation gave relief. It seems to be one of those remedies that have two opposite effects, according to the amount given, and especially according to the dilution of the preparation. 3. Combined with the properties indicated above, it has a manifest tonic influence on the liver, the stomach and the bowels. In my opinion, it possesses, in addition to its curative effects in constipation, all the properties of the wild cherry, but in much greater intensity. I am inclined to think, also, that it possesses decided cholagogue properties. I esteem it a very important addition to our *materia medica*.

REPORT 8.\*—Although in these days of nostrums I have somewhat of a conservative feeling, I procured, through John T. Fink, of New York, a small supply of *cascara sagrada* ex. fl., and having given it a fair trial in several cases, desire to report progress. My testimony is, that the introduction of this medicine is a boon to the profession, Dr. Bundy claiming for it no more than its actions justify.

As a cholagogue, I have had a personal experience; find it just as certain, but a little slower, than the blue mass, for which I am glad to find an efficient substitute, free from the harshness of podophyllin, etc. In chronic constipation it is invaluable; its action good, producing full, easy, pleasant stools, without any tormina, tenesmus, or nausea. In dyspepsia it is superior to many other remedial agents, in that it is pleasant to take, and produces no nausea. In such cases I prefer to give it without the syrup, substituting glycerine.

REPORT 9.†—I have tried Parke, Davis & Co.'s fluid extract of *cascara sagrada* in a very marked case of dyspepsia and constipation. In this case there was a deficiency of secretory power in the liver and glands of the alimentary canal, indicated by constipation, scant, dry stools, flatulency and indigestion. I gave 40 drops of the above fluid extract twice a day, and the first day it produced two or three soft, bilious stools, with increased appetite, and improved digestion. In a few days the patient was relieved of the constipation and dyspeptic symptoms. I have not found any remedy that acts so promptly. It at once arouses all the secretions. It has the most direct power over the liver of anything I have ever used. It is the remedy par excellence in constipation, if given in small doses, say 30 to 40 drops; if given in large doses it will purge, and is rather inclined to gripe, but it operates mildly as an aperient in small repeated doses.

I am of the opinion that it increases the action of the pancreas and gastric glands, as well as that of the liver. There is nothing that more powerfully improves the digestive power than small doses of the *cascara sagrada*. Dr. Bundy has conferred an inestimable blessing upon the profession, and the sick, by introducing this, as well as some other new remedies.

REPORT 10.‡—I have never used any kind of treatment that has acted so grandly, if I may use the term, as *cascara sagrada* has in my practice. I have prescribed the same in over half a dozen cases of obstinate constipation, with the best of success, restoring a healthy action in every case.

REPORT 11.§—Mr. C., professional man, 30 years of age, has been troubled with obstinate constipation for over 6 years. He attributes the cause to close sedentary habits while a student. He states that his bowels were regular before he entered upon the arduous duties of student life. He tells me that he has tried every medicine for constipation, from podophyllin down to "Simmon's Liver Regulator," without finding a cure. I put him upon *cascara sagrada* doses, three times daily. He has now been taking the medicine over three weeks; he reports that he feels decidedly better, that his bowels are regular, and that he feels that he is on the high road to recovery. The future of *cascara sagrada* is flattering in the extreme. I deem it the greatest known remedy for constipation we have at the present day. I esteem it a very important addition to our *materia medica*.

REPORT 12.¶—In reading of *cascara sagrada*, which is so highly recommended through

\* George W. Smart, A. M., M. D., in *New Preparations*, July, 1878, p. 58.

† I. J. M. Goss, M. D. in *New Preparations*, July, 1878, p. 65.

‡ C. C. Dellenbaugh, M. D., in *New Preparations*, July, 1878, p. 67.

§ Alex. M. Cheek, M. D., Nashville, Tenn., in *New Preparations*, October, 1878, p. 80.

¶ J. G. Sutton, M. D., in *New Preparations*, October, 1878, p. 83.

your journal, I concluded to try it in that much dreaded disease, constipation. Accordingly I ordered some of Parke, Davis & Co. I tried it in a number of cases, in which it worked well, and in one case, which was especially interesting to me, it did more than I expected. I was called to visit Mrs. S., who had been sick for the last three years, in the last two of which she had not had a natural evacuation of the bowels, always being compelled to use an enema, which often failed to produce the desired effect; sometimes she would pass three or four days without an evacuation, although using an injection every day. She had taken cathartics without any benefit from a half dozen physicians from all schools, had adopted hygienic measures and carried them out well, but to no effect. I gave her:

R Fluid extract cascara sagrada, ℥j.  
 Fluid extract berberis aquifolium, ℥j.  
 Syrup, ℥j.

and ordered her to take a teaspoonful four times a day, until her bowels acted freely (as I had forgotten to state, her bowels had not moved for four days when I first began its use), then but three times a day; the desired effect was soon produced. The dose was diminished one teaspoonful per day, and before she had taken the second prescription, she said she needed no more medicine, and now she appears natural in that respect.

REPORT 13.\*—When camping in a little valley at the foot of Mount Shasta, about a year ago, I was consulted by Mrs. S. She had been a sufferer for five years, she said; had been to all the springs, and tried all the doctors in the country, without obtaining more than temporary relief. Her case was plain enough: sallow complexion, general emaciation, broad, flabby tongue, coated with a thick, yellow fur, foul breath, cardialgia, headache, a feeling of faintness and drowsiness, relieved for a short period by eating; habitual constipation, etc., all denoting a bad case of atonic dyspepsia. On examination I found the liver enlarged, regular in outline, with considerable pain on pressure over the left lobe, evidently due to congestion. Uterine functions but slightly disturbed, and no visible organic lesion. I could find no fault with her diet or general mode of living, and concluded, on the whole, that I had a very stubborn if not hopeless case. On my return home I forwarded her ℥iv cascara sagrada, directing her to make a tincture with a quart of whiskey, and to take a teaspoonful of the mixture undiluted directly after eating. I saw her again about a month ago, a well woman. She had experienced relief within a week, and the improvement had been steady and uninterrupted. I report her case, because I consider it typical of a large class commonly met with, and often a source of great annoyance to the practitioner. The cure I attribute to the stimulating properties of the whisky, and the action of the cascara in restoring a healthy tone to the gastric and intestinal glands and follicles.

Before closing I must speak of the cascara in hemorrhoids. When the disease is due to obstructions in the alimentary canal, it certainly acts like a charm; while other cathartics increase the trouble by irritating action on the mucous membrane, the cascara is soothing and effective at the same time, and if taken persistently in small doses, will cure the disease entirely in the majority of cases.

REPORT 14.†—Not long ago I received through a friend a sample bottle of the above named drug in the form of a fluid extract, manufactured by Parke, Davis & Co., Detroit, Michigan, and was requested to give it a fair trial in torpidity of the bowels. I happened to have on hand at the time several cases that I thought would be favorable subjects for such a trial, and to which I at once administered the article. To avoid any uncertainty of the effects, I withdrew all other remedies, and gave the drug simply diluted with half glycerine and aromatic water, in teaspoonful doses, thrice daily. To my surprise and delight, I found that my patient soon began a rapid improvement, and continued to do so even after I had withdrawn the medicine for some time. It seemed to act as a special tonic to the gastro-intestinal tract, and increased to a marked degree the glandular secretions.

The noticeable improvements in these cases while using cascara sagrada may be a simple coincidence, but I hardly think so, for I had them under observation for some time before administering the drug, and when withdrawn for a time and then repeated, the same effects were observed.

\*C. W. Hansen, M. D., in *New Preparations*, Oct., 1878, p. 84.

†D. M. Wick, M. D., in *Arkansas Medical Record*, reprinted in *New Preparations*, October, 1878, p. 101.

I shall not offer any theory as to its action, but may do so at some future time, when I have had further experience, and will then give my opinion as to its utility.

If cascara sagrada will but approach the expectations of those who have thus far tried it, and what is claimed for it, it will at no distant day become one of the standard preparations and a favorite with the profession—for the number of individuals who are troubled with constipation is very large, and apparently on the increase—as a result of immoderate use of active purgatives.

It has the advantage of being comparatively pleasant to take, and the dose required is but small, which is strongly in its favor.

REPORT 15.\*—Since the history of man this morbid condition (constipation) has annoyed and discomforted innumerable individuals, while in a great many it has become the source of great mischief, and in not an inconsiderable number it has actually been the cause of death.

The subjects of constipation have been, and still are, the subjects of much bad treatment, either at their own hands or at those of quacks, and sometimes of even regular practitioners. Usually, the sufferer first tries home remedies, after which, in this country, he goes to the drug store, and either subjects himself to the advice of an ignorant druggist, or buys a patent medicine. These means failing, he consults a physician, and here, in too many instances, he is turned off in a few moments with a "favorite prescription." Generally all the physician inquires after is how long the patient has been constipated, and how often he or she has an alvine evacuation. The question of making a correct physiological, pathogenic or pathological diagnosis is entirely ignored. When one remedy fails another is tried until the whole therapeutical implements of attack are gone through with.

While infrequent evacuation, or constipation, is very prevalent, all who are thus affected should not be considered in a pathological condition. There are, doubtless, many individuals who have alvine evacuations only once in two, three, four, or even more days, and yet are in the realms of a physiological condition. Two individuals may have the same number of passages, and one be constipated while the other is not. Hence it will be seen that care should be used before prescribing to see whether we have to do with a normal or abnormal condition, and this is not always the easiest thing in the world to determine. It is often difficult to say where the physiological process ends and the pathological begins. This much may be said, however, that physiologically inactive bowels are much more prone to take on pathological action than where there is no such torpidity.

Now, it should be remembered that what may be designated pathological constipation is not a disease in and of itself, but only a functional derangement of the alimentary canal. The causes and diseases on which this derangement depends are very various. The quantity and variety of food, the process of digestion, the quantity and quality of the secretions which are poured into the alimentary canal, muscular contractility of the intestines, abdominal walls and diaphragm, nervous enervation, quality and quantity of the blood, condition of sphincter ani, habit, etc.—these, with all general and organic troubles that may influence the proper and timely expulsion of the alimentary refuse, should be brought into view before prescribing.

The conditions I wish more particularly to call attention to in this article are muscular sluggishness of the intestines, and an improper and insufficient supply of secretions. It is well known that, in order to effect the timely expulsion of the refuse material in the intestines we must have sufficient muscular contractility, and that the fecal mass must possess a certain amount of moisture on its surface, or the intestine must itself be bathed with a moisture or secretion in order that the mass will glide along easily. If either one of these conditions fail the fecal mass will certainly have great difficulty in making its passage, and its progress will finally be arrested in the large intestines. The bad effect of this arrest on the general system is well known to all medical men of any experience. The digestion must become impaired, and so with assimilation. The noxious materials, absorbed from the fecal mass materially and seriously affect the whole nutritive process and produce innumerable abnormal nervous phenomena.

Before giving my experience with cascara sagrada, I wish to relate two cases of obstinate constipation, as showing what serious trouble may be produced, and how easily the difficulty was overcome by what I consider rational treatment, after every effort for several weeks previous had failed.

*Case 1.* Mrs. X., æt. 34, nervous temperament, was confined of her fourth

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\*F. Gundrum, M. D., in *New Preparations*, January, 1878, p. 2.

child sometime in December, 1870. She made a tolerable recovery, but was very costive for three months following. A month before I saw her in consultation, only a few small scybala passed her bowels once in four or five days. Her abdomen became flatulent, she lost her appetite and strength, and when I saw her with Dr. C. she was confined to her bed. On exploring the abdomen I found in the left iliac fossa an oblong, hard, painless swelling, of about the size of a small child's head. Nearly, if not all the laxative, hydragogue and drastic cathartics had been used with much more persistency than success. I advised warm fomentations to the abdomen, manipulating the abdominal walls, and injection of warm water by long rectal tube while patient was partially inverted. By this method we succeeded in bringing away quite a quantity of dry, hard fecal matter; but this treatment failed to improve our patient. There was but little change in her general condition, and the tumor diminished but slightly. It was during the second year that I had branched out on my own responsibility, and this case gave me the usual anxiety of a young practitioner's first difficult case. My library was as meagre as my funds, consequently I had to rely on my wits. I prescribed for this patient one pint of good olive oil and one-sixth grain strychnia in fractional doses during twenty-four hours. By this treatment, provided my patient would retain it, I expected to soften up the hard fecal mass and give tone to the muscular tissue of the large intestine. The result surprised us all. On the fourth day our patient began to have alvine evacuations. Their character was more like pieces of sealing wax nicely oiled than anything I could think of. These evacuations continued in large quantities each day until the tumor entirely disappeared, and the patient rapidly recovered to health.

*Case 2.* Mr. F. was habitually costive for some years, but during the last of November, 1873, he became worse. About the middle of December he took to his bed and employed an "S. S. Curantur," who treated him homœopathically in every respect. He put him on low diet and opiates. The patient himself had noticed that there was a swelling forming in the right iliac fossa. He called the doctor's attention to it, and received the assurance that "That'll be all right." He was troubled a great deal with flatulency, and the doctor prescribed that the patient, several times a day, should reverse ends and give the gas in the bowels the advantage of gravitation. But this prescription failed. Another and regular practitioner was called in, and three weeks later I was called as counsel. Patient had become much reduced, and was unable to be out of bed; had flatulent distension of abdomen, loss of appetite and very offensive breath. In the right iliac region there was a large tumor, nearly round, hard, painless and immovable. The attending physician had diagnosed it fecal impaction in the cæcum, in which opinion I concurred. The treatment ordinarily recommended in several of our best textbooks had been used with good skill and perseverance, but little benefit resulted. The olive oil and strychnia were prescribed with like happy result as in the first case.

The treatment prescribed for these two cases is original with me, and the result was all that could be wished.

*Case 3.* I have had under my care for the last three or four years a young lady who has been leading an absolutely sedentary life—not being able to walk a step. She has been the subject of obstinate constipation for many years, owing in all likelihood to poor health and sedentary habits. I had exhausted everything in the *materia medica* with but temporary benefit. During the early part of last spring I saw, through some source which I do not now remember, a few reports of cases of constipation having been treated by *cascara sagrada*. I had been deceived by several new therapeutic agents, either owing to misrepresentation of the physician who lauded the remedy, or being unfortunate in getting hold of a bad or spurious article of the drug, and was loath to try this. But as there was nothing more for me to try, I resorted to it. I ordered the fluid extract *cascara sagrada* in half-teaspoonful doses with some water or thin syrup three times a day, with the instruction, should this fail to regulate the bowels, to gradually increase the dose. In two weeks I saw my patient. She looked well, had gained flesh, complexion was clearer than I had ever seen it, and she had a daily evacuation of semi-solid and molded feces. *Cascara sagrada* has acted beyond my expectations on this unfortunate girl, and so far has not disappointed me in relieving the constipation when it took place.

Obtaining such decided and happy results from a remedy, I concluded to give it an extended trial, which I have done. The cases are too numerous to report, and I can only give the general result of my observations. I have tried it in the young babe, in the child, adult and aged, and in nearly every case with good results—better than with any other remedy or combination of remedies I have ever used. I have generally given the remedy

by itself, so that I might know what cascara sagrada would do, though I have associated it with other remedies to advantage.

I have given this remedy to infants from half to a month old in doses of three to five or six drops, once, twice or three times a day, with good results.

The beauty of the action of the remedy is, that it produces no griping and no exhausting effect, *e. g.*, patients do not feel as if they needed toning up after experiencing the effects of the medicine.

I have not, as yet, seen an attempt at explaining its mode of action by anyone. So far as my individual opinion is concerned, I consider it a special tonic affecting both nervous supplies, the pneumogastric and sympathetic, of the intestinal, if not of the whole alimentary canal. One seems to wield a decided influence over the secretions, while the other over the motion. Be this as it may, I shall consider this medicine as a special tonic to the intestines, and a great addition to our *materia medica*, until the contrary is proven by the experience of the profession or myself. I do not vaunt it as a panacea, but assert that it is one of the best, if not *the* best, of remedies for constipation we possess.

The dose varies. In moderate cases I usually begin with fifteen or twenty drops two or three times a day, and gradually increase till the desired effect is produced. In more obstinate or severe cases I begin with a half drachm. I usually give it before meals.

I have used the fluid extract manufactured by Parke, Davis & Co., which has proved reliable every time.

I also use cascara sagrada as a cathartic in preference to the usual remedies. It acts gently, promptly, and without griping.

REPORT 16.\*—During the past year I have had ten cases of chronic constipation under treatment, aggravated by the almost constant use, for years, of compound cathartic pills, and these so-called "liver pills," whose stereotyped testimonials of "marvelous cures" are so freely displayed and advertised among the masses, and occupy so prominent a position on the counters of the drug stores in our midst. A few of these cases I desire to report to you, and the beneficial results derived from the use of P., D. & Co.'s fluid extract cascara sagrada.

Case 1. Mrs. M. for years has suffered from rupture of perineum at birth of her last child, falling of the womb, and obstinate constipation, which has increased in its pernicious results upon her system during the past few years, until life was rendered miserable. In July she came under my observation, and I immediately put her on the following:

℞ Fl. ext. cascara sagrada, ℥j  
Syr. simp., water ꝑss ℥ss.

Sig. One teaspoonful after meals.

This treatment was continued for six weeks, when such favorable results appeared that the dose of one teaspoonful at bed-time was sufficient, and now she reports herself as only needing the remedy about twice per week. Her digestion has wonderfully improved, and her strength has returned, and she says she feels like another woman.

Case 2. Miss B. had been under homœopathic treatment for two years before she came under my care in August. For years she had suffered from dysmenorrhœa, dyspepsia and constipation, and was regarded by her friends and attending physician as in a state of rapid decline. I put her on the prescription of cascara sagrada as above mentioned in case of Mrs. M., and to-day she reports herself well. She has felt no symptoms of dyspepsia for more than one month, and the condition of constipation has entirely disappeared, and what to my mind is more gratifying, the dysmenorrhœa has yielded promptly to treatment, due chiefly to the general tonic effects of the cascara sagrada. She walks the street with firm step, and the bloom of health upon her cheek. She is elated with the result of the treatment, and her friends rejoice in having her restored to them in such perfect health.

REPORT 17.†—This is a shrub found in California, and introduced through the house of Parke, Davis & Co., by J. H. Bundy, M. D., of California. It is almost a specific in habitual constipation. Its action on the secretions and circulation is positive, and, without producing either nausea or other disturbances, it stimulates and improves digestion. Experience has demonstrated its action to be principally through the sympathetic nervous system,

\* Dr. C. M. Galloway (New Preparations, January, 1879, p. 10).

† Extract from report read by J. G. Harvey, M. D., before the District Medical Society of Central Illinois, Oct. 29, 1878; reprinted in New Preparations, February, 1879, p. 31.

and especially the solar plexus. The reports of its use from a large number of physicians, and from different parts of the country, strongly confirm the statements of Dr. Bundy as to the good results obtained by its use in habitual constipation, and it will doubtless take its place in our materia medica as a valuable therapeutic agent.

REPORT 18.\*—As a gentle cathartic, I have come to conclude that we have few remedies better than the rhamnus purshianus. Since its first appearance on the market, I have continuously made use of it in my practice, especially in female cases

Constipation is a factor in nearly every one of the individuals of this sex that apply for treatment for trouble incident to their uteri, and it is a symptom that needs immediate attention, should we hope to speedily benefit the general and special health of our patient.

My usual combination is with potassic bromide, ergot, nux vomica and belladonna, and it makes an excellent cathartic (I do not think it is especially alterative) adjunct to this utero-sedative and tonic mixture. The formula is based somewhat as follows, of course lessening or increasing the amount of the individual remedies as circumstances may require:

R̄	Rhamni pursh., fl. ext.....	32	00
	Ergotæ, fl. ext.....	32	00
	Potassii bromidi.....	16	00
	Belladonnæ, fl. ext.....	4	00
	Nucis vomicæ, fl. ext.....	6	00
	Aq. camphoræ, q. s. ad.....	128	00
M. S.	Teaspoonful in water after meals.		

Oftentimes I give a dose at bed time if the bowels are more than ordinarily indifferent to laxatives. In this class of cases there seems to be a sort of semi-paralysis of the intestinal nerves, thus inducing that wind-bloating of the bowels so frequently seen in these uterine cases. The nux vomica, by toning up the indifferently acting nerves, increases the peristaltic movement of the intestines, thus producing a more natural action of the bowels, and so, soon renders so large a dose of the cascara unnecessary. Sometimes, too, 16 grammes of the fluid extract in a 128-gram mixture is plenty to secure natural movements; especially is this the case in weakly-conditioned ladies. Still, as a rule, in all of my cases of uterine troubles I have found some sized dose of the cascara as indicated above of great benefit. It is a remedy, too, that I think can be taken for a long time with impunity; leastwise my patients, after securing a regular action of the bowels, have not been thrown back into their former bowel-lethargic condition on the withdrawal of the laxative.

As a simple cathartic, given in doses of a quarter teaspoonful (about one gram) of the fluid extract before breakfast, in a little cold water, it will be found excellent. It has the advantage, too, of being pleasant to take, having none of that peculiar mawkish taste of rhubarb that sickens so many, or of the ordinary salts (epsom).

REPORT 19.†—When the new laxative, cascara sagrada, was given to the profession by Dr. Bundy, the claims which he made for it were so extravagant that I was inclined to be suspicious of it. But as he fortified his assertions with cases that were apparently authentic, I concluded to ascertain for myself the value of the remedy. I accordingly procured from Parke, Davis & Co., eight ounces of their preparation, and with a courage possibly akin to rashness, I experimented first upon myself; for, as a result of long years of the sedentary life of a student, constipation had been established, and was an enemy I had never been able to dislodge. On the first trial of the medicine I was struck with the similarity of its taste to the buckthorn (rhamnus frangula), a fluid extract of which prepared by Metcalfe & Co., of Boston, I had long used, and I said to myself, surely this must be some variety of the buckthorn. The recent announcement of its botanical name, rhamnus purshianus, confirms this opinion. In my own case I found the medicine an agreeable laxative, producing in moderate doses a free semi-solid evacuation of the bowels without catharsis, or tormina, or disturbance of any sort; occasionally the dejections were somewhat frothy, as if soap had been mixed with the fæces. It did not impair the appetite, nor derange in any way the digestive functions, and after using it for some time I gave it to my patients. Now, after nearly two years trial of the remedy, and in nearly one hundred cases, I am satisfied that it is a valuable addition to our materia medica, but the claims which were first made for it as *curative* of constipation have in no one instance been substantiated.

\* C. Henri Leonard, M. D., in Michigan Medical News (New Preparations, February, 1879, p. 42).

† E. S. Dunster, M. D., Professor of Obstetrics and Diseases of Women and Children, University of Michigan, in New Preparations, March, 1879, p. 56.

I have invariably found it is well borne, and that it has no tendency, even after months of continuous use, to destroy appetite or derange digestion. A laxative that will do this is certainly well worth having and using even if it cannot cure the constipation. The attacks recently made upon the remedy are too absurd to warrant notice, for, as has been well said, it will move the bowels just as readily under its local name cascara, as it will if you call it *rhamnus purshianus*. But lest these attacks should have some influence in preventing the profession from employing it, I think those who have used it should make public their experience with it, so that a really valuable remedy may not fall into disrepute. As to the modes of using it, either alone or in combination with other substances, I have nothing to say at present, my only object now being to fulfill what I conceive to be a simple duty in calling attention to the value of the remedy.

REPORT 20.\*—A remedy given to the medical profession by Dr. Bundy, of California, for constipation, coming under my notice and being highly extolled by various physicians throughout the country, I was induced to give it a trial. It is a common saying among many in the profession, the longer we practice the more skeptical we are in regard to the *modus operandi* of medicine. This loss of confidence is produced from various causes. 1st. We must consider that medicines are nothing but relative agents; that the action of medicine upon the organism gives us merely a chain of facts, when given, merely to remove certain morbid conditions, or exalt or diminish certain physiological functions; that the greater the number of satisfactory results observed, the less progress will theoretic skepticism make; that this loss of confidence in medicine often arises from certain medicines giving unpleasant secondary symptoms, although the primary action of the medicine excites admiration and increases confidence, but not sufficient to prompt the incredulous to further perseverance; hence, a medicine is often cast aside and falls into disuse.

In a practice of 17 years, I have had many forms of stomach and bowel indigestion, and have tried many remedies for the same, with varied results, but never had such satisfactory results as I have had in the use of cascara sagrada. It has peculiar effects upon the alimentary tract that should give it prominent distinction among the many old and reliable remedies of the pharmacopœia. In our search for instruction in any department of medicine we should not be in haste in accepting conclusions for fear we might establish a *post hoc* for a *propter hoc*. Especially is this caution necessary in the *modus operandi* of medicine. But, as Emerson says, "the knowledge of having done the thing before increases courage."

A Miss T., of this city, 18 years of age, consulted me concerning what she considered a too frequent menstrual flow. I found that she had in conjunction with this, chronic pelvic peritonitis, which, I think, is a common occurrence in this country. Loath to move the bowels for fear of disturbing the peritoneum, as she was exceedingly constipated—stomach digestion apparently not disturbed—but a "colonic indigestion" very evident, I prescribed thirty-drop doses of cascara sagrada, fluid extract, to be taken thrice daily, as a test, ordered quiet, and to remain in a recumbent position. Saw the patient four days afterwards, when her mother, an intelligent lady, told me that the pain had gone mostly, and her bowels had moved, and without giving any disturbance to the neighboring viscera. This I would scarcely have expected from any laxative or cathartic in the pharmacopœia. The desideratum often desired in medicine is to avoid unpleasant secondary effects, although we are very anxious for primary results. There were none developed in this case nor in any of the several cases I have since used the medicine in. I painted the hypogastric region daily with the tincture of iodine, continued the cascara sagrada until her bowels moved daily and easily. This case was an unique or unusual one to experiment on with what was, to me, a new remedy; but from my knowledge of cascara sagrada, at this present stage, I unhesitatingly say it can be used under any circumstances where there is general lethargy of the bowels. I now frequently prescribe it in "colonic dyspepsia," with good results. Patients do not object to taking it; it is followed by no secondary symptoms. I can most safely say it is a most valuable remedy in constipation. As to its *modus operandi* on the alimentary canal I shall not now stop to inquire, but content myself with the knowledge of the fact that Parke, Davis & Co. have introduced a boon to the medical profession for constipation. One thing I might say in regard to its action, that I believe it stimulates the entire mucous tract to action, and moves the bowels by virtue of the force it gives to secretion.

REPORT 21.†—Case 1. I was first induced to try the new remedy as a last resort in a case of habitual constipation.

November, 1878. Miss K., æt. 24, of regular habit, called complaining of abdominal

\* A. O'Neill, M. D., Meadville, Pa., in *New Preparations*, June, 1879, p. 140.

† J. W. Van Winkle, M. D., Rochester, N. Y., in *New Preparations*, December, 1879, p. 299.

distention, pressure or weight in the perineum, urine scanty, complexion sallow, skin harsh and dry, frequent attacks of headache, with severe paroxysms of neuralgia, the act of defecation occurring once in three or four days, and requiring violent straining, the excrement being pale, clay-like and very offensive, and patient complaining of a hemorrhoidal protrusion after defecation.

I prescribed first, after arising, citrate of magnesia, followed by a breakfast of oat-meal, or cracked wheat and milk, with lime water and a cup of tea or coffee. For dinner, fish, mutton or poultry with few vegetables and no pastry. A light supper, consisting principally of milk, following each meal with lacto-pepsine, bismuth and soda  $\text{aa}$  grs. iij, directing the patient to take regular exercise in the open air, to make regular sittings at stool every 24 hours. The following pill was also given:

- R Ext. aloes, gr. xv.  
 Ext. nucis vomicæ, gr. iij.  
 Ext. hyoscyami, gr. x.  
 Pulv. ipecac, gr. j.  
 M. Fiat pills No. x. S. One pill at bedtime.

After a week of this treatment a rest was taken and the constipation immediately returned as severe as ever, when an enema was resorted to. I then prescribed:

- R Ferri carb. "Vallet's."  
 Quinîæ sulphatis,  $\text{aa}$   $\frac{1}{2}$  ss;  
 Ext. nucis vomica, gr. v;  
 Ext. colocy. comp.,  $\text{dj}$ .  
 Ext. gentianæ,  $\frac{1}{2}$  ss.  
 M. Fiat pills No. xxx. S. One pill half hour after each meal.

This also failed and I afterwards tried many of the common remedies of the day for constipation, which as often resulted in failure, and after four months of this kind of treatment I found my patient discouraged, and myself perplexed and disheartened. In my desperation I resolved to try cascara, and after reading all the literature on the subject I could find in New Preparations, I prescribed, April, 1879:

- R Fl. ext. cascariæ sagradæ,  $\frac{1}{2}$  j.  
 Fl. ext. berberis aquifol.,  $\frac{1}{2}$  ss.  
 Syr. pruni Virginiani,  $\frac{1}{2}$  jss.  
 Ext. hyoscyami,  $\text{fd}$ .,  $\frac{1}{2}$  ss.  
 M. S. Teaspoonful three times per day.

After a few days the dose was gradually diminished, until only a teaspoonful was taken at bedtime, and one repetition of this prescription cured my patient entirely of constipation, headache, and neuralgia, and only a few days ago she informed me that she had not taken a particle of medicine since April; that she was now able to satisfy her appetite as to variety of food without inconvenience, and that she never felt better in her life.

