

LABORATORY NOTES.

The Wm. S. Merrell Chemical Co.
MANUFACTURING CHEMISTS
CINCINNATI.

HYDRASTIS

—AND ITS—

PREPARATIONS.

SPECIAL PREPARATIONS

— FOR —

PHYSICIANS' PRESCRIPTIONS.

Nutritive Tonics.

Syrup Hypophosphites, with Quinine, Strychnine and Manganese,

“ “ (Churchill's Formula)

“ “ Compound.

Adjuvants.

Aromatic Elixir Licoricc.

“ “ Yerba Santa.

Tonic Astringent and Restorative.

Alkaline Elixir Rhubarb Co., with Pancreatine.

Antiseptics.

Salicylic Acid, from Oil Wintergreen.

Boro-Glyceride, 50 per cent. solution.

Emmenagogue, etc.

Helonias Cordial.

Expectorant.

Elix. Pinus Compositus

Send for Descriptive Circulars Relative to the above Preparations.

HYDRASTIS AND ITS PREPARATIONS.

The literature of this drug is so extended that we do not consider any thing will be gained by entering into its history at this time.

Hydrastis has been in use for more than fifty years; and its reputation has been steadily growing from the time of its first introduction to medical practice in the form of an infusion, to the present, when the advantages of perfected preparations give to the physician of the present day an insight into the value of *all* its active principles, either alone or in combination.

The most prejudiced writers on materia medica accord to the late Wm. S. Merrell the largest share of credit for the introduction of hydrastis preparations; and to the present organization the reputation of being the largest consumers of the drug in the world. Availing ourselves of our own widely extended experience and that of others interested in the development of our vegetable materia medica, we have made this drug a study in our laboratory to an extent not approached by the efforts of all other manufacturing houses combined.

During this introductory period we have seen the forms of administration change from the simple infusion of earlier years, through the several improvements involved in the preparations of Concentrated Tinctures, Essential Tinctures, Fluid Extracts, the dry and powdered Solid Extracts, Resinoids, (assumed to be proximate principles,) the combined white and yellow alkaloids in crude and unpurified form, the several salts of the yellow alkaloid (Berberina) and of the white alkaloid, (Hydrastia,) until we now present to the medical profession the most perfect representatives of the drug, adapted as well for use in pill or powdered form, as in the

case of the crystalized Sulphate of Hydrastia, (Berberina,) or in the fluid form, as represented by those perfect examples of pharmaceutical skill—the Fluid Hydrastis; Solution Bismuth and Hydrastia; and Colorless Hydrastis.

SULPHATE HYDRASTIA.

[SULPHATE BERBERINA.]

This is the sulphate of the yellow alkaloid; and is preferable to the other salts of the hydrastis on account of its purity and *greater solubility*. We present it in the form of flaky crystals, free from excess of acid, and absolutely pure.

Approximate solubility in cold water, - - - - -	1-2 grain to 1 oz.
“ “ “ hot “ - - - - -	12 “ “ 1 “
“ “ “ alcohol - - - - -	3-4 “ “ 1 “

Administered in powder combined with sugar of milk; or in solution; the latter is preferable. Dose, $\frac{1}{8}$ to $\frac{1}{2}$ grain.

SPECIAL APPLICATION.

In gonorrhoea, after the *acute stage* has passed; and in *gleet*, it is one of the most valuable remedies known. Its use, in the latter especially, is attended with excellent results. The following prescription of one of our most eminent physicians (see Prof. Bartholow's late work on *Materia Medica and Therapeutics*) is highly recommended; its use being followed with marked success:

Hydrastia sulph.—pure, - - - - -	gr. x.	} Mix. Use $\frac{1}{2}$ oz. as an injection.
Mucil—Acacia, - - - - -	oz. ij.	
Rose Water, - - - - -	oz. iv.	

It is of especial value in the treatment of *chronic derangement* of the *liver*; exercising a direct influence over the hepatic structure generally.

Constipation, dependent on deficient secretion, where the stools are hard and dry, may be overcome by this remedy, administered in small doses. Its operation is greatly enhanced by combination with Podophyllin; and for this purpose the following formula has been highly recommended:

Hydrastia sulph.—pure, - - - - -	$\frac{1}{4}$ grain.
Podophyllin, - - - - -	1-20 grain.

