

**PITMAN-MOORE COMPANY**

**PHARMACEUTICAL *and*  
BIOLOGICAL CHEMISTS**

**A TRUE  LINE**

**INDIANAPOLIS, U. S. A.**

**VETERINARY CATALOGUE**

**WITH NOTES ON**

**MODERN BIOLOGICAL THERAPY**



JOHN A. SEAVERN

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# DESCRIPTIVE CATALOGUE

(With Current Prices)

OF

STANDARD  
PHARMACEUTICAL  
AND  
BIOLOGICAL PRODUCTS  
FOR THE  
VETERINARIAN

WITH NOTES ON  
MODERN  
BIOLOGICAL THERAPY

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PITMAN-MOORE COMPANY

Pharmaceutical and Biological Chemists

Indianapolis, U. S. A.



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# The Pitman-Moore Policy



If you but take the trouble to dig deep down under any real success, in business or elsewhere, invariably you find that it is founded on some basic principle so sound and so firmly anchored in truth that nothing can displace it.

The success of the Pitman-Moore Company is founded on the basic policy, early adopted by the founder of this business, of making only products of known value, of putting into these products the highest possible quality, and then making sure that these best possible products are administered by knowing hands only.

For the Pitman-Moore Company has, from the beginning, if not actually in a spirit of awe, at least in a spirit of extreme seriousness, realized to the utmost its scientific responsibility.

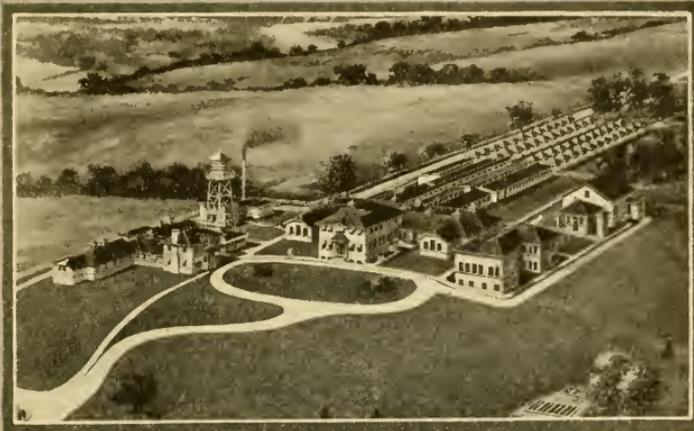
It is no small thing to know that on what we make, depends whether life shall be preserved or shall perish.

It is no small thing to know that how our work is done, will have a decided influence on the success of the man who puts his confidence in us, and actually stakes his reputation as a man of science on the purity and potency of our products. This realization of our responsibility to the veterinary profession is one of the real factors in the growth and the success of this company.

Next to their potency and purity, we place careful administration of our products. Skillfully made medicinal products cannot be fully effective, unless skillfully used. Hence a fundamental principle of our policy is administration of our products by knowing hands only. To us, this means confining the use of our veterinary products to Licensed, Graduate Veterinarians only.

To the maintenance of our policy, as outlined above, we permanently pledge the full man power and mind power of our entire organization.

PITMAN-MOORE COMPANY



**PITMAN MOORE BIOLOGICAL  
LABORATORIES  
near Zionsville Indiana**

**General Offices and  
PHARMACEUTICAL LABORATORIES  
Indianapolis**



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ST. PAUL, MINN....	Marrinan Medical Supply, Hamm Bldg.

# General Information

Fair dealing with all our patrons requires that we make no exceptions to such rules of commercial policy as are necessary for the proper conduct of our business relations with the veterinary profession of the country. Should any favoritism be shown to a single patron, even that patron might suspect that still greater advantages were being accorded to others; hence we believe that square business dealing requires that we adhere strictly to our published terms.

## PRICES

All prices quoted herein are net, and are submitted as ruling on this date, but are without offer and are subject to change, as market conditions may require, without notice.

Since the policy governing our sales is to deal directly with members of the Veterinary Profession, without the intervention of middlemen, there is no necessity for our publishing fictitious "list prices" with a varying scale of discounts.

Prices quoted on all items are the lowest net prices at which products of the quality we offer can legitimately be sold; for in every instance, the **quality** of the product is given first consideration. Our selling prices always are based on cost of production, and necessarily change with the market prices of ingredients: our prices, **not** our formulas, change with the market.

## TERMS

From the net prices quoted herein, we allow a discount of 2 per cent for cash with order, or for payment within 10 days from date of invoice, unless otherwise specified upon the invoice. All invoices are due, net, in 30 days from date, unless otherwise specified.

## REMITTANCES

Suitable remittances or reference should accompany first orders. Remittances by draft or money order are preferred.

## CONTAINERS

Prices quoted include containers, except when otherwise specified.

## BREAKAGE AND SHORTAGE

Our shipments are carefully checked three times by trained order clerks and are packed by expert packers. Should an apparent shortage occur, customers are requested to examine carefully the packing material and container, since small articles frequently are lost in this way. If unable to locate a missing item, please advise us promptly, enclosing with your report the packing slip which we place in each box.

If goods arrive in damaged condition, insist upon proper notation being made on the transportation company's expense bill by their agent; unless this is done claims cannot be prosecuted successfully. Transportation companies act as agents of the purchaser, and we must refer our patrons to them for reparation in case of damages. We are at all times pleased to assist our customers in proving claims against the carrier, but we cannot assume the responsibility of collecting them.

## **PARCEL POST INSURANCE**

Shipments by Parcel Post are at the risk of the consignee after delivery to the postal authorities. Even if registered, no recovery from the government is possible in case of loss. Since our patrons can be insured against loss at a cost of 1 cent for each \$3.00 or less, unless specifically instructed otherwise, we insure all Parcel Post shipments, charging the cost upon the invoice.

## **DETERIORATION**

We hold ourselves responsible for the condition of our products so long as packages containing them are intact, referring particularly to removal of labels, bottle stoppers, etc., but cannot assume responsibility for deterioration of our products which have been opened, or which have been unduly exposed to sunlight, extreme heat, cold or moisture, or other deteriorating influences beyond our control, the products having left our laboratories in proper condition.

## **THERAPEUTIC INDICATIONS**

The therapeutic indications and uses listed in the following pages necessarily are general in scope and character. The products listed are intended for use only by those who are learned in veterinary medicine, and capable of judging whether any product or dosage is applicable to a given condition, and whether a particular formula is indicated or contra-indicated in a particular case.

## **LIABILITY**

Our pharmaceutical and biological products are offered to the veterinary profession as being of the best quality possible. All known methods of chemical and physiological assay and tests are applied to our drug products to insure strength and accuracy.

Our veterinary biological products are produced under U. S. Government license and inspection, and in addition to passing all tests required by government regulations, are submitted to our own rigid tests for purity. Each product is guaranteed to be of proper potency and purity when it leaves our hands; however, since we have no control over the application of these products in the field, nor over the condition and handling of the animals upon which they are used, we cannot assume any responsibility for the results obtained from their use. Purchases of our products must be understood to signify that this limitation of our responsibility is understood and accepted by the purchaser.

## Our Veterinary Mail Service

For the convenience of our friends in the profession, we give special attention to the quick handling of orders sent us by mail. Every mail order is treated as a "rush" order, and is executed immediately and shipped by the first possible carrier.

Your orders sent us by mail will receive the same care and the same prompt attention as though you personally were in our offices, or our representative was calling upon you at your office.

Our offices are open 24 hours every day for receiving and filling orders by telegraph or telephone, both in Indianapolis and at our branches and distributors.

Members of the Veterinary Profession are invited to make use of these facilities whenever emergencies arise that require promptness, and are assured that they will not be disappointed in the service we render.