Case 2. Mr. M., a farmer about middle life. Habitual constipation with marked palpitation of the heart. I prescribed:

- R Fl. ext. cascariæ sagradæ,  
 Fl. ext. berberis aquifol.,  
 Elix. simplex,  $\text{aa}$   $\frac{1}{2}$  j.  
 Tinct. nucis vomicæ, gtt. xxjv.  
 Tinct. digitalis,  $\frac{1}{2}$  j.  
 M. S. Teaspoonful three times per day.

It was not necessary to follow this treatment long. In less than a week the dose was reduced to one teaspoonful in 24 hours, and the recovery seemed complete.

Case 3. An old German saloon-keeper living in one of the worst malarial districts of this city. Diagnosis, chronic cirrhosis of the liver, with gastro-enteritis.

- R Fl. ext. cascariæ sagradæ,  $\frac{1}{2}$  j.  
 Fl. ext. berberis aquifol.,  $\frac{1}{2}$  ss.  
 Syr. pruni Virginiani,  $\frac{1}{2}$  j.  
 Acidi hydrocyan. dil.,  $\frac{1}{2}$  j.  
 Morph. sulph., grs. ij.  
 M. Sig. Teaspoonful three times per day.

This treatment was continued for several weeks with the best of results, and the patient discharged much improved. But I doubt the possibility of bringing about a perfect cure in this case with any remedy without a change of location and the diminution of the daily allowance of stimulants.

*Case 4.* Mr. Geo. W., a railroad conductor aged about 55. Chronic varicose ulcer on posterior surface of the left leg about one inch above the ankle joint, an old ulcer of 20 years' standing, with a gangrenous appearance, the induration of tissues about an inch in diameter, with a cup-shaped cavity, and very offensive odor. Mr. W., during the past 20 years, has been under the care of some of our ablest surgeons, with but little benefit, owing, doubtless, largely to the fact that his occupation keeps him upon his feet most of the time. Prescribed:

- R Fl. ext. cascarae sagradae, ℥ij.  
 Fl. ext. berberis aquifol., ℥j.  
 Syr. pruni Virginiani, ℥jss.  
 Sol. acidi arseniosi, ʒss.  
 M. S. Teaspoonful three times per day.
- R Fl. ext. eucalypti globuli, ℥ss.  
 Vaseline, ℥ij.  
 M. Ung. S. As directed.

After filling the cavity of the ulcer with this ointment and covering it with the absorbent cotton and a light bandage, I directed the patient to repeat the application night and morning, and return in one week.

The result was beyond the expectation of either patient or physician. The offensive odor had all disappeared and the whole appearance of the ulcer had changed. Healthy granulations were now forming, and the patient's general health had commenced to improve.

This treatment is still being continued with the most gratifying results.

REPORT 22.\*—We had our attention called to cascara sagrada a little over a year ago by a physician in one of our neighboring towns, who was then prescribing it; although we had heard about cascara prior to that period, we had never given it a trial, thinking it might be one of those much-lauded remedies without any particular virtue; but have since prescribed it in quite a number of cases where its use seemed to be indicated, particularly in that most frequent and subtle malady, constipation, for which it is invaluable, its action being decidedly better than anything we have heretofore used.

It produces full, easy, pleasant stools, without any tormina, tenesmus or nausea; neither is it very unpleasant to the taste. Twenty to thirty drops of the fluid extract two or three times daily is all that is wanted to perfectly regulate the want of, and to change the perverted secretions. It acts upon the hepatic secretions and circulation more positively than anything we ever gave before; constipation dependent upon defective and perverted action of the liver, as above stated, yields at once to its action. It acts upon the whole gastro-intestinal canal, stimulating its morbid condition, bringing back vitality, and stimulating the neighboring glands to healthy action, completely restoring their tone and muscular power. Given in small doses it is a valuable remedy in dyspepsia, increasing the appetite and giving tone and vigor to the stomach.

In bilious, intermittent and remittent types of fever cascara sagrada, combined with gentiana quinqueflora, in doses of from ten to fifteen drops each, administered every few hours until a good action upon the bowels is produced, then at longer intervals, will generally effect a cure in a very short time.

There is a large amount of cascara in the market which is unreliable. Our best results have always been obtained from that manufactured by Parke, Davis & Co., of Detroit, Michigan. We regard cascara sagrada as an important addition to our materia medica.

REPORT 23.†—We are continually having new remedies urged upon us. Some of them are good, others are good for nothing. Cascara sagrada is one of the most useful remedies that has been put upon the market for a long time. Who is it that has not felt the want of some drug that would gently but surely move the bowels and keep them regular without materially disturbing the stomach or other parts of the system? This want is felt most in the case of children. They can't take pills; castor oil is exceedingly disagreeable, and is generally followed by constipation. The fluid extracts of podophyllum and leptandra nauseate and produce griping, besides they are exceedingly bitter, and children take them with reluctance. But the cascara is clear of all these objections. It does not taste bad, and when given in appropriate doses, no nausea and but slight uneasiness is experienced from its use. The fluid extract may be combined with cordial, extract of malt or simple

\*From the Medical Summary. (New Preparations, July, 1876, p. 183).

†American Medical Journal. (New Preparations, July 1879, p. 104).

syrup, to neutralize the taste. For children, 1 oz. of the fluid extract may be added to 3 ozs. of any of the above articles, and the combination given in teaspoonful doses, every two or three hours, till the bowels move, then two or three times a day to keep the bowels regular.

This is a pleasant remedy; and while it is a pleasant one to take as an efficient cathartic or laxative, it seems to increase the glandular secretions generally, especially that of the liver. We can rely upon the cascara where anything of this class is demanded, and country practitioners can hardly get along without cathartics. While we do not prize them so highly as some people, we do find cases where they are demanded; then the cascara is appropriate. And I wish to impress it upon the reader, that this remedy has a tendency to *cure* constipation, a habit of local lethargy suffered by so many people.

REPORT 24.\*—The medical profession have long felt the need of a proper remedy in constipation. Whether it has been discovered in the new remedy cascara sagrada, yet remains to be more thoroughly tested. I have now been using it in my practice for some five or six months with the most complete success; in fact I have got the first failure to make in relieving my patient. I have treated some very obstinate cases of constipation, one in particular, a lady who had used injections for years as her only relief, but each one yielded readily to the remedy. Whether in any of these cases I have effected a permanent cure, I will not venture to say. This much, however, I can state, several of my patients have discontinued it for several weeks and are still regular in their habits and have to all appearances completely recovered. I usually prescribe the following formula:

R Fl. ext. cascara sagrada, cc. gm. 30.  
Syr. rhei, ar., cc. gm. 90.  
M.

I direct my patient to commence taking a teaspoonful three times a day, gradually decreasing the dose, just using sufficient to keep the bowels in a soluble condition. I find as a rule that, in the course of a week or ten days, one teaspoonful per day of the above prescription will suffice to keep the bowels regular, and direct my patient to continue it for four to six weeks. Of course I do not always confine myself to the above formula, I sometimes combine the cascara sagrada with extract malt, lactopeptine or other drugs, as the case may require, always instructing my patient to be regular in his habits, also giving him careful instructions as to diet, etc.

REPORT 25.†—In regard to cascara sagrada, I should not wish to practice medicine in a malarial district like ours without it. Its power over the secretions of the liver as well as the small intestines make it particularly adapted to those cases of bilious forms of constipation so often met in practice. The constipation of elderly people readily yields before it when followed by strychnia. The after effects in no case have been unpleasant. I have a high esteem for the new remedy.

REPORT 26.‡—I have used fluid extract cascara sagrada in cases of habitual constipation with excellent results. By administering a mixture of cascara sagrada and syrup, equal parts, in doses of a teaspoonful, three times a day for three or four week, and then gradually and regularly decreasing the dose, I have been able to establish a habit of regularity, and eventually to effect a permanent cure. In no case have I been obliged to increase the dose after the first few days.

REPORT 27.§—I have used fluid extract of cascara sagrada (*rhamnus purshianus*) in several cases of constipation, with very satisfactory success. In a case of paralysis which I treated in the Troy Hospital, where the patient was badly constipated, I found the cascara an efficient and pleasant laxative.

REPORT 28.||—This comparatively recent addition to the medical armamentarium, has attracted much and deserved attention as a peculiarly valuable "new remedy." Being well aware of the proneness of American physicians to "ephemeralism" in medicine, I nevertheless am constrained to add my observation and experience regarding the remedy in that troublesome and widely prevalent disease commonly known as habitual constipation. I may premise that the positive, and perhaps, to some, extravagant, statements I may make, receive their emphasis from the experience I have had with this medicine in my own person—

\*W. A. Buchanan, M. D., Paris, Ill., in *New Preparations*, August, 1879, p. 196.

†A. W. Alvord, M. D., Clinton, Mich., in *New Preparations*, Sept., 1879, p. 225.

‡Wm. Faulkner, M. D., Erie, Pa., in *New Preparations*, Sept., 1879, p. 226.

§A. T. Van Vranken, M. D., West Troy, N. Y., in *New Preparations*, Oct., 1879, p. #53.

||Geo. W. Cook, M. D., Syracuse, N. Y., in *New Preparations*, Dec., 1879, p. 303.

an experience which has paved the way for the use of cascara sagrada in a number of cases in practice.

A brief history of my malady may not be wholly uninteresting, as going to show the prominent features of a typical case of habitual and confirmed constipation with its attendant and induced complications.

I am fifty years of age, and for more than a quarter of a century have been in the active practice of my profession. When a school boy, and hardly well on my second decade, I found that I was more or less troubled with constipation, and that this difficulty increased with the lapse of time until the efforts to evacuate the bowels were attended with pain, the stools being streaked with blood. Then followed pain and hemorrhage, intensified while at stool, and soon, pain for several minutes, and eventually for hours, afterwards. Following this condition came positive impaction of feces in the rectum and then hemorrhoids, which became so engorged, so inflamed and so painful as to be almost unendurable. I need not add that with all these were obstructed portal circulation, retained and regurgitating bile, gastric and intestinal irritability flatulence—in short, confirmed dyspepsia, with more or less abdominal pain, cerebral congestion and a sallow, muddy chloasmic skin.

Thus the malady continued, and steadily progressed until the colon became so torpid as to be unable to propel its contents into the rectum, and for years the latter was but a depository instead of a passage way.

The residua of the ingesta were habitually lodged above the sigmoid flexure of the colon. The muscular coat and the sympathetic nerves of the colon had well nigh suspended their functions and refused their interposition unless goaded to action by laxatives, cathartics in increased quantities and frequency, or deluging enemata.

Of course the retained feces engendered flatulence, and the flatulence caused enormous distension of the colon, attended with all degrees and intensity of colic—of confirmed colalgia—hope this word is not a neologism, if it is, is so because no legitimate term can sufficiently express my misery.

But during many of these long years I was continually confronted with the taunt so encrusted with age, "Physician, heal thyself!" but obedient to the injunction I have ever striven so to do, and am still my own champion, veteran patient, and am, thank God, at last a hopeful convalescent.

I have resorted to diet, to systematic exercise, to laxatives, to cathartics, to cerebro-spinal stimulants, such as nux vomica, which latter I have taken almost to tetanism, to belladonna, until nearly blind, to podophyllum, until my throat was as dry as Cullen's "Nosology," to rhubarb, until my stomach seemed to be given over to acrobatics. Finally, and for more than 20 years last past, as a matutinal resort, I have employed large enemata of cold water, which served to temporarily excite the action of the muscular and nervous forces of the large intestine, and which, therefore, became my only means of relief.

Without the enema, notwithstanding a full cathartic had been taken to contribute to the twinges of my "true inwardness," it was as impossible for me as it would be for Greenough's statue of Washington, to have an evacuation of the bowels.

Of course, it is not pleasant, perhaps not in good taste, for one to parade his own infirmities before the world, but "other hearts must ache," and "there is a balm in Gilead" for them too, and, thanks to Dr. Bundy, I have found it in a physical and important sense, and under the name cascara sagrada.

In June, 1878, while in attendance at the session of the American Medical Association, in Buffalo, I was presented with a sample bottle of the fluid extract of cascara sagrada, with a circular embodying the observations and comments of different practitioners regarding its therapeutical effects.

I examined its sensible properties, and regarding it only as a modification of the rhamnus catharticus—a dose of which latter, if it in the east transcends the limits of a laxative, will seem to turn one inside out—I laid it aside. But at a session of our New York Medical Association, in this city, in May last, I obtained another sample of the medicine from the same source, and resolved to give it a fair trial. I at once prepared a mixture after the following formula:

R Fl. ext. cascara sagrada,  
Simple syrup, ℥i ʒj.  
Ext. malt, ʒij.

M. Sig. A teaspoonful before meals. Immediately I began the use of this prescription, and without any other aid, I had regular and comfortable morning evacuations of the bowels.

The morning lavements were discontinued, and have been ever since. The action of the medicine continues to be prompt, certain, painless, and the above dose, even but once a day, to this time, perfectly effectual.

I regard cascara sagrada as a peculiar tonic of the whole digestive apparatus, affecting in due proportion the muscular and nervous forces of the primæ viæ, correcting the hepatic and gastric secretions, as well as restoring normal and necessary mucus to the colon and rectum, thus lubricating and promoting the movements of the fæces. Its action, in proper doses, is essentially laxative, producing mushy or moulded stools tinged with the normal bilious hue.

And now, after a careful trial of this, to me, invaluable agent, I am in better flesh, health and strength than at any time before for the last thirty years. I am rejuvenated. I am physically happy!

It will be readily inferred, in view of this experience in my own person, that I should resort to cascara sagrada in my practice, and although not meeting such prolonged and pronounced cases as my own, still I have not as yet been disappointed; and if this paper, hastily prepared at times snatched from the pressure of other duties, shall be the means of inducing other physicians to give the remedy a fair trial, it will prove a blessing to many fellow-sufferers.

REPORT 29.\*—Having for several years been greatly troubled with constipation, I was induced to try the cascara sagrada. I began the use of it as follows:

R Fluid extract cascara sagrada.  
Simple syrup, ℞ ʒj.

M. Sig. Take one teaspoonful three times per day, and I must say that it acted like a charm. It was but a short time until I had to take two drops only per day, and again only one, when finally I concluded I was cured, and stopped it altogether; but after a few months I had to return to it, but one dose per day now is sufficient. I have prescribed it in numerous other cases, and it has universally given satisfaction. It is now a staple in our drug stores.

REPORT 30.†—There has certainly been no lack of literature on this subject, and, doubtless, there is not a physician in the land who is not familiar, either from reading or from experience, with the properties of the drug. The reports have been so almost universally favorable as to create the impression that failure is impossible. Infallibility, however, is a rare property, whether of men or things, and our failures are frequently as instructive as our successes. The failure in a given case, of a drug whose success has been so uniform, should lead to investigation which would establish more thoroughly the condition of success, for all success is conditional. The report of the following case has had such an object in view. Mr. C. has suffered for five years from obstinate constipation and its train of accompanying disorders. I first gave him a mercurial purge which relieved the headache and lassitude, due to the retention of cholesterine. Following this he was put on quinine, iron, strychnia, arsenic, and aloes, given in combination and in the form of capsules. This combination failing to secure the desired evacuation, I resorted to cascara sagrada, with which I had previously treated some ten cases of constipation very successfully. The commencing dose was fifteen drops, three times a day; this having no apparent effect, the dose was steadily increased until a teaspoonful, three times a day, was given; but still, though continued in the latter dose for over a week, no action was secured. This single failure has by no means destroyed my faith in the drug, but has clearly demonstrated that there may be conditions present, idiosyncrasy or something else, which render it, in common with all other remedies, inoperative.

REPORT 31.‡—About a year ago I reported decided success with cascara sagrada and berberis aquifolium. The lapse of time and repeated trials have only served to strengthen my faith in their usefulness. During the winter of 1876-7, having but recently recovered from a severe attack of pneumonia, I was greatly troubled with constipation. I procured a sample of cascara sagrada and began taking it; after using ten or twelve doses, taken carelessly and at irregular intervals, I was much surprised to find myself cured. For a year after this my bowels were as regular as need be; soon after this a slight return of the old trouble called for a correspondingly slight exhibition of the cascara, since when I have been sufficiently "regular" to enable me to "throw physic to the dogs."

\* E. W. Boyles, M. D., Clay City, Ill., in Therapeutic Gazette, 1880, p. 42.

† F. D. Thompson, M. D., Sherman, Texas, in Therapeutic Gazette, 1880, p. 43.

‡ H. H. Baker, M. D., Cleveland, Ohio, in Therapeutic Gazette, 1880, p. 71.

REPORT 32.\*—I have used fluid extract cascara sagrada in habitual constipation caused by torpor of the muscular structure and deficient secretion, and in every case it has fulfilled my most sanguine anticipations. It is particularly good in the constipation of pregnancy, and, in small doses, in the constipation of children. I have recently used it with excellent results in a case of torpor of the bowels, following a severe attack of gastrodynia. In fine, it has furnished me the elegant and reliable remedy for habitual constipation that I have long sought for in vain, after using aloes, podophyllin, *et id genus omne*.

REPORT 33.†—This statement may not be anything new, but still I am constrained to say, that in my experience, cascara sagrada does all that is claimed for it. It has become a standard remedy with me, and indispensable. In duodenal indigestion, I combine it with malt extract and nux vomica, and have found that when this condition is associated, as it usually is, with constipation, flatulence, headache, cold hands and feet, vertigo, etc., that the combination never fails of bringing relief.

REPORT 34.‡—Mr. P., merchant, called to see me in regard to the state of his health, saying he had consulted several physicians, all of whom treated him for dyspepsia. After talking with him for some time, and learning that his bowels were seriously constipated, and that he suffered greatly from sour eructations, I determined to test the virtue of cascara in his case. He stated that he seldom had an action without resorting to an active dose of medicine, or using a warm water enema, and frequently passed as many as seven days without an action of the bowels. I prescribed one drachm fluid extract cascara in water three times a day. Several days after he called again, and said that after the second day his bowels had acted from two to three times a day, and asked if I designed the medicine to act so freely. I directed him to take 20 drops three times a day in the future, and if the medicine seemed too active, to still further reduce the dose. Two weeks after he came to the office, and reported himself cured, having an action every day from taking 20 drops at bedtime. After some advice to him I prescribed:

℞ Cascara sagrada, fluid extract, ʒj  
Nux vomica, fluid extract, ʒij.  
Aque, ʒv.

M. Sig. A tablespoonful morning and night.

From this time on he has experienced no trouble with his bowels; his stools are regular and healthy, the sour eructations have ceased, and he says he feels himself a new man. Indeed, his general appearance proclaims him such. To use his expression, "this is a wonderful medicine." He says it is strange so small a dose should work such a change after taking so much medicine and in such large doses.

I have tried the cascara in only a few cases, but with uniform success. The above is the most striking of the number, hence I present it. I am greatly pleased with the medicine.

REPORT 35.§—Of the merits of this drug as a remedy in constipation, it would be superfluous for me to speak. No article of the materia medica has a place more fixed in therapeutics than this. I apprehend, however, that it is not generally supposed to be curative of the opposite condition to constipation—diarrhoea. The following case will show that it does relieve diarrhoea, and that it is not impossible that it may yet become to be regarded as a valuable remedy against this condition. My own daughter was taken last October with a severe attack of cholera morbus with dysenteric symptoms. After the acuteness of the attack subsided, she was left with a diarrhoea which, in spite of the usual remedies, continued until February. At this time I received a sample of cascara sagrada from my friend, Dr. R., of Knoxville, who advised me to try it in an obstinate case of constipation I had on hand. The doctor's views of the *modus operandi* of the drug induced me to give it a trial on my daughter. If it cures constipation by imparting tone to the muscular fibre of the intestine, might it not also relieve a diarrhoea which was evidently due to depreciated tonicity of the mucous and muscular tissues of the bowels? I accordingly gave ten drops of the fluid extract, which I repeated each night for three successive nights. The relief was remarkable for its promptness and its completeness. The discharges, which before had been mixed with a white mucus and were extremely offensive, at once changed to their natural color, and soon to their natural consistence.

\* Thomas H. Urquhart, M. D., Hastings, Neb., in *Therapeutic Gazette*, 1880, p. 71.

† F. E. Daniel, M. D., Jackson, Miss., in *Therapeutic Gazette*, 1880, p. 125.

‡ J. R. Blackerby, M. D., Milford, Ky., in *Therapeutic Gazette*, 1880, p. 126.

§ W. W. Morrison, M. D., Rockford, Tenn., in *Therapeutic Gazette*, 1880, p. 153.

I report this single case to direct attention to what may prove a very valuable property of this drug. My observation will certainly lead me to have recourse to cascara in the next case of this nature I may be called upon to treat.

REPORT 36.\*—My attention having some time since been called to this drug as a gentle peristaltic stimulant and regulator of the bowels, I was induced to accord it a trial. I wanted a remedy which would act in this way, but had never succeeded in finding it. My trial of cascara sagrada has been attended with such marked success as to draw from me this expression of my high opinion of it. Its success has been especially marked in certain obstinate and chronic cases of constipation for which I had despaired of finding such a means of relief as was desired.

If my experience with the remedy continues as it has up to the present, I shall take great satisfaction in recommending it to my medical class.

REPORT 37.†—The right of cascara sagrada to a prominent position in the ranks of our advancing therapeutical science, as a remedy *par excellence* for chronic constipation no longer admits of argument.

It is rare indeed that a remedy even under the most favorable circumstances meets with a title of the success accorded this from its introduction, and taking into consideration the malicious persecution and misrepresentations of which it has been the subject, one is forced to the conclusion that its inherent virtues and the success attending its administration by practitioners have alone preserved it from that bourne from whence so many so-called specifics ne'er return—oblivion.

Two or three years have sufficed to bring it into general use and to acquire for it a name as far in advance of the old "peristaltic persuaders" as our present therapeutics excel those of a century ago. The almost invariable success that followed its use in the treatment of many of the functional affections of the stomach and intestines, especially in chronic constipation and its concomitant train of symptoms, induces me to speak of it thus highly, for I feel confident that a fair and impartial trial of its virtues will remove these diseases from the class considered *opprobria medicorum* by the profession.

I have used the preparation since its introduction and in very few instances has the effect produced failed to be beneficial to the patient. In many cases idiosyncrasies have been met with where combinations with nux vomica, ergot, belladonna, etc., have assisted in attaining the desired end; but as a rule the following simple prescription has answered all purposes:

B Ext. Rhamni Purshianæ, fl. ʒ ss.  
Syrupi et aquæ ʒiā ad ʒ ij.

M. Sig.—Teaspoonful three times a day.

In many cases I have found less than the above quite as beneficial as the larger dose, in fact, I have found ten or fifteen drops administered three times a day, bringing the system gradually under the influence of the medicine, preferable to producing a marked impression by means of a drachm or more at the outset. I have found it excellent as an anti-periodic and hepatic in ordinary chill fever and have met with flattering success in the treatment of hæmorrhoids caused by portal congestion, its action as a hepatic freeing the ramifications of the venæ portæ and lessening the hepatic engorgement.

Have also found it serviceable in cases of chronic gastric catarrh. In cases of acute or chronic dyspepsia with failure of the digestive and assimilative forces from nervous enervation, its action upon the ganglionic system stimulating the secretions of the liver, bowels, and entire alimentary canal, renders it a valuable addition to our list of tonics.

I have selected the following from many cases as exhibiting varied functional disorders, especially indicating the rhamnus purshiana line of treatment.

Case 1. S. B., æt. 42, chief engineer large manufacturing establishment, corpulent, habits sedentary. Was called to see patient January, 1879. For twenty years had been subject to exceedingly severe attacks of cephalalgic paroxysms once or twice per month; had been treated by many physicians, but had never succeeded in obtaining more than temporary relief. He informed me he only looked for relief, as the hope of being permanently cured he had resigned, considering himself the victim of an irremediable malady.

His liability to lose several days at a time from this cause, made a factor in all his

\*H. M. Field, M. D., Newton, Mass. (Therapeutic Gazette, 1880, p. 155.)

†J. E. Clark, M. D., Professor of Physics and Medical Chemistry in the Michigan College of Medicine, in a paper read before the Wayne County Medical Society (Therapeutic Gazette, 1880, p. 186).

business engagements, frequently causing heavy pecuniary loss. Examination during paroxysms gave temperature normal, surface of body cool, abnormal sensitiveness to light and sound, anorexia and nausea, with a history of inveterate constipation of the bowels. The sclerotic and orbital region showed a well marked icteric tint.

Placed patient upon rhamnus purshiana, and succeeded in producing one evacuation per day. No paroxysms in February, March, April, and May. A slight attack in June, attributed by patient to failure to take the medicine.

Oct. 1. No attack since June; taking one-half the amount required last January.

Nov. 23. Called for medicine. Had taken none for five weeks; feared an attack.

Jan. 1, 1880. No violent attack since first dose of medicine. Patient satisfied he has found a specific, and a goodly sized Christmas box delivered at my office marks his appreciation.

Case 2. C. D., a hysterico-hypochondriacal female, with history of uterine trouble, and gynæcological investigations. Said she believed if she could procure a free evacuation from the bowels once per day, the exciting cause of most of her affections would be removed.

May 3. Acting upon her suggestion as to an evacuation each day, I put her upon a mixture of:

℞ Ext. rahmni pursh. fl., ʒj.  
Ext. belladonnæ fl., ʒj.  
Tr. nucis vomicæ, ʒij.  
Syrupi et aquæ, āā ad. ʒiv.

Sig.—Teaspoonful thrice daily.

At first medicine produced slight catharsis. Reduced dose to teaspoonful twice a day, and on June 20 to one teaspoonful each morning at 10 a.m., she claiming this sufficient to produce the necessary evacuation.

Dec. 10. She informs me that she has not been better in ten years. Taking one teaspoonful per day.

Case 3.—Clinic Michigan College of Medicine: E. F., female, æt. 21, complained of hæmorrhoids dating from the period of gestation some 18 months since. Had been treated for more than a year with slight temporary relief.

A well-marked case of portal congestion with history of dyspepsia and chronic constipation. I directed 15 drops of the extract to be taken three times per day for one month, at the end of which time she reported entirely cured.

Have administered it to a number of cases at my clinic during the past three months, and the record shows that in no case where patients have reported have the effects failed to be beneficial.

REPORT 38 \*—Mrs. B., æt. 62. Was called to see her March 6th. Found patient much emaciated and low-spirited, having been in the hands of several practitioners without obtaining any benefit. Her last physician, a homœopath, had diagnosed inflammation of stomach, gave "little pills," and ordered diet of "cabbage and boiled onions" to the exclusion of almost everything else. In getting the history of the case, I found that it began with obstinate constipation, about six months ago. The constipation was a more or less prominent symptom throughout her illness. I found great flatulent distention of stomach, the greater curvature reaching to within 2½ inches of the pubis. There was considerable tenderness of abdomen, and fæcal accumulation in ascending colon. The tongue was heavily coated, breath foul, temperature normal, pulse 76, weak and compressible. She complained much of heat and burning in her throat, and eructations of gas from her stomach, and often vomited her food (cabbage and onions). Besides she had much palpitation of the heart and fullness in chest, and, as she said, "ball in her throat the size of a goose egg." Her bowels had not moved in eleven days; she was very apprehensive, declaring she was going to die anyway.

Looking the case over very carefully, I concluded that the whole difficulty depended upon the condition of the bowels, and giving a favorable prognosis, ordered large injections and a tablespoonful of the following every four hours until the bowels should move:

℞ Sodii bicarb., 4.00.  
Pulv. rhei., 16.00.  
Spts. menthæ pip., 8.00.  
Syr. rhei. arom., q. s. ad., 125.00.

M. Ft. sol.

\*Dr. Med. Karl V. Ruck, Norwalk, Ohio, in Therapeutic Gazette, 1880; p. 259.

March 7th and 8th the bowels remained confined. March 9th ordered:

℞ Hydr. c. cretæ ʒ 75.  
Pulv. podophyllin ʒ 0.05.

M. One dose, also an injection of an infusion of aloes.

Next night she had one stool and felt better. I now ordered the rhubarb mixture to be continued and the following pill at bed time:

℞ Pulv. aloes soc. ʒ 10.  
Extr. nucis vom. ʒ 0.03.  
Extr. bellad. ʒ 0.01.  
Pulv. ipecac.  
Pulv. saponis, ℞ ʒ 0.02

M. One pill.

In spite of this, and occasional change to mercurials, saline and vegetable cathartics, in full doses as well as copious injections and the best regulated diet, her bowels remained confined for seven days, and moved only upon administration of:

℞ Hydr. c. cretæ, ʒ 25.  
Pulv. podoph., ʒ 20.

M. One dose.

Smaller doses given before had no effect. Continued same for two days in half doses, with no effect. On March 19th gave again hydr. c. cretæ ʒ 1.30, pulv. podoph. ʒ 0.25, with no effect. March 20th ordered castor oil emulsion, when she vomited. It would occupy too much space to give the details of the treatment for the next nine or ten days, during which she had no passage at all. I resolved now to again try cascara sagrada, though I had been disappointed in its use in several cases. I must, however, in justice, remark that the preparation used was one made by a New York house. I obtained a sample vial of Parke, Davis & Co., Detroit, and, April 1st, discontinued everything else except 5 grains of lactated pepsin three times a day with milk; I ordered:

℞ Ext. rham. pursh. fl. (P., D. & Co.'s.)  
Syr. rhei arom., ℞ ʒ 60.00

M. Dose, 5 grammes after each meal and ten grammes at bedtime.

April 2d, she had two free and easy passages from her bowels and said she relished her food a little more. Continued treatment. April 3d, again two passages, other symptoms improving. Continued treatment. April 4th, had four passages, still improving otherwise; decreased the dose after this, so that the bowels moved once or twice in 24 hours until April 20th, when she took only half a teaspoonful of the mixture at bed time, and was discharged cured, having had no distress of any kind since the first few days after beginning with cascara sagrada. She gained over twenty pounds of flesh in a short time.