In *stomatitis* of *children*; in simple *ulcerations* of the *mucous mem-*

brane; in *mercurial sore mouth* and that of *nursing children* it is a favorite remedy. Add one grain to two ounces of water and apply every three or four hours.

In *catarrhal affections of the bladder*, given in small and oft-repeated doses, it diminishes the mucus.

In *chronic Bright's disease*, the excretion of albumen is lessened by its use.

Valuable as a *collyrium* in *chronic conjunctivitis*; also in the latter stage of the acute.

Esteemed of great value in treatment of *dyspepsia*; chronic affections of the *mucous coats of the stomach*; and in *chronic inflammation of the stomach*. In *indigestion* and *general debility* arising from a languid state of the stomach, it acts as a general restorative. It may also be employed in those cases of *chronic gastritis* and *chronic irritation of the stomach* with altered secretion which constitute the worst and most persistent forms of dyspepsia. In acid indigestion, this remedy, triturated with calcined magnesia, or prepared charcoal, will be found of great value, especially when attended by a torpid condition of the bowels.

Recommended in *nasal catarrh*; catarrh of the stomach; and in all mucous diseases.

Hydrastia has attained considerable reputation in the treatment of *intermittent fever*, fever and ague; and other periodic affections, employed alone or with other tonics.

FLUID HYDRASTIS

Is what its name implies—the active, medicinal principles of the drug in natural combination and in a fluid form. It has a bright, yellow color; perfectly clear; free from sediment; and with an unmistakable odor of the *fresh drug*.

Fluid Hydrastis is a pure, neutral solution of all the alkaloidal constituents of the drug; rejecting the oil, gums, irritating and offensive resins; and inert extractive matters. The success attending its introduction is the best evidence of its therapeutic value.

Unsuccessful imitations and would-be substitutes are met with on every hand. Preparations said to be "just as good," or "about the same thing," but always "a little cheaper," attest the wide spread and growing popularity of Fluid Hydrastis. All such, compared with the latter as to

physical appearance or as representatives of the drug, *are condemned*; when dispensed in prescriptions *they are readily detected*; tested therapeutically, they are *promptly rejected* as unworthy of confidence.

Fluid Hydrastis is applicable to the treatment of all irritable, inflammatory and ulcerative conditions of the mucous tract.

This statement of a well-known medical writer and journalist has become axiomatic :

“ No remedy for physicians' use has been received with such universal approval.”

SUGGESTIONS FOR USE.

In general, it is indicated in all affections of the mucous surfaces; correcting abnormal conditions characterized by profuse discharge of tenacious mucus, sub-acute inflammation, erosions and superficial ulcerations.

Leucorrhœa,

with thick albuminous discharge like the white of an egg—use locally by injection, 1 to 4 drs. to one pint of water, 3 or 4 times per day.

Ulceration of the Cervix-Uteri and Vagina,

with tenacious discharge—place in contact with the inflamed surfaces cotton saturated with Fluid Hydrastis, 2 to 4 drs. to glycerine 4 oz.

Stomatitis,

pseudo-membranous, ulcerative, or gangrenous, when the inflammation is sub-acute or characterized by profuse secretion of ropy mucus—use as a gargle or wash in proportion of 1 to 2 drs. to water 4 ounces. When the breath is offensive, pot. chlorate or baptisia assists its action.

Gonorrhœa,

as an injection; and in *balanitis*, as a wash: use 1 to 2 drs. to water 4 oz.

Nephritis,

acute and chronic, when mucus is found in the urine—use internally, 1 to 4 drs. in water 4 ounces. Teaspoonful three or four times per day, as adjunct to other treatment.

Cystitis,

acute or chronic, when the urine is pale or greenish, and viscid from abundance of mucus—use internally 1 to 4 drs. in water 4 ounces. In the severer cases of chronic cystitis with phosphatic urine, rinsing out the bladder with tepid water, and following with Fluid Hydrastis 1 to 2 drs. to water 4 ounces, one ounce to be used as an injection into the bladder, is often of great benefit.