## PART ONE

### Veterinary Pharmaceutical

Products - - - Pages 15 to 82

Specialties—Boluses, Bolules, Blisters, Dusting Powders, Ointments, Antiseptics.

Tablets, Fluid Extracts, Elixirs, Tinctures, etc., etc.

## PART TWO

Veterinary Biological Products Pages 84 to 102

Anti-sera, Antitoxins, Bacterins, Diagnostic Agents, Vaccines, etc.

Notes On Modern Biological

Therapy - - - Pages 107 to 180

## PART THREE

Chemicals, Sundries, Instruments,

Surgical Dressings, etc. Pages 182 to 200

**PART ONE**



**Veterinary Pharmaceutical  
Products**

# Specialties

In our 23 years of experience as pharmaceutical manufacturers, certain products of our laboratories have been found to possess points of superiority that have made them distinctive.

Whether these points relate to unusual therapeutic value, or to pharmaceutical elegance of more than ordinary degree, or to particularly marked adaptability to the use or condition indicated, these products have won especial attention from the veterinary profession and, through years of clinical trial by many practitioners, have proven their right to be classed as Specialties in our pharmaceutical line.

For these reasons, the preparations listed under the head of Specialties in the following pages are given prominence in our catalog, and are commended to the profession with confidence that they will meet the approval of the discriminating veterinarian.

# Antiseptic Dusting Powders

## ALUM POWDER COMPOUND, DR. McKILLIP

Prepared from Iodoform, Boric Acid, Burnt Alum and Starch in the proportions recommended by Dr. M. H. McKillip to his students.

This popular antiseptic dusting powder is less astringent than many commonly used formulae, and has less tendency to the formation of scar tissue. Its value is increased by the iodoform content, which enhances its antiseptic and stimulant properties and acts as an effective fly-repellant.

This powder possesses powerful antiseptic, styptic and healing properties and is especially effective in the control of capillary hemorrhages from small wounds or bruises. Its free application will be followed by almost immediate arrest of bleeding and at the same time will prevent access of pus-forming micro-organisms.

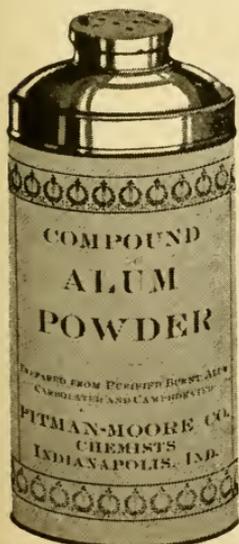
When dusted freely upon cuts, ulcers or suppurative wounds, it prevents the growth of many bacteria and through its stimulating action it promotes the formation of healthy granulating tissue and causes rapid healing.

Indicated in all conditions where a stimulating, antiseptic and styptic dressing is required, and as a prophylactic measure in the treatment of fresh wounds.

Supplied in all-metal, sprinkler-top cans, which avoid access of moisture and prevent the powder from caking.

¼ lb. Sprinkler-top cans, per doz.....\$2.00

## ALUM POWDER COMPOUND



Purified Burnt Alum, carefully Carbolized and Camphorated, then reduced to an impalpable powder without heating, thus preserving all of the therapeutic activity of the ingredients.

When a more strongly astringent dressing is desired than the formula listed above, this product is recommended. It is particularly valuable for checking the growth of exuberant fungus granulations (proud flesh). Its use is followed by rapid retraction and healing, and aids in preventing wound infection.

¼ lb. Sprinkler-top all-metal cans, per dozen .....\$2.00

**ANTISEPTIC DUSTING POWDER (With Private Label)**

The majority of our orders for Antiseptic Dusting Powders call for these products to be supplied under the buyers private label.

There is a constant demand for products of this kind, and by supplying them under his own name the veterinarian is enabled to control that demand. We urge the veterinarian to handle these products under his own label, because it brings him new business, and brings the client back for additional supplies.

We print special private labels for these powders when ordered in quantities of one-half gross or more, without extra charge. Choice of several styles of labels are offered, and samples of the different styles will be submitted upon request.

Our special all-metal container prevents caking of the powder through access of moisture.

1/4 lb. Sprinkler-top all-metal cans, with buyers' private label.	
Half-gross lots .....	\$11.50
Gross lots .....	22.00

**COMPOUND ZINC POWDER**

This powder represents: Zinc Stearate, Talcum, Burnt Alum, Camphor, Phenol, and Boric Acid, as a fine absorbent powder free from gritty or irritating particles.

Compound Zinc Powder possesses absorbent, antiseptic soothing and styptic properties, and freely used will control slight hemorrhages, form an effective protective dressing and stimulate repair.

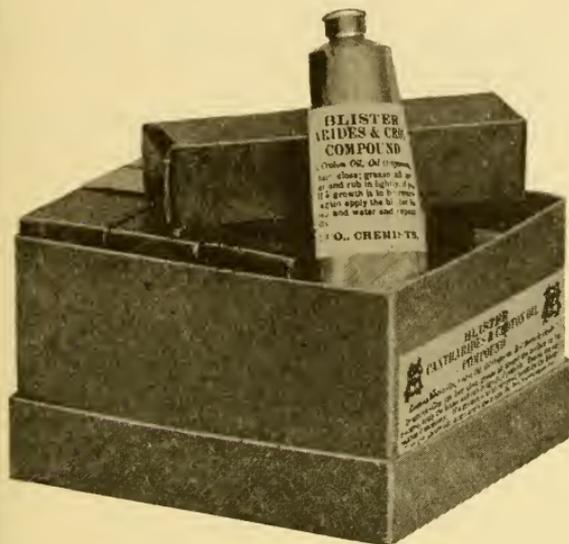
This powder will appeal to the practitioner who wants an antiseptic protective dressing that will not cause the formation of heavy hard crusts, thus delaying natural healing processes.

It is not as astringent as our Compound Alum Powder.

In 4-oz. sprinkler-top tins, per dozen...	\$ 2.25
With customer's private label, per 1/2 gross .....	12.75
Per gross .....	24.75

**BLISTER CANTHARIDES AND CROTON OIL COMPOUND**

Contains Cantharides, Croton Oil, Origanum and Red Mercuric Iodide.



This preparation has no superior as a powerful counter-irritant and vesicant. This is the opinion expressed by many veterinarians after giving it a thorough trial. It is a superior preparation because of its absolutely dependable action and great penetrating power; because it is practically painless and does not injure hair follicles; and because it is effective in one-half the quantity of ordinary

blisters. It is especially indicated in the treatment of exostosis of bone and cartilage, in promoting absorption of chronic and inflammatory deposits as in chronic pleurisy, in relieving sprained tendons and spavin, in treatment of painful swollen joints, bursitis, etc.

We recommend the use of this preparation in our collapsible tube package, which makes it convenient for dispensing and easy of application. Slip the label off the tube and write directions on the carton.

Directions: Clip the hair close; grease all around the surface to be blistered; apply the blister and rub in lightly if possible. Repeat the application if necessary. If a growth is to be removed puncture the blister and let the serum out; on the fourth day following apply the blister again if necessary; then cleanse well with soap and water and repeat the treatment as needed to produce the desired result.

Pound jar .....	\$2.50
Half-pound jar .....	1.35
Fourth-pound jar .....	.80
Half-ounce collapsible tubes, per doz...	2.00
One-ounce collapsible tubes, per doz...	3.50

**BLISTER IODOCAN**

Contains Gum Euphorbia 5 per cent, Red Mercuric Iodide 5 per cent, Mylabris (Chinese Blistering Flies) 5 per cent, Turpentine 2½ per cent, in a special ointment base.

A dependable blister for promoting absorption of chronic inflammatory deposits, for relieving sprained tendons, and for the treatment of spavin, etc.

Directions: Clip the hair closely, protect the surrounding surface with grease and apply the blister freely to the area, rubbing well into the skin where possible.