I have records of several other cases of a similar nature in which cascara sagrada succeeded equally well.

REPORT 39.\*—There being already several species of the genus *Rhamnus* used in medical practice, viz., *Rhamnus catharticus* and the *Rhamnus frangula* and others, all acting as purgatives of greater or less activity, it might be expected that this member of the family would possess cathartic properties, and experience has now shown that it does so in an eminent degree; and if anything were wanted to prove the usefulness of a knowledge of systematic botany to medical men, it would be the fact that is here exhibited of a plant being used empirically and by illiterate persons and proved to be useful, which, when brought to the knowledge of properly educated men, is by them at once accepted and tried, because they on learning that it belongs to a family of plants botanically known, are prepared to believe it may possess such virtues as those ascribed to it, and trying it, soon discern its peculiar merits.

We find by our laboratory experiments that the preparations of *Rhamnus* contain Rhamnin, a pale-yellow cauliflower-shaped crystalline substance, Rhamnotannic acid, in green-yellow amorphous pieces of a bitter and acrid taste, fusible and easily broken, readily

\*S. M. Curl, M.D., Fellow of the Linnean Society, England, Rangitikei, New Zealand, in *Therapeutic Gazette*, 1880, p. 313.

soluble in alcohol and in ether, and an uncrystallizable substance, Rhamnus cathartine, a friable yellow powder, giving out a peculiar odor on being rubbed, has an unpleasant taste, bitter and acrid, fuses by heat to a yellow oily-like fluid, dissolves readily in water, not in ether. Also Rhamnoxanthine, a citron-yellow crystalline mass of silky lustre without taste or smell, sublimes in golden-yellow needles, is not soluble in water, but slightly in alcohol and ether. There are several other interesting bodies, which I have not had time to examine, in the preparation of the rhamnus. But we know enough to see that it is likely to be very useful in an atonic state of the bowels leading to habitual constipation, as these proximate elements contained in it act upon the nerve centres and set up peristaltic action of the intestinal tube, as proved in the physiological laboratory and when prescribed in appropriate cases, I have found it to act very beneficially on patients suffering from all those states of ill-health brought about by insufficient action of the bowels.

REPORT 40.\*—It is questionable whether in the life of the general practitioner, a more troublesome and annoying complaint is met with than chronic constipation, producing, as it does, a train of evils to which the sufferer either wholly succumbs, or seeks such temporary relief as may be offered by the regular physician, the strolling charlatan, or the innumerable pills and nostrums advertised so freely in the various newspapers throughout the country. It is not without deep chargin that the man who writes M. D. after his name, acknowledges all his laudable efforts at relieving, with any degree of permanence, this *bete noir* of medical practice, are virtually failures. Such, at least, had been my experience, and I am free to confess it, until the remedy, the name of which heads this article, appeared. Since that time, however, I have felt very little, if any, uneasiness in taking charge of such cases, as the results have always been satisfactory when my directions were carried out with any degree of accuracy. Still, in spite of the invariable success which followed the administration of this drug, I hesitated to give my confidence wholly into its keeping until a test of two years or more, among a varying class of cases, has proven beyond a shadow of doubt its capabilities. I therefore take great pleasure in adding the weight of my experience to the already over-heaped pile of testimonials in favor of this new and invaluable addition to our materia medica.

I have used the drug now continuously in my practice for more than two years, to the exclusion of almost all other remedies belonging to its class, and I have yet to record a single failure in obtaining a cure sooner or later. I have used it alone and in combination with other remedies, as, for instance, extract of malt, berberis aquifolium, compound tincture of gentian, elixir of calisaya, compound tincture of cinchona, simple syrup, syrup of tolu, and glycerine. The berberis aquifolium was added in cases associated with rheumatic pains of the joints, scrofulous swellings or ulcers, and in simple debility; the addition of the bitter tonics were in all cases to invigorate digestion and increase the appetite in patients requiring such treatment, and how often one finds loss of appetite, impaired digestion, mal-assimilation, with consequent debility, both general and local, associated with chronic constipation; in cases of that kind I always have found the addition of gentian, calisaya or cinchona excellent adjuvants. The extract of malt is added when a combined nutrient and digestive stimulant is desired—then, too, the large proportions of diastase renders preparations of malt most effective in those forms of disease originating in imperfect digestion of the starchy elements of food, a condition frequently found among a people subsisting almost wholly on a diet of vegetables.

It is not necessary that I enumerate cases cured by cascara sagrada, with which I am cognizant; their name is, I might almost say, legion; and to select from this number any case worthy of special mention would be quite as fruitless, for they are all of equal interest to me. I can only say, in conclusion, that if there be any of your readers who have not given this new remedy a fair trial, I should advise them to do so at once, feeling assured that the results will exceed their most sanguine expectations.

REPORT 41.†—Case 1. The first case I have to report is that of a lady æt. 67. Paralysis of the right arm. Obstinate constipation, and left foot badly scalded, the result of an accident prior to the attack of paralysis. Constipation, however, was of long continuance—what might, with propriety, be termed chronic. Was called to see her on the 12th of December. Commenced the treatment by giving her cascara sagrada ʒj, tincture nux vomica 10 gts, to be repeated every three hours during the first 24 hours; afterwards four times a day. Visited her again on the 14th, and to my astonishment found the constipation entirely overcome. Duplicated the prescription, and repeated the dose three times a day. Visited her again the 16th and continued this course. On my fourth visit, the 19th, found her in a

\* Jno. E. Brackett, M. D., Professor Materia Medica, Howard University, Washington, D. C., in the Therapeutic Gazette, February, 1881, p. 49.

† H. C. Shipley, M. D., in the Therapeutic Gazette, 1881, p. 49.

decidedly convalescent condition, and up to this date, 15 days since, she is entirely well. It is proper to remark that the only dressing used for the foot was 3 ij grindelia robusta to a tumbler full of water, which had to be duplicated twice or three times.

*Case 2.* My second case was a lady æt. 17; married. Was confined Nov. 7th. Was attended from that date up to the 9th of December by a pretended doctor, when I was called to see her. This pretender had pronounced her a case of hysteria, and was using tr. ferri chlor. 10 drops three times a day, with five grains of pulv. rhei. at night. I found the patient with tongue heavily loaded with a dark and very tenacious coating. Sordes on the gums, teeth and lips, an exhausting diarrhœa, pulse 120, small and wiry, anxious expression of countenance, features pinched, skin shrivelled and shrunken, extreme tenderness over the region of the womb, excessive soreness of the vulva, extending upward into the vagina—soreness so great that I could not make a satisfactory digital examination; patient also very anæmic. I diagnosed it as a case of typhoid diarrhœa, with endometritis. Prescribed:

R. Cascaræ sagradæ, ʒ iʒss.  
Berberis aquifolii, ʒ ij.  
Piscidiæ erythrinæ, ʒ ij.  
Syrup symp., ʒ iij.

M. Sig. A teaspoonful every three hours.

Local applications to vulva, ʒ ij grindelia robusta to half pint of warm water to be repeated every hour.

December 11th, my second visit, found marked improvement in all the symptoms. Continued the above course except to substitute the rhus aromatica in the same quantity for the cascara and four times a day instead of every three hours.

December 13th. At this visit found her sitting up with tongue and mouth perfectly clean, pulse nearly normal, countenance sprightly and cheerful, pain, tenderness and diarrhœa gone, and her only inquiry was to know what she could eat. On the 15th, through the overwhelming assiduities of her friends she ate pretty freely of "kraut" and pickled pig's feet; result, relapse. Was sent for again on the 16th, when I found her with all the entire list of untoward symptoms. Being determined to give these highly lauded remedies a fair test, I must confess that it was with some misgivings that I again resorted to their use, fearing that at this critical juncture, there would be a confirmed relapse, and of a form of disease that has always been considered as dangerous, they might fail me. However, I duplicated my first prescription and directed a teaspoonful every three hours, and to my great and agreeable surprise on the 17th I found her all right, at which time I gave her ʒ ij eucalyptus in ʒ jv water, as a tonic.

M. Sig. Teaspoonful four times a day.

Recovery rapid and eminently satisfactory. The result of my experience in the two cases, being so satisfactory I am still testing them in some others, and especially in some old chronic ones, the result of which I will report hereafter if agreeable.

REPORT 42.\*—Much has been said and written about the wonderful effects and properties of rhamnus purshianus (cascara sagrada), it is true, but I have had considerable experience in the use of it, getting such very satisfactory results from its administration, I feel that it should be kept prominently before the profession as a great and never-failing remedy for constipation and those diseases of the system which depend upon a constipated condition of the bowels, lack of secretory action, etc. As to the *modus operandi*, I agree from my experience with it very fully with Dr. Goss, "that it exerts a direct effect upon the sympathetic nervous system, especially upon that of the solar plexus, stimulating the nutritive and assimilative functions directly. It powerfully stimulates the digestive process, increases the activity of the secretory organs, especially where the secretions are deficient and perverted; hence perverted or deficient secretion is the special indication for this very great remedy. In constipation depending upon deficient secretion, the fluid extract given in doses of 20 to 30 drops three or four times a day, will regulate the bowels. It increases the action of the liver without nausea or other inconvenience." In my hands it has particularly proven to be a tonic to the muscular tissues generally, but especially upon that of the stomach and bowels, and at the same time it increases the secretions. In cases of indigestion, where the patient throws up everything taken, Dr. Bundy's formula is most admirable, in which he combines the hydrocyanic acid dilute with the cascara, berberis and malt. There is one case in particular from which I got the most satisfactory, as well as very remarkable results with the cascara. It was a married lady, nearly 50 years of age, who had suffered many years with constipation, inactive

\* W. R. Alexander, M. D., in the Therapeutic Gazette, 1887, p. 84.

liver, dyspepsia, and hemorrhoids. You can imagine this lady suffered from the above maladies. She had consulted many physicians, and had pursued many plans of treatment. Never had any operations for several years without either using medicines or injections for that purpose. When her husband first consulted me in regard to her, she was under the treatment of one of the most reputable physicians in this city, and as he had exhausted everything in the materia medica upon her, I had to acknowledge I could do nothing for her, and she continued for several months more under the doctor's treatment, until at last despairing of relief from, and being disgusted with all medicines, she determined to try the virtues of some of the popular watering places. Her husband, knowing I had some familiarity with a mineral spring he desired to send his wife to, consulted me as to the propriety of her trying it. By this time I had, from literature I had received, heard of the cascara, and told him of it, and insisted upon his trying it with his wife before he took her away. Thinking everything had been given her that possessed any efficacy, he at first declined. I read him some of the high encomiums from different and prominent medical authority, and thus induced him to at least try it. Her condition at this time was as follows: Sallow complexion, general emaciation, broad, flabby tongue, coated with a thick, yellow fur, foul breath, cardialgia, headache, habitual constipation, liver enlarged, with considerable pain on pressure. I ordered two preparations of it from a druggist in this city, who had gotten some for my special use. The first was Dr. Bundy's preparation, which I intended should meet the dyspeptic condition of her system, and is as follows:

℞ Cascara sag. fl. ext. (P., D. & Co.'s) ℥i.  
 Acid hydrocyanic dil., ʒj.  
 Malt extract, fl., ʒij.  
 Berberis aquifol., fl. ext., ʒj.

M. Sig. Teaspoonful after meals, or oftener, if there is pain or distress with belching of gas or wind from stomach. In addition to above I ordered the second, as follows:

℞ Cascaræ sag., ext. fl. (P., D. & Co.'s), ʒij.  
 Syr. hypophosphit. co., ad ʒjv.  
 M. Sig. Teaspoonful at night when the bowels fail to move during preceding day.

I heard nothing more from this patient for nearly a month, when she called in person looking like another being altogether. She said the medicine had acted like a charm; under its influence her bowels had moved every day, her appetite was good, her digestion much improved, that the medicine, unlike other similar preparations, caused no pain to hemorrhoidal tumors, that it left the bowels lax, as she had only to take it once or twice a week. She had given up her trip to the springs. She left the office with a prescription for four times the quantity of formula No. 2, given her at her earnest request, as she said she wanted to keep plenty of it in the house in case she needed it again.

I consider the above very remarkable, the case a bad one, the remedy a powerful and sure one, as she had tried all else without even relief. I have had no failures from cascara sagrada where the article was a genuine one. I would, however, warn the profession against spurious and cheap preparations. There is a house in the west, and one in the east, that make and sell cascara sagrada much cheaper than Parke, Davis & Co., but it has failed me in its action, having no comparison whatever to Parke, Davis & Co.'s preparation. I have warned my druggist against any cheap preparation of it, telling him I would rather pay higher prices and get the best. I repeat, that from my experience with it, I cannot believe that a genuine article of it will ever fail to relieve constipation or lack of glandular secretion, laxity or want of tone in muscular tissue, and in inflammatory conditions of mucous surfaces.

REPORT 43.\*—I can sincerely say that I have never met with a safer remedy than this for constipation. I have adopted it in my practice, and think as much of it as I do of any officinal drug. It could not be bettered. I admit that when I first took it up there were doubts in my mind as to its utility, but I have submitted it to the best tests, and it stands proven good. It is recommended in constipation where the secretions are deficient, but I employ it whenever I have a case of constipation to deal with. One case among many in which I used it was as follows: A., æt. 20, housekeeper. Had been constipated for several years. Gave cascara, a teaspoonful every morning on an empty stomach. Result, after taking six ounces, re-establishment of perfect action of the bowels. No return of the constipation.

\* Willard H. Morse, M. D., Hinsdale, N. H., in Therapeutic Gazette, 1881, p. 88.

REPORT 44.—\*There has probably been more written about cascara sagrada than any other new remedy introduced within the last decade. Since the drug came into general notice a few years ago, it has won a multitude of friends by its mild, pleasant and faithful action. Thousands of persons reclaimed from the miseries of habitual constipation will say that the name cascara sagrada is not a misnomer, for truly it is a bark held sacred by them.

With this encomium as a preface, I beg to intrude a few remarks in a general way with regard to this remedy. But before entering upon the subject I shall, with due respect to the contributors of this journal and with the permission of the patient editor, offer the following strictures: It has always been a lamentable feature of the Gazette to contain reports of experiments written not only before the investigator had tried a given remedy in a sufficient number of cases to enable him to draw an intelligent, trustworthy conclusion, but before the tests had been carried to an issue in any case. For instance, in a hasty, premature report of a case we frequently read at the close: "The patient is still under treatment and is doing well," or, "There has been marked improvement, and I believe the patient will ultimately recover." What medical science demands are facts, which in most instances, and particularly in therapeutics, cannot be furnished until after a long-continued, patient, and pains-taking investigation, extending, perhaps over a period of years, and would include in the material for the fact the accumulated results of many hundreds of carefully tabulated cases.

I am loath to confess it, but it is evidently true that many physicians are not satisfied with the notoriety secured to them by the practice of their profession, but are impelled, by some innate *vis a tergo*, to rush into print whether they have anything to say or not.

Hoping thereby to gain the confidence of my critical readers, for I know every word is carefully and justly weighed by hundreds of silent men, I will state that I have been prescribing cascara sagrada for two years, and this is the first article I have prepared for publication relative to my experience with the preparation.

From the numerous cases that have come under my observation, I can cite but one in which the remedy failed. It is not claimed for the preparation that it is infallible, but it is an indisputable fact that it is reliable. I shall now mention a few reasons why the drug occasionally fails to cure or relieve, at least the explanations I shall assign will hold good in the majority of instances where it does not succeed. Not as a champion or defender shall I mention them, as there is no occasion, but hoping to furnish additional information for the busy practitioner who needs all of the practical suggestions that can be offered, I shall designate a few causes for dissatisfaction:

In the first place, when cascara sagrada is prescribed, it should be aided by all of the collateral measures within reach. A favorite case with many for a trial of the remedy is one of twenty-five years' standing, and due to a severely sedentary life. If the prescription is not followed by a complete and permanent recovery after a trial of a very few weeks, the preparation is declared to be of no value. In the name of common sense I ask who could justly demand a cure without a removal of the cause, the administration of adjuvant remedies and the adoption of various obviously necessary remedies?

One physician says that "It (cascara sagrada) seemed to have a cumulative effect, which was very injurious. But when it broke loose it did so with a vengeance." It is evident in this case that the management was very much at fault, and contrary to the course that would have been pursued had our worthy brother been better informed as to the physiological action of the drug. The profession should be thoroughly impressed with the fact that its principal action is that of a tonic to the bowels, and that as such it produces the results observed.

Producing its effects by means of its tonic action, it is evident that preparatory treatment is indicated in most cases, and how frequently is it employed? The most essential measure in this preliminary course is, probably, the administration of a saline cathartic. By this means the bowels will be prepared for the prompt and full action of the remedy.

The doses given are generally too large, and this fact is worthy of emphasis. I am frequently brought in contact with competent medical gentlemen, men who stand high in the profession, and the experience of all coincides with my own, viz.: that the best results are obtainable when the fluid extract is given in doses of ten to twenty drops, which course is clearly indicated by the recognized physiological action of the drug.

\* Ray R. Mitchell, M. D., Millersburg, Ohio, in *Therapeutic Gazette*, 1881, p. 285.

In many cases where the remedy does not succeed it is prescribed at a time when it cannot best serve the purpose. Observation has shown that it is best to administer the preparation one-half hour before each meal.

One fruitful cause of failure is that imitations of the genuine article are palmed off by designing, conscienceless parties as the true *casacara sagrada*. It may be asked, "Who is responsible for the introduction of these vile stuffs?" It must be charged in great measure to the heedlessness and carelessness of wholesale druggists. With very many of these the handling of a preparation hinges upon the question of profit rather than upon that of purity and reliability of manufacture. They will claim that they are under no obligations to discriminate in their purchases; that their business is to keep what may be in demand. But is this true? Surely they should bear their share of the responsibility. In justice to their patrons, the people, they can only keep that which is unquestioned and unquestionable. Since they are the first to take the product from the manufacturer, they should be the first to challenge its rights to notice and confidence. This, in the majority of instances, they do not do.

Retail druggists, placing confidence in the wholesale dealer, purchase without thought or question as a rule, and supply the physician. It is asserted that it is the doctor's business to see that he procures reliable medicines. That is very true, but how can he recognize the false if he does not have access to the true? The latter for obvious reasons is very frequently withheld from him. The gains are not so great in buying and selling the worthy article.

But I do not wish to defend the practitioners' culpable gullibility. I have known physicians who gave no thought as to the name and character of the manufacturer, or to the reliability of the preparation. But if it had the regulation color it was prescribed unquestioned, and if failure ensued, the same was credited to the violence of the attack or to the downward tendency of the disease. These very men are generally the first to cry down new remedies introduced by reliable manufacturers after they have been recommended by able men in the profession to be preparations of special therapeutic value.

The only remaining cause of failure to which I wish to call special attention, is that too much is expected of it, or any other new remedy, by many of the more conservative physicians. The test by which they propose to determine the relative value of a preparation is extreme, and therefore unjust. The article is prescribed in a very few cases, perhaps but three or four, and if it does not give complete satisfaction in every instance, it is condemned to probably unjust retirement. While under trial the medicine is necessarily subjected to the numerous disadvantages surrounding a new arrival and a stranger. It is obliged to compete with the old, well-tried, favorite remedies with which the profession is familiar, and whose properties and peculiarities they understand so thoroughly. They will not admit it, but many practitioners will require the recently introduced preparation to cure where the old favorite has failed. How manifestly absurd are such inconsistencies.

REPORT 45.\*—The broad and universal grounds which we, as practitioners of medicine, occupy, stimulates us to push our researches in every direction, in order to extend our area of therapeutical knowledge. In no way can our efforts be spent to better advantage, than in that of trying to enlarge our list of efficient remedies. It is our privilege and duty to use all means, whether physical or moral, which the indications of science or the test of experience point out as the most successful in the removal of disease. Of the physical means, we, as regular physicians, have the privilege of selecting anything which the material world affords. We may use a substance of any form, whether solid or fluid, or from whatever kingdom of nature it may be derived, whether animal, vegetable, or mineral.

The article that I have selected, and concerning which I propose to make a few suggestions, is *casacara sagrada*, the new and valuable remedy for habitual constipation. This remedy, which has been brought prominently before the profession by Parke, Davis & Co., of Detroit, Michigan, and its remedial properties tested by several eminent physicians of the west, has not received the attention which its merits deserve. The use to which I think it is especially adapted is as an aperient, or in larger doses, cathartic, not interfering with digestion, in habitual constipation and its resultant evils. The numerous symptoms of abdominal congestion which are frequently produced, or at least maintained, by constipation, and the after effects on individual organs—liver, spleen, stomach, etc.—are found by experience to be not infrequently remarkably improved when the constipation is removed, but entirely cured. For this purpose the *casacara sagrada* is found to be an invaluable remedy.

In a country like ours, where perhaps three-fourths of all the diseases which we are

\* I. A. Moody, M. D., Junction City, Ohio, in *Therapeutic Gazette*, 1881, p. 370.

called upon to treat, are derived, either directly or indirectly, from a morbid condition of the liver, it would be well to pay the strictest attention to every remedial agent which may, in the least, promise to be serviceable in those cases depending upon torpidity of the liver and habitual constipation. I do not expect that the cascara sagrada would meet successfully many of the symptoms growing out of the retention of biliary matter in the circulation; but that it will remove that distressing condition of system caused by habitual constipation, to my mind will scarcely admit of doubt. As to its mode of operation, I do not think it acts directly on the liver, as mercurials, podophyllin and some others do, but by its acting as a healthy stimulus upon the mucous membrane of the duodenum, thus exciting the liver to increased action through the medium of its excretory duct. Other theories might be advanced concerning its mode of action, but the limits of this paper will not permit. Not wishing to occupy too much space in your valuable journal, I will conclude my remarks by reporting a case, in which I used the cascara sagrada with most satisfactory results:

Mrs. C., aged about 50 years, light complexion, medium height, and a resident of our village, has been for years a constant sufferer, from constipation of the bowels, to such an extent as to be under the necessity of taking physic every few days. The bowels would remain without motion for a whole week, unless a purgative was used, in which instance an unusually large dose was required. All the cathartics were tried that seemed to promise any good in removing the costiveness. She would use one article until the system lost its susceptibility of being acted upon by it, and then she would resort to another with the same result. Thus she continued until she applied to me for treatment, February 10th, at which time I commenced the use of cascara sagrada. On the day she took the first dose, she had had no operation for three days. In the afternoon of that day she took a teaspoonful of fluid extract cascara sagrada, and repeated it in four hours. The last dose was followed in a short time by a free evacuation of the bowels, to the great joy and satisfaction of the patient. She continued to take a teaspoonful night and morning, until the most complete regularity of the bowels was established. The pain of stomach and bowels entirely subsided, and her general health is much improved. She is of the opinion that the cascara sagrada is almost a specific in habitual constipation, and she keeps a supply of it in the house to use as occasion requires. This is one of several cases of the kind, in which I have used this remedy with the most satisfactory results. I will close this paper by merely expressing my ardent wish that members of the profession will not forbear making a test of the merits of this drug.

REPORT 46.\*—This is not intended to be a treatise on constipation in general; therefore I shall not take up space in enumerating its various causes and forms. My object is simply to communicate my experience in the treatment of this common trouble in its most common form. As we generally meet with it in practice it is due to no one of its etiological causes singly or separately, but to their combined action. Whether originally due to muscular torpor of the intestine or to suppression of the habit of regular evacuation of the bowels, or to deficient glandular secretion, etc., at the time the physician is consulted, all three of the above principal causes are generally in full operation, with sometimes one or the other slightly predominating, but not commonly to such an extent as to call for isolated treatment. The latter must therefore of necessity be directed against all of them. And since both muscular and glandular torpor are due to deficient innervation, it is plain that by increasing the latter and inducing patients to correct neglectful habits we ought to succeed in curing chronic functional constipation. And yet what disease is there that more obstinately defeats our endeavors? We prescribe for our patient a combination of drugs carefully selected for their specific physiological effects, long since fully proven by experiment and accumulated experience. Then we await results. At first the report is excellent. The disease seems completely under control of our remedies. The functions of the bowels are performed faultlessly, and our patient's general health improves *pari passu*. But disappointment soon follows. The patient soon discovers that he is not being cured, and that the effect of the medicine is but transient. As soon as he omits the medicine he relapses into his former condition. Nay, worse! He finds that from time to time he has to permanently increase the dose in order to obtain the wonted effect until finally he is converted into an inveterate pilulophage, a miserable slave to his pill. Am I wrong in saying that this is the history of the great majority of patients that have become subjects to chronic constipation? Forensic reasoning seems to be entirely at fault, and the patient himself, without the doctor's aid, soon plunges into the wildest experimental empiricism, trying every patent medicine within his reach, and generally with no better luck. I could speak of no more cheerful

\*Ralph D' Ary, in Therapeutic Gazette, Sept. 1885.

success in the matter of treatment until I had had some experience with cascara sagrada. At first I was much disappointed in its use, for I could see no advantage over older and better-tried drugs, and several decided disadvantages, especially the slowness of its action and the peculiar soreness of the bowels caused by it, and which is often quite persistent. It would be useless to detail my numerous experiments, and I will simply state that I became convinced that cascara, alone and uncombined, in my practice had no very decided results. Its action somehow always seemed to fall short of the desired end. Gradually I came to the conclusion that its action was truly elective of the bowels, but that it ended there, and that in order to make a complete remedy of it, it needed to be combined with other drugs that would act principally through the nerve-centres, and thus give both a central and peripheral impulse of innervation of the intestinal canal until normal function was established. The following formula was the final result of my experiments:

℞ Ext. cascara, gr. iv;  
 Ext. nux vomica, gr.  $\frac{1}{2}$ ;  
 Ext. Belladonna, gr.  $\frac{1}{4}$ ;  
 Resin euonymus,  
 Resin xanthoxylum,  $\text{ʒʒ}$  gr. iii;  
 Oleoresin capsicum, gr.  $\frac{3}{4}$ ;

Make fifteen pellets.

These fifteen pellets were intended to represent the ordinary maximum dose if taken at once. I have now prescribed it over three years. Part of my experiments were conducted with a combination of fluid extracts of the above drugs of corresponding strength of dose. The object of subdividing the ordinary maximum dose into fifteen pellets was a two-fold one: firstly, to allow the patient to find as nearly as possible the exact strength of dose needed, and, secondly, to allow of a very gradual lessening of the dose. For I am happy to say that in the above formula I have found the cathartic or laxative that would admit of gradual lessening instead of the usual tendency to increase the dose. And herein lies its whole value and my excuse for calling attention to it. By its use, where not contraindicated by some form of spinal or other disease, one may look forward confidently to a permanent cure of chronic functional constipation. We are not always privileged to retain patients under observation for the length of time necessary to complete a course of treatment, even where the latter is faithfully persisted in by an intelligent patient, and sometimes because the patient gets tired of prolonged systematic attention to his own case, and drops or hopelessly neglects the treatment. For these reasons many of my patients for whom I prescribed the above formula escaped my prolonged observation, and I am left in the dark concerning the effect of my prescription; but I can truthfully say that of those who under my observation completed their course every one was cured. Failures, no doubt, will not lack in the future, and may have been in the past; but the latter have not come to my knowledge, and I therefore regard this method of treatment as a success. I generally give the following directions to the patient: Take five pellets at night only, increasing the dose by one or more pellets every night until the action is sufficient. Then continue to take this number (whatever it may be) every night for one week, if possible. For the next week lessen your dose by one pellet, and so forth, lessening the nightly dose by one pellet for each succeeding week. If at the end of this course constipation still persists, begin again with about five pellets less than at first, going through with the same gradual decrease. A cure may confidently be looked for.

I will now give a few selected typical cases:

Case 1.—Mrs. —, aged 26. Constipated since early childhood. Never remembers having had a passage more frequently than once in five or six days, and generally with much pain, causing tears.

Diagnosis: Functional constipation.

Complications: Prolapsed uterus, with retroverted fundus, lying in curve of rectum, causing mechanical obstruction. Hepatic torpor.

Treatment: Pessary and uterine tonics. Euonymus for liver. No improvement of constipation after one month's treatment, although all symptoms referable to uterine displacement have disappeared, some of them having been of uncommon severity. Now I prescribed the cascara formula. The patient began with ten pellets. Was cured in ten weeks. This was in July, 1882. Patient has remained well since that time, with occasional relapses, not more than six times, necessitating one, two, or three small doses.

Case 2.—Young lady; age, about 24. Obstinate constipation for several years. Confirmed invalid for the last two years, having spent seven months consecutively in bed. Now

just able to sit up, resting the body sideways in a rocking-chair. Able to walk, but sways from side to side, causing her to run against people or off the sidewalk. Had been treated all along for "rheumatism" of the back. After careful examination, on Nov. 20, 1882, when she first applied to me, I made the following

Diagnosis: No rheumatism. Advanced caries of lumbar vertebræ, causing deep lumbar lordosis, with compensatory kyphosis superiorly. Prolapsed and retroverted uterus, lying on rectum.