Dyspepsia,

with undue activity of the mucous glands and deficient action of the gastric follicles, of which the symptoms are a heavily loaded tongue, especially at the base, and in the morning dull aching pains in the stomach, with sinking sensations, nausea and occasional vomiting of vitiated mucus, use half to one ounce Fluid Hydrastis to a pint of sherry or native wine. Dessert spoonful three or four times a day.

CONCURRENT TESTIMONY.

In the *Lancet*, November 7, 1885, Mr. Auld directs attention to the value of Hydrastis in small doses in certain forms of dyspepsia. Given in drop doses three or four times daily, between meals, is the mode of administration he would recommend. Larger doses often produce aggravation of the symptoms and diarrhoea. In his experience there are three kinds of dyspepsia to which it is applicable. The first is the dyspepsia of females, characterized mainly by pain and sinking at the epigastrium, nausea, and constipation; and associated with general debility, nervousness, wandering pains and possible leucorrhœa. The subjects of this variety are often intolerant of large doses of bismuth and other orthodox remedies; but, unless marked anemia exists, they will speedily regain health and strength under the influence of hydrastis, which acts like a specific. The second form of dyspepsia which is often greatly relieved by this drug is that associated with certain constitutional diseases, particularly phthisis and malignant disease. Lastly, it is of signal benefit in the dyspepsia resulting from the abuse of drugs and alcoholic stimulants.

Constipation,

either simple or of hepatic origin—in doses for an adult of gtt. 10 to gtt. 40, three times a day. In *infantile* constipation 1 to 2 drops twice daily.

Bronchorrhea or Cough,

with expectoration of yellow tenacious mucus.

Ophthalmi Tarsi, Coniunctivitis,

and other diseases of the eye, in which occur mucus or mucourulent discharges—locally gtt. 10 to gtt. 15 in distilled or soft water 4 ounces.

Intermittents,

especially of the type characterized by disease of the *gastro*-intestinal mucous membrane, with nausea, heavily coated tongue, broad and flabby and pale, or coated with yellow, dirty mucus; bowels constipated, or when moved, evacuations clay colored or streaked with mucus, use 1 to 4 drs. to water 4 ounces. Teaspoonful every three or four hours.

Painful Menstruation.

In one of the recent numbers of the *Archiv. fur Gynakologie*, Prof. Schatz calls the attention of his colleagues to the value of hydrastis in many cases of painful menstruation, which hitherto have been supposed to need operative interference. The hydrastis contracts the vessels and lessens the genital congestion. Often by its use the pain attending the menstrual epoch is diminished or wholly removed.

Catarrh of the Intestines,

and superficial ulceration of same; in fistula-in-ano; hemorrhage from the rectum. Internally and locally by injection, 1 to 4 drs. to water 4 oz.

A Local Application

to prevent decomposition; applied to the surface of cancerous growths and unhealthy ulcers and sores; as an injection into the bowels in diarrhea and dysentery; and to correct the offensive character of many mucous discharges.

Many Chronic Diseases,

in which exist undue activity of the mucous membranes in some portion of the body, this remedy is of marked benefit as a *general tonic*.

Formulæ for Fluid Hydrastis Combinations.Wine Hydrastis:

Fluid Hydrastis, 1 fl. ounce; Sherry wine, 15 fl. ounces. Mix.

Tincture Hydrastis:

Fluid Hydrastis, 2 fl. ounces; Diluted alcohol, 14 fl. ounces. Mix.

Syrup Hydrastis:

Fluid Hydrastis, 2 fl. ounces; Simple syrup, 14 fl. ounces. Mix.

Glycerole Hydrastis:

A valuable application to unhealthy ulcers, old sores, etc.

Fluid Hydrastis, 1 fl. ounce; Glycerine, 2 fl. ounces; Aqua distil, 13 fl. ounces. Mix.

NOTE.—For internal use, doses of either the above preparations, one dessert spoonful three or four times a day.

Gonorrhœa Injection:

Fluid Hydrastis, 1 to 2 drachms; Aqua distil, 4 ounces. Mix.
Sig. Inject one drachm night and morning.

Medical Testimonials.