1 lb. can only .....\$1.50

**BLISTER SALVE**

This salve contains Red Mercuric Iodide 10 per cent and Cantharides 10 per cent in an antiseptic, oleaginous base.

Pound jar .....\$2.00  
 Half-pound jar ..... 1.10  
 One-half-ounce collapsible tubes, per dozen ..... 1.75  
 One-ounce collapsible tubes, per dozen. 3.00

**CERATE CANTHARIDES**

Contains Cantharides 35 per cent.

Useful as a vesicant and counter-irritant in acute laryngitis, in rheumatism and in the treatment of diseases of the joints, bones, tendons, etc.

¼ lb. jar .....\$0.65  
 1 lb. jar ..... 2.25

**BLISTER LIQUID, DR. WAGNER**

Contains Croton Oil, Turpentine, Oil of Camphor, Sulphuric Acid and Kerosene prepared according to the formula of Dr. Wagner.

Especially indicated in conditions characterized by swelling and rheumatic-like pains, in spavin, chronic inflammation, etc. This preparation must be carefully used as the oily base tends to the formation of a multiple bleb.

Pint bottle .....\$1.50

## Veterinary Boluses

In our line of hand-made veterinary boluses, we offer to the profession the most distinctive advance in veterinary pharmacy of recent years.

The introduction of this line met with instant approval, and its popularity with the profession has steadily increased.

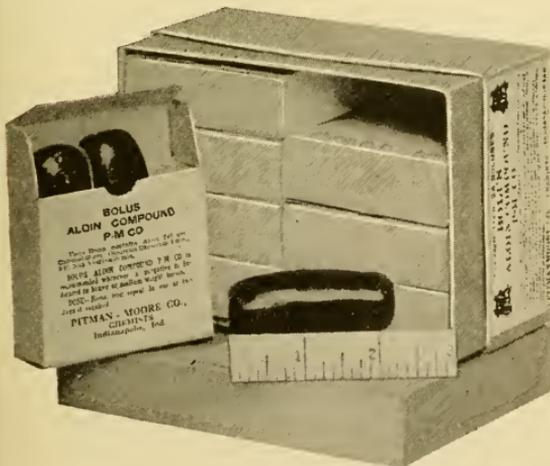
Our boluses are so shaped as to be easy of administration, being  $\frac{1\frac{3}{16}}$ -in. in diameter,  $2\frac{1}{4}$ -in. in length, with rounded ends. They are coated to preserve drug activity and disguise bitter taste.

By a special process of massing, these boluses remain soft and pliable; they disintegrate quickly and are readily absorbed. They are most convenient to carry, and will not break or crumble. An added advantage is that the dosage can easily be divided to suit any occasion, without discarding the remainder of the bolus. They are supplied in handy cartons for carrying in the medicine case.

### BOLUS ALOIN COMPOUND

Aloin .....	240 grs.
Calomel .....	60 grs.
Oleoresin Capsicum .....	4 Min.
*Fluidextract Nux Vomica .....	30 Min.

Dose: One bolus, repeated if necessary in 48 hours.



Bolus Aloin Compound will overcome the frequently heard complaint of practitioners, that they cannot secure an active aloin.

We have no hesitancy in saying it is the most popular equine cathartic on the market today.

This Bolus is strongly recommended in all conditions where thorough purgation is

indicated, as in dyspepsias, constipation, impactions, edemas

due to heart deficiency, the early stages of acute infectious fevers and the after treatment of colics.

Contra-indications—Marked inflammation of the gastrointestinal tract and pregnancy.

Per box of 24 (8 cartons of 3 each) . . . \$3.75

### BOLUS ALOIN COMPOUND "B."

Aloin .....	180 grs.
Calomel .....	45 grs.
Oleoresin Capsicum .....	3 min.
*Fluidextract Nux Vomica .....	22½ min.
Dosage: One bolus, repeated if necessary in 48 hours.	

A lighter formula than our Bolus Aloin Compound, for use with horses of light or medium weight, or with animals running on green pasture, or when a less drastic purgative action is desired.

Per box of 24 (8 cartons of 3 each) . . . \$3.25

### CATHARTIC CAPSULES

Aloin equivalent to 634 grs. of Barbadoes Aloes, Oleoresin Ginger equivalent to 60 grs. of powdered Ginger, Strychnine equivalent to 60 grs. of powdered Nux Vomica, Calomel 30 grs.

Per box of 12 . . . \$1.40

## Bolules

We have adopted this name to distinguish our Capsule preparations, containing their active medicinal contents in powder form, from our Bolus or mass form of medication. The formulae listed below are based on practical experiments and their increasing usage proves their value.

• They are packed in our handy packages of three bolules to a carton, eight cartons to the box. Sold only in the original packages.

### BOLULES ANTI-FLATULENCE

Each Bolule contains 240 grains of Salicylic Acid with a suitable carminative.

Dosage—Horse: One; may be repeated every two hours for several doses.

This bolule is used with markedly beneficial results in the control of fermentation, due to gastro-intestinal disturbances. It acts as a stimulant and absorbent and retards the fermentation of food.

Per box of 24 (8 cartons of 3 each) . . . \$2.00

\*Standardized.

## BOLULES ANTI-METRITIS (for Swine)

Contains Iodoform, Echinacea and Sodium Biboate.

The medicinal ingredients of this Bolule are the same as are contained in our Bolule Utero, which has proven so popular in the treatment of infective conditions of the bovine uterus.

It is of convenient size for application in the uterus of sows, and will be found extremely useful as a preventive of infection following parturition and for hastening the separation and expulsion of retained placental membranes.

Per bottle of 25.....\$1.25  
Per bottle of 100..... 4.50

## BOLULES ANTIMONY AND ARECA COMPOUND

Each Bolule contains: Antimony and Potassium Tartrate 60 grains in combination with Areca Nut, Ferrous Sulphate and Quassia.

Dosage: One or two bolules per day for five days, followed by a rapidly acting purge.

This bolule is an effective agent for removing various worms inhabiting the gastro-intestinal canal of horses.

Per box of 24 (8 cartons of 3 each)....\$2.00

## BOLULES UTERO

Contains Iodoform, Echinacea and Sodium Biboate.



Place capsule well within the uterus, or remove cap and distribute contents over area.

This bolule is used with success for stimulating contraction of the uterus, stimulating the separation of Cotyledons and hastening the return to normal condition. Its antiseptic action prevents infection and the use of sodium biboate avoids formation of gas and consequent danger of hemorrhage or rupture.

Per box of 24 (8 cartons of 3 each)....\$4.00

**CALISTRYCHNOS.** See Elixir Calistrychnos, page 32.

### CATHARTIC CAPSULES (Equine)

See under Boluses, page 22.

### CAPSULES SANTALAIN COMPOUND (for Swine)

Each capsule contains:

Santonin .....	2½ grs.
Aloin .....	2½ grs.
Calomel .....	2½ grs.
Areca Nut .....	q.s.

In No. 00 pink gelatin capsule.

Dosage: For pigs up to 150 pounds in weight 1 capsule.

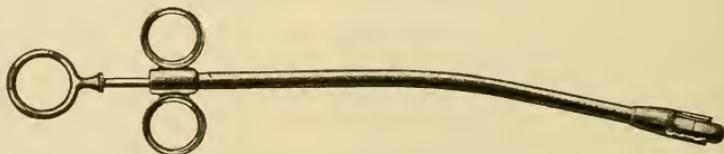
The use of these capsules eliminates the uncertainty and waste of giving vermifuges in the feed. Exact dosage to each animal means complete eradication of the parasites, and no one animal left to reinfest the entire herd.