Treatment: Pessary and plaster jacket; tonics. One month later patient's general condition much improved, except the constipation, which is very obstinate. Prescribed F. E. cascara and berberis aquifol. Patient objected that she had taken the cascara for months in increasing doses without any benefit, except very irregular temporary effect. This patient was a very intelligent lady, seconding my every endeavor, and patiently trying everything prescribed. I therefore thought this a good opportunity to test my idea that in most cases the cascara needed a *vis a tergo* of innervation, starting from the nerve-centres. In order to make sure, however, that satisfactory results were not due merely to her generally improved health, and to removal of the obstruction caused by the pressure of the uterus on the rectum, I first persuaded her to give the cascara another fair trial. This she did persistently for one month without benefit. It did not even produce satisfactory effect from dose to dose, although as much as forty minims of the fluid extract was taken regularly at night. Now I prescribed the above pellets. The result was all that could be wished for. In spite of her very sedentary mode of life, that of dress-making, which she had resumed after wearing the plaster corset for a while, she had satisfactory action of the bowels, which continued under gradually lessening doses of the cascara compound formula. She wore plaster jackets for seventeen months, when she discontinued them on my advice, as she was then cured. She had to resort to cascara compound several times on account of relapses, but is now completely cured. Discontinued the cascara compound pill long ere the caries was cured.

N. B.—I have repeatedly prescribed the above cascara compound with the best possible results where cascara alone had been well tried and set aside by patients as unsatisfactory.

Case 3.—Gentleman about 50. A case of male hysteria, complicated, or perhaps I should rather say caused, by some obscure central affection of the nervous system. History unreliable, because of the patient's morbid inclination to magnify every trifling feeling of malaise until it hysterically grew into seemingly formidable attacks, which, however, generally passed away without materially prostrating the patient. Every attack, however, was ushered in by an attack of constipation. Then suddenly complete apepsia would set in, with vomiting of the ingesta, maniacal excitement, loss of vision, insomnia, etc. Once hæmaturia occurred during an attack. These attacks lasted sometimes thirty-six hours. In order to avert them I several times administered two  $\frac{1}{2}$ -grain pills of croton oil, which seemed to have no effect whatever, evacuation occurring in about twenty four hours, and not at all as thoroughly as one would expect from the dose. The intestinal torpor seemed at those times absolute, the bowels not moving until after the attack in general had passed away. Sedatives and narcotics in heroic doses seemed as useless as the croton oil. The warm bath was not attainable in the patient's circumstances. I finally came to the conclusion that if I could exert a continuous influence over the intestinal functions the attacks would gradually disappear. The cascara compound formula was given him. He began with ten pellets, following directions faithfully and anxiously. The result was a regular normal action of the bowels, with disappearance of the severest symptoms at once. In a couple of months the patient was able to resume his avocation (designing and pattern-making), which he had been unable to follow for over a year. The number of pills had been reduced to two, when the patient passed from my observation. I strictly enjoined him to continue taking two pills at night, in order to keep his mind busy with them, as he regarded them as his panacea.

Case 4.—Retired farmer; age, 65. Very debilitated from alternate obstinate constipation and violent diarrhœa, from the action of cathartics used by him to relieve the former. There was no medium for him, no matter how he tried to arrange his doses or what he took. Had suffered in this way for several years. I found no complications except that of equally irregular hepatic action, stools being alternately clay-colored and dry or grass-green and copious, ushering in the attacks of diarrhœa.

Diagnosis: Functional chronic constipation from perverted intestinal innervation, causing lack of tone and extreme irritability on excitation by drugs.

Treatment: Tried cascara alone, in small and cautiously increased doses. Result

was very satisfactory, the patient being delighted that he had at last found a remedy that would give him a natural evacuation. Complained of soreness of the bowels, but said he did not mind it. Continued the cascara for one month, then began to decrease his dose,— 15 minims nightly of the F. E. When he had come down to 8 drops the constipation set in as obstinately as before. Put back on  $\frac{1}{4}$  drachm, as before, decreasing more slowly, and taking six weeks to reduce the dose to 8 drops. Again the same unsatisfactory result. Now I gave him the above pellets, with usual directions. Eight weeks later he presented a markedly bright and vigorous appearance and pronounced himself cured. Yesterday (July 23, 1885) I saw him, six months after he had taken his last dose. He reported that he felt well, and bowels regular without relapse. Is laboring on his farm, which no doubt helps to keep his alvine functions normal.

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CONVALLARIA MAJALIS

WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

# Convallaria Majalis.

(LILY OF THE VALLEY.)

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ISSUED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.



# CONVALLARIA MAJALIS.

(LILY OF THE VALLEY.)

*Synonyms*—*Muguet, Fr.; Maiblumen, Ger.*

*Part employed*—*The leaves, the rhizome, and the flowers.*

*Natural Order*—*Liliaceæ.*

*Habitat*—*United States.*

**Botanical Origin.**—This stemless perennial is indigenous to Europe, Northern Asia, and to the Alleghany Mountains of the United States, from Virginia southward. It is frequently cultivated in gardens, and has spontaneously appeared in several places. It has a creeping, whitish, much-branching rhizome of the thickness of a quill, two, or occasionally three, elliptic and smooth radical leaves, and a one-sided raceme of about ten nodding white flowers, which are about a quarter of an inch long, bell-shaped, six-lobed, with the lobes recurring have six stamens inserted near the base of the perianth, and produce globular, few-seeded red berries. The cultivated flowers are somewhat larger. They are very fragrant, and have a bitter and acrid taste. The rhizome and flowers have been used in medicine.\*

Perianth bell-shaped (white), six-lobed; deciduous; the lobes recurved. Stamens 6, included, inserted on the base of the perianth; anthers introrse, ovary three-celled, tapering into a stout style; stigma triangular. Ovaries 4 to 6 in each cell. Berry few seeded (red). A low perennial herb, glabrous, stemless, with slender running rootstocks, sending up from a scaly-sheathing bud, two oblong leaves, with their long sheathing petioles enrolled one within the other so as to appear like a stalk, and an angled scape bearing a one-sided raceme of pretty and sweet-scented flowers. (Altered from *lilium convallium*, the popular name). I. C. Majalis, L.—High Alleghanies of Virginia, and southward. May.—Same as the European Lily of the Valley of the gardens.†

**History.**‡—The Russian country folks, like the Indians of this country, are a very primitive people; and being almost beyond the reach of civilization and the medical advantages it offers, they have learnt to help themselves in cases of emergency. But whilst everybody is more or less of a herbalist or nurse, each village generally has its *znaharka* or wise-woman, who occupies about the same position as the Indian medicine-man. While on a summer tour through Russia—my native country—some years ago, I took especial pains to obtain information concerning their methods and means of treating disease. As may be expected, it was difficult to gain the confidence and goodwill of the jealous and suspicious women, but whenever successful in that respect—with the aid of alcohol and flaming dress-goods—a very curious insight into popular medicine and pharmacy was afforded me. The revelations in the majority of cases consisted of unmitigated trash, but here and there I obtained ideas, hints, and positive knowledge,

\* National Dispensatory, Stillé & Maisch. See also the U. S. Dispensatory.

† Gray's Botany, page 530.

‡ Ralph D'Arj, M. D., Romeo, Mich., in the Therapeutic Gazette, 1881, p. 369.

which were well worth retaining. Among the latter I class what I learned of the uses of that beautiful fragrant little wild-flower, the Lily of the Valley (*Convallaria Majalis*). I pass over the uses made of the root or leaves, since they are recorded in almost every dispensatory (the Eclectic one, of this country, alone excepted, strange to say), and since their properties are not of the nature to make those parts of the plant a desirable remedy. The fragrant flower, however, deserves the closest study of the therapist. My attention was first called to it by witnessing the relief derived from it by an old man in the last stages of chronic dropsy. He used it as a diuretic and tonic of the heart, and it seemed to be so very efficient that I made his case an object of special observation, he willingly lending himself to my experiments. Since that time I have used a tincture in my practice, and have cautiously experimented with it, but, not being aware that the plant had ever been brought before the profession, and that physiological experiments had been made with it, I thought it premature to call attention to it until I should be able to give more than clinical observation to the medical press. . . Circumstances, however, have prevented me from making any systematic physiological experiments, and even at this day I should hesitate about submitting the present article to the medical world, if I had not found since that the ground had been fully prepared by the experiments of Waltz, Marmè, and others (see New York Medical Journal, November, 1867, and Schmidt's Jahrbuch, 1867, vol. 166), and especially those of Drs. Bogoyavlenski and Troitsky, of St. Petersburg, whose articles on the subject, in translation, I have furnished to the editors of the Therapeutic Gazette.

**Chemical Composition.**—G. F. Waltz has found in the herb and root two peculiar principles, one crystalline and acrid, which he calls convallarin, the other amorphous and bitter, and named convallamarin. For the mode of preparing them the reader is referred to the American Journal of Pharmacy (November, 1859; p. 577). Convallarin is in rectangular prisms, scarcely soluble in water, but sufficiently so to render the solution acrid, and to cause it when shaken to foam like soap and water. It is easily dissolved by alcohol. Its composition is represented by the formula  $C_{34}H_{81}O_{11}$ . It is a glucoside. Convallamarin is a white powder, very bitter and afterwards sweetish, soluble in water and alcohol, but not in ether. This also is a glucoside. Its composition is  $C_{40}H_{44}O_{24}$ .\* The odorless principle of the flowers was obtained by Hebeget (1835) in the form of volatile crystals, possessing a strong odor, occasioning headache, but very fragrant when largely diluted. The bitter principle of the plant is the glucoside isolated by Waltz (1858) as a white, somewhat crystalline powder; has a bitter-sweet taste, is soluble in water and alcohol, and insoluble in ether; its solutions are precipitated by tannin, but not by lead salts, and when boiled with dilute acids it yields sugar and convallamaretin. The same author isolated the acrid principle, convallarin, in the form of rectangular prisms, which are soluble in alcohol, insoluble in ether, and sparingly soluble in water, but foaming with it like saponin. On being boiled with dilute acids it is split into sugar and convallaretin.†

**Convallamarin.**‡—At a time when the attention of the medical public had just been called to the lily of the valley (*convallaria majalis*), I have thought it would not be without interest, to complete, from a pharmacological point of view, the communications of Messrs. Sée and Langlebert.

Those authors have attempted to ascertain which is the most active part of the plant, but without, in my opinion, arriving at any very clear conclusion. In fact, the roots did not give the results sought for; on the other hand, the extract of the flowers exercised a very

\* United States Dispensatory, 14th ed., p. 1627.

† National Dispensatory, page 458.

‡ Journal de Pharmacie, [6], iii., 355; from the Bull. Gén. de Thérapeutique; C. Tanret, in the Pharmaceutical Journal and Transactions, Nov., 1882; Therapeutic Gazette, 1883, p. 86.

energetic action upon animals, but produced much less intense effects upon man, while an infusion of five or six grams of flowers remained without effect. The leaves showed so little activity that an extract from them required to be given in a dose three times larger than the extracts from other parts of the plant. In short, the best results were obtained with aqueous extracts prepared from the flowers and stems, with an addition of one-third of their weight of roots and leaves.

It will be remarked, first, that the time for flowering is not generally that which is recommended as the best for the collection of leaves and roots, the too aqueous juices of which have not yet been sufficiently elaborated. It follows, therefore, that the results obtained with the lily of the valley might vary when a plant collected in a more advanced stage is employed, a serious consideration in dealing with a rather energetic medicine. When it is added that the extracts alter, more or less profoundly, during their evaporation, it will be seen that in order to reckon upon the action of the lily of the valley, it will be necessary to look, not to the extract, but to the active principle.

This active principle has been known for many years. Waltz, in 1858, announced that the lily of the valley contained two glucosides, which he named "convallarin" and "convallarmarin." In 1867, Marmé made some physiological experiments with these two bodies, and published his researches under the title, "Über Convallamarin, ein neues Herzgift." With convallarin, in doses of three to four grains, he obtained only a purgative effect; but he found that convallamarin acted principally upon the heart, and in a very small dose when injected into the circulatory system: Seven to 10 milligrammes for dogs weighing 7 to 14 kilograms; 3 to 8 milligrams for cats of 2 to 3 kilograms; 2 to 3 milligrams for rabbits of 1 to 1.2 kilograms, etc. He also determined the toxic doses to be a crural injection of 15 to 30 milligrams for dogs, 5 to 8 milligrams for rabbits, etc. Death followed usually a few minutes after the administration of these doses; happening by stoppage of the heart and nearly always accompanied by very intense clonic convulsions. He adds that there is no doubt that convallamarin is a heart poison, and that its physiological action approaches qualitatively and quantitatively that of digitalin, helleborin, the upas principles, etc.

Whilst convallarin is soluble in alcohol, but insoluble in water, convallamarin dissolves in water in all proportions, and is very soluble in ordinary alcohol and methylic alcohol. Convallamarin is insoluble in ether, chloroform and amylic acid, and is uncrystallizable. I have observed that it rotates the plane of polarization of light strongly to the left, and I have found its rotatory power in alcoholic solution to be  $\alpha_D^{20} = -55^\circ$ . Pure convallamarin does not reduce Fehling's liquor until it has been boiled with dilute acid, when, according to Walz, it splits up into glucose and convallamaretin. Sulphuric acid dissolves it with a brown color; but if it be treated with this reagent after having been moistened [? with water], a beautiful violet color is developed which disappears upon the addition of water. Its taste is bitter, followed by a peculiar after-taste.

As the solvents of this glucoside are the same as those of the accompanying reduced sugar, it did not appear to me possible to obtain pure convallamarin—not reducing cupric solution—by the action alone of neutral liquids employed successively upon the plant or its extract. The process of Walz gives a satisfactory product, but as it is long and specially inconvenient, I have modified it in the following manner:

An alcoholic tincture made from the whole plant is precipitated with subacetate of lead and filtered, excess of lead is removed with dilute sulphuric acid, avoiding the use of more than is necessary, and after neutralizing, the tincture is distilled, the last portion of alcohol being driven off in the open air; then the cooled and filtered liquor is treated with tannin, care being taken to keep the liquid neutral by sparing additions of a dilute solution of carbonate of soda. A compound of tannin and convallamarin is precipitated, which, after washing, is dissolved in 60° alcohol, the solution decolorized with charcoal, decomposed with zinc oxide, filtered and evaporated to dryness. In this way convallamarin is obtained

nearly white and having the appearance of ordinary digitalin. To free it from the salts that are sometimes carried down by the tannin precipitate it is a good plan to redissolve it in 90° alcohol, filter and then evaporate.

This treatment, applied to the lily of the valley collected in the first days of August in the present year, produces a yield of two grams of convallamarin per kilogram of the fresh plant.

With this process, the preparation of convallamarin will not present any serious difficulties; and if the lily of the valley should remain in the medical armamentarium, its active principle should be substituted for the plant by those who wish to protect themselves from the inconveniences presented by so unequal a distribution of convallamarin in the various parts, its variability according to the time of collection and its alteration in the extracts.

In order to verify this latter point I made the following experiment, based upon the loss of rotary power which solutions of convallamarin undergo when the glucoside decomposes.

A pound of lily of the valley being taken, of which the strength in convallamarin was known, I commenced by estimating its acidity, which I represented in oxalic acid; then I dissolved 100 grams of water, corresponding quantities of convallamarin and acid. This solution was evaporated in a water-bath to the consistence of an extract, then redissolved in water and examined polarimetrically. The rotatory power had diminished one-half; one-half, therefore, of the active principle had been decomposed and was no longer present as such in the extract, which, however, had been prepared under the most favorable conditions, the quantity of liquid to evaporate having been very small.

It remains only to refer to an alkaloid which M. Stanislas Martin has stated that he found in the fresh flowers of the lily of the valley and which he named "maialine." In any case this body would have nothing to do with the activity of the rest of the plant, for I have not been able to find it in the leaves, stems or roots.

Howard S. Steller, M.D., Philadelphia, Pa, details a very interesting series of 29 experiments\* to ascertain the physiological action of convallamarin on the nervous system, concluding as follows :

"To recapitulate, we have seen that the loss of reflex activity seems to be of complicated origin, but is, no doubt, dependent primarily upon the depression of the sensory portions of the cord, since it has been found that the sensory nerves are unaffected, and as spontaneous movements may occur in the posterior extremities after the complete loss of reflex activity. The occurrence of these movements makes it clear that the motor portions of the cord, the motor nerves, and the muscles are still active, although it is evident that even these structures are affected by the poison, since the motor columns of the cord and the motor nerves are ultimately paralyzed.

"Although the results of these experiments do not indicate that the drug possesses much of an action upon the nervous system in general, they are in a sense only the more valuable on this account, since the clinical use of the drug is almost, if not wholly, in connection with the heart, and consequently the drug can be pushed in this use without fear of the complication of any effects on the nervous system.

**Pharmaceutical Preparations.**—Parke, Davis & Co. manufacture three fluid extracts: one from the root, one from the herb, and the third from the flowers. In each case the strength of the preparation is a pound of the drug to a pint of the finished fluid extract, and the process used is maceration in a menstruum of fifty per cent. alcohol with subsequent expression by means of a powerful hydraulic pressure. They also furnish the glucoside, convallamarin, in  $\frac{1}{4}$ ,  $\frac{1}{2}$ , or 1 gramme vials, as desired. The dose of the fluid extract of the

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\* Therapeutic Gazette, 1885, pp. 598-603.

root or flowers is from 5 to 15 minims, and of the herb from 10 to 30 minims, to be gradually increased until the desired effect is produced.

**Physiological Action and Medical Uses.**—Lily of the valley is well known by its poetical associations, its delicate beauty, and its fragrance, which resembles that of orange flowers. Taken internally the flowers are said to be emetic and cathartic, and their extract purges actively in the dose of half a drachm. They were formerly used in epilepsy and against worms. At present they are employed only as a sternutatory, for which purpose they are dried and reduced to a coarse powder. The root, which is also bitter, has similar purgative properties, and, reduced to powder, is said to be sternutatory. From the analysis of Mr. Waltz, it is probable that the virtues reside in the whole plant, and that it combines emetic and cathartic with tonic properties. The effects on the system of the two principles of the plant, mentioned under the head of chemical constitution, have been investigated by Dr. H. Marmé, of Germany, with the following results: Convallarin in doses of three or four grains, acts as a purgative, without observable inconvenience to the animals acted on; convallamarin, even in small doses, produces active vomiting, whether given by the mouth or injected into the subcutaneous tissue, or directly into the veins. The latter principle acts especially on the heart, at first diminishing the number of its pulsations, and afterwards rendering them more frequent, and causing death in a few minutes after the introduction of the poison. The heart appears to be paralyzed and cannot be excited after death. The principle acts on the heart through the vagi nerves, and resembles digitalis in its mode of operation. From six to eight milligrams cause death when injected into the cervical vein of rabbits; 15 to 20 in dogs.\*

The plant grows plentifully in the Caucasus mountains, and has a great reputation among the people as a remedy for intermittent fever. Dr. Alfavef experimented systematically on 38 typical cases of that fever, but with only indifferent success. The plant will, therefore, never rank among the remedies for this disease, but the experiments are very interesting from the fact that they throw a great deal of light on the mode of action, dose, etc., of this potent remedy, which we here reproduce in short. According to popular precedent, the experiments were made with the flowers only, leaving it an open question whether the therapeutic effect of the root and stem is identical with that of the flower. The alcoholic tincture was found to be the most convenient, as well as the most potent form of the drug. The tincture used was of the strength of four ounces of the flowers to the pint of dilute alcohol. In its mode of action it is very peculiar; when 20 or 30-drop doses were given the pulse became slower and less compressible. No unpleasant effects were noticeable, although the doses were finally increased to half a fluid ounce each dose. The results of these experiments as concerning the pulse, in substance are expressed by Dr. A. as follows: "In small doses (five to ten grains of the powdered flowers, equal to 20 or 30 drops of the tincture), the remedy invigorates the pulse much more noticeably than in large doses (one drachm of the powder, or one-half fluid ounce of the tincture). Large doses seem to act simply as regulators of the pulse, no matter what was its preceding state. As to the diuretic effects of the remedy, I have observed that while small doses had a well-marked influence in that direction, this influence was not increased from larger doses. For instance, the following case: Simultaneous with tertian intermittent—a patient was suffering with acute hydræmia, general dropsy and stasis of blood in the lungs, the pulse being 120, weak. He was ordered to take tincture convallaria, 20 drops, twice a day. No other remedy was used. In five days his condition was much improved; the pulse became stronger, the breathing freer, the quantity of urine had increased fourfold; but the intermittent showed no symptoms of abatement, the paroxysms being even more severe than before.

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\* U. S. Dispensatory, 14th ed., p. 1627; New York Medical Journal, 1867, p. 166; Schmidt's Jahrbuch, 1867, v. 166. National Dispensatory, p. 458.

"I am, therefore, inclined to think that the convallaria acts as a diuretic only as it stimulates the heart's action, and consequently increases lateral blood pressure, being similar in this respect to digitalis. But its great advantage over digitalis is, that it is quite harmless, even in over-doses. I have tried the convallaria (in small doses) in pneumonia, and once in a case of dropsy from fatty degeneration of the heart and obtained a slowing of the pulse, and, in the latter case, an increase in the quantity of urine voided. I think it therefore likely that the convallaria may with advantage be substituted for digitalis, wherever the latter is indicated.\*

Dr. Bogoyavlenski writes:† "In May, 1880, Prof. S. P. Botkin requested me to repeat the investigations of Marmè, Waltz, Brandt, and others concerning the physiological effects of the above drug, in order to replenish the gaps left by them in the subject. Besides making experimental investigations, I was especially to try the remedy clinically (in cases of patients suffering from insufficient compensation), in order to determine the clinical indications for its use and the best mode of administration. Since that time to the present day (December) I have continued my physiological experiments in Prof. Botkin's laboratory, and am trying the remedy clinically in St. George's Hospital. The following are the results so far of my labors:

"A. *Experiments on Frogs:* Upon introduction of the infusion, the tincture or extract of the flowers of convallaria majalis, into the lymphatic system of the frog, the following results are noticeable:

"1. Retardation of the cardiac contractions, with an increase in their energy.

"2. Irregularity in the diastole of the ventricle—some of its divisions remaining partially systolic.

"3. Complete arrest of the heart-beat, with tetanic contraction of the ventricle, and distended throbbing auricle and venous sac.

"4. The heart, after assuming this characteristic condition, does not change in response to electrical, mechanical, or chemical irritation, nor upon application of Stan-nius' ligatures, nor upon division and irritation of the vagi, nor in consequence of destruction of the nerve centres.

"5. During the first and second stages of the intoxication the usual effects are obtained by electrical stimulation of the vagi.

"6. If the vagi are divided previously to the introduction of the convallaria, or if atropine is first introduced, the effects of convallaria are still the same.

"7. If the nerve centres are previously destroyed, a larger dose of convallaria is required to produce the above results.

"8. In all these experiments there were no abnormal deviations in the other organs of the muscular or nervous systems.

"B. *Experiments on warm-blooded animals:* The same preparations of convallaria were used, with the following results:

"1. A sudden retardation of the cardiac contractions, with increase of blood-pressure.

"2. After the period of retardation there follows a strongly-pronounced acceleration of the contractions with still greater increase of blood-pressure.

"3. Arrest of the heart-beat with diminution of blood-pressure.

"4. When the vagi are previously divided the precursory retardation does not take place.

"5. If during the period of acceleration of the contractions the peripheral ends

\* Dr. Alfavef, Military Surgeon in the Caucasus, in the Vratch, June 16, 1881; Physician and Surgeon 1881; Therapeutic Gazette, October, 1881.

† Therapeutic Gazette, 1881, p. 374.

of the vagi are irritated, the usual effect on the heart is not observable, but the following strange circumstance takes place: those variations of pressure which are caused by the breathing movements of the animal, forming a wavy line on the indicator, very suddenly disappear, and remain in abeyance during all the time that the electrode is kept in contact with the nerve. (I am at present engaged in a closer investigation of this circumstance.)

“ 6. In the left and right ventricles there is always found an extravasation of blood under the endocardium.

“ C. *Clinical Observations*: I have tried the infusion of *convallaria majalis* in six cases of cessation of compensation with the following results:

“ 1. Under its influence (ex. 3 j-ij ad colat f  $\frac{2}{3}$  vi) the quantity of urine is much increased.

“ 2. At the same time the dropsical exudates are promptly absorbed and the weight of the patient lessened.

“ 3. The pulse grows fuller, more regular, and in some cases slower; the latter effect is most noticeable in those cases in which a prominent symptom of the interruption of compensation is a cessation of the regulating influence of the nervous system on the heart.

“ 4. The distension of the cavities of the heart is lessened, as well as the congestion of the organs supplied by the lesser and larger cycles of the circulation.

“ 5. This effect is equally manifest, whether there be valvular deficiency or a narrowing of the cardiac openings.

“ 6. The remedy does not seem to possess any cumulative properties.

“ 7. The diuresis induced by the remedy continues long after the cessation of its administration.

“ One of the cases of heart disease which I treated with *convallaria majalis* was complicated with chronic nephritis, but nevertheless the diuretic effect of the remedy was strongly manifested, though not quite in the same degree as in patients with healthy kidneys.”

Troitzki and Bogoyavlenski\* affirm that: “ Injected into the lymphatic sac of a frog, the aqueous infusion of *convallaria* soon produces a decrease in the frequency, with augmentation of the energy of the heart's contractions, irregularity of ventricular diastole through the irregular relaxation of the muscles, and tetanic contraction of the ventricles. These modifications in the movements of the heart are influenced neither by mechanical, electrical nor chemical excitation of the muscular fibres, nor by those indirect ones of the central or peripheric nervous system. The dose used should be very small, in order to allow the excitation of the *par vagum* to produce its usual effect.

“ Injected into the veins of warm-blooded animals, the infusion of the lily of the valley produces a diminution of the number of the heart's contractions, with elevation of arterial pressure. A little later the contractions become more frequent, and the pressure is further elevated, then the contractions cease and the pressure falls. In such cases, also, the section and excitation of the peripheric end of the pneumogastric produce no change. Besides these results obtained on animals, Bogoyavlenski treated with the lily of the valley six patients suffering with valvular non-compensated lesions. He administered an infusion of 3.06 grammes to 7.02 grammes of the plant in 120 grammes of water. Under its influence the quantity of urine increased *pari passu* with the disappearance of the œdema. The heart contractions became more clear, more regular, and

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\* Vrach, 1880; 47, 49; Allgem. Central-Zeiteng; Lyon Médicale; Therapeutic Gazette, October, 1881,

slower; the stasis in the small and large circulation began soon to disappear. The diuresis kept on even after stopping the use of the remedy.

"Nephritis in one of the patients suffered no change, the improvement in the general symptoms being merely less marked. Troitzky has noticed the happy effects of this remedy, especially in such cases where the asystole is caused by a nervous state which stops or hinders the compensation. He has used a less concentrated infusion of from 3.06 grammes to 7.02 grammes in 180 grammes of water, and has given of this infusion three or four spoonfuls per day in nervous palpitation of the heart. The effects obtained have always been very marked and singular; they have persisted for nine days after suspension of the administration of the remedy. The general excitation, the dyspnoea, and the intensity of the palpitations disappeared completely. According to the same author, the convallaria did not, like the digitalis, give as favorable results in aortic as in mitral insufficiency, but it is much superior to digitalis in nervous palpitation. Such is the resurrection of an old remedy which had only been employed in sternutatory powders."

Professor Germain Sée,\* of Hotel Die, Paris, has made many experiments, both on animals and man, from which he deduces the following results:

First.—The convallaria majalis constitutes one of the most important cardiac remedies which we possess.

Second.—In the form of the aqueous extract of the entire plant (which is a very convenient way of giving the medicine), administered in the dose of from one-half gramme to one and one-half grammes daily, the convallaria produces on the heart, blood-vessels, and respiratory organs, effects constant and constantly favorable: to-wit: slowing of the beatings of the heart, with often a restoration of the normal rhythm, and on the other hand, augmentation of the energy of the heart, also of the arterial pressure; in fine, the inspiratory force is increased, and the *besoin de respirer* is less injurious, less painful.

Third.—The effect the most powerful, the most constant, and the most useful is the abundant diuresis, which is above all things essential in the treatment of cardiac dropsies.

Fourth.—The therapeutic indications are summed up as follows:

(a) In palpitations resulting from a state of exhaustion of the pneumogastric nerves (cardiac paresia), the most frequent source of palpitations.

(b) In simple cardiac arrhythmia, with or without hypertrophy of the heart, with or without lesions of the orifices or valves of the heart.

(c) In mitral constriction, especially when it is accompanied with failure of compensation of the part of the left auricle and right ventricle; the contractile force augments visibly under the convallaria as the sphygmograph testifies.

(d) In mitral insufficiency, especially when there are pulmonary congestions, and when, as a consequence, there is dyspnoea with or without nervous trouble of the respiration.

(e) In Corrigan's disease the peripheral arterial pulsations disappear, and respiration becomes markedly restored. In dilatation of the left ventricle without compensatory hypertrophy it restores energy to the heart, which tends to become more and more feeble and dilated.

(f) In dilatations of the heart with or without hypertrophy, with or without fatty degeneration, with or without sclerosis of the muscular tissue, the indications of the convallaria majalis are clear.

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\* Bull. Gen. de Therap., July 30, 1882; Medical Record, Sept. 9, 1882.

(g) In all cardiac affections indifferently, from the moment that watery infiltrations appear, the convallaria has an action evident, prompt and certain.