* Those at all familiar with the salability of Fluid Hydrastis and the universal approval with which it has been received by the Medical Profession, readily appreciate the extent to which we could accumulate evidence in proof of its value. Never before in the history of any agent has so much attention been given to the discussion of the several principles characteristic of the drug; in these controversies we naturally accumulate a mass of evidence confirming the strength of our position—that in the Fluid Hydrastis we have the most perfect representative of the drug in fluid form that has ever been offered to the profession.

We do not present such evidence at this time, believing that a liberal discussion will bring about close study and active investigation on the part of progressive physicians; and that to present a mass of "exparte" statements would be a reflection upon their intelligence and discrimination.

The following from one of the most prominent physicians in New York City, and a Professor in the Post Graduate School, outlines the sen-

time which seems to be uppermost in the minds of the better class of physicians who are called upon to give testimonials in favor of any medical preparation, however valuable.

"The sample of Fluid Hydrastis left with me by your agent has more than met his representations; and my success attending its use has been most gratifying. It is, without exception, the most remarkable astringent I have ever used in diseases of the Nose and Throat; and in Urethral affections it has proven very successful in every case that I have administered it either alone or in combination.

"I write this, though a stranger, as your methods and claims have made me your friend; and so far as I can extend the sale of your preparations through the conferences of our local Society, I am at your command; for I believe the practice of medicine will be elevated by the use of remedies of such substantial value. I have long since taken a stand against medical testimonials for publication, and I must request that you refrain from quoting me by name; but my professional connection will enable me to mention the preparation favorably to a large number of physicians, and thus demonstrate the sincerity of my statements."

Solution Bismuth and Hydrastia.

This is a combination the value of which has only begun to be appreciated by the Medical Profession.

The value of Bismuth is too well known to justify review in this place; but in the form in which it has been largely used the same effect is not produced as when the officinal preparations are prescribed.

The objection to the various Salts of Bismuth is in their insolubility, as may be readily detected in the fæces after a course of these preparations has been given.

Bismuth possesses characteristics analogous to the Alkaloids of the Hydrastis Canadensis, in the respect that it allays the irritability of the mucous membrane; and herein we have opened a wide range for exhibiting the action of the two agents when scientifically combined.

Without exception, the Solution Bismuth and Hydrastia is one of the most valuable and comprehensive combinations before the profession; and the beneficial action of the white alkaloid Hydrastia is largely increased by association with Bismuth; but unlike competing articles under similar names, it is not a mechanical mixture of the two elements, but a pure neutral solution of the double Salt Citrate Bismuth and Hydrastia, in perfect

combination; so much so indeed, that the presence of either element can not be detected by the ordinary tests for the same.

Each fluid drachm contains $2\frac{1}{2}$ grains of the double Salt, 25 per cent. of which is Hydrastia Citrate.

Used in diseases of the nasal passages, of the eye, of the throat, of the stomach, of the intestines, of the re-productive organs and the bladder it is equally beneficial; recommended in cases of acute indigestion; painful digestion with a tendency to diarrhea; in sub-acute and chronic gastritis; in gastralgia arising from a state of irritation of the gastric mucous membrane.

As an injection or topical application, use one part solution to four parts water.

This preparation is rapidly coming into use as a local remedy in the treatment of leucorrhoea, gonorrhoea, and as a spray in ophthalmia and catarrhal inflammation; also, for gastro-intestinal troubles of teething children.

Colorless Hydrastis.

The white alkaloid hydrastia exists in the Golden Seal root in proportions varying from 1-4 to 1-2 per cent., according to the quality of the drug manipulated.

The alkaloid is unofficinal; and when pure is obtained in white, shining prismatic crystals—soluble in alcohol, ether, chloroform; and insoluble in water.

The most competent writers on Materia Medica ascribe the medicinal value of the crude drug to the combined action of the associated alkaloids; and though both of the leading constituents have been isolated by manufacturers for many years, the insolubility of the white principle has tended to lessen its use and reduce its commercial importance to a nominal value only.

In the manufacture of the Sulphate of Berberina, commercially known as Sulphate Hydrastia, there has always been produced in the Merrell Laboratory a large quantity of the white alkaloid as a bi-product; and to physicians and pharmacists as well, the white crystals of hydrastia have hitherto been viewed almost in the light of a curiosity; and until the exhibits at pharmaceutical and medical meetings during the past eight years, of samples of this preparation, the supposition with many had been, that it only existed in quantity in the imagination of too zealous manufacturers.