This method of administering exact doses of proven anthelmintics to each individual animal was originated by us, and first described in our book, "Hogs—and How to Keep Them Healthy." It has developed a new and profitable field of veterinary practice, and is an exceedingly popular service to swine-growers everywhere. Its use will greatly increase profits from swine raising.

Directions: Give with balling gun (described below). Place capsule well back on tongue. Swine should be kept off feed twenty-four hours before treatment, and should be confined in a small area that can be thoroughly limed twenty-four hours after treatment, thus preventing reinfestation. Badly infested herds should receive a second treatment in 10 to 14 days.

Bottles of 100.....	\$ 11.50
Bottles of 500.....	56.00
Bottles of 1,000.....	110.00

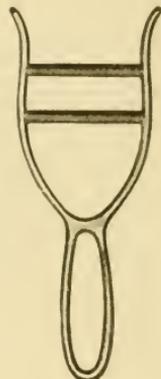
### SWINE BALLING GUNS



These guns afford the only practical method of giving our Capsules Santalain Compound and similar formulae. They are made of good quality brass tubing, heavy enough

to prevent crushing between the animal's jaws, and are heavily nickel-plated. Equipped with easy-acting spring, to retain capsule in position until released by driving home the plunger.

Each .....\$1.25  
 In lots of six or more, each..... 1.15



## SWINE MOUTH SPECULUM

For use with Swine Balling Gun for giving Capsules Santaloin Compound, etc.

Holds hog's mouth open in proper position for placing capsule well back on tongue.

The use of this speculum makes possible much more rapid handling of the animals and lessens danger of injury to throat.

Each .....\$1.00  
 In lots of six or more, each..... .90

## CHLORAL COMPOUND WITH POTASSIUM BROMIDE

One fluidounce is equal to:

Chloral Hydrate .....120 grs.  
 Potassium Bromide .....120 grs.  
 Ext. Cannabis .....1 gr.  
 Ext. Hyoscyamus .....½ gr.

A powerful calmative, sedative and relaxant. Of value in the treatment of spasmodic conditions, tetanus, colic and convulsions.

Dose—Horse: One-half to one fluidounce. Dog: One to two teaspoonfuls.

Pint .....\$1.35  
 5 Pints ..... 6.25  
 Gallon ..... 9.60

## COLORS, for Aqueous Solutions

Red for Water Solutions, oz.....25c  
 Yellow for Water Solutions, oz.....20c

## CONCENTRATED HYDROCARBON COLOR, for Oils

These coloring oils are greatly appreciated as a convenience by many veterinarians. Being soluble in turpentine, oils, petrolatum, etc., and guaranteed entirely harmless, they can be utilized in many ways. 15 or 20 drops will give a distinct color to one gallon of turpentine.

Yellow, per oz.....30c  
 Red, per oz.....35c  
 Green, per oz.....40c  
 Specify colors desired.

**TABLETS HYDROCARBON, for Coloring Oils**

Red, Green or Yellow, per bottle of 100...25c

**Compactoids**

When in the field, the veterinarian often is prevented from carrying many of the standard formulae for which he has constant use, because of their bulk. To overcome this difficulty, and to supply the practitioner with a means of dispensing such remedies extemporaneously wherever he is, we have devised our line of concentrated products which we have designated "Compactoids." They represent formulae in every-day use, and in most cases, require only the addition of the proper amount of water to complete the preparation for dispensing.

**COMPACTOID AMMONIA COMPOUND**

This product is four times the strength of U. S. P.  
Spirit Ammonia Aromatic.

One of our convenient and deservedly popular Compactoid family. Its convenience for handling and carrying will instantly recommend it, as it may be used full strength in one-fourth the dosage of the U.S.P. spirit, or may be diluted with three parts alcohol in which dilution it may be used in the same dosage as U.S.P. spirit. It may also be mixed with water in all proportions. Properly diluted, may be used as a drench.

This preparation will prove of great value as a quick-acting diffusible stimulant.

In pints only, per pint.....\$ 0.90  
Per dozen pints ..... 10.00

**COMPACTOID ARSENIC COMPOUND**

Two fluidounces of this concentrated solution mixed with water q.s. to make one pint, make a solution containing Sodium Arsenite equal to Arsenous Acid 1 per cent, the same arsenic strength as Fowler's Solution.

The most popular member of our Compactoid family, and another most convenient method of handling a standard preparation; avoiding the necessity of carrying large bulk and permitting extemporaneous preparation.

When diluted as above, use same as Fowler's Solution.

Pints .....\$0.50  
5 pints ..... 2.00  
Gallon ..... 3.00

## COMPACTOID CAPSIPHOR

A concentrated liniment containing Capsicum, Camphor, Oil Mustard, Oil Turpentine, Oil Sassafras, Oil Origanum and Ammonia.

This Compactoid permits the dispensing of a good liniment from the medicine case without carrying the greater bulk of the ordinary preparation.

One ounce of Capsiphor added to from three to seven ounces of water (depending upon strength desired) forms a good counter-irritant emulsion of creamy consistency, that separates but slowly and readily reforms by shaking.

When very pronounced counter-irritant effects are desired, as in glandular swellings, small quantities of the full-strength product may be dispensed.

In pints only, per pint.....\$ 1.25  
Per dozen pints ..... 12.50

## COMPACTOID PRUNI-PINUS COMPOUND

Each pint is equal to:

White Pine Bark .....	4 oz.
Cherry Bark .....	4 oz.
Sanguinaria .....	.224 grs.
Balm Gilead Buds .....	.256 grs.
Spikenard .....	.256 grs.
Sassafras .....	.128 grs.
Chloroform .....	.256 mins.

For syrup mix Compactoid Pruni-Pinus Compound 4 fluidounces, simple syrup 12 fluidounces.

The therapeutic effect of Syrup White Pine Compound can be secured by the addition of four fluidounces of this Compactoid to twelve fluidounces of water. A preparation of better appearance pharmaceutically, may be made by the use of simple syrup for making the dilution.

Pint .....\$1.20  
Special quantity prices quoted on application.

## CAPSOSAL (Solidified Liniment)

Composed of Methyl Salicylate, Menthol, Oil Erigeron, Oil Origanum, Oil Croton, Oil Sassafras, Capsicum and Camphor—combined in a bland base.

A warm penetrating counter-irritant in solid form. Useful for relieving pain, and in muscle soreness.

Directions: Rub in thoroughly over affected part and cover with flannel cloth.

1 lb. jar.....\$1.35  
1 doz. 1 oz. tubes..... 2.25

**COUGH AND COLD REMEDY No. 3**

One fluidounce represents:

Stramonium .....	30	grs.
Ammonium Chloride .....	54	grs.
With Sodium Chlorate, Tincture Iron Chloride and Glycerine.		

Dose—Horse: One ounce (two tablespoonfuls) given with dose syringe or as a drench.

Cough and Cold Remedy No. 3 is the sheet-anchor of many practitioners in the treatment of affections of the nose, throat and bronchi characterized by coughs either dry or moist. In cases of catarrhal inflammation, laryngitis, strangles (distemper), shipping fever, it will produce the result desired.

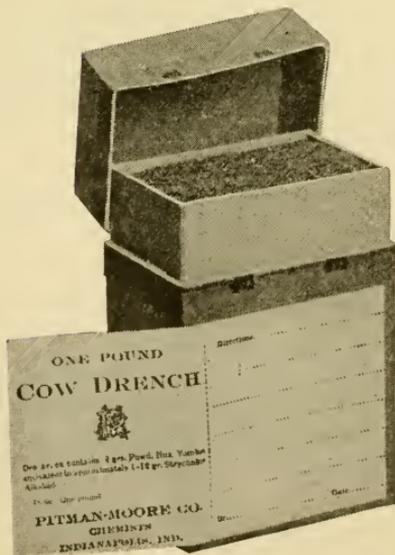
The effect of this formula is to reduce fever, liquefy and diminish secretions and relieve cough. Its action is both local and systemic, and is particularly valuable in chronic conditions following influenza and distemper.