(h) In lesions with dyspnoea the effect is less marked. To combat cardiac dyspnoea, convallaria is inferior to morphia, and especially to iodine, but morphia suppresses the urine, and the preparations of iodine are every way preferable. The combination of convallaria majalis with iodide of potassium in the treatment of cardiac asthma constitutes one of the most useful methods of treatment. Finally, in cardiopathies with dropsy the convallaria surpasses all other remedies. One is often obliged to suspend the employment of digitalis on account of vomiting, digestive disturbances, cerebral excitation, the dilatation of the pupil, which it so often produces after a prolonged use of this medication, etc.

The final action of digitalis is exhaustion of the heart, increase with enfeeblement of the heart's pulsations—just the opposite effects from that what we seek when we give the drug.

Convallaria majalis has no deleterious effects on the economy, and has no cumulative action.

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## THERAPEUTIC PROPERTIES

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Reports from Private and Hospital Practice.

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Report 1.\*—I have used this remedy somewhat indiscriminately in every variety of heart disease coming under my hands, both functional and organic, with a view of testing its efficiency in the various forms of these affections, and nearly in every instance with most gratifying results. In fact, I have not been able to determine any special indications (or contra-indications) for its use—its effects seem so uniformly beneficial. It certainly had not the least direct restorative value, in my hands, in organic disease; not any more than cactus grandiflorus, for which such claims have lately been set up by some enthusiastic practitioners, mostly of the homœopathic persuasion. But although convallaria is unable to alter the organic *status præsens*, it enables the patient to make the best of it, by compelling nature to put her best foot foremost. It is pre-eminently a regulator of nervous function, adapting the latter to existing conditions in such a manner as to compensate to the utmost possibility for the existing organic lesion. The sympathetic nervous system seems especially to be under its control, though it is by no means devoid of a powerful influence on the cerebro-spinal system. This circumstance accounts for its almost universal adaptability, in varying doses, to every variety of heart disease. In small doses it is a stimulant to the heart, increasing the frequency of its beats; in larger doses it is a tonic and sedative, lessening the frequency, but increasing the energy and regularity of the contractions. In overdoses it is a swift destroyer of life, thoroughly paralyzing the heart. Over digitalis it has a most important advantage in the absence of a cumulative effect, at least so far as personal observations allow me to judge. On the other hand, I have noticed that some patients seem, from idiosyncrasy, unable to endure it even in small doses. Wherever these unpleasant effects—manifested by dyspnoea, faintness, pain at the heart, etc.—become manifest, alcoholic liquors seem to me the promptest antidote. I would, therefore, strongly advise, in every new case, to begin with minimum doses and gradually increase until the desired effect is obtained, which generally takes place very promptly. It is an excellent nervine sedative tonic, especially where the

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\* Ralph D'Ary, M. D., Romeo, Mich., in the Therapeutic Gazette, 1881, p. 369.

patient suffers from the consequences of excessive reflex irritability or "nervousness." Thus I have found it useful in certain conditions of insomnia, hysteria, the restlessness of fevers, infantile nervous disorders caused by the irritation of dentition, etc. In tic-doulooureux, and neuralgia in general, it has sometimes acted with great promptness. It is not a narcotic or anodyne simply, and therefore does not merely lull the pain by stupefying the patient's sensibility, but it seems to act as a direct nerve tonic and sedative, restoring the equilibrium of nervous functions. You will see, therefore, that it opens up a wide field for further careful investigation. In using it the practitioner should always bear in mind that in this connection the old adage may well be reversed, and should be remembered as *magis remedium, magis venenum*. But though it requires care in its employment, I believe the convallaria to be a safer remedy than digitalis, in its cardiac sphere, especially in desperate cases where large doses are imperative. What practitioner of any experience has not found himself once in a while in a responsible position where he had to choose between the almost certain death of his patient, and another, and yet another heroic dose of digitalis, and yet had no means of ascertaining whether the preceding doses had finally expended their effect, or were only waiting the reinforcement of another dose in order, with combined power, to extinguish the last remnant of cardiac life? How often is the last dose of the potent but treacherous remedy but the messenger of death? Herein lies the special value of convallaria—once its effect is expended apparently, it is so in reality, and another dose may be safely administered. Such is my experience, but as the point is one of so much importance, more than one or two men's observations should be recorded before it should be accepted as a fully determined fact.

**Report 2.**\*—The use of the infusion of convallaria majalis by persons suffering from heart disease, in any form, has generally produced good results in my hands, but is most striking in cases of insufficiency of the mitral valves. In affections of the aortic valves, and also in cases of mitral insufficiency complicated with stenosis, its efficiency is comparatively less. This, as is well known, is also characteristic of digitalis. The cause of this unequal effect on the diseases of the several parts of the heart, lies in the very nature of the physiological action of these remedies, which increase the arterial blood pressure.

The great number of patients (suffering from mitral insufficiency, either with or without stenosis) have consulted me either during the period of complete compensation, or after its cessation, when symptoms dangerous to life had set in. During the period of compensation the patients consulted me because they were unable to take even the least bodily exertion without troublesome palpitation and dyspnœa, which would compel them at once to desist, and necessitate a more or less prolonged period of rest. This class of patients, who, moreover, are excessively irritable in temper, through the effects of their affliction, generally beg of the physician to prescribe something that would lessen their irritability *eo ipso* prevent the occurrence of those torturing attacks of dyspnœa. Valvular disease in all, and which is so frequently the sequence of acute articular rheumatic cases, without exception, is productive of great irritability and peevishness. Even when it affects persons with fully developed moral character, this disease will so much change it as to render the sufferer almost unrecognizable as the person to his nearest friends; sometimes leaving him of his former temperament and disposition only a vague general habitus. To these patients I have been in the habit of prescribing an infusion of the flowers of convallaria majalis (gr. x.—f $\frac{3}{4}$  vj.) in doses of one tablespoonful twice a day, and in two or three days it so far soothes their organism that it enables them to discontinue their enforced and irksome idleness, or even to undertake considerable exercise, without producing palpitation and dyspnœa. The effect of the medicine, without repetition of the dose, continues from five to nine days, after which, if necessary, it may be taken again, and the same result will follow. Especial attention is invited to this sedative effect of the remedy, because the patients during the period of full compensation and apparent health apply to the physician with the special object of obtaining relief from their excessive irritability, and are not contented with the advice that in such cases is generally given them. We must give them something to lessen the reflex functions of the nervous system, and this is accomplished by the infusion of convallaria majalis. The patient should be instructed to take the medicine only during the continuation of the highest degree of irritability, and discontinue it as soon as his condition becomes at all tolerable, for it is not known to me, as yet, whether the flowers of convallaria majalis do not, like digitalis, possess a cumulative action. The infusion of digitalis, although given in stronger doses (gr. xx.—f $\frac{3}{4}$  vj) was much less

\* Dr. Troitsky, of St. Petersburg; translated by R. D'Ary, M.D., in the Therapeutic Gazette, 1881, p. 375.

effective than the infusion *convallaria majalis*, made of gr. vij—x to water f $\frac{2}{3}$ vj. The influence of the latter, if taken during a paroxysm of palpitation and dyspnœa, is felt at once. When compensation is no longer able to correct the consequences of valvular disease, the remedy still acts satisfactorily, and it has great advantages over digitalis, as the latter, in order to remove symptoms immediately dangerous, has to be used in such large doses that not many physicians, remembering the dangers from the remedy itself, dare repeat it. Instead, therefore, of giving heroic doses of digitalis, I have repeatedly prescribed infus. flor. *convallariæ* (gr. x—xij:  $\frac{2}{3}$ vj.)—3-4 tablespoonfuls in a day, and with excellent results, the severe dyspnœa, œdema of the feet, and râles in the lower lobes of the lungs disappearing, so that in seven or eight days, after having taken the six ounces of infusion, the patient would feel tolerably well.

**Report 3.\***—On February 3, 1881, at the ambulance of Professor Botkin, a woman applied for medical aid. She was 30 years old, of medium size, thin and anæmic. She complained of constant dyspnœa, palpitation and pain about the heart, radiating into the left arm, and down, along its internal aspect, into the fingers. Exacerbations of these symptoms took place several times a day, and sometimes in the night. She was unable to work, and losing flesh; could sleep but little, and only in a sitting posture. Had suffered for ten months, although she had been constantly treated by physicians. The cause of her illness was unknown to her. Her thorax was normal, breathing superficial, 48. Radial pulse small, 116; whilst the carotids and aorta pulsated violently. Her hands trembled very much. Immediately below the left clavicle there is a very noticeable dullness, which extends along the left parasternal line, and which over the third rib merges completely into the absolute dullness of the cardiac region, the latter extending toward the right as far as the median line. The heart impulse is vigorous, and in the normal situation. The second heart sound is more pronounced. The respiratory murmur along the parasternal line is weak and short, but improves after deep breathing. On palpation of the abdomen the right kidney was discovered to be painful and movable.

Professor Botkin pronounced the case one of neurosis of the cardiac apparatus, taking the form of angina pectoris, and which had already caused a change in the dimensions of the heart; thus its diameter was increased so as to reach the median line, and increased in the size of the left auricle was indicated by the dullness along the left parasternal line. In consequence of the insufficient evacuation of these parts of the heart, there was abnormal blood supply to the lungs, and dyspnœa. The cardiac neurosis in this case is probably due to reflex influence from the abnormal situation of the right kidney, which was not only irritated itself, but kept up an irritation of the adjacent organs.

The patient was ordered to apply clay poultices to the cardiac region, to take two or three warm baths a week, and to wear a special belt to retain the kidney in its proper position. Internally she received:

- R. Camp. monobrom, ʒj.
- Chloral hydrat. ʒss.
- Pulv. acaciæ.
- Sacch. albi, ʒiij ʒj.
- F. Pill. No. 60. S. Two pills three times a day.

On the 10th there was no improvement. Examination showed only slight sensitiveness of one kidney. The patient was now given tinc. *convallariæ majalis*, 10 drops four times a day. The baths and belt were continued.

On the 17th the patient reported that she obtained relief from the very first dose of the medicine, and now feels well. She can sleep in the recumbent position, has no more palpitation or dyspnœa. Pulse 80-90; respiration 22. The parasternal dullness is less marked. Cardiac dullness now extends only as far as the left parasternal line. Pulsation of the aorta is still too violent, but less than before. Heart tones clear, with slight accentuation of the second sound. When breathing deeply there is a vesicular murmur, though rather weak, along the parasternal line where the dullness was. The right kidney is less sensitive. The whole success in this case of rather complicated cardiac neurosis, is evidently due to the tincture of *convallaria*, since the remedies previously employed had no effect.

We believe the relation of this case to have some practical value, since cardiac neuroses are frequently met with in practice, whilst we have hitherto had no certain and reliable remedy for their treatment.

Our usual cardiac remedies—digitalis and adonis vernalis—says Professor Botkin—in the vast majority of cases of cardiac neuroses, have no effect whatever, whilst *convallaria gen-*

\* Botkin's Weekly Clinical Gazette, St. Petersburg, Russia; Physician and Surgeon, 1881; Therapeutic Gazette, September, 1881, p. 351.

erally acts like a specific. But in these cases it should be used in the form of an alcoholic tincture, not an infusion.

**Report 4.\***—My attention was first called to the drug, *convallaria majalis*, by an article by Dr. E. P. Hurd, of Newburyport, Mass., which appeared in the Medical Record of September 9, 1882. Soon after I was requested by Dr. Francis Delafield, then attending physician to Roosevelt Hospital, to give the *convallaria* a trial in cases which should seem appropriate. *Convallaria* was accordingly employed, under Dr. Delafield's direction, in the medical service of the hospital, almost to the exclusion of digitalis, in cases needing a heart tonic, from the middle of September, 1882, to the end of November. The cases in which the *convallaria* was employed were:

First.—Cases of Bright's disease where the circulation seemed at fault. Six cases.

Second.—Cases of deficient circulation from organic cardiac disease. Five cases.

Third.—Cases of heart failure from pneumonia in old people. Two cases.

Fourth.—Cases of heart failure in typhoid fever. Five cases.

Fifth.—Two cases of emphysema and bronchitis (one of them with asthma) where the pulmonary condition offered an obstruction to the circulation.

These are all the cases in which *convallaria* was tried during the period mentioned, with the exception of five, where, for various reasons, only a few doses were given.

The preparation used was the fluid extract of the flowers, furnished by Messrs. Parke, Davis & Co., except from the period from October 5th to October 7th, when a specimen procured from Eimer & Amend was employed. It may be proper to state here that, so far as I know, Parke, Davis & Co.'s preparation is as yet the only reliable one furnished in this country.

The dose employed in these experiments varied from  $\mathfrak{m}$  v. t. i. d. to  $\mathfrak{m}$  xx q. 4 h., and in two cases (4 and 11)  $3j$ . t. i. d., was given with good results, where smaller dosage failed. I think I would have had better success in several instances if I had run the dose up higher than I did. In no case were any toxic symptoms observed. Vomiting was much less frequent than in patients under fairly large doses of digitalis, and could hardly be traced to the *convallaria* in a single instance, as it only occurred where symptoms of chronic gastric congestion or inflammation were marked (Cases 1, 5, and 8). As before mentioned, two patients were kept on  $3j$  of the *convallaria* t. i. d. for several weeks with much benefit and without the slightest toxic symptom.

I will now give a synopsis of the histories of the patients treated with *convallaria*, leaving for the conclusion a discussion of the results. Temperatures are axillary unless otherwise stated.

Case 1.—Chronic Bright's disease.—Cecilia J——, æt. 53; Ireland; widow; domestic. Admitted September 19, 1882. Dyspnoea, palpitation, cough, headache, vomiting, and œdema of legs at times for the last four months. Urgent dyspnoea, last night or two.

Present condition.—Orthopnoea; pulse weak and irregular; œdema of legs. Physical examination: hypertrophy of heart; no murmurs. Subcrepitant râles bases of both lungs.

Treatment.—Rest in bed. Infusion of digitalis,  $3j$ , and acetate of potash, gr. xxx, q. 4 h.

September 20th.—Temperature  $103.7^{\circ}$  F. Urine, 1,012, alkaline, albumen forty per cent. Feels better. Digitalis and acetate of potash stopped; given *convallaria*,  $\mathfrak{m}ij$  q. h.

September 22d.—Temperature normal since the morning of the 20th. Pulse slower and stronger; breathes easily.

September 24th.—Patient entirely comfortable and able to sit up. *Convallaria* stopped last evening.

October 17th.—Patient has been getting along very comfortably, except for headache, which is worse to-day, and patient vomits. Ordered *convallaria* q. 2 h.

October 21st.—*Convallaria* discontinued on account of nausea.

October 25th.—Patient went out on pass and did not get fatigued.

November 5th.—Patient very short of breath and nauseated.

November 6th, p. m.—Commencing œdema of lungs. Cupped over chest.

November 7th.—Put on *convallaria*.  $\mathfrak{m}$  x q. 4 h. Patient is passing sixty ounces of urine a day, or more.

November 13th.—Amount of urine not increased since the 4th. Patient much more comfortable; *convallaria* stopped.

November 28th.—Urine, 1,008, alkaline; albumen, trace.

\* Henry Ling Taylor, M. D., late House Physician, Roosevelt Hospital, in the Medical Record, Jan. 27, 1883. (Therapeutic Gazette, 1883, p. 126.)

December 12th.—Patient under treatment for prolapsus uteri, no uræmic symptoms. She is very comfortable.

DATE.	Pulse.	Respirations.	Urine, ounces.
September 20th, A. M. (Convallaria, ℥ij. q. h.)	104	30	..
" " P. M.	104	38	8*
" 21st, A. M.	92	30	..
" " P. M.	84	24	30
" 22d, A. M.	76	26	..
" " P. M.	80	24	18
" 23d, A. M. (Convallaria stopped.)	72	26	..
" " P. M.	80	30	44
" 24th, A. M.	72	26	..
" " P. M.	72	17	34

Pulse and respirations kept on this way. Urine increased to sixty or seventy ounces by October 1st.

DATE.	Pulse.	Respirations.	Urine, ounces.
October 18th, A. M. (Convallaria, ℥x. q. 4 h.)	84	22	..
" " P. M.	76	24	42
" 19th, A. M.	84	24	..
" " P. M.	72	18	58
" 20th, A. M.	80	22	..
" " P. M.	72	18	50
" 21st, A. M. (Convallaria stopped.)	72	20	..
" " P. M.	76	26	45
" 22d, A. M.	84	28	..
" " P. M.	96	26	38
" 23d, A. M.	80	20	..
" " P. M.	76	24	45
" 24th, A. M.	92	28	..
" " P. M.	72	22	46

CASE 2.—Chronic Bright's Disease.—Mary A—, æt. 32; Irelan 1, married; house-work. Admitted September 12, 1882. Has complained of dyspnœa and palpitation for seven years. Slight dry cough last six months. Two weeks ago had a creeping chill and cold sweat, followed by constant vomiting and great pain in epigastrium.

Present Condition.—Pain and tenderness over lower half of sternum. Catching dyspnœa. Poor circulation in extremities. Pulse very small and thready; regular Pupils not responsive. Pulse, 84; respiration, 26; temperature, 97.5, A. M. Urine, 1,016; acid; albumen, 5 per cent. no casts found. Physical examination: Prolonged respiration at both apices; some sonorous breathing over right lung. Heart sounds very weak; no murmur.

September 13th.—Put on milk diet; bicarbonate of soda, gr. x. t. i. d., and tincture of digitalis, ℥x. t. i. d.

September 14th.—Ordered a pearl of amyl nitrite daily.

September 15th.—Tincture of digitalis increased to ℥xv. t. i. d.

September 16th.—Condition about the same as on entrance.

Present medicine stopped; ordered convallaria, ℥xx. q. 4 h.

September 19th.—Convallaria, ℥xv. q. 4 h. No albumen in urine.

September 22d.—Pulse about the same, though patient feels much better and breathes more easily.

\* The urine is measured from 6:00 A. M. to 6:00 P. M. The asterisk, in this and the following tables, denotes that some of the urine of the previous 24 hours were lost.

September 23d.—Convallaria stopped.

DATE.		Pulse.	Respirations.	Urine, ounces.
September	12th, A. M.	84	26	..
"	" P. M.	56	42	..
"	14th	..	..	12*
"	15th	..	..	11
"	16th, A. M. (Convallaria, ℥xx, q. 4 hr.)	..	..	..
"	" P. M.	80	26	22
"	17th, A. M.	76	18	..
"	" P. M.	80	18	10*
"	18th, A. M.	72	22	..
"	" P. M.	84	20	..
"	19th, A. M. (Convallaria, ℥xv, q. 4 hr.)	104	22	..
"	" P. M.	112	22	Lost.
"	20th, A. M.	104	26	..
"	" P. M.	88	22	28
"	21st, A. M.	84	21	..
"	" P. M.	80	18	28
"	22d, A. M.	88	20	..
"	" P. M.	64	23	40
"	23d, A. M. (Convallaria, stopped.)	100	20	..
"	" P. M.	64	20	42
"	24th, A. M.	104	16	..
"	" P. M.	76	18	34
"	25th, A. M.	108	18	28

September 25th.—Patient much better than on entrance. Discharged improved.

Case 3.—Chronic Bright's disease.—Francis W., æt. 33; Ireland; married; compositor. Admitted September 25, 1882. Feet and face began to swell four months ago. Eyesight has failed for three months. Occasional attacks of occipital headache. No nausea; no change in quantity of urine.

Present Condition.—Face pale; tongue lightly coated; appetite good; bowels regular; pulse full and regular; face, legs and genitals œdematous. Pulse, 80; respiration, 18; temperature, 98°, P. M. Urine, 1,015; neutral; albumen, 30 per cent.; casts. Physical examination: Double cardiac impact and double first sound. Lungs normal.

Treatment.—Milk diet; convallaria, ℥v, four times a day.

September 26th, A. M.—Urine for previous twenty-four hours, 63 ounces. Pulse, 80; respiration, 20. P. M.: Pulse, 80; respiration, 18.

September 27th.—Five general clonic convulsions last evening, between 7 and 11 o'clock: Morphia, chloral and bromide of potassium, p. r. n. Urine, 16 ounces. A. M.: Pulse, 80; respiration, 18. P. M.: Pulse, 72; respiration, 20.

September 28th.—Patient maniacal; nearly blind; general pruritus.

September 29th.—U. S. solution of morphia, ʒj, night and morning.

October 1st.—Patient doing well.

October 4th.—Oxygen, gal. v, night and morning.

October 7th.—Patient is up. Pulse goes up to 100 occasionally. Urine has averaged 20 to 40 ounces since September 28th; to-day, 60 ounces.

October 10th.—Pulse, 84 Convallaria stopped. Put on the syrup of the iodide of iron.

October 16th.—Patient very nervous. Pulse, 120 to-day; it has increased in rapidity since the convallaria was discontinued.

October 17th.—Still very nervous. Ordered ℥j of a 1-per-cent. alcoholic solution of nitro-glycerine, given in ʒij water, t. i. d. Urine, 1,010; acid; albumen, 30 per cent.; casts.

October 18th.—Nitro-glycerine made patient dizzy; felt like falling after each dose; had a feeling of a band around the head. Nervousness had disappeared. A. M.: Pulse, 112; respiration, 24. Urine 44 ounces. P. M.: Pulse, 108; respiration, 52.

October 20th.—At own request discharged improved.

Case 4.—Chronic Bright's disease—Cirrhosis of liver.—Isabella McG——, æt. 40; Ireland; married. Admitted October 27, 1882. Well up to December, 1881; after that had nausea and vomiting for two months. Swelling of feet and legs since May, and of abdomen since June. Since then urine has been diminished. No headache.

Present condition.—Very pale; face puffy; bowels regular; appetite poor; pulse weak; œdema of legs and ascites. Pulse, 116; respiration, 24; temperature, 98.5° F.

Urine, 1,012; acid; albumen, 60 per cent.; granular, fatty, and hyaline casts; pus and blood. Physical examination: heart and lungs negative; liver dullness diminished; fluctuation over abdomen.

Treatment.—Pot. acetat.,  $\frac{3}{4}$  ss; inf. tritic. repent. O. j. Sig,  $\frac{3}{4}$  ij. q. 2 h. Rest in bed; bowels kept open.

October 30th.—Abdomen measures forty-one inches.

November 1st.—Acetate and triticum stopped.

November 6th.—Patient about the same. Put on fluid extract convallaria,  $\mathbb{M}$  x q. 4 h.

November 9th.—Nausea and sleeplessness.

November 13th.—Abdomen 41 inches. Convallaria,  $\mathbb{M}$  xx q. 4 h.

November 17th.—Convallaria,  $\frac{3}{4}$  j t. i. d.

November 20th.—Abdomen 40 inches. Feels better and passes more urine. Has a uterine fibroid size of child's or larger.

December 12th.—Still on convallaria,  $\frac{3}{4}$  j t. i. d. Averages about thirty ounces of urine daily. Urine to-day, 1,016; acid; albumen, 60 per cent.; casts as before. Up to November 15th, the daily average was about fifteen ounces, never over twenty; after this as follows:

DATE.	URINE, OUNCES.
November 15th .....	22
November 16th .....	24*
November 17th .....	30
November 18th .....	18
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Case 5.—Phthisis—Chronic Bright's disease.—Ella W——, æ. 40; United States; widow; dressmaker. Admitted July 10, 1882 Hæmoptysis two years ago. Cough for a year. Edema of feet and legs and dyspnœa off and on for seven months. Now has anasarca below waist and œdema of right arm, dyspnœa and cough. Pulse feeble, 112; respirations, 22; temperature, 97°; urine, 1,020; neutral; albumen, 60 per cent.; granular casts.

Physical examination showed dullness over whole right lung and at left apex. Subcrepitant and coarser râles over both lungs in front and behind. Cavernous breathing at extreme left apex.

This patient went along with periods of comparative comfort, alternating with attacks of increased œdema, partial suppression of urine, dyspnœa, etc. Convallaria,  $\mathbb{M}$  ij to iv q. h., afterward  $\mathbb{M}$  x q. 4 h. was tried for these attacks after September, but they seemed to run about the same course as before. The pulse and urine did not seem to be affected.

Patient died November 4th, in an uræmic attack with suppression of urine; convallaria was given up to  $\mathbb{M}$  vq. h. in  $\frac{3}{4}$  ss of whiskey. Autopsy showed large white kidneys (the two weighed twenty-one ounces) and chronic miliary tuberculosis of lungs.

Case 6.—Chronic Bright's disease and mitral regurgitation.—John P——, æt. 55; Ireland; widower; longshoreman. Admitted September 20, 1882. Edema of legs for two and a half months. Worked up to a month ago, when began to have dyspnœa and feet swelled very much. At times has passed very much, at other times very little, urine for past two months. Constant drinker, never to intoxication.

Present Condition.—Very pale; lower limbs and genitals very œdematous; tongue clean, appetite poor. Pupils contracted and unresponsive. Breathing labored. Facial muscles twitching. Pulse feeble and irregular. Pulse, 100; respiration, 32; temperature, 100°, P. M. Urine, 1,002; acid; albumen, 17 per cent. Physical examination: Mitral systolic murmur; coarse friction râles left side behind; rough breathing on right side.

Treatment.—Milk diet. Rest in bed. Fluid extract convallaria,  $\mathbb{M}$  xv. four times a day.

September 21st, A. M.—Temperature 98.5°.

September 24th.—Pulse and urine not affected by the drug. Edema of lower limbs and dyspnœa marked.

September 25th.—Convallaria stopped; put on pot. iod., gr. x. t. i. d.

September 27th.—Iodide reduced to gr. v t. i. d.

September 28th.—Patient very stupid. Pulse 100-108 since entrance. Urine passed mostly in bed; about 15 ounces daily measured.

October 2d.—Patient unconscious.

October 4th.—Died 2:30 A. M.

Autopsy by Dr. Delafield—Large white kidneys. The two weighed 16 ounces. Mitral insufficiency; small vegetation on aortic valve; cardiac muscle yellow, as if fatty.

CASE 7.—Mitral regurgitation,—Mary McG—, æt. 50; Ireland; single; domestic. Admitted September 19, 1882, for the third time. Patient has had symptoms of cardiac disease for over three years. For a year has had dyspnoea and for eight months œdema of legs, off and on. Urine diminished at times. Present attack of œdema, dyspnoea, etc, has lasted several weeks. Is already getting better of it.

Present Condition.—Tongue clean, appetite good, bowels regular. Urine passed in fair amount. Pulse feeble, irregular and intermittent. Pupils normal, moderate dyspnoea. Pulse, 116; respiration, 38; temperature 98.2°, P. M. Urine, 1,018; acid; albumen; urine contained albumen last May. Physical examination: Mitral systolic murmur. Some cardiac enlargement.

Treatment.—Convallaria, ℥x. t. i. d. Rest in bed.

September 23d.—Patient's feet less swollen; sat up to-day.

September 24th.—Patient has no dyspnoea and sleeps well.

September 25th.—Patient feels fairly well. Discharge improved.

This attack rather milder than previous ones, when patient recovered on digitalis.

DATE.	Pulse.	Respirations.	Urine. ounces.
September 19th, P. M.	116	38	..
" 20th, A. M.	104	36	10
" 21st	...	..	29
" 22d, A. M.	112	52	..
" P. M.	84	30	18
" 23d, A. M.	96	36	..
" P. M.	92	28	20
" 24th, A. M.	84	30	..
" P. M.	88	32	16*
" 24th, A. M.	88	20	20

Report 5.\*—I have lately employed Parke, Davis & Co.'s preparation of Lily of the Valley (fluid extract) in two cases. The one is a patient suffering from Corrigan's disease—partly compensated. He is incapacitated for any but very moderate exercise; has attacks of syncope, dyspnoea and angina. Though he has taken the convallaria only three days, he has been entirely free from his usual faint and giddy turns, has had no angina pectoris, and has been able to do his work with increased comfort. The other is a case of aortic and mitral insufficiency, with enormous dilatation and marked asystolism. There is dyspnoea (orthopnoea) from pulmonary stasis and hydrothorax, some œdema of the extremities, vomiting and digestive disturbance. This patient is greatly dependent on hypodermics of morphia. I have prescribed the liquid extract of convallaria in doses of five drops every four hours. So far the effect has been gratifying. There is more force in the cardiac pulsations, and in the pulse at the wrist. The dyspnoea is relieved. The quantity of urine is notably augmented. The patient has better nights, and can take more food. I do not look for any permanency in these good results; granulo-fatty degeneration of the heart is evidently far advanced.

August 30.—Mrs. C—, the patient referred to in the last paragraph, continues to improve after a fortnight's use of the new remedy. The cardiac contractions are slower and more friable, the dyspnoea has disappeared with the pulmonary stasis and the hydrothorax. She can now lie down *flat on her back*. This relief has been coincident with a copious diuresis, commencing the third day of the administration of the medicine. For several days the quantity of urine passed during twenty-four hours has been as high as sixty ounces (before commencing the remedy the average quantity *per diem* was eight ounces.) The dose now taken of the convallaria majalis is twelve drops every four hours. For a while I was able to suspend the morphine injection (one grain at night subcutaneously), but latterly I have been obliged to resume it on account of the return of the angina, from which she has long been a sufferer. It is evident that the convallaria has done all that any remedy could be expected to do in this case, as atheromatous changes in the nutrient vessels of the heart are more than probable.

\*Dr. E. P. Hurd, of Newbury Port, Mass., in the New York Medical Record, Sept. 9, 1882.