At the meetings of the American Medical Association at St. Paul, Cleveland, Washington, New Orleans; at the State Pharmaceutical meetings in Wisconsin, Illinois, Michigan, Minnesota and other States, the Wm. S. M. Chemical Co. exhibited in one jar, a mass of crystals from 5,000 pounds of crude root; the small aggregate yield from which seeming to confirm the justice of the high price at which it is sold.

The solution of Bismuth and Hydrastia of this manufacturer was introduced nearly ten years ago, for the purpose of bringing the white alkaloid to the notice of the profession by a combination through which its peculiar advantages would be indicated.

We are still of the opinion that a simple solution of the alkaloids other than the yellow or Berberina, will fail to meet the expectations which have been raised through highly colored testimonials written in the interest of those who are financially benefited.

The *one only* advantage which is recognized for this preparation is, that it does not leave the objectionable color when used as a topical application. But as all physicians do not depend upon the treatment of private diseases for a living, and as preparations of Hydrastis have a much wider range of application than this, we consider the objection superficial in the extreme.

As one of the chief advantages of the drug itself consists in its well known tonic properties, we do not consider that the objection to its bitterness is well founded. Some years ago, an alleged "sweet" quinine was claimed to have been discovered; but the history of the drug trade proves that the fallacy did not take deep root. Pleasant and slight remedies are very desirable, but medicinal quality and therapeutic efficacy should never be sacrificed to physical appearance alone. In the introduction of any preparation for physicians' use, there must be a proper deference paid to the therapeutics of reason; the rational administration of any remedy consists in its use because we know the pathological conditions which exist in the disease; and know also that the pharmacological action of the drug is such as to render it apparent that it will remove or counteract these conditions.

The literature respecting the white alkaloid is naturally limited, but in all that has been written we fail to find evidence to justify the extravagant statements made as to its action.

It is our *policy* and *privilege* to prepare for physicians' use every remedy for which there is a demand; and the Colorless Hydrastis we of-

fer to the profession as a representative of the white principle of the drug possesses all the qualities possible to be obtained through a thorough knowledge of its characteristics and an experience in its manipulation equalled by none.

We present it, therefore, on its merits; and to those who believe or may be led to believe that in the white alkaloid they have the true principle of the drug, we commend it, and solicit their business.

In the serial called "Drugs and Medicines of North America" we have a strenuous but labored effort to laud the virtues of the white alkaloid to the exclusion of all the other principles with which it is associated.

We are willing to rest the claims which we make for our Fluid Hydrastis and other preparations combining the associated principles, upon the statements made by those writers whose opinions are introduced in this serial to sustain the purposes which are apparent to all familiar with the situation.

As we have intimated, the white alkaloid has had little commercial value practically, but has been accumulated as a bi-product in the laboratories of all those who manipulate the drug to any extent; as a consequence there was accumulated and destroyed in the "Merrell Laboratory," at the fire in December, '85, more than 125 pounds of the pure crystals; an amount so large indeed that our smaller competitors could not realize that such a quantity could be in existence.

We have referred to the evidence advocating the use of this alkaloid, but there is not the slightest ground for the assertions made as to its superiority to the alkaloids in combination.

Professor Bartholow, of Philadelphia, says:

"As the actions of Hydrastis consist of the effects of its active constituents, it is necessary to know how far each contributes to the results; it was soon ascertained that the alkaloid Hydrastine is the true active principle, for the very characteristics of this were simply repeated by sufficient doses of the Fluid Extract; the latter is, as might be expected, slower in action, but in respect to the manner of action there was between them *no appreciable difference*.

Three grains of Hydrochlorate caused the death of a frog in four minutes, while forty minims of the Fluid Extract proved fatal in ten minutes; the mode and action of the character being the same; the results in rabbits were corresponding.

In general terms the effects of Hydrastis are those of Hydrastine, (white alkaloid) in both classes of animals, but minute differences may hereafter be detected on closer examination."

COMMENTS.

We recognize the value of such authority as Professor Bartholow, but we are not alone in our objections to his hastily drawn conclusions.