Pint .....	\$0.65
5 pints .....	2.75
Gallon .....	4.00

**COW DRENCH**

One avoirdupois pound contains: Powdered Nux Vomica 115 grs., equivalent to Strychnine  $1\frac{1}{4}$  grs.; Gamboge, Ginger and Magnesium Sulphate, colored pink.

Dose: One pound when the hepatic and chologogue effect is desired; many cases respond well to the use of a small dose ( $1\text{-}5$  to  $\frac{1}{4}$  of a carton) repeated several times.



Cow Drench in one-pound doses, is a powerful purge, increasing peristalsis, and through the withdrawal of water from the tissues, produces a large watery stool. Given in smaller doses it is a valuable hepatic stimulant.

Useful in all conditions of cattle where a purgative is indicated such as congestion of liver, febrile disorders, absorption of toxins, constipation, etc.

Cow Drench is packaged ready for dispensing. The pound cartons have a double label perforated so that the name may be easily torn off

and individual directions written on the remaining part of the label attached to the package.

This is a profitable specialty for the veterinarian to handle in large quantities, and we call particular attention to our prices on one-half gross and gross lots.

Pound boxes, per dozen .....	\$ 3.50
½ gross pound boxes.....	18.75
1 gross pound boxes.....	37.00

## CRE-GUIATONE

Contains Guaiacol, Beechwood Creosote, Cresol, Oil Eucalyptus, Oil Camphor, Oil Sassafras and Turpentine in a special saponified base.

Cre-Guiatone is a concentrated preparation for use in the treatment of inflammatory conditions of the upper respiratory and gastro-intestinal tracts. It is a powerful stimulant, carminative and antiseptic.

For respiratory conditions, mix Cre-Guiatone, 1 floz., water, 15 floz., adding the water slowly, and shaking after each addition until a good emulsion is formed.

Dose: Horse, for respiratory conditions, one fluidounce of the dilution three times daily. As an intestinal antiseptic and absorbent in colics, etc., administer undiluted in capsule. Dose: ¼ to 1 floz., as indicated.

Pint .....	\$0.70
5 pints .....	3.00
Gallon .....	4.40

## CREO-PINUS COMPOUND

Each fluidounce represents:

White Pine Bark .....	32 grs.
Grindelia .....	32 grs.
Sanguinaria .....	4 grs.
Guaiacol and Creosote .....	4 min.
Hyoscyamus .....	32 grs.
Wild Cherry Bark .....	16 grs.
Yerba Santa .....	4 grs.
Sodium Nitrite .....	3 grs.

Dosage—Horse: One fluidounce (2 tablespoonfuls) every three or four hours.

**CREO-PINUS COMPOUND—Cont'd**

Indicated in the treatment of bronchitis, colds, coughs, laryngitis, strangles and other inflamed or irritated conditions of the throat and respiratory tract. Its administration is followed by relief of irritative symptoms, the localization of inflammatory processes, liquefaction and easy expulsion of mucous and rapid improvement.

The heavy drug strength and pleasant flavor make this a valuable remedy in all conditions indicating the administration of a sedative, astringent cough syrup.

Pint .....	\$0.85
5 pints .....	3.75
Gallon .....	5.60

**CREOSOTE AND EUCALYPTUS COMPOUND**

One fluidounce contains:

Phenol (carbolic acid).....	½ per cent
Creosote Beechwood .....	1 per cent
Camphor .....	1 per cent
Oil Eucalyptus .....	1 per cent

In a bland fatty oil base.

Dose—Horse: (Internally) one fluidounce; give second dose in one-half hour; then repeat every three hours. Colts and calves; one-half to one tablespoonful given as above.

(Externally): Use freely without dilution on wounds, traumatic or surgical; burns, chafing, etc., keeping the parts well covered with bandage dressing.

Creosote and Eucalyptus Compound is a preparation of high value for both internal and external use. An antiseptic dressing of great germicidal and healing power. It does not irritate, but on the contrary allays itching and pain.

Internally, it is a splendid intestinal antiseptic, quickly checking fermentation of the contents of stomach and bowels, and is a local sedative to inflamed and irritated membranes.

Systemically, it reduces fever, but does not cause depression of circulation or respiration.

Pint .....	\$0.70
5 pints .....	3.00
Gallon .....	4.40

**DUSTING POWDERS**

See Antiseptic Dusting Powders, page 17.

**ECHI CHLORIDE, Stronger**

Contains Chloride of Zinc and Echinacea in a Lanum and Petrolatum base.



Echi Chloride Stronger is the favorite of many practitioners in the treatment of fistula. It is to be applied on gauze and well-packed into the pipes, or ramifications of the infectious process, where it causes irritation and hardening of the diseased parts, which can be removed practically complete after three days to one week's contact with the pack.

Per pound .....\$1.50  
Packed in pounds only.

**ELECTUARY AMMONIUM CHLORIDE AND STRAMONIUM COMPOUND**

One ounce avoirdupois contains:

Stramonium herb 28 grs., with Ammonium Chloride, Iron Chloride, Sodium Chlorate, Licorice and Glycerin.

Dose—Horse: One ounce (2 tablespoonfuls) four times daily until improvement is well-marked, then three times daily. Measure on a spoon or paddle and smear on the teeth.

Many veterinarians prefer to apply treatment for affections of the throat in the form of an electuary, because medicinal ingredients are thus kept longer in contact with the affected parts.

For this purpose Electuary Ammonium Chloride and Stramonium Compound will be found ideal. It is exceptionally useful in the treatment of all coughs, colds, laryngitis, strangles (distemper), stock - stable



or shipping fever, catarrhal fever and all throat and bronchial affections.

Its use is followed by diminution of cough, reduction of secretions which become liquefied and easily expelled, depletion of congested and swollen membranes, rapid restoration of normal functions.

This Electuary is semi-liquid and is easily administered on a paddle or spoon.

1 lb. jar .....	\$0.70
3 lb. jar .....	1.75

### ELIXIR BUCHU JUNIPER AND ACETATE POTASSIUM

One fluidounce is equal to:

Buchu .....	80 grs.
Juniper .....	40 grs.
Uva Ursi .....	40 grs.
Potassium Acetate .....	24 grs.

Dose—Horse: One to two fluidounces.

Our Elixir Buchu Juniper and Acetate Potassium is the outgrowth of much experimental testing resulting in a remedy of great value and having a distinctive action not given by many preparations bearing similar names. This elixir contains all the constituents of the drugs named in the formula, which have valuable diuretic and blenorrhetic action.

See also Zeamantine Compound, Veterinary, and Elixir Uva Ursi Compound.

Pint .....	\$ 1.60
5 pints .....	7.50
Gallon .....	10.50

### ELIXIR CALISTRYCHNOS

Each fluidounce represents:

Strychnine Sulphate .....	½ gr.
Iron Pyrophosphate .....	8 grs.
Calisaya Bark (alkaloid equivalent).....	20 grs.

Dose—Horse: One to two fluidounces three times daily.

Colt: One to two fluidrams.

In Calistrychnos, the profession is offered an excellent bitter tonic having a wide range of usefulness as a reconstructive and stimulant.

It will prove its value in all forms of wasting diseases, secondary enemias, inappetence and in weakened and run-down conditions.

For restoring tone to muscular tissue, stimulating the circulatory and nervous systems, supplying iron to the blood in an easily assimilable form, this formula will not disappoint its users. With these factors, its stimulating effect upon the alimentary tract will produce better appetite and better digestion.