**Report 6.\***—Dr. Kalmyk has tried the tincture of *convallaria majalis* flowers in the strength of 3i to ʒvi of menstrum on five subjects, of which he closely observed three. One was a case of insufficiency of the mitral valves and cirrhosis of the liver in a woman twenty-four years old. The second patient was a man suffering similarly. The third also was a man suffering from chronic nephritis. The results obtained are summarized thus: 1. The heart's action becomes more quiet and energetic, the pulse becomes even, full and slower, the dyspnoea disappears. The remedy does not seem to have any injurious influence on the heart. Two of the patients have taken altogether eleven drachms, without harm. 2. The quantity of urine is promptly and very much increased, the dropsical effusion disappearing very rapidly. The maximum of increase of the urine was 2,250 cubic centimeters in the case of nephritis, and in the other two, 1,700 and 2,000 cc. in each. The effect of the remedy in ascites was, in the doctor's experience, also satisfactory.

**Report 11.†**—In 1884-85 a collective investigation of certain new drugs was conducted by the Connecticut State Medical Society, the committee conducting the same reporting as follows upon *convallaria majalis*:

The greatest number of replies to any one question on this drug, is fifty.

Answer to question No. 1, "Preparations used?" have been divided between the preparation and the maker. Some have stated simply fluid extract, which is too indefinite, as both root and flowers are used. Of preparations, 22 name simply fluid extract; seven fluid extracts of the flowers; one pills. Of manufacturers, 16 were from Parke, Davis & Co., three from Messrs. Schieffelin & Co., from Messrs. Tarrant, Wyeth, Thayer, Burroughs, each one.

Question No. 2. The most frequently mentioned dose is gtt. v-x., t. i. d.; the maximum gtt. xv and ʒj., t. i. d., up to gtt. xv every two hours.

3. Do you find any cumulative effect in digitalis? No, 21; yes, 9; not very marked, 1.

4. Do you find any cumulative effect in *convallaria*? No, 30.

5. State comparative effects of *convallaria* and digitalis. *Convallaria* does not disturb the stomach as digitalis does, and steadies the heart better. Digitalis, after a time, produces vomiting, cerebral and gastric disturbances, while *convallaria* works splendidly with none of those symptoms. *Convallaria* is a milder remedy, and can be used where digitalis is inadmissible. *Convallaria* produces a more rigid pulse. It acts more on the entire arterial circulation than on the heart as a centre. Several say *convallaria* produces no diuretic effects, one thinks it a more efficient diuretic. A number find the action of the two similar, and one declares there is no comparison between them. Gtt. x. fl. ext. *convallaria* with gtt. x. tinct. cacti., acted as a diuretic where digitalis had failed with one.

6. Purposes for which *convallaria* was given? All forms of cardiac affections: (a) Valvular diseases, as insufficiency of mitral and aortic, with grand results, giving tone and regularity. (b) Organic diseases, as hypertrophy, dilatation, and fatty degeneration. In hypertrophy it equalized the force and diminished the frequency of the beat. In fatty degeneration (one case) it worked badly, causing dizziness, tremor, and dimness of vision. (c) Sympathetic disturbances, as palpitation, weakened heart from hæmorrhage or shock, cardiac weakness, with intermittent pulse, irregular action, due to anæmia, nervous irritability of heart's action, nervous prostration, œdema of the lungs. As a tonic to strengthen the heart's action in debility, it reduces the pulse from 100 to 76.

7. Does it disturb the stomach? No, 17; yes, 3; sometimes, 3; same as digitalis, 1.

8. Some conclusions arrived at from different observations are: It is much more uniform in its results than digitalis, and I like it very much; it is less certain than digitalis; digitalis is more reliable; a grand remedy; prefer digitalis; more unpleasant to take than digitalis; of value in certain conditions, especially cardiac dyspnoea; it sometimes worked where digitalis did not; have been well pleased with its action in cardiac disease when digitalis was ineffectual; a valuable medicine; has value, but not so reliable as digitalis; not so reliable as digitalis, but can be pushed further; may prove a good remedy, but will not suit all cases; more reliable than digitalis as a tonic, fully as efficient as a diuretic, less liable to nauseate, more uniform in results; fluid extract of the flowers a most reliable remedy to control the heart's action; a tonic on the fibres of the heart; has a limited sphere of action; digitalis in large doses preferable; inferior to cactus in steadying the heart; a worthless remedy; pleased with it when digitalis has proved ineffectual.

It would be difficult to displace digitalis in the estimation of the physicians of the world; but it does not meet the requirements in every case. One thing we wish to determine:—in the light of the present day, has it any cumulative effect, as has heretofore been

\*Translated by R. D'Arcy, M. D., from the *Vratch*, in the *Therapeutic Gazette*, July, 1882, p. 254.

† *Medical Age*, August 25, 1885, p. 361.

attributed to it? The testimony is decidedly no, and from physicians who have used it in large doses. Convallaria many times does what digitalis will not. It is a valuable remedy. Those who have given larger doses at longer intervals have had better results than they who have used the small doses frequently repeated.

**Report 7.\***—One great danger which besets the teacher and worker in therapeutics is over-sanguineness, and as quite recently the subject of the action of lily of the valley has been viewed somewhat *couleur de rose*, we have thought it worth while to lay before our readers an epitomé of what has appeared about the drug in the European journals since the appearance of our American text-books.

On the physiological side of the question, we have in the Bulletin Gen. de Therap. co. 494, the record of a very incomplete and partial study of the action of preparations of convallaria made upon frogs and other cold-blooded animals, by Drs. Coze and Simon, of the Nancy Medical School. They find that the heart-beat is slowed and the pulse wave enlarged, as by digitalis, and assert that the increase of the pulse wave is greater than with digitalis, and that there is never irregular arrest of the cardiac pulsations, as with the latter drug.

A very much more important paper is that of G. Leubuscher (Zeitschrift f. Klin. Med., VII. 582). He used convallamarin and found that in doses of 0.0095 gramme it produces in the frog progressive paralysis, at first with cramp-like tremblings, and finally complete loss of reflex activity. Death occurs in from half to three-quarters of an hour, from systolic cardiac arrest. A very marked feature before the arrest of the heart is great derangement in its rhythm—the regular contraction of ventricle and auricle being completely destroyed. The frequency of the beat was in most cases, but not always, at first lessened. Atropia did not set aside the action of convallaria.

In cats, rabbits and Guinea-pigs the fatal dose was found to be, respectively, 0.008, 0.0075, 0.004 grm. The chief symptom was violent convulsions, beginning in muscular tremblings. Death occurred in one-half to one and one-half hours, from diastolic arrest of the heart, the organ being relaxed and full of blood. Studies upon the blood-pressure yielded results seemingly in direct opposition to those obtained by Prof. Seé. There was no primary rise in the arterial pressure. Various doses were used, but in no case was the arterial pressure increased, and there was usually no increase of the pulse-rate, only a gradual slowing of the heart with a progressive fall of the arterial pressure. The vagus had its excitability primarily somewhat increased, but finally destroyed. There was no effect upon the respiration.

A comparison of the results thus obtained by Leubuscher shows an irreconcilable discord between them, and those of Seé, Isaew, and Ott, and it seems not unlikely that the various observers have been experimenting with different principles under the one name.

Upon the clinical side of the question discord also reigns. Pel (Centralb. f. Therap., 1883, 2) found the drug to fail him in a case of weakened left ventricle from kidney disease, and also to be wanting in diuretic power; but believes it to be of some little value in failure of compensatory power in cardiac disease. Dr. Leyden (Deutsch. Med. Woch., Feb., 1883, 125) has tried in several cases at his clinic both the extract and the infusion of convallaria, without good results. Dr. B. Stiller, in 21 cases at the Medical Clinic of Pesth, obtained good results only twice. He employed the infusion of Jacobi, (Sitzungs. des Vereins f. Klin. Medizin, 1883), and also Lubitenski, and found the remedy to be of little or no therapeutic value, in which G. Leubuscher fully agrees, asserting indeed that it often does harm. A similar negative result was arrived at by Darieux (Prog. Med., 1883).

On the other hand, in the experience of Prof. Silverstein, at his clinic in Parma, the convallaria has been of great service in the same class of cases as digitalis is used in (La France Med., Oct., 1883). He used the extract in doses of 0.08 grm., given every two hours. The Russian Kalmitoff, an abstract of whose article has already appeared in the Therapeutic Gazette, had good success with the remedy.

Dr. E. Maragliana (Centralb. f. d. Med. Wissensch, 1883, 43.) finds that the lily of the valley raises the arterial pressure and very generally without affecting distinctly the rate of the pulse or respiration. In most instances there is a marked diuretic effect. In its action upon the kidneys convallamarin is much more active than either the extract or convallar. In mitral disease with failing heart-power he considers it even superior to digitalis, in that it has no cumulative influence. He administers as the daily dose 15 to 30 grains of the extract (Kalmikoff) of convallaria and convallamarin, four to 15 grains.

\* Theapeutic Gazette, 1885, p. 35.

**Report 8.\***—Having used the convallaria for years, and given you in 1881 a description of its therapeutic properties, I feel it my duty to communicate to you whatever farther effects may come under my notice. There is one to which I would call the attention of my colleagues to-day in a few words, viz., the irritant properties of the fluid extract of convallaria on the alimentary mucous membrane. I have found in nearly all cases where this remedy was administered persistently that it produced in from one to two week's time an intense redness and soreness of the tongue, making it look like raw beef, granular and quite clean, the patient complaining of tenderness of the stomach. These circumstances will have to be taken into consideration whenever convallaria majalis is prescribed. By doing so the patient may be saved considerable suffering and the physician some anxiety. In one case I took advantage of this property of the convallaria majalis. I had a dyspeptic patient with heavily-loaded tongue, the mucous membrane under the coating of effete material being pale and flabby, evidently lacking tone. I prescribed the convallaria majalis, using this time the extract of the root in small and often-repeated doses on an empty stomach, the immediate effect to fall short of the emetocatharsis following full doses. I selected the fluid extract of the root for this experiment, because it is more acrid than the flower. In a few days the tongue began to clear itself of its coat of worn-out tissue, and soon it was quite clean, but the patient began to complain of the soreness. Now I stopped the convallaria and prescribed soothing remedies, and in a few days more the patient's hitherto lacking appetite returned, and with it his digestive powers improved. The result was very gratifying, for I had for several weeks tried to relieve the torpor of the stomach without the least success by various remedies. I intend to make another trial of this remedy in a similar case as soon as opportunity presents, for the promises held out by the first case are too valuable to be lost sight of.

A more common condition we meet with is a loaded tongue with irritated red edges and tip, the inflamed and enlarged papillæ forming red dots in the dirty coating of the tongue. It is hardly necessary to say that in these cases I shall be careful not to prescribe the convallaria, for here I take the coating to be an effort to protract an already irritated mucous membrane, the latter being a consequence of the irritation. Anything, therefore, that would still further stimulate would only increase the evil. But where the alimentary mucous membrane, from lack of vitality, seems unable to shed its worn-out coat, no irritation being present, then I shall try this drug.

**Report 9.†**—We can employ convallaria in the following classes of cases, with reasonable confidence:

1. In functional heart disorder, especially palpitation and irregular cardiac action dependent on general debility. Also in cases of anæmia or hysteria, and to remedy the irregular action of the heart as caused by tobacco.

2. In palpitation and dyspnoea, associated with phthisis, or asthma before cardiac failure from fatty changes ensues.

3. In cases of acute disease of the lungs, associated with cardiac irregularity; for example, croupous pneumonia, in cases when digitalis has failed.

4. Convallaria loses its effectiveness in heart disease, valvular or otherwise, in proportion to the amount of fatty degeneration of the heart. It is admitted that digitalis is also subject to this rule, but its effectiveness is far superior to convallaria.

5. Mitral regurgitant disease, without irregularity, is less positively benefited than other forms of cardiac disturbance, perhaps because in these cases fatty degeneration is frequently present, especially if there is irregularity.

6. Among the group of organic valvular disease in which convallaria may be more serviceable than digitalis, is mitral obstruction, and it is precisely in these cases that digitalis sometimes fails us.

In conclusion, it has appeared to me that if at all useful, convallaria is more of a cardiac regulator than digitalis. Augmentation of the systole is not so apparent, and the drug cannot compare as a cardiac stimulant to digitalis or caffeine.

An infusion of the flowers and leaves, made similarly to the infusion of digitalis, ought to represent the virtues of convallaria, although I have always employed the fluid extract (Parke, Davis & Co.'s) in doses of 15 to 20 drops every three hours until the desired effect has been produced. A week or ten days' trial should suffice to develop the possible usefulness of convallaria.

\*R. D'Ary, M. D., of Romeo, Mich., in the Therapeutic Gazette, 1885, p. 638.

†Dr. Edward T. Bruen, Assistant Professor of Physical Diagnosis, University of Pennsylvania, Physician to Philadelphia Hospital, etc., in the Therapeutic Gazette, 1885, p. 20.

**Report 10.\***—My aim in giving this to the profession is to assign one more property, as novel as it is valuable, to *convallaria majalis*. M. H. W., a Hollander by parentage, aged 26; an issue of consumptive parents; has suffered from asthma since youth. It is doubtless, to this neurosis that he owes his exemption from the hereditary taint. He is regularly built, and his chest offers the broad muscular development peculiar to certain asthmatics, besides he has an hepatic diathesis, which, we know, frequently coincides with the asthma. Percussion and auscultation of the chest reveal a normal vesicular murmur all over the chest and ample and free sound. The heart is also normal. It is, consequently, a case of idiopathic asthma.

The patient arrived at Eaux Bonnes, where he is an old habitue, on the 14th of August, 1884; five days after a sudden and remarkable atmospheric change took place; the temperature lowered several degrees, and the snow fell on the surrounding mountains. The patient was taken with a paroxysm of asthma which excelled in violence all preceding attacks. Summoned to his side, I prescribed 25 drops of tincture of the flowers of *convallaria majalis* to be taken in a potion every fifteen minutes, in four doses. Under the influence of the medicament, the sibilant râle, perceptible at a distance, ceased almost instantaneously; with the orthopnoea, the paroxysm subsided and terminated by a profuse diuresis, which, as a remarkable occurrence, replaced in this case the final expectoration of the previous attack. One hour after the ingestion of the *convallaria*, the patient was up, breathing freely, and to the full capacity of his lungs.

My preference for the tincture of the flowers of *convallaria majalis*, instead of the leaves and rhizoma, is based on its physiological actions: The flowers contain *convallamarin*, which, as demonstrated by the recent experiments of Langlebert, possesses a cordial effect in a high degree, while the leaves and rhizoma, very rich in *convallarin*, act upon the organism both as a cardiac and a drastic, analogous to scammony. Which was the modus operandi of the *convallaria* in the clinical case reported? Did it exercise a modifying influence upon the nerves of the eighth pair, or upon the vaso-motor of the sympathetic? To answer these questions, it is necessary to have a correct idea of the true pathology of the asthma.

To-day, after the anatomical researches of Reissessen, subsequently confirmed by Gratislet, and chiefly after the clinical works published by our worthy teacher, Professor Trousseau, on the subject, it is beyond question that asthma is a neurosis of the respiratory apparatus, which is asserted by a spastic constriction of the muscular apparatus that underlies the mucus membrane of the air tube. This muscular coat, in contracting, narrows the diameter of the bronchi, and in this wise hinders the free circulation of air in the pulmonary parenchyma. This theory once established, it is probable that, in asthma, *convallaria majalis* antagonizes the bronchial spasm through its antiseptic influence upon the nerve centres, which preside over the respiratory movements in the same manner that this agent acts as a sedative in dyspnoea, owing to a cardiac affection, by modifying the vaso motor action of the cardiac plexus.

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\* Dr. Cazenaule de la Roche, in the Western Medical Reporter, December, 1884; Medical Age, 1885, page 147.

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WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

Liquid Ergot, Normal.

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ISSUED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.



# LIQUID ERGOT, NORMAL.

**Botanical name.**—*Claviceps purpurea*, Tulasne.

**Synonyms.**—*Spurred rye*; *clavus secalinus*, *blé cornu*, Fr.; *Mutterkorn*, Ger.

**Properties.**—*Parturient, stimulant, narcotic and astringent.*

**Definitions.**—"NORMAL LIQUIDS"\* are fluid extracts prepared from carefully selected drugs, and *adjusted in strength by assay to a certain fixed standard.* Drugs whose activity depends on an alkaloidal principle are notoriously variable in strength. The ordinary fluid extract must share in this variability, but in normal liquids this grave defect is remedied, and absolute uniformity in therapeutic effects may be confidently expected from them. One cubic centimetre of the "Normal Liquid" represents one gramme of a drug of standard strength.

"LIQUID ERGOT, NORMAL," under the title of *Liquor Ergotæ Purificatus*, originated the establishment of the line of normal liquids, and the change in name and style of package was only made to conform to the general nomenclature and distinctive characteristics distinguishing this class of remedies. In assuming the title of *liquid ergot, normal*, liquor ergotæ purificatus—upon which some of the reports hereinafter contained are based—underwent no alteration in process of manufacture.

The constituents of ergot are very numerous, and it is still a vexed question to which of them the drug owes its medicinal activity. It seems probable, indeed, that several of its constituents are of importance, affecting different portions of the organism, and in different ways. This view is in harmony with the results reached by Kobert in his recent investigation of this difficult subject. Previous to this investigation we had been taught to regard sclerotic acid and sclero-mucin as the only active principles of importance contained in the drug, and accordingly the amount of the precipitate produced in a hydro-alcoholic solution containing 40 per cent. of alcohol by the addition of more alcohol, was regarded as a fair indication of the activity of the preparation. Kobert regards the sclerotic acid, which he calls ergotinic acid, as of subordinate importance. It produces contraction of the minute blood-vessels, it is true, and is thus useful as a hemostatic, and in relieving congestive headaches, but it has little action on the uterus. The principles which induce uterine contraction according to Kobert are cornutine and sphacelinic acid.

It is evident that in the case of a drug of such complex composition it is not practicable to make a preparation which shall contain an invariable proportion of the several active constituents, unless great care is exercised in the selection of the crude drug, and no single chemical test can be applied which will determine the therapeutic value of a given sample. We adjust the strength of our normal liquid with reference, indeed, to a triple standard, requiring that it shall contain a fixed amount of organic acid precipitable by alcohol, a standard proportion of alkaloid precipitable by mercuric chloride, and that the proportion of extractive shall not vary greatly. Arbitrary as our standards necessarily are at present, they secure a remarkable uniformity in the quality of our product.

**History.**—Liquid ergot, normal, was introduced by Parke, Davis & Co., under its former title, in 1879. Physicians had long felt the want of a reliable preparation of ergot, which should be free from the serious drawbacks so largely met with in the preparations offered under the guise of extracts, ergotins, and fluid extracts, many of which contained deleterious ingredi-

\* See "Normal Liquids," page 11.

ents, exerting a disturbing and dangerous influence in the frequently grave emergencies where the drug is resorted to. Other preparations either required some previous manipulation to fit them for administration, or were not possessed of keeping qualities. Inferior material and defective methods were largely responsible for such misrepresentation of a really excellent drug.

With a desire to supply the want referred to, a series of experiments were undertaken to decide upon a method of extraction, which should be selective in its character, so that all the desirable properties of the drug should be represented in the preparation, to the exclusion of those which produce dangerous and unwished-for results. Chemical analysis and physiological experimentation were laid under contribution to enable its manufacturers to offer a tried remedy, with the consciousness of having exerted their best efforts towards lightening the labors of the physician, and placing in his hand a worthy weapon in combating disease.

The outcome was *Liquor Ergotæ Purificatus*, a preparation which, better than any other of which we have knowledge, is a faithful representative of all the desirable principles of ergot, which tend to accelerate labor and assist nature's protracted efforts while it proved superior also, in its application to the other uses of this drug.

**Pharmacy.**—The method of preparation in its general features consists, first, in determining the value and constituents of the very best obtainable fresh ergot, selected from a large number of samples. The drug is exhausted by appropriate menstrua, and the strength of the preparation is then adjusted to our arbitrary standard, based on examination previously of a large number of specimens of the best ergot procurable. Of the resulting preparation sixteen imperial fluid ounces are the equivalent of one pound avoirdupois of a standard drug.

**Therapeutics.**—Ergot is too common a drug, and its therapeutic uses are too familiar to the medical profession to require enumeration or elucidation in this connection. It will be sufficient to affirm that liquid ergot, normal, meets all the indications of the drug, while its administration in proper doses and under proper circumstances, is not attended with disastrous sequelæ, so often experienced in the use of other preparations. Particular stress is laid upon the value of liquid ergot, normal, for hypodermatic exhibition. As this method of medication can be depended on to produce much speedier results than can be obtained when the remedy is administered by the mouth, it is a desideratum which has been borne in view to furnish in this an ever ready, concentrated, and non-irritant preparation. Physicians are urged to give it a trial, take advantage of the improvements which scientific methods have placed at their disposal, and avoid the disappointment inevitably resulting from the employment of unskillfully prepared extracts of indeterminate strength.

**New and Uncommon Uses of Ergot.**—*Ergot in Hæmoptysis, Epistaxis ana Hiccough.*\*—Everyone, of course, is acquainted with the action of ergot on the uterus; its advantages in menorrhagia are also well known. I have used the liquid extract of ergot with great benefit in hæmoptysis and epistaxis. Recently my assistant surgeon had a pet dog which bled from the nose during the excessive heat of June. I had often met with these cases of epistaxis in dogs of European breeds in India during that month. The assistant surgeon asked me if I knew of anything which would stop it. I said: "Try the liquid extract of ergot." The next morning he said: "Thank you, sir; the ergot quite stopped the bleeding, and I think the dog will get well now." Very few, however, may have heard that ergot will cure hiccough. Last autumn there was in this district an extensive epidemic of intermittent fever. The police hospital was full of fever cases. One day a policeman was admitted with an obstinate hiccough. He said he had had it for several days, and had no other ailment. I

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\* E. Bbonavia, M. D., Brigade Surgeon, I. M. D., in the London Lancet, August 15, 1885; Medical Age, page 404, 1885.

tried many remedies—sedatives, narcotics, antispasmodics, and counter-irritants. I examined the body, to see whether there might not be some latent hernia in any part which might be the cause of it, but found nothing. I gave him a large anti-spasmodic enema, and then a strong purgative. The hiccough went on. I next tried chloroform and subcutaneous injections. As long as their effects lasted, freedom from the distressing spasm was experienced. Then it came on again with unabated force. The patient began rejecting his food and everything he took by the mouth. The case was taking a serious aspect, and I thought death would ensue. As a last resource, I ordered the liquid extract of ergot in drachm doses. I did this simply because I knew it had a decided action on muscular fibre. The first dose moderated the spasm, the second did further good, and the third or fourth stopped it altogether. The patient had some rest, but later on the hiccough returned. Three or four doses stopped it again; it never returned, and the man was well.

Recently another case was admitted with a similar obstinate hiccough. My hospital assistant gave the liquid extract of ergot at once; after some doses the cough was stopped and did not return. I have often given this extract in drachm doses frequently repeated, and have never observed any disadvantage from it. As to the cause of this idiopathic hiccough, I think it was a chill. It was the season of hot days and cold nights, with heavy dews. Natives are fond of sitting out in this chilling air. Most of them get fever; the policeman spoken of got hiccough instead. A chill at one season may give bronchitis or pneumonia; at another it may give fever or produce some other reflex disturbances; at a third it may produce diarrhoea or dysentery; and, I believe, even an attack of cholera may be caused by a simple chill, other things being favorable.

*Ergot in Pneumonia.*\*—Dr. N. S. Davis, professor of practice and of clinical medicine in the Chicago Medical College, contributes to the Journal of the American Medical Association, of which he is editor, a clinical report of two cases of pneumonia, in which certain alarming features of the disease were promptly relieved by the exhibition of ergot. He remarks that there is no fixed routine treatment which is adapted to all cases of pneumonia, simply because the morbid processes which constitute the different stages of pneumonic inflammation are liable to be much modified by the previous condition of the patient, and the coincident meteorological and sanitary influences that surround him.

The benefit to be derived from ergot is when there is a demand for more steadiness and tone to the action of the heart. Given in connection with digitalis under those circumstances it is, perhaps, the most reliable agent we possess for resisting the over-engorgement of the pulmonary vessels, during the first stage of the disease, in which the condition of the heart referred to, is found to exist.

*Ergot in Gonorrhœa, Diseases of the Eye, etc.*—An interesting report of the beneficial use of liquid ergot, normal, in several cases of chronic gonorrhœa, will be found in detail on page 10, Report 17. Dr. Ray R. Mitchell also details the advantageous administration of normal liquid ergot in acute conjunctivitis, and chronic inflammation of the eye, in Report 16, page 9.

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\* Therapeutic Gazette, 1885, p. 224.

# THERAPEUTIC PROPERTIES.

## Reports from Private and Hospital Practice.

**Report 1.\***—I have had occasion to test liquor ergotæ purificatus both hypodermically and by the stomach. I am much pleased with the result. Shall feel quite safe to keep a bottle on hand all the time.

**Report 2.†**—I desire to report a remarkable result following the employment of liquor ergotæ purificatus. A case of prolapsus of the rectum had resisted the treatment of five or six physicians for twenty-one days. The patient was 44 years of age. He had dysentery, and, as a sequence, prolapsus of the rectum. The doctors had reduced and manipulated the gut so often as to have caused, when I saw the patient, in addition to the swelling and tumefaction to twice its normal size, extensive abrasions of the surface. I had procured a pound of liquor ergotæ purificatus some time before and found it so reliable as an oxytotic and hæmostatic, properties due to contraction of the unstriped muscular fibre, that I gave the patient thirty drops every two hours through the day. In less than twelve hours the tumefied condition was gone, and in forty eight hours the rectum had returned to its natural situation. The patient recovered entirely in a few days with no more rectal trouble.

**Report 3.‡**—The trial of a bottle of liquor ergotæ purificatus secured last fall, gave such perfect satisfaction that I deem it a duty to make a note of it. I formerly used Squibb's fluid extract, and thought I could not be satisfied with anything else. The first trial, however, of the liquor ergotæ purificatus convinced me that it was in every way equal, if not even superior, to Squibb's, and it had certainly one great superiority over it, viz., that instead of nauseating, it was rather agreeable than otherwise. I now use in my practice only the liquor ergotæ purificatus, and with uniformly good results.

**Report 4.§**—I have just had a case which beautifully illustrated the activity of the new preparation of ergot known as liquor ergotæ purificatus. I was called to see a lady who had been flowing severely for five or six hours. The amount of blood which had been lost when I saw her was really alarming. The patient seemed completely exsanguinated, respiration sighing, pulse absent from the wrist, the second sound of the heart exceedingly weak and a cold, clammy perspiration covering the surface. The case was one which demanded very prompt interference. The patient was close on the dividing line between life and death, and a few more ounces of blood lost must have decided against her. I at once gave twenty drops of liquor ergotæ purificatus with stimulants and repeated the dose in twenty minutes. After the third dose the uterus contracted forcibly and the hemorrhage ceased as if by a charm. With the assistance of my partner, Dr. Lamb, the patient was restored to health, the loss of blood under a tonic regimen being in a few weeks replaced; but the turning point of the case was when we gave the liquor ergotæ purificatus. Having used it in other, though less severe, cases than that reported, and with results entirely satisfactory, I am convinced that it contains the active hæmostatic properties of ergot in their highest purity. In giving it one knows just how much of the active principle of the drug he is prescribing.

**Report 5.||**—I have used a sample of liquor ergotæ purificatus and am much pleased with the result. Subcutaneously, five minims is quite sufficient to produce strong uterine contractions. In a case of miscarriage in which the foetus had passed twelve hours, the placenta was still in the uterus, and the os was contracted so as to not admit my finger; I gave five drops subcutaneously, and in ten minutes the uterus was entirely emptied; the hemorrhage ceased with the expulsion of the secundines.

I have used this preparation of ergot in a number of cases, in all of which it acted

\*D. R. Greenlee, M.D., of Meadville, Pa., in *New Preparations*, Nov., 1879, p. 282.

†C. M. Davis, A.M., M.D., Indianola, Iowa, in the *Therapeutic Gazette*, 1880, p. 154.

‡S. S. Kilmer, M.D., South Bend, Ind., in the *Therapeutic Gazette*, 1880, p. 94.

§Fred Treor, M.D., Aurora, Ind., in the *Therapeutic Gazette*, 1880, p. 131.

||Geo. H. Cannon, M.D., of New Lebanon, Ind., in the *Therapeutic Gazette*, 1880, p. 226.

just equally well with that above reported. Ten drops seems to be rather a large dose, in some cases.

**Report 6.\***—I am much pleased with this excellent preparation, both in laboratory analysis and my clinical experience, as it produces the certain, and to-be-expected results of the various elements it contains. It is much more certain in its action than most of the preparations. I have used it in obstetrical practice and also for arresting various hemorrhages, and, as in these cases life may be lost by any uncertainty in the medicine used, it is most satisfactory to be able to feel always that we can have at our command so certain a remedy as this preparation of the ergot; and I have no doubt it will be more ordered and prescribed every month, the more widely it is known.

**Report 7.†**—I have found liquor ergotæ purificatus more reliable than any other preparation of secale that I have ever used, both in point of promptness of action and thoroughness of effect. Since commencing its use I have abandoned all others.