Hydrastis yields from two to three per cent. of the *yellow alkaloid* and $\frac{1}{4}$ to $1\frac{1}{2}$ per cent. of the *white*; and the assumption that the latter is the true active principle solely, because it produces effects analogous to the Fluid Extract in large doses, is not well taken. The quantity of the alkaloid used is much larger in proportion than could be produced from forty minims or grains of the Fluid Extract of the drug, however well manipulated.

Furthermore, we think it will not be denied that the special action of any isolated principle given in a dose proportionate to its existence in the drug from which it was obtained, will be more powerful than a preparation from the drug itself; and especially so in one so imperfect as the officinal Fluid Extract of Hydrastis.

We are especially interested, however, in this writer's very exhaustive review of the uses of Hydrastis, for our position is confirmed thereby to an extent hardly expected in a communication written for a Journal of its semi-advertising character.

Professor Bartholow makes the following statement which confirms the position of the Merrell Company; for their Fluid Hydrastis is of the same medicinal strength as the Fluid Extract, devoid of the offensive and irritable resin, acrid oil, etc., characteristic of the officinal preparation.

"As the Fluid Extract contains all the constituents of Hydrastis it is the most concentrated form available for administration; and therefore will be the best preparation for procuring the effects of the remedy as a whole—whether given by the stomach or applied externally.

Other writers speak in the same terms of the relative value of the white alkaloid in solution and preparations containing the combined active constituents of the drug; and the conclusions drawn in every case warrant the assertion that aside from the objectionable staining qualities of the latter, there exists no ground whatever for the assertions made in respect to this candidate for favor of the medical profession.

The general statement that the Colorless Hydrastis may be used in all cases and in the same manner as the officinal Fluid Extract, or the improved form, as illustrated in the well known Fluid Hydrastis of the "Merrell Laboratory," is, we think, unwarranted; and experience has already demonstrated that it is overdrawn.

The same effects *cannot be produced* without the use of the Colorless Solution in much larger proportionate doses; and this claim is maintained regardless of the manufacturer or the name under which it is sold.

THERAPEUTICS.

To further emphasize our statement relative to the value of the white alkaloid in solution, we would call attention to the absence of sufficient data to determine its range of action.

Professors Bartholow, Hale, Scudder, King and Sattler, so far as they touch the question, practically coincide in the assertion that until the lethal dose of Hydrastia (white alkaloid) is determined, the power of its physiological relations *cannot be established* with any degree of accuracy. Of what value, therefore, are the "alleged testimonials" from unknown practitioners with which the profession is flooded?

It is, however, reasonable to assume that the white alkaloid shares with its associated constituents a measure of influence which a representative preparation of the drug would exert; hence, we outline in general the class of diseases to which it may be applied.

INTERNALLY.

In Gastro-intestinal Disorders—when the stomach is in a condition of debility; in atonic Dyspepsia and in convalescence from acute disease. Dose 15 to 30 drops in water.

Catarrh of the Stomach, accompanied with fermentative changes in certain foods. Dose 20 to 40 drops.

In Malarial Troubles, the action of the solution will not be found satisfactory unless associated with quinine in *full doses*.

In Diarrhea and Dysentery, it may be used to advantage in doses of 5 to 20 drops in water, either alone or combined with other agents.

In Diarrhea of Children, it is of unquestioned value, especially when combined with Bismuth. In such cases, however, we recommend the Solution Bismuth and Hydrastia.

Local Application. In Gonorrhœa, vaginal or uterine, leucorrhœa, stomatitis, nasal catarrh, ulceration of the coat of the bladder, chronic pharyngitis and laryngitis, Colorless Hydrastis may be used either alone or in combination with distilled Witch Hazel, Pinus Canadensis, etc.

Approved Preparations of Golden Seal

Liquid.

- Fluid Hydrastis.
- Sol. Bismuth and Hydrastia.
- Colorless Hydrastis.

Powder.

- Sulphate Hydrastia, in Crystals (Berberina).
- Muriate Hydrastia, (Berberina).
- Hydrastrine—principles combined.
- Hydrastia, White Alkaloid.
- Hydrastia, Hydro-chlorate.

Pill.

- Podophyllin and Hydrastia.
- Hydrastine (P. C.) $\frac{1}{2}$ gr.
- Hydrastia Co.