Pint .....	\$0.80
5 pints .....	3.25
Gallon .....	4.50

## ELIXIR DIGITALIS AND LOBELIA COMPOUND, DR. ROBERTS

Contains Digitalis, Lobelia and Arsenic in a suitably aromatized elixir base.

Dose—Horse: One-half fluidounce morning and evening, given either mixed with feed or in syringe.

This elixir is especially recommended as a palliative treatment in so-called “heaves” in horses. Lobelia, long recognized as of value in this condition, is combined with digitalis for its effect as a cardiac tonic, and arsenic for its general systemic tonic action.

When administered early after symptoms first appear, the condition often entirely disappears; while in later stages, this elixir relieves the animal while under treatment, preventing the characteristic respiratory symptoms by its relaxant and tonic effect.

Pint .....	\$1.05
5 pints .....	4.75
Gallon .....	7.20

## ELIXIR FERROGEN “B”

Each fluidounce represents:

Tinct. Gentian .....	100 mins.
Tinct. Iron Citro-chloride .....	80 mins.
Strychnine Sulphate .....	½ gr.

Dose—Horse: One-half to one fluidounce five times daily.

An energetic reconstructive tonic. The iron carried in this formula is in a form easily assimilated and is free from astringent effect. The preparation is practically free from bitterness and is easy of administration.

Following its use there is pronounced and rapid toning-up of the digestive, circulatory and nervous systems, increase of appetite and improved digestion and assimilation. It has been found very effective in animals that have “gone stale” while in training.

Pint .....	\$0.85
5 pints .....	3.75
Gallon .....	5.60

**VETERINARY ELIXIR UVA URSI COMPOUND**

Each fluidounce represents:

Uva Ursi .....	40 grs.
Corn Silk .....	20 grs.
Sodium Acetate .....	80 grs.
Juniper Berries .....	40 grs.
Scoparius .....	40 grs.
Aromatics .....	q. s.

Dose—Horse: One-half to two fluidounces three to four times a day.

An excellent non-irritating diuretic.

The diuretic principles of the drugs in this formula are presented in their most active form and without irritant action on the gastro-intestinal tract.

This preparation has a direct action on the kidney secretion, increasing the elimination of fluid and rendering the urine antiseptic.

For allaying irritation of the genito-urinary tract, increasing the volume of urine, thus securing dilution of toxins and removal of fluid from the system, Elixir Uva Ursi Compound will prove a most valuable remedy.

Pint .....	\$0.90
5 pints .....	4.50
Gallon .....	6.00

**EQU-LAX**

A highly concentrated preparation representing in each fluidounce:

Aloes, whole .....	480 grs.
Podophyllum .....	300 grs.
Nux Vomica .....	15 grs.

Dose—Horse: One-half to two fluidounces as drench or in syringe. Repeat in two days if required. Best results are obtained by exercising the horse.

The many needs of the veterinarian for a suitable liquid Aloes Cathartic in concentrated form, are admirably met in this preparation.

It presents the whole aloes in more than fluidextract strength, suitably synergized by Podophyllum and Nux Vomica. The cathartic action is not that of Aloin alone but the preparation exhibits the valuable action of the whole aloes, having its active principle in chemical combination with the colloidal substances of the drug, thus insuring more powerful action.

Because of the concentration of this formula and the colloidal nature of the aloes, this preparation has a tendency to gelatinize on standing; it will again become liquid if warmed gently and well-shaken.

In pints only, per pint .....	\$2.00
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## Hysolvets

(HYPODERMIC SOLUTIONS, VETERINARY)

The veterinarian who has once learned the convenience of these handy little ampoules will not willingly be without them. They are a distinctive feature of the Pitman-Moore Veterinary line.

The solutions are sterile, and the dosage given is absolutely accurate. The soft rubber stoppers are sealed into the ampoules, and are to be punctured with the hypodermic needle. Thus the veterinarian can remove whatever amount of the contents he desires, without contamination or loss of the remainder.



The superior appearance of this line of medication will appeal to the careful practitioner and to his most fastidious client. The similarity of the package to that of bacterins and serums permits similar technique in administration. They enable the veterinarian to carry a sterile, accurate hypodermic solution, always ready for instant use.

### HYSOLVETS CAMPHOULES 25 MILS. (Cc.)

Each 5 mil. (Cc) contains Camphor 18 grs. dissolved in pure Olive Oil, sterile and ready for hypodermic injection.

Dose—5 to 25 mils. (Cc) as indicated by patient's condition.

### • HYSOLVETS CAMPHOULES—Cont'd

Solutions of camphor in oil are recognized as being of the highest value as a quick-acting and powerful circulatory stimulant with a sedative action on the nervous system. The value of these solutions has been thoroughly demonstrated in pneumonias, shock, heat-stroke, shipping-fever, milk-fever, etc. Dependable in emergencies.

This solution is particularly valuable in the form of our Camphoules, a sterile, accurate solution of camphor in pure olive oil, ready for instant use.

Per box of six 25-mil. vials.....\$1.75  
Per dozen vials (two boxes)..... 3.25

### HYSOLVETS CAMPHOULES 5½ Mils. (Cc).

Containing same solution as Camphoules 25 mils., but in smaller vials for individual dosage.

Per box of 12 vials.....\$1.75  
Per ½ dozen boxes (72 vials)..... 8.00

### HYSOLVETS SODIUM CACODYLATE, 45 Grs.

Each 25 mil. (Cc) vial contains Sodium Cacodylate 45 grs., in sterile solution prepared for hypodermic or intravenous use.

Owing to the slow liberation of the organic arsenic in the blood-stream, the antiseptic effect on the blood of Sodium Cacodylate is effective and lasting. It has been characterized as the only dependable blood antiseptic that can be applied directly in the blood-stream.

The many conditions in which it can be used beneficially have been described by Quitman and others. In many forms of septicemias and anemias, low types of malarial and other fevers, in various skin diseases of dogs, cattle and horses, in infectious ophthalmia, as a specific for red-worm (*strongylus armatus*), and in various other conditions in which disinfection of the blood stream or the administration of arsenic is indicated, sodium cacodylate will prove most valuable.

Our Hy-sol-vets offer the drug in a safe, sterile and accurate solution, ready for intravenous or hypodermic administration.

Per box of six vials .....\$1.60  
Per dozen (two boxes of 6 vials each).. 3.00

**IODINE SOLUBLE VETERINARY**

Contains Iodine 1%, Potassium Iodide 3% in a non-alcoholic solvent.

A useful preparation for the internal administration of iodine for systemic effect, or properly diluted, it forms a valuable douche, either for uterine or vaginal use in the infections of these parts. It may also be used as an injection into the fatty tissue above the eye in periodic ophthalmia.

Dose: Horse, orally, one-half to one fluidram well diluted. Swine: Orally, five to ten minims well diluted in water. As uterine douche in cattle, one quarter to one per cent ( $\frac{1}{3}$  to  $1\frac{1}{4}$  floz. to 1 gallon of water).

In 2 oz. bottles, per bottle.....	\$0.30
Per doz. bottles .....	3.00
Per pint .....	1.00

**KREUCAMPH**

Contains Cresol 20 per cent, with Eucalyptus Oil, Camphor Oil and Turpentine, in a specially prepared soap base, suitably aromatized. Inert material 20 per cent.

Use in the proportion of one-half to one ounce to one gallon of water.

The veterinary profession demands a dependable anti-septic, germicide and disinfectant that will form a perfect emulsion with water, either hard or soft.

Kreucamph successfully meets this demand. Its Cresol content guarantees its germicidal power; the emulsifying agents are so combined as to give a perfect emulsion with the different waters found in the field with no uncombined oily substance floating on the solution.

Solutions of Kreucamph are practically non-caustic, and will not injure the user's hands.