**CASE 1.**—Mrs. S. A. S., multipara, sent for me in haste. Pregnant at about the third month; had been flooding considerably for several hours with but little pain. Gave liquor ergotæ purificatus, ʒj, ordered perfect rest in the recumbent position, and the dose to be repeated in an hour. Before that time had arrived pains were regular, flooding had nearly ceased, and in two hours she was delivered of foetus and secundines, with but slight amount of hæmorrhage. Gave second dose immediately after delivery. Uterus contracted well and patient recovered rapidly, without any untoward symptoms.

**CASE 2.**—Mrs. E. P., multipara; pregnant at full term; was taken suddenly and without warning with puerperal convulsions. These continued until she had several, but were finally checked by chloral hydrate, given by enema. At this time there were no signs of labor. Patient continued quiet for about 48 hours when just as suddenly labor commenced and in a very short time she was delivered of twins. I was at her bedside in a short time; found her womb lax and considerable hæmorrhage. Gave ʒj liquor ergotæ purificatus and in a very short time had the satisfaction of finding the organ contracting. The hæmorrhage ceased and it was not necessary to repeat the dose.

It is my firm belief that if my brother practitioners will give the liquor ergotæ purificatus a fair trial they will be satisfied that it is far superior to the fluid extract, no matter who the manufacturer may be. For my part, as long as it gives me the same result as formerly, I have no notion to use any other preparation.

**Report 8 †**—If there is any one thing, now wanting, in obstetric practice, more than a willingness on the part of the obstetrician to let nature have its course, it is some perfectly reliable means of inducing efficient uterine contractions. I say efficient contractions because every physician of experience has had more than one occasion to condemn oxytocic preparations of every order, even that old, and, as I believe, much abused stand-by, ergotæ, and that too, as prepared by some of our most reliable manufacturers, because of the inefficiency of the contractions induced by their use. Such preparations are worse than useless inasmuch as they bring about the very result which their administration was intended to avoid, viz: exhaustion of the patient's strength by non-efficient uterine effort: Of late I have been using the liquor ergotæ purificatus, and find it, so far as my experience goes, the most reliable remedy of its class I have ever used. Have used it in one case of frightful post partum hæmorrhage with the effect of inducing uterine contractions, and permanently arresting the bleeding in less than ten minutes. The dose administered was nearly one-half teaspoonful; the dose, ten drops, as recommended by the manufacturers being ordinarily too small. § On ordinary occasions I exhibit the drug in fifteen-drop doses, repeated if necessary, in fifteen or twenty minutes. Thus administered it gives complete satisfaction.

**Report 9. †**—I have employed liquor ergotæ purificatus for hypodermic use for nearly a year, and with quite an amount of experience in its administration I have reached the conclusion that it is one of the most reliable preparations in the market, and since I have commenced its use I have given it the preference over all others, including those of our most reliable foreign and native manufacturers.

In the case of one patient suffering from an immense fibroid of the uterus, which at one time nearly filled the abdominal cavity, reaching far above the umbilicus, I have given daily hypodermics for over six months, and have seen no local ill-effects, save one little subsequent point of inflammation, which subsided without suppuration. The therapeutical

\*T. M. Curl, M.D., Fellow of the Linnæan Society, Eng., of Rangitikei, New Zealand, in the Therapeutic Gazette, 1880, p. 314.

†A. G. Ward, M. D., Libertyville, Iowa, in the Therapeutic Gazette, 1880, p. 270.

‡J. W. Lockhart, M. D., Milford, Neb., in the Therapeutic Gazette, 1880, p. 297.

§See Report 5, where ten drops is claimed to be a large dose.

||J. N. Greene, M. D., of Dubuque, Iowa, in the Therapeutic Gazette, 1880, p. 330.

effect has been more than was anticipated. My supply of the preparation becoming exhausted, I substituted the ordinary fluid extract for some little time, very much to the dissatisfaction of the patient, however, who complained bitterly of the acute soreness which it caused. She has learned to distinguish between the purified liquor and the other preparations which I have used, and can detect the change the moment I make it.

**Report 10.\***—Liquor ergotæ purificatus I consider a very superior preparation of the *secale cornutum*. It has given prompt results in every case, inducing uterine contractions in both retarded labors and post partum hæmorrhages, where a previously considered reliable fluid extract had failed on thorough trial. I shall order and use the preparation hereafter.

**Report 11.†**—At a meeting held by the College of Physicians, October 13, reported in full in the Times, I notice that comparatively little credit is bestowed upon the hypodermic use of ergot in hemorrhage incident to parturition. I have had, this summer, two terrific "bleeders," and I assure the profession that the above preparation saved my patients, although the hot injections were used freely. I cannot recommend liquor ergotæ purificatus too highly. It is manufactured by Parke, Davis & Co., of Detroit, Michigan; does not create inflammation or abscess; can therefore be used with impunity. In the cases mentioned above I did not count drops, but simply filled my syringe, injecting as near to the uterus as possible.

Again, I may be at liberty to mention the position of those bleeders, which was seemingly very little discussed. I am in the habit of not only elevating the podex well, but also of having their thighs well flexed, so as to give the uterus full play-room for contraction. How the Crédé method can be so much recommended remains a mystery to me, for heretofore I have not come across a patient who could stand the smallest pressure or manipulation of the uterus without shrieking with pain.

**Report 12.‡**—I am always reluctant to give certificates of merit to manufacturers, who place in our hands remedies for us to determine their therapeutic efficacy, until I have tested carefully and repeatedly their therapeutic value. In so many instances do the samples given us prove unreliable, that it is with distrust that we accept and promise to try the remedy handed to us. When a remedy is introduced to our notice, which, from its purity, uniform strength and prompt action, proves all that is claimed for it, I deem it no more than just to give credit to those manufacturers for placing such a reliable remedy in the hands of the medical profession.

A remedy which we hold in high esteem is liquor ergotæ purificatus (P., D. & Co.). It has proved itself to be of uniform strength and purity. It does not precipitate upon the addition of water, a characteristic which is of material benefit. For hypodermatic use it is unequaled. I have in cases of emergency given liquor ergotæ purificatus hypodermically, full strength, without any unpleasant symptoms at the place of puncture. For hypodermic use, however, I usually dilute it, as recommended.

**Report 13.§**—Normal liquid ergot has given such perfect satisfaction that I deem it a duty to make a note of its subcutaneous employment. Five minims is quite sufficient to produce strong uterine contractions. In a case of miscarriage in which the foetus had passed 14 hours, the placenta was still in utero, and the os contracted so as not to admit my index finger, I gave four drops subcutaneously, and in one-half hour the placenta was expelled and hæmorrhage ceased. I have used this preparation of ergot in a number of cases, and have always obtained good results.

**Report 14||**—In bringing this matter before the profession, I feel bound to admit that, but for a curious accidental circumstance, the agent might never have presented itself to my notice. In the year 1875 I proposed to operate on a patient, aged 65, for the radical cure of a hydrocele of the tunica vaginalis. The disease had existed for about ten years, and had been repeatedly emptied by other surgeons. At this time I removed, by the trocar and cannula, about 12 ounces of serum, and, by accident, took from my pocket a bottle containing about two drachms of liquid ergotæ in the place of the same quantity of tincture of iodine, which it was my intention to throw into the cavity. On my return home I discovered the mistake, and watched the patient for some hours at intervals. No inflammatory state occurred, and there was entire absence of pain, so that I allowed my patient to return to his

\* John G. McKinney, M. D., of Montongo, Ark., in the Therapeutic Gazette, 1881, p. 90.

† F. Lessing, M. D., in the Philadelphia Medical Times.

‡ R. Humphrey Stevens, M. D., physician to St. Mark's Hospital, Grand Rapids, Mich., in the Therapeutic Gazette, 1882, p. 14.

§ A. Moore, M. D., of La Paz, Ind., in the Therapeutic Gazette, 1884, p. 18.

|| J. E. W. Walker, M. R. C. S. E., in the British Medical Journal (Therapeutic Gazette, 1883, p. 352).

ordinary occupation the next morning. To the present time there has been no return of the abnormal secretion. I have since, on two occasions, used the same plan with perfect success, and I attribute the cure to a specific action, exerted by ergot, which re-establishes the balance between secretion and absorption.

**Report 15.\***—I was called upon two years ago by Mrs. Delia Johnson, colored, æt. 35, married. Patient had never been pregnant; menstruated regularly in every particular, except that there was more pain than is ordinary; health generally good. She had been compelled to refrain from all exertion for six months because of an abdominal tumor, first discovered a year and a half before, that had progressively increased, causing corresponding inaptitude for physical exertion, and attention to household duties. She slept but little, and was despondent. The tumor, on examination, extended above the navel, and her abdomen, when she was in any position, had the appearance of a woman in the full term of pregnancy. It was decided that the tumor was a uterine fibroid. The uterus proper was considerably enlarged in neck and body. She was directed to take thirty drops of Jamaica dogwood at intervals of eight and six hours for relief of pain and discomfort, and a syringe of normal liquid ergot was injected at a point on the surface over the tumor. The use of the hypodermic syringe was repeated every forty-eight hours for ten days, the needle was always introduced perpendicularly and to the full extent of its length, the tissues of the abdominal walls being embraced between the thumb and fingers of the left hand. After five administrations the instrument was irregularly employed, two and three times a week, for a month, and subsequently for three months once each week.

The dogwood was taken every day, once or twice, she having discerned the impression it made on her, and at her own instance made the dose larger and smaller, according to the length or shortness of the intervals, or frequency of repeating the dose of the medicine. This course was daily followed until she left to engage as a laundress at Tate's Springs, after seven months of this treatment. Treatment was suspended from the last week of May until the second week in November, last year. Then irregularly followed injections being given once and twice a month for a few months, when it was again stopped. The Jamaica dogwood, at her own option, was taken perhaps once a week—sometimes more frequently, and occasionally not so often. This use of Jamaica dogwood has caused none of the thirst of an inebriate, nor the miseries of an opiate slave, nor the habitual resort to an agent to alter the sensations experienced by one in normal health.

It is notable that from the day the treatment of the woman began there was perceptible, positive release from the incubus of inability, every successive day pressing more and more upon her to leave her bed, and her house, and begin again the discharge of active duties to which she had been accustomed. Upon these she entered within two months, gradually regaining physical, general ability. For a while there was no decrease in the size of the tumor, nor alteration in the appearance of the abdominal enlargement. Within two weeks there was, on palpation, perceptible increase in the hardness of the tumor, as felt through the tissues of the abdominal walls. In the course of several weeks more, the size of the tumor was discovered to have lessened. It afterwards certainly decreased, until from apparently completely filling the abdominal cavity, it is now no larger than a thick-rind Florida orange. Pain at menstrual periods is almost absent, except on occasion from tangible causes, and then easily controlled by the dogwood. The enlargement of the womb has also abated.

I have used other preparations of ergot, and hypodermatically and successfully in treating fibroid tumors, but in no instance with as rapid lessening of the mass, as in this one under the administration of normal liquid ergot and Jamaica dogwood.

The circumstances of the above case lead to the question, does Jamaica dogwood make impression adverse to the formation and growth of fibroids; or, does it have an action favoring the retrocession of maturing, or matured fibroids? Or, is it, under definite conditions of the organisms, not well recognized as an efficient adjuvant to ergot, in the treatment of fibroid tumors?

**Report 16.†**—**CASE 1.**—Miss C. W., age about 20, domestic, came to me one morning for treatment, complaining of intense distress in her left eye. An examination revealed an acute conjunctivitis of a severe character. There was great swelling of both upper and lower eyelids, and the congestion involved both the palpebral and ocular conjunctivæ, even extending over the cornea, so as to cause some blurring of vision.

Photophobia was very marked. The patient stated that the afternoon previous she noticed a pain in the ball of the eye, and a general smarting and burning about the eye. Before that there had been no trouble whatever. The next morning when I first saw the eye,

\* Frank A. Ramsey, M. D., of Knoxville, Tenn., in the *Therapeutic Gazette*, 1883, p. 493.

† Ray R. Mitchell, M. D., of Mansfield, O.

I feared the disease might be specific in character, it was so severe. At least I thought I had a case that would last two or three weeks, and might go to an oculist for special treatment.

I at once administered a seidlitz powder, followed by two improved cathartic pills, and put up the following for local treatment:

℞ Liquid ergot, normal, fl. ʒi.  
Aqua pura, fl. ʒij.

Sig.—Evert upper lid and instill ʒ or 4 drops every four hours.

I applied the remedy myself to insure its being used properly, and the results were astonishing. In less than forty-eight hours from first application there was positively no need of further treatment. Considering the severity of the onset of the attack, and the rapidity with which complete relief was obtained, the case was to me of more than usual interest.

CASE 2.—Dr. P. L. Hurt, of Boonsville, Mo., reported to me in substance as follows: "My colleague, Dr. H., had treated a case of chronic inflammation of the eye, in which the sclerotic coat was the part principally affected, for about one year without success. The patient then came to me. I knew that Dr. H. had of course used all the old well-known means, and I was desperate in my anxiety to select the proper remedy. It occurred to me that Parke, Davis & Co.'s sample normal liquid ergot which had been left me, might do the work, as the known physiological action of ergot would suggest it might have beneficial action towards diminishing congestion. I used the preparation and within two weeks the eye was well."

Report 17.\*—Hearing of the success of Dr. N. V. Speere, of Quincy, Ohio, in the treatment of gonorrhœa with local applications of normal liquid ergot (such as that prepared by Parke, Davis & Co. of Detroit), and realizing the need of some more satisfactory remedy in the treatment of this disease, in its many stages, I resolved to see if the same good results would follow in my own practice, and therefore vowed that the next case of chronic gonorrhœa that came under my care should have the benefit of the experiment. In a day or two the opportunity presented itself.

CASE 1.—A young man, a salesman in one of our large manufacturing establishments, had suffered long and suffered much. He had tried all the "patents," "Big G.'s," etc., to be had, and had also received "rational" treatment from one of our regular physicians. All this availed him nothing. After hearing his story, and knowing him to be a young man of temperate habits, never indulging in alcoholic stimulants, and observing a proper diet for so long a time, "my heart almost failed me." I concluded his was a very bad case. Nevertheless, I grimly determined to do what I could, recognizing the fact that success is not without effort.

First I introduced a large sized bougie, finding no difficulty in doing so. He complained, however, of pain, as the instrument was passing. After satisfying myself that no stricture was present, I gave him a small vial of normal liquid ergot, instructing him to use for an injection one part of this to four parts of water (distilled), once daily for a week, and at the end of that time (or sooner if he chose) to report progress. Did not see him again for about ten days, at which time he called to report. He very abruptly exclaimed "what the ——— was that you gave me?" I made some evasive reply, as I feared my treatment had proved dis-astrous in some way. Finally he said: "Well, I spent over \$35.00 on this business before I came to you, and this little vial cured me up." He remarked that after the first application he could notice an improvement, and at the end of the fifth day he was entirely free from discharge and pain.

CASE 2.—Thos. W., single, cabinet maker, had contracted gonorrhœa about three years ago. Had received rational treatment, but was not benefited. He came to me for treatment about the last of May, 1886. This was a very obstinate case, but finally yielded to treatment and was discharged cured, July 30, 1886.

CASE 9.—John H., a moulder, single, had had gonorrhœa about one year. This case was very much like case one, except that the patient was intemperate. He was kept under treatment for about four weeks, owing to the fact that he would get drunk. This retarded the cure in his case.

CASES 3, 4, 5, 6, 7, 8, and 10 yielded readily to treatment, and were discharged cured within from six to nine days. Since then I have used it repeatedly and with the same good results. I have a little army here that would, if they knew upon whom to shower their blessings, bless the man that made the experiment of using local applications of normal liquid ergot in chronic gonorrhœa.

We need not, however, confine ourselves to its use in the treatment of chronic gonorrhœa, but can also use it in the acute stage. My experience in its use in the acute stage is not sufficient to warrant me to advocate its use to the exclusion of the usual remedies.

\* J. Henry Craig, M. D., of Mansfield, Ohio, Secretary of North Central Ohio Medical Association, in the Medical Age, August 10, 1886, p. 341.

# NORMAL LIQUIDS.

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A CLASS OF SUPERIOR ASSAYED FLUID EXTRACTS, INTRODUCED BY PARKE, DAVIS & CO.,  
ONE CUBIC CENTIMETRE OF WHICH IS EQUIVALENT TO ONE GRAMME  
OF DRUG OF STANDARD STRENGTH.

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UNIFORMITY may be said to be the one quality which characterizes this candidate for professional favor. Attention was called in the *Therapeutic Gazette* for February, 1883, to a serious defect which is common to all galenical preparations—infusions, decoctions, tinctures, etc.—and which has not been remedied in even the fluid extract, to wit: the want of uniformity in strength, necessitated by variations in the proportion of active principle contained in the crude drug itself. The article referred to says: "When the physician prescribes .008 grm. ( $\frac{1}{8}$  grain) of morphine, he knows exactly what result to expect from the dose, for he is dealing with a definite chemical compound. When he orders .065 grm. (1 grain) of opium, he cannot count with the same certainty upon the effect, for, in spite of the standards adopted already in regard to this powerful narcotic, the opium dispensed may contain eight or it may contain sixteen per cent. of morphine. Other drugs—among them notably those upon which the physician relies for producing prompt and powerful effects—vary even more widely than this. Yet the books state the dose of the drug as a fixed quantity, and the physician prescribes accordingly—often to be wholly disappointed in the effect he hoped to produce. In a majority of the vegetable drugs, indeed, no such scientific exactness in dose is required. Such drugs as dandelion, gentian, eucalyptus, etc., may be given in widely varying quantities without any observable difference in the effects produced. If the drug is of fairly good quality, as judged by obvious physical properties, it may be accepted as of standard strength, and administered in the doses which the books recommend. With powerful drugs like aconite, belladonna, colchicum, etc., however, exactness in the dose is a matter of the utmost consequence, if they are to be employed in a rational and scientific manner."

The NORMAL LIQUIDS are introduced to remedy this great evil. They are simply fluid extracts made by assay of such a strength that one cubic centimetre is equivalent to one gramme of drug of *standard strength*. In each case this standard is fully stated on the label of the liquid. As in the chemists' normal solutions, one litre contains one chemical equivalent expressed in grammes of the reagent, so in these NORMAL LIQUIDS one litre contains the therapeutic equivalent of one kilogramme of a good drug.

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## STANDARDS OF STRENGTH OF NORMAL LIQUIDS.

Since the pharmacopœia does not at present furnish any standard of strength for most even of the more active drugs, the manufacturers have adopted provisionally a standard for these normal liquids based partly upon the statements of the best authorities, partly upon numerous assays of samples of the various drugs in question. Wherever it is practicable they have adopted a standard based upon the quantity of the alkaloid contained in an average sample of a drug of good quality. Much remains yet to be done in the way of simplifying and perfecting methods of assay of the various drugs, but sufficient progress has been

made in this direction to warrant them in taking the initiative in this important movement in the interest of scientific therapeutics.

The following is a complete list of the Normal Liquids now manufactured, together with their respective standards of strength.

- Liquid Aconite Root, Normal.**—Aconite root contains a proportion of alkaloid as estimated by Dragendorff's method varying from 0.2 to 1.125 per cent. We have adopted as our standard 0.75 per cent of alkaloid. The alkaloid contained in 10 c. c. of the NORMAL LIQUID requires 2.8 c. c. of Mayer's volumetric solution for complete precipitation. We also require that this liquid shall answer to the physiological test lately described by Dr. Squibb.
- Liquid American Hellebore, Normal.**—American Hellebore of good quality contains about one per cent. of alkaloids. Ten c. c. of the NORMAL LIQUID require for complete precipitation of the alkaloids 3 c. c. of Mayer's solution.
- Liquid Belladonna Leaves, Normal.**—Belladonna leaves contain a proportion of atropine varying from 0.25 to 0.75 per cent. We have adopted as a standard 0.44 per cent. (National Dispensatory, p. 275). The alkaloid contained in 10 c. c. of the NORMAL LIQUID requires for precipitation 3.52 c. c. of Mayer's volumetric solution.
- Liquid Belladonna Root, Normal.**—Belladonna root contains a proportion of atropine varying from 0.25 to 0.75 per cent. We have adopted the same standard as for Belladonna leaves, viz.: 0.44 per cent. The alkaloid contained in 10 c. c. of the NORMAL LIQUID requires for complete precipitation 3.52 c. c. of Mayer's volumetric solution.
- Liquid Cannabis Indica, Normal.**—Ten c. c. of the NORMAL LIQUID evaporated to complete dryness at 105° C. leave a residue weighing 1. grm.
- Liquid Cinchona Calisaya, Normal.**—Good Calisaya bark contains at least 2 per cent. of quinine, U. S. P., 1880. The calisaya of the market contains from 0.0 to 3 per cent. and upwards of this alkaloid. We have adopted the U. S. P. standard of 2 per cent. Ten c. c. of the NORMAL LIQUID contain 0.2 grm quinine (anhydrous).
- Liquid Cinchona Red, Normal.**—Red Cinchona bark contains a proportion of alkaloids varying from 2 to 6 per cent. We have adopted as a standard 3.5 per cent. total alkaloid. Ten c. c. of the NORMAL LIQUID yield 0.35 grm. mixed alkaloids (anhydrous) of which not more than 0.15 grm. is cinchonine.
- Liquid Coca Leaves, Normal.**—Standard, 0.5 per cent. cocaine. Ten c. c. of the normal liquid yield 0.05 grm. of alkaloid.
- Liquid Colchicum Root, Normal.**—Colchicum root contains a variable amount of alkaloid according to the time of gathering. We have provisionally adopted 1 per cent. as a standard. Ten c. c. of the NORMAL LIQUID require for complete precipitation in a strongly acid solution, 3.2 c. c. of Mayer's volumetric solution.
- Liquid Colchicum Seed, Normal.**—For Colchicum seed we have adopted the same standard as for colchicum root. Ten c. c. of the NORMAL LIQUID require for complete precipitation 3.2 c. c. of Mayer's volumetric solution.
- Liquid Conium Seed, Normal.**—Conium seed contains a very variable amount of alkaloid. Provisionally we have adopted as a standard 0.8 per cent. Ten c. c. of the fluid must yield 0.08 grm. of alkaloid.
- Liquid Ergot, Normal.**—The value of Ergot is believed to depend mainly upon the amount of sclerotic acid and scleromucin it contains. We have hence adopted as an arbitrary standard a fixed amount of organic acid estimated by a volumetric solution of lead acetate. Ten c. c. of the NORMAL LIQUID require for complete precipitation 100 c. c. of a solution containing 1 per cent. of crystallized lead acetate.
- Liquid Foxglove, Normal.**—Standard arbitrary, 20 per cent. extractive. Five c. c. of the NORMAL LIQUID evaporated to complete dryness at a temperature of 105° C. leave a residue weighing 1 grm.
- Liquid Gelsemium, Normal.**—This preparation is made from the dried drug, and is consequently much stronger than the fluid extract (unofficial) made from the green drug, which is so largely used. It corresponds with the fluid extract of the Pharmacopœia, but is brought to a fixed alkaloidal strength as indicated by the potassio-mercuric iodide solution. Ten c. c. of the NORMAL LIQUID require for complete precipitation 3 c. c. of Mayer's volumetric solution.
- Liquid Henbane, Normal.**—Henbane contains an amount of alkaloid varying from 0.05 to 0.25 per cent. A good drug should yield about 0.18 per cent., and this we adopt for our standard. Ten c. c. of the NORMAL LIQUID require for complete precipitation 1.3 c. c. of Mayer's volumetric solution.

- Liquid Ipecac, Normal.**—Ipecac contains a proportion of emetine varying from 1 to 3.5 per cent. A good drug contains at least 1.5 per cent. of the alkaloid as estimated by Mayer's reagent. This forms the basis of our standard. Ten c. c. NORMAL LIQUID requires for complete precipitation 8 c. c. of Mayer's volumetric solution.
- Liquid Mandrake, Normal** --Madrake root yields commonly between 4 and 5 per cent. of Podophyllin, of which about 45 per cent. is the Podophyllotoxin of Podwysotszky. We have adopted for our standard  $4\frac{1}{4}$  per cent. total resin. Ten c. c. of the NORMAL LIQUID yield, when concentrated and poured into 20 c. c. of cold water, a precipitate which, when carefully washed and dried at 100° C., weighs .425 gm.
- Liquid Nux Vomica, Normal.**—We have adopted the rather low standard of 1.5 per cent. of alkaloid for the NORMAL LIQUID because this is the maximum proportion obtained from the drug in the galenical preparations, when made with the greatest care. Ten c. c. of the NORMAL LIQUID contains .15 gm. of mixed alkaloids, readily estimated by adding a few drops of dilute sulphuric acid, evaporating off the alcohol, washing the residue with pure ether, and taking it up at the same time with water, and finally treating the aqueous solution with caustic soda and shaking with a mixture of ether and chloroform.
- Liquid Rhubarb, Normal.**—No simple and satisfactory process of assay being yet devised for this drug, we adopt as a standard for the NORMAL LIQUID 30 per cent. of extractive matter. Five c. c. of the NORMAL LIQUID evaporated to dryness at a temperature of 105° C. leave a residue weighing 1.5 gm.
- Liquid Stramonium Leaves, Normal.**—Stramonium leaves contain from .25 to .5 per cent. of alkaloid. We have adopted provisionally as a standard .375 per cent. Ten c. c. of the NORMAL LIQUID require for complete precipitation 3 c. c. of Mayer's volumetric solution.
- Liquid Stramonium Seed, Normal**—Stramonium seed contains about 0.35 to 0.4 of alkaloid. We have adopted, as for the leaves, a standard of .375 per cent. Ten c. c. of the NORMAL LIQUID require for complete precipitation 3 c. c. of Mayer's volumetric solution.

## FORMULÆ

FOR PREPARING TINCTURES, WINES AND SYRUPS OF THE UNITED STATES PHARMACOPŒIA  
FROM NORMAL LIQUIDS.

### *Tincture Aconite Root.*

Liquid aconite root, normal, 1 fluidounce.  
Alcohol, U. S. P., 2 fluidounces.

### *Tincture Belladonna Leaves.*

Liquid belladonna leaves, normal, 1 fluidounce.  
Dilute alcohol, 6 fluidounces.

### *Tincture Cannabis Indica.*

Liquid cannabis indica, normal, 1 fluidounce.  
Alcohol, U. S. P., 5 fluidounces.

### *Tincture Colchicum Seed.*

Liquid colchicum seed, normal, 1 fluidounce.  
Dilute alcohol, 6 fluidounces.

### *Tincture Conium Seed.*

Liquid conium seed, normal, 1 fluidounce.  
Dilute alcohol, 6 fluidounces.

### *Tincture Foxglove.*

Liquid foxglove, normal, 1 fluidounce.  
Dilute alcohol, 6 fluidounces.

### *Tincture Henbane.*

Liquid henbane, normal, 1 fluidounce.  
Dilute alcohol, 6 fluidounces.

### *Tincture Nux Vomica.*

Liquid nux vomica, normal, 4 fluidounces.  
Alcohol, U. S. P., 19 fluidounces.

### *Tincture Rhubarb.*

Liquid rhubarb, normal, 1 fluidounce.  
Fluid extract cardamom seeds, 80 minims.  
Dilute alcohol,  $7\frac{1}{2}$  fluidounces.

### *Tincture Stramonium Seed.*

Liquid stramonium seed, normal, 1 fluidounce  
Dilute alcohol, 10 fluidounces.

### *Tincture Veratrum Viride.*

Liquid veratrum viride, normal, 5 fluidounces  
Alcohol, U. S. P., 6 fluidounces.

### *Wine Colchicum Root.*

Liquid colchicum root, normal, 2 fluidounces.  
Stronger white wine, 3 fluidounces.

### *Wine Colchicum Seed.*

Liquid colchicum seed, normal, 1 fluidounce,  
Stronger white wine, 6 fluidounces.

### *Wine Ergot.*

Liquid ergot, normal, 1 fluidounce.  
Stronger white wine, 6 fluidounces.

### *Wine Ipecac.*

Liquid ipecac, normal, 1 fluidounce.  
Stronger white wine, 13 fluidounces.

### *Syrup Ipecac.*

Liquid ipecac, normal, 1 fluidounce.  
Simple syrup, 15 fluidounces.

## NORMAL LIQUIDS VS. FLUID EXTRACTS.

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The following imaginary colloquy is sometimes used to more fully elucidate the points which distinguish Normal Liquids from Fluid Extracts:

Question: What do I understand is a fluid extract?

Answer: A fluid extract is a concentrated tincture of which one litre represents one kilogram of crude drug.

Q. State that in English, if you please.

A. Well, put for litre fluid ounce, imperial, and for kilogram avoirdupois ounce, and you have it. In other words, one pint, wine measure, of a fluid extract represents 7291 grains or 15.2 troy ounces of the drug.

Q. Are fluid extracts, then, uniform in strength?

A. No, because the crude drug itself varies.

Q. But cannot the product be made uniform?

A. Certainly it can, but not without violating the letter of the law as laid down in the Pharmacopœia. It is for this reason that we have introduced our Normal Liquids.

Q. State what you mean by a Normal Liquid.

A. It is simply a fluid extract made of a definite standard strength without reference to the strength of the drug from which it is made. One litre represents one kilogram of a standard drug. A fluid extract of belladonna leaves may contain 0.25 or 0.45 per cent. of atropine, according to the quality of the drug employed; a Normal Liquid will contain invariably 0.4 per cent. of the alkaloid, so that in a given dose it may be relied upon to produce a certain effect.