This preparation has an extremely wide range of usefulness for both external and internal application, as well as for a general antiseptic and disinfectant. May be used for disinfecting surgical instruments; as a lotion for wounds, retarding bacterial infection and stimulating repair; as a general disinfectant and insecticide. Internally, a valuable treatment for colics, to check fermentation and relieve flatulence. When colored solutions are desired add a few drops of our Coloring Solution Oils to the Kreucamph before making the solution.

Pint .....	\$0.60
5 pints .....	2.50
Gallon .....	3.50

**LIQUID CASCARA FLAVORED**

One fluidounce is equal to Rhamnus Purshiana (Cascara Sagrada). 456 grs., with Aromatics, Glycerin; slightly alkaline.

Dosage—Dog: One teaspoonful night and morning.

Liquid Cascara Flavored is made from selected and aged Cascara Bark in which the bitter constituents have been modified. It is very effective as a laxative, acts mildly and does not require increased dosage when used frequently.

Reports from many of our customers justify us in recommending this preparation as thoroughly satisfactory for the cases where Cascara freed from bitterness is wanted.

This preparation is not a drastic purgative in any dose however large. Best results come from continued moderate dosage.

Pint .....	\$1.10
5 pints .....	5.00
Gallon .....	6.80

**LIQUID SOAP**

A pleasantly perfumed, highly concentrated solution with superior cleansing qualities. Forms a generous lather in either hard or soft water.

A bottle of Liquid Soap in the medicine case will prove wonderfully convenient. A good impression upon your client can be created by cleansing the hands with this liquid preparation before beginning the treatment of a case.

Liquid Soap is convenient and economical for home, office or field use. Include a trial package with your next order.

4-oz. sprinkler-top bottles, per doz....	\$2.25
Pint .....	.65
5 pints .....	2.75
Gallon .....	4.00

**OIL NITROUS ETHER**

One fluidounce contains Ethyl Nitrite 18 1-5 minims. Fully equal to Sweet Spirit of Nitre U.S.P.; in percentage of Nitrous Ether (ethyl nitrite).

Dose—Horse or Cow: One-half to two fluidounces.

Oil Nitrous Ether produces the same therapeutic effect as Sweet Spirit of Nitre, with the exception of the alcohol stimulation of the latter. This product is more stable than Spirit Nitrous Ether, and has the advantage that when mixed with water, it forms an emulsion that does not so readily break down the nitrous ether content.

It has been found of especial value in cattle practice.

Pint .....	\$0.80
5 Pints .....	3.50
Gallon .....	5.20

## OINTMENT ALCUMETHONE

Composed of Copper Sulphate 5%, Alum 2%, Methylene Blue 3/10%, Oil of Sassafras, Synth. 1%, incorporated in a special ointment base.

Alcumethone will be found of real value in the treatment of Galls and other chronic open wounds due to irritation or trauma. Freely applied to such cases, its powerful astringent action will stimulate the repair of the wound, while the methylene blue content will retard the development of infection.

Directions: Apply freely to the diseased parts twice daily, gradually diminishing as improvement occurs.

Pounds only, per pound.....	\$0.50
5 one-pound cans.....	2.00

## OINTMENT PHYCAMPHOL

Contains Extract Phytolacca (Poke Root) 10% (equal to 131 grains of crude drug), Camphor 2%, Carbolic Acid 1/2%, and Capsicum 1/2%, in a base specially devised for rapid and complete absorption



First use hot applications to the affected part, then apply Ointment Phycamphol with gentle massage.

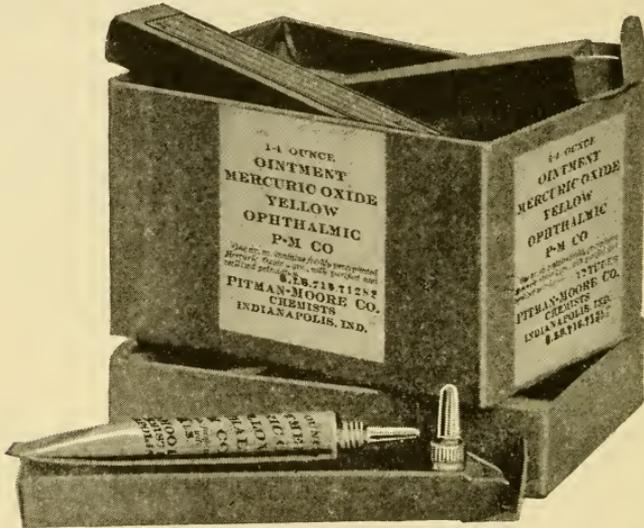
The great field for the use of this formula is in the treatment of Mammitis. Its immense popularity with practitioners in dairy districts, and the enthusiastic reports of the good results it gives are the best evidence of its value.

Ointment Phycamphol is highly recommended for all glandular infections. Its value is greatly increased by the special ointment base which assures quick and thorough absorption. The tube package is convenient for dispensing and use.

2-oz. collapsible tubes, per doz.....	\$3.00
1-pound cans, per pound.....	1.00
5-pound cans, per can.....	4.50

## Ophthalmic Ointments

These ointments are made with especial care. They are free from gritty substances and to facilitate ease of application are put up in 2½ gram collapsible tubes with special eye tip.



### OINTMENT ADRENALIN AND HOLOCAIN COMPOUND OPTHALMIC

Holocain Hydrochloridè 1%, Adrenalin Chloride sol. 1/1000 5%, Adeps Lanae, Petrolatum Alba.

Local anesthetic, astringent and haemostatic.

	Dozen	½ Gross
2½-gram tubes .....	\$1.60	\$8.00

### OINTMENT ATROPINE AND YELLOW MERCURIC OXIDE

Atropine 5%, freshly precipitated Mercuric Oxide Yellow 0.9%, in purified petrolatum.

Useful in suppurative conditions of the eye where it is desirable to keep pupil dilated and prevent adhesions.

	Dozen	½ Gross
2½-gram tubes .....	\$1.25	\$6.00

### OINTMENT BICHLORIDE OPTHALMIC

Mercury Chloride corrosive, 1/10000: Petrolatum Alba q. s.

Antiseptic in purulent conjunctivitis or other forms.

	Dozen	½ Gross
2½-gram tubes .....	\$1.25	\$6.00

## OINTMENT BORIC ACID OPHTHALMIC

Acid Boricum .....	3%	
Adeps Lanae .....	5%	
Petrolatum Alba .....		q. s.

Bland, soothing ointment.

	Dozen	½ Gross
2½-gram tubes .....	\$1.25	\$6.00

## OINTMENT CALOMEL OPHTHALMIC

Calomel .....	1%	
Adeps Lanae .....	5%	
Petrolatum Alba .....		q. s.

Of value in keratitis.

	Dozen	½ Gross
2½-gram tubes .....	\$1.25	\$6.00

## OINTMENT ICHTHINE OPHTHALMIC

Ammonium Sulpho-ichthyoliceum .....	5%	
Adeps Lanae .....	10%	
Petrolatum Alba .....		q. s.

Of value in ulcerative blepharitis.

	Dozen	½ Gross
2½-gram tubes .....	\$1.35	\$6.25

## OINTMENT MERCURIC OXIDE YELLOW OPHTHALMIC

Contains freshly precipitated Mercuric Oxide ½ grain in each dram.

Useful in blepharitis, chronic conjunctivitis, phlyctenular keratitis, opacities of cornea, etc.

	Dozen	½ Gross
2½-gram tubes .....	\$1.25	\$5.75
¼-ounce tubes.....	1.50	7.00

## Ophthalmic Solutions

These solutions are specially prepared for use in the treatment of the eye. They are completely sterile and should be handled aseptically.

### OPHTHALMIC SOLUTION ANTISEPTIC

Each fluidounce contains Antipyrine 5 grs., Boric Acid and Sodium Bi-borate.