Q. Then your Fluid Extracts are inferior to Normal Liquids?

A. Not inferior, necessarily, in strength—the drug employed may be *stronger* than the average, so that a fluid extract prepared from it will produce a greater effect than is intended by the prescriber. Scientific medication is impossible where the medicine prescribed is liable to such variation in strength. The Normal Liquid is superior to a fluid extract, simply because each cubic centimeter contains a fixed definite quantity of the active constituent of the drug. It is true that by a careful selection of our crude drugs we secure the greatest attainable uniformity in our fluid extracts, and we claim that they will not suffer by comparison with those of any of our competitors, but I repeat that in the fluid extract, *the variable drug* itself is assumed, by authority of the Pharmacopœia, as the standard, whereas in the Normal Liquid an unchanging standard is adopted and the product cannot disappoint the prescriber because it is of definite unvarying strength.

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FABIANA IMBRICATA

WORKING BULLETIN

FOR THE COLLECTIVE INVESTIGATION OF

P I C H I

[FABIANA IMBRICATA.]

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ISSUED BY THE

SCIENTIFIC DEPARTMENT OF PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.

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REVISED, NOV 16, 1886.



# FABIANA IMBRICATA.

(PICHU.†)

*Synonym—Pichi.\**

*Natural Order—Solanaceæ.*

*Part Employed—the leaves.*

*Habitat, South America.*

**History.**†—The early history of the drug presents very little that is novel. It has the usual origin among the aborigines—the account of the immortal and ubiquitous old woman and her patient who had been “given up by all the physicians,” with a fair average of thrilling stories of impossible cures. The first story that I heard concerning it was of its having dissolved and carried off a cystic calculus of great size which various eminent surgeons had failed to remove. After listening to a number of similar histories, with a few accounts of what really seemed to be beneficial effects of the use of the drug, and finding that not only the people were using it, but that physicians were prescribing it, I began myself to take an interest in the plant.

The locality of the plant was visited, photographs taken, specimens made, and a quantity collected for investigation. Although (June 1) the flowering season was past, a few late blossoms were found, and a botanical analysis showed the plant to be *Fabiana imbricata*, R. & P., as above stated. Finding the drug thus in the excellent company of atropa, duboisia and capsicum, and still nearer to the nicotiana, added not a little to the interest with which I took up its study; for while at war with the classifying cranks, I have a high appreciation of an intelligent and moderate classification of remedies with reference to their botanical relationship. I give a brief description of the plant taken from my own specimens.

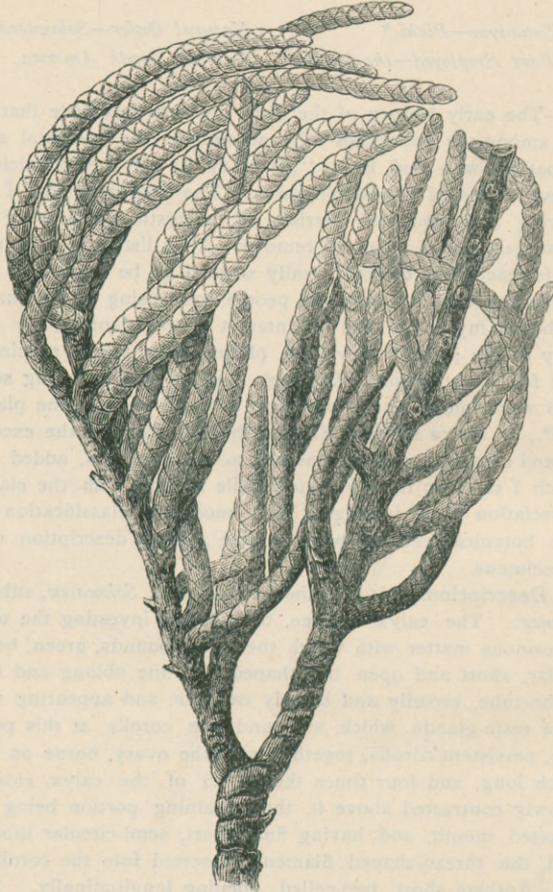
**Botanical Description.**‡—It is in the natural order *Solanaceæ*, suborder *Curvembriæ*, and tribe *Nicotianæ*. The calyx is free, but closely investing the ovary, to which it adheres by the resinous matter with which the plant abounds, green, becoming yellowish, thick and glandular, short and open bell-shaped, the fine oblong and obtuse lobes, one-half as long as the tube, broadly and bluntly carinate, and appearing white-margined by the circle of white resin-glands which surround the corolla at this point. The white, nerved, withering, persistent corolla, together with the ovary, borne on an orange-colored disk, one-half inch long, and four times the length of the calyx, closely investing the ovary, and narrowly contracted above it, the remaining portion being funnel-form, with somewhat contracted mouth, and having fine, short, semi-circular lobes. Stamens five, unequal, included, the thread-shaped filaments inserted into the corolla-tube at its constricted portion. Anthers short, two-celled, opening longitudinally. Pistil bicarpellary, the edges of the carpels turned in to meet a central column which bears the numerous pendulous ovules. Style slender, equalling the corolla, and bearing a slightly two-lobed stigma. Fruit an oblong-ovoid, light brown, crustaceous capsule, two and a half lines long, opening by the separation of the carpels from the central column, and from one

\* Pronounced “Peé-chee.”

† Article by Henry H. Rusby, M. D., Ph. G., Curator of the Scientific Department of Parke, Davis & Company, now traveling in South America; reproduced from the *Therapeutic Gazette*, December, 1885, page 810.

‡ *Ibid.*

another, and by the splitting in two of the carpels at their upper portion. Seeds about four, one-half a line long, flattened, oblong, brown, with a slight tubercular, roughened, crustaceous testa, the embryo curved, with fleshy albumen. The minute branchlets densely crowded, and terminated in the second year by the solitary flower. The broadly ovate, barely-pointed, thick leaves, a line long, closely imbricated upon these branchlets, their bases and margins whitened with the resinous deposit.



Branchlet of *Fabiana imbricata*; magnified 3 diameters.

The general appearance of the shrub (see page 9) is striking, and it would attract the attention of any one interested in observing plants, while a closer examination would be certain to suggest the possibility of medicinal properties. Growing upon high, dry hill tops, where there is a somewhat sparse vegetation, its plume-like sprays, with their peculiar light, bluish-green color, present a rather pretty appearance against the sky, although the shrub is somewhat straggling; more so here than in the south, where it becomes a small tree. Seeing one of these sprays without flowers for the first time, it is hard to realize that it is not a conifer, and seems almost incredible that it is in the tobacco family. Handling it, I was astonished by the great amount of resin with which all of its tender

parts are covered, this coating, perfectly impervious to water, being an admirable provision of the plant against the loss of its small supply of water during the long drouths of this region. This bluish or greenish-gray resin is the striking peculiarity of the plant, appealing to the senses of sight, touch, taste and smell. Much of it is quite dry and brittle, and forms a grayish powder in the bottom of the mortar when the drug is pounded. It exists to some extent in the wood of some of the smaller branches, and is traceable even in the older wood. The wood has a uniform yellowish-white color, and is heavy, moderately hard, and fine-grained. The bark, abounding in resin, is of a perfect ashen gray, and finely roughened by minute, short, sharp, thickly-set longitudinal ridges, and minute gland-like protuberances, both of which exhibit, under the lens, a peculiar resinous lustre. The plant was examined chemically, so far as my limited facilities would permit, as follows:

**Chemical Composition.\***—A preliminary examination of the drug by the writer has yielded the following results of interest:

Ten grains of the drug in fine powder was treated with 100 c. c. of petroleum ether. After macerating twenty-four hours, with occasional shaking, crystals were observed to be forming on the sides of the bottle. After several days' maceration, 25 c. c. of the petroleum ether was evaporated and found to contain 280 milligrammes of extractive matter, reduced by heating for some time at 105° C. to 260 mg., the loss in weight due to volatilization of essential oil, and traces of moisture. The petroleum ether had extracted more than 10 per cent. of the weight of the drug. Of this extract alcohol dissolved all but 30 milligrams, the residue consisting of fatty and waxy matter, which in burning produced an odor similar to that of burning india-rubber.

Water dissolves a very small portion of the extract, producing a somewhat bitter solution, which, on addition to ammonia, becomes strongly fluorescent. Of the resinous portion taken up by alcohol, ammonia dissolves only a part, producing a solution having a terebinthinate bitter taste.

Ether extracts about 33 per cent. of the drug, the extract having the consistence of a soft resin, with the characteristic odor and taste of the drug. If to the ethereal solution a few drops of an alcoholic solution of ammonia are added, a precipitate is at once produced, which gradually assumes the crystalline form. The same thing is true of the solution obtained with petroleum ether. The crystals are white, delicate needles or scales, tasteless, insoluble in water, soluble in chloroform, hot alcohol even when somewhat dilute, crystalizing readily from its solution in most of these solvents, fusible at a somewhat elevated temperature, burning with a smoky flame.

It is apparently indifferent to the action of acids and alkalies, except that it is thrown out of its solutions, as already stated, by alkalies. Probably it is inert, but we must not too hastily draw this conclusion from its insolubility and tastelessness.

Tinctures of Pichi made with moderately strong alcohol, deposit crystals also of this substance, which is the same, no doubt, as that which crystallizes spontaneously from the solution in petroleum ether.

The ethereal extract contains a larger proportion than the benzin extract of the fluorescent principle to which reference has been made. This principle resembles in its general properties *æsculin*: it is soluble in petroleum ether; sparingly in alcohol; freely in ether, chloroform and other similar solvents. Cold water solves it sparingly, hot water more freely; from its aqueous (acid) solution it may be removed by shaking with chloroform, or a mixture of chloroform and ether. It is not easily induced to crystallize, and in this respect differs from *æsculin*. This may be due, however, to the presence of impurities, and my experiments have not been sufficiently numerous to warrant me in saying that it is not crystallizable.

\*A. B. Lyons, M.D., in the American Journal of Pharmacy, February, 1886.

A tincture of the drug, prepared with 75 per cent. alcohol, was precipitated by pouring into a large volume of water. The solution was filtered, concentrated, considerable resinous matter separating during this operation. When reduced to a small volume, the solution was shaken with chloroform, and the resin which had separated was washed also with the chloroform. The chloroformic solution, when evaporated, left a residue of the consistence of a soft resin, of a rich, red-brown color. This was treated with hot water, which dissolved a large part of it. The solution was intensely bitter. On adding neutral acetate of lead, a scanty buff-colored precipitate was thrown down. This was removed by filtration, and basic acetate of lead was then added, producing a bulky, slimy, bright-yellow precipitate, which was readily soluble in acetic acid and reprecipitated by ammonia. The filtrates from both of these precipitates, and the wash waters, also, were strongly fluorescent. The precipitates themselves, after moderate washing, were decomposed by dilute sulphuric acid, and the solutions thus obtained both exhibited fluorescence, that from the yellow precipitate becoming of a deep yellow color on addition of ammonia. Whether the fluorescence principle was incompletely precipitated by one or the other of the reagents, or whether there are two or three distinct fluorescent compounds present, these experiments did not decide, and the question remains an open one, which, however, continued investigation may enable me to decide. In all cases the fluorescent solutions have been observed to be bitter, and I am strongly inclined to regard the bitterness as belonging to the fluorescent substance.

Not having succeeded in isolating this substance, I am not able to affirm that it is a glucoside, but this is extremely probable. The impure substance produces with nitric acid and ammonia color reactions similar to those obtained from *æsculin*, and after boiling with an acid reduces copper solutions.

By treating the drug with *Prollius'* solution, I obtained an ethereal fluid from which acidulated water removed a not inconsiderable quantity of alkaloid. The concentrated solution gave with Mayer's reagent a heavy white precipitate; with picric acid a yellow; with phosphomolybdic acid a yellowish white; with tannin a tawny; with iodine solutions a brown precipitate. The solution had a bitter taste, and when evaporated yielded minute, well-defined crystals. The quantity of alkaloid is small, certainly less than 0.1 per cent., but this quantity is not so minute that we are warranted in concluding of necessity that the drug owes its efficacy to other constituents. Whether it is a new alkaloid, however, remains to be determined; also, what physiological, toxic, or therapeutic properties it may have, and these questions can be solved only when a sufficient quantity of the alkaloid has been prepared to render its study possible.

Should the alkaloid prove to be a new one, it will naturally take the name "*fabianine*."

To sum up the results justified by examination, *pichi* contains:

1. A minute quantity of some alkaloid, probably peculiar to the drug, and capable of forming crystallizable, bitter salts.
2. A neutral, crystallizable principle, rich in carbon, insoluble in water, tasteless, and probably inert.
3. A fluorescent body (perhaps more than one) closely resembling *æsculin*.
4. Volatile oil.
5. A bitter resin, probably complex in composition, present in great abundance, soluble in alkalis, reprecipitated by acids, not fluorescent, soluble in ether and chloroform, very sparingly in water and in petroleum ether.

It seems probable that the three last named constituents are the important ones, unless, indeed, there be a bitter in addition to the fluorescent principle, which dissolves somewhat freely in water. The tincture of the drug has a very clinging, disagreeable bitter taste, and unless an alkali is added, it precipitates much resin when mixed with water.

We may hope that before long clinical experiment will determine positively what therapeutic value the drug possesses, and which of its constituents may be regarded as its active principle.

# THERAPEUTIC PROPERTIES.

## Reports from Private and Hospital Practice.

**Report 1.\***—I called upon Dr. Samuel S. Ramires, an accomplished physician of Valparaiso, well known in connection with Chili's plundering expedition against Peru, and who I was sure would be able to give me a pretty correct estimate of the value of pichi. From him I learned that a very well known Chilean gentleman had been suffering from a disease which had been repeatedly diagnosed as "gravel," and that, after continued treatment, he had grown so much worse that he was at length really despaired of by his medical attendants. He at length yielded to the persuasions of his friends and began using the pichi, whereupon a profuse diuresis set in, and he was soon relieved of his troublesome deposits. As usual, out of pure philanthropy, he published an account of his recovery, which he attributed wholly to pichi. Being a gentleman of great influence, his story had awakened the interest which has now become an excitement, and still continues to grow. Dr. Ramires had bestowed considerable therapeutic study upon the drug, and had gained a pretty definite idea of its range of application. He found that a patient suffering from chronic renal congestion was very satisfactorily relieved by it, while another, a girl of 15, suffering from albuminuria, with casts, a sequela of typhoid fever, had been rendered markedly worse, the albumen increasing until it had formed the principal portion of the urine. On the discontinuance of this drug, the albumen began gradually to disappear, and the patient at length entirely recovered. These results were the types of others that followed. The doctor had decided that pichi was contraindicated where there existed any degeneration of the kidney, but was indicated up to that point, the benefit being marked in cases of catarrhal inflammation. He considered its action in restoring impaired digestive power as of even more importance than its diuretic power, and stated that it had acted in his hands as a marked hepatic stimulant, though he was not sure but this action was secondary and incidental to the improvement of the digestion.

**Report 2.†**—Pichi is especially efficacious in the diseases of the urinary apparatus and of the liver. In cases of vesical catarrh, acute or chronic, following a mechanical cause, such as gravel or calculus, or a uric diathesis, this remedy will quickly modify the urinary secretions, calm the irritability, and favor the expulsion of the gravel and calculi that can be passed through the urethra.

It modifies and cures also chronic purulent mucous secretions. Its action on affections of the liver must be attributed to its diuretic properties, though it is recommended for icterus, hydropsy, and dyspepsia due to insufficient biliary secretions. In this case the essential oil, when absorbed and carried into circulation, acts like a stimulant of the secretory apparatus in general, but the specific action of pichi is directed without doubt upon the organs of the urinary apparatus. It is used in the shape of a fluid extract, in a dose of from 4 to 6 spoonfuls per day, in cold water or warm.

**Report 3.‡**—The therapeutic action of pichi is most marked in cases of vesical catarrh caused by uric acid diathesis, gravel, or calculi. Here it diminishes the secretion and allays the irritability of the mucous membrane, thus allowing the gravel a better opportunity of passing with the urine. It has also a diuretic action, which has been found valuable in many cases of icterus, dropsy, and dyspepsia, due to the deficient action of the liver. In these cases the preparation employed was the essential oil, which, being absorbed and taken into the circulation, acted as a stimulant of the secretory organs in general. The specific action of the drug, however, is evidently exercised on the urinary apparatus. The writer of the paper from which we quote prefers to use a fluid extract of the plant, of which he gives from two to three ounces daily, dissolved in water, either hot or cold.

**Report 4.§**—**CASE 1.**—The first case in which I used the fluid extract pichi was

\* Henry H. Rusby, M. D., Curator Scientific Department of Parke, Davis & Co., now traveling in South America, in the *Therapeutic Gazette*, December, 1885, page 810.

† *Les Nouveaux Remedies*, Feb. 15, 1886; *Medical Age*, March 10, 1886, p. 118

‡ *London Lancet*; *Medical Age*, 1886, p. 71.

§ Hal C. Wyman, M. D., Surgeon West End Dispensary, Detroit, Mich, in the *Therapeutic Gazette*, 1886, p. 221.

early in January, when my attention was called to the drug by Dr. J. E. Clark, the chemist of this city. A Mr. G., aged 23 years, who contracted gonorrhœa a year or more ago, and who had stricture of the urethra, which I found necessary to divulse a few days before Christmas. A copious hæmorrhage from the deep urethra followed the operation, and a few days later severe vesical tenesmus disturbed the patient so that sleep and appetite vanished. All the symptoms of typical cystitis speedily developed. Morphine, belladonna, hyoscyamus, and alkalies were used internally and by the rectum for a week without materially modifying the symptoms. So irritable did the bladder become that it would not retain urine longer than five to fifteen minutes. I now began the use of the fluid extract of pichi in fifteen-drop doses in water, once in three hours. The tenesmus and pain began to decline after twenty-four hours, the mucus and pus also to diminish in quantity, and at the end of the week the bladder would retain its contents three hours without causing the patient any inconvenience. This patient has now (March 8) fully recovered. I think the cystitis was of traumatic origin—the harsh manipulation of the vesicle mucous membrane with the divulsing apparatus. Thompson's instrument was the one used.

CASE 2.—Mrs. F., aged 21 years, miscarried two years ago. Since then had not been well enough to do her work. She had backache, dyscinesia, leucorrhœa, rectal and vesical tenesmus. The uterus was lacerated to the depth of one-eighth of an inch on the left side of the cervix. There was marked ectropion of the lining of the cervix uteri. I thought a plastic operation closing the fissure in the cervix would cure her, and I put her under chloroform and operated in December last. She improved for a couple of weeks after the operation in all her symptoms except the vesicle tenesmus; this remained the same, and gradually became worse, so that I was obliged to make another study of her case during the last week in January. The urine contained mucus and pus, was alkaline in reaction, and precipitated the phosphates in such quantities that the latter part of the stream in urinating was white as milk. She had exhibited an idiosyncrasy against the use of opiates before I subjected her to the operation for lacerated cervix, so that I did not attempt to get the virtues of those drugs, but put her at once on 15-drop doses of the fluid extract of pichi combined with 1 drachm of simple elixir. Her bladder I washed out daily with a one-per-cent. solution of cocaine muriate, which controlled the pain admirably. The urine speedily exhibited the odor of the pichi, became acid in reaction, and held the phosphates in solution. She has made a good recovery in the place of what threatened serious progressive invalidism.

CASE 3.—Mr. B., aged 25 years, who had been afflicted with cystitis in former years, but had not suffered any symptoms of that disease for more than a year, came under my care at Harper Hospital for the cure of fissure in ano. Under chloroform I paralyzed the sphincter by stretching it with my thumbs. While he was under the influence of the anæsthetic I explored his urethra with a No. 12 (American) sound, meeting with no resistance or impediment to the easy passage of the instrument into the bladder. Two days after this very gentle manipulation of the urinary tract (for I don't think the operation on the sphincter could have caused it) he began to pass turbid urine and to have vesicle tenesmus. One-grain opium suppositories had in the meantime been used in the rectum three times a day, easing the pain but not changing the character of his urine. Pichi was now resorted to, and all symptoms of cystitis disappeared. At date he continues in hospital, resting for the cure of his anal fissure.

CASE 4.—Mrs. —, aged 27, had chronic cystitis, due to neglected retention of urine, following accouchement. She had overflow before the catheter was used to relieve her. I found it necessary to divulse her urethra to insure thorough evacuation of her bladder. It was very irritable after the operation. Pichi combined with fluid ext. hyoscyamus controlled the painful symptoms and gave the bladder the physiological rest essential to a cure.

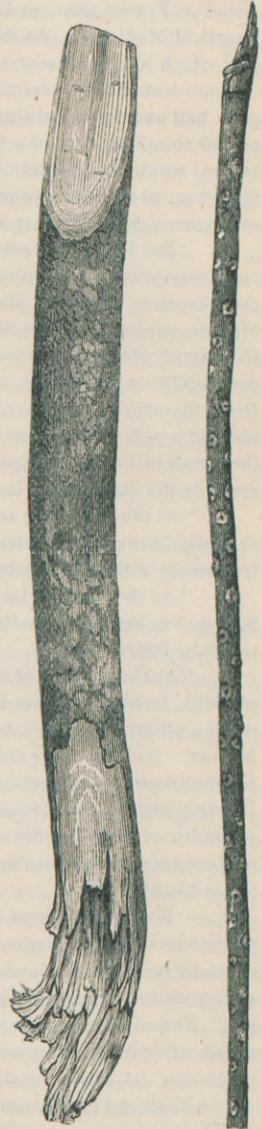
CASE 5.—Mr. H., aged 71 years, had been getting up nights to pass urine for the last five years. Ten months ago he found he could not empty his bladder, and was compelled to call a surgeon to use the catheter. A severe chill followed, and he was very sick for two months, having the catheter used every day. He learned to use it himself, and continued to use it himself until last February, when he had another chill, and his left testicle swelled and inflamed. He was too sick to use the instrument. I was summoned by his medical attendant in consultation, and opened a large abscess of the left testicle, and advised against further use of the catheter. His prostate was greatly enlarged. Opium and camphor suppositories relaxed the spasm of the prostatic muscles so that he got along without the catheter. His urine was heavily loaded with urates. Mucus, blood, and pus were present in abundance. He was put on the fluid extract of pichi, and continued its use for three weeks. He has made an excellent recovery.

I might enumerate numbers of cases of lumbago and sciatica in the course of which urates were precipitated from the urine in large quantities, and which recovered while the patient was taking the pichi. Combined with a potassium salt I have found it to act more quickly than any other remedy in bringing about a solution of the urates and relieving the rheumatic neuralgia so frequently associated with that unstable condition known as lithuria, phosphatism, etc. A formula I have often used is:

℞ Fl. ext. pichi, ℥i.  
Potass. nitrate, ℥i.  
Simple elixir, ℥iii. M.  
S.—Teaspoonful once in two hours.



Branch of *Fabiana imbricata*.  
(Natural size.)



Stems of *Fabiana imbricata*.  
(Natural size.)

## SUPPLEMENT.

# THE PICHÍ OF CHILI.\*

Mr. Limousin communicates the following: "Pichi, or piché, of Chili, was introduced in France through Dr. Lucien Boyer, one of the former presidents of the Society of Practical Medicine. At the session of February 19, 1885, he displayed to this society samples which had been sent to him by one of his friends late in 1884. At the same time he communicated the interesting experience of an old Peruvian general, who through the use of pichi had avoided a painful operation with which he was threatened by his surgeon, who expected to relieve him of a large calculus of the bladder. A decoction of pichi taken during several weeks had dispelled the inflammatory phenomena and given a normal appearance to his urine; at the same time the calculus was reduced to fine gravel and had gradually passed away through the urinary channel.

"Dr. Boyer had received no information with reference to the botanical or physiological description of this plant. He, therefore, sent me samples for examination. Thanks to the presence of some flowers that remained attached to the twig of the shrub, my friend Mussat, professor at the School of Guignon and preparator of the course in botany at the Faculty of Medicine, succeeded in determining that this plant was the *fabiana imbricata*, of the family of *solanaceæ*, tribe of *nicotianææ*. Mr. Mussat's opinion has been confirmed by Prof. Planchon. At the meeting of the Pharmaceutical Association (at the session where I showed a part of the plant), he exhibited a plate, in the work of Ruiz et Pavon, representing the shrub in natural size, and stating that it was known under the common name of pichi, as early as the close of the last century.

"At the following session M. Planchon showed us a branch of pichi which had been cultivated for several years in the green-house of the School of Pharmacy, where it flowered frequently without, however, arriving at fructification.

"At the close of last year, Dr. Fort, who now lives at Buenos Ayers, imparted to the Society for Practical Medicine his observations of the effects of pichi upon some of his patients in Brazil.

"At the request of several physicians, desirous of studying the therapeutic properties of pichi, I ordered a bale from Uruguay, and received with the shipment some further information about the drug. I owe the translation of this information, from the Spanish, to Dr. Marcet. Among other things, it is stated that pichi was used as early as in the last century for the treatment of certain diseases of goats and sheep. According to mention by Ruiz et Pavon (cited by Prof. Planchon, in the March session of the Pharmaceutical Society), the peasants of Chili employed the drug empirically long ago to combat inflammation of the urinary tract, and considered it as a sovereign remedy to dissolve and disintegrate calculus in the bladder.

"It is only a short time since the attention of the profession of this country was attracted to these properties of pichi. Several observations seem to confirm its efficacy in cases as mentioned above. It is the woody part of the plant rather than the leaves, which possesses the therapeutic properties. The latter do not appear to contain the active principle. The mode of administration is a very simple one. A thorough decoction of the pichi wood, after it has been reduced to a coarse powder, is made; the doses are 30 grams for each

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\* Translated for this pamphlet from the Bulletin et Memoires de la Société de Thérapeutique, April 14, 1886.

litre of water. This litre of decoction is taken during the day in four installments, one glass in the morning on an empty stomach, one just before breakfast, the third before dinner and the last in the evening before going to bed. Pichi wood is hard, has a very close texture and is extremely tough, owing to the amount of resin it contains. It has to be cut up and must be submitted to a prolonged action of the water in order to extract its active principles, when preparing a decoction. In order to facilitate its administration to the patient, I have prepared a concentrated liquid extract in such a manner that four tablespoonfuls of this liquor represent exactly 30 grams of the plant which, as above stated, should be used in one litre of water. One thousand grams of the plant reduced to powder have given me 90 grams of an inspissated extract and 60 grams of a dry extract evaporated in vacuo. This extract has a very aromatic odor, reminding one of the odor of guaiac.

“By treating the plant with alcohol, I have obtained in the proportion of 6.50 grams per kilogram a very bitter resin which is insoluble in water. I have also detected the presence of an appreciable amount of tannin and starch. Winckler's reagent shows the presence of an alkaloid, but what characterizes pichi particularly is the abundant proportion of a glucoside analogous to esculin and having, like it, a very considerable refracting power. The plant, deprived of its extractive by water, still contains an appreciable proportion of this fluorescent body, forming a colorless liquid, bluish by refraction, analogous to a solution of sulphate of quinine. This fluorescence, which disappears upon the addition of some strong hydrochloric acid, remains for several weeks, but on longer exposure it is destroyed, while the solution undergoes also a change. A small layer of ether kept over the surface of the liquid, enabled me to preserve the liquid unaltered for more than two months, showing during that time an unchanged fluorescence. Whether or not this substance be one of the active principles of pichi, its presence nevertheless constitutes a valuable characteristic for the determination of the nature of its preparations, for even the decoction, in spite of its dark color (due to the presence of extractive matter) possesses a very characteristic bluish tint.”

Mr. C. Paul asks Mr. Limousin whether pichi possesses the property of dissolving in glass the calculi of uric acid or of oxalic acid. This is what one should expect *a priori* from an agent which is said to be a lithontriptic.

Mr. Limousin has not made any experiments in this line, but the chemical examination which he has made of pichi, has shown him in this plant the presence of large proportions of a resin. He is permitted, therefore, he says, to conclude that this resin disintegrates the calculi by dissolving the mucous that keeps their particles together; it facilitates their expulsion in the shape of a harmless pulp, but it is not very probable that the uric acid is dissolved.

Mr. Dujardin-Beaumetz says: “I have studied pichi clinically and I have found it to possess good diuretic properties, useful in vesical catarrh. My experience has not gone any further.”

Mr. C. Paul: “According to the theoretical views advanced by Mr. Limousin, pichi would act upon vesical calculus a little after the fashion of the Contrexéville mineral water. It has been stated of this water that it facilitates the diagnostic of the stone in the bladder, because it corrodes the calculus, gives it a rough surface and consequently causes inconvenience to the urinary reservoir by injuring its mucous membrane. This fact explains to a certain extent the paradoxical opinion ‘that a person arrives at Contrexéville with gravel and departs with a stone.’ In reality the mineral waters of this place are excellent to clean the urinary tract from the small gravel stones mechanically, but they are impotent against stone in the bladder, properly speaking. There is more to it: They would be absolutely objectionable in certain cases of calculus on account of their above-mentioned property—to dissolve the smooth, outer surface of the stone and to transform this into an irritating body on account of its many rough edges.

“If science had discovered a new powerful lithontriptic, such an agent might have become dangerous rather than useful, because it would make the stones rough and as a necessary consequence injure the mucous membrane.”

Mr. Campardon: “Among the waters which serve to expel urinary gravel, I would call to mind those of Carlsbad. However, I do not take it upon myself to give the theory of their action, which is often of a heroic nature, and on this account, I do not hesitate to say, superior to those of our French waters which have the same therapeutic peculiarity.”