Directions: Use freely in eyes three times daily. Anodyne and antiseptic. Relieves pain and irritation.

Pints .....	\$1.00
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**OPHTHALMIC SOLUTION ASTRINGENT**

Contains Boric Acid, Camphor and Zinc Sulphate.

Directions: Use freely three times daily as wash for inflamed conditions of the eye. Useful in Conjunctivitis.

Pints .....\$0.75

**PYO-BISMUTH PASTE, DR. R. C. JULIEN**

This paste consists of Bismuth Subnitrate and Pyoktanin, in a specially prepared base.

For the treatment of open navel and prevention of infection through the same.

The paste remains solid at the body temperature of the horse, and for use should be warmed by placing tube in warm water while preparing the navel for injection. The paste is then injected into the umbilicus through the tip that accompanies package and allowed to completely fill the opening. After setting it will hold its position and being antiseptic controls pyogenic infection and stimulates closure. A suture around the umbilicus will assist in retaining the paste, and may be applied as follows: Pass a curved needle threaded with heavy braided silk under the skin (about one inch from the navel opening) down through and posterior to the umbilical cord and out through the skin on the opposite side; return needle to or near the point just made, passing it through the skin and anterior to the umbilical cord at or near the point of first starting; now, tie the silk suture drawing it smartly tight, leaving two or three inches of the suture free at the ends; these loose ends will aid in removing the suture, which should be done in about one week.

Stains on hands from the paste can be readily removed by washing with alcohol and weak hydrochloric acid.

Marketed only in tubes containing two ounces with applicator pipes.

Per tube .....\$ 1.00  
1 dozen tubes .....10.80

**PELLITOL (Ointment Bismuth Subgallate Comp.)**

Contains Resorcin 5%, Purified Pyroligneous Acid, Oil of Cade, Echinacea, Zinc Oxide, Bismuth Subgallate, Bismuth Subnitrate, Calamine and Talcum in a special lanum-petrolatum base.

This preparation, which for years has been a marked favorite with human physicians over the entire country, is steadily gaining popularity with the veterinary profession.

Pellitol allays itching, reduces inflammation and relieves localized pain almost as soon as applied. It penetrates the skin readily and also has sufficient consistency to be a good protective covering for irritated and sensitive surfaces. When applied to highly inflamed surfaces Pellitol may become much softer and melt; this quickens the absorption and since the congestion and inflammation is rapidly reduced, a second application after a short interval, usually remains in place.

This ointment is carefully freed from gritty particles; examine Pellitol under a magnifying glass and note its uniformity and smoothness. It never irritates and can usually be applied to the most sensitive surfaces.

Pellitol produces good results in fissured or sore teats of cows, scratches of horses, fistulas, saddle galls, chafing under collar, etc., all kinds of itching, canker of ear in dog, eczema, etc.

As a healing salve Pellitol is in a class by itself. Antiseptic and parasiticide.

It is as a dressing for burns that Pellitol has established its greatest reputation; many prominent practitioners of both veterinary and human medicine agree that in burns of any degree no better treatment exists than the free application of this ointment.

**BURNS**—Apply freely, covering the burned area with a layer of Pellitol about  $\frac{1}{8}$ -inch thick; repeat frequently but do not remove the first layer until the burn has greatly improved.

A supply of this splendid ointment should be in your drug room.

Pound jars .....	\$2.50
$\frac{1}{2}$ -pound jars .....	1.35
$\frac{1}{4}$ -pound jars .....	.70

## Powders

(See also Antiseptic Dusting Powders, pages 17-18.)

### POWDER SULPHOCARBOLATES COMPOUND

Contains equal parts of specially purified Sulphocarbolates (Phenol-sulphonates) of Calcium, Sodium and Zinc.

Dose—Horse:  $\frac{1}{4}$  ounce. Pig: 15 to 30 grs. Chickens: One heaping teaspoonful dissolved in one pint of drinking water.

**POWDER SULPHOCARBOLATES COMP.—Cont'd**

The value of this formula as an intestinal antiseptic for all species of animals and fowls is well recognized and while most frequently administered in tablet form, in many cases the use of the powder is more convenient. It can be mixed with soft feed or readily dissolved in drinking water.

It is indicated, and gives good results in intestinal fermentation, gastro-enteritis, diarrhea, and is a valuable treatment for scours in young animals and in fowl cholera. Free dosage with this powder usually promptly reduces fever.

(See also Tablets Phenol-sulphonate Compound, page 56.)

1-pound bottle .....	\$1.35
5-pound bottle .....	6.00

**POWDER ARSENIC AND IRON COMPOUND No. 3**

Contains Arsenic Trioxide, 1 part; Iron Sulphate, dried, 20 parts; Sodium Nitrate, 20 parts; Foenugreek, 20 parts; Linseed, 20 parts.

Dose—One-half ounce mixed with feed.

Powder Arsenic and Iron Compound is a valuable hematinic, alterative, diuretic, and stomachic for horses and cattle; useful as a general tonic in debilitated conditions, anemias, nervous disorders, etc.

Pound box, per dozen.....	\$3.25
25 1-pound boxes .....	6.25

**POWDER ARSENIC AND IRON COMPOUND No. 4**

Dose—One-half ounce mixed with feed.

This powder differs from Powder Arsenic and Iron Compound No. 3 in containing Willow Charcoal and Sodium Chloride; therapeutically it is slightly more diuretic.

Pound box, per dozen.....	\$3.25
25 1-pound boxes.....	6.25

**POWDER GENTIAN AND NUX VOMICA COMPOUND No. 3**

Contains Ginger, Nux Vomica, Iron Sulphate, dried; Sulphur, of each 1 part; Sodium Nitrate, 2 parts; Oil Cake, 4 parts; Foenugreek, 4 parts; color and flavor, 1 part.

Dose—One-half ounce mixed with feed.

Tonic and stimulant, alterative and diuretic.

Pound boxes, per dozen.....	\$3.25
25 1-pound boxes.....	6.25

With customer's private label.

½-gross lots .....	\$18.00
1-gross lots .....	35.50

**POWDER GENTIAN AND NUX VOMICA COMPOUND No. 4**

Dose—One-half ounce mixed with feed.

This powder differs from Powder Gentian and Nux Vomica Compound No. 3 in containing Sodium Chloride and Charcoal.

Pound box, per dozen .....	\$3.25
25 1-pound boxes.....	6.25

**RUMERIA ASTRINGENT**

One fluidounce is equal to:

Krameria .....	40 grs.
Rubus (Blackberry Root) .....	24 grs.
Tincture Ginger .....	120 mins.
Eugenol .....	$\frac{1}{3}$ gr.
Sulphonates from Guaiacol and Creosote.....	16 grs.

Dosage—Colt or Calf: One-half to two fluidrams every hour.

There is efficiency in every constituent of this formula. It combines the best intestinal astringents with dependable intestinal antiseptics. For the treatment of diarrhoea and intestinal disturbances in young animals Rumeria Astringent has no superior. Its increasing popularity among veterinarians who have tried it thoroughly is the best evidence of its value.

Pint .....	\$0.90
5 pints .....	4.00
Gallon .....	6.00

**SABISMUL—White or Pink**

One fluidounce contains:

Bismuth Hydroxide, equal to Milk of Bismuth..	77 mins.
Zinc Sulphocarbolate .....	8/10 gr.
Pepsin .....	4 grs.
Salol .....	$1\frac{3}{5}$ grs.

Dose—Colt or calf: One tablespoonful. Suckling pigs: One teaspoonful. Should be given every fifteen minutes during first hour, then at longer intervals until relieved.

Sabismul will produce pleasing results in fermentative diarrhoeas of very young animals, and can be relied upon when especially valuable animals are under your treatment. This formula produces a mild antiseptic, astringent and sedative action on the mucous membrane of the gastro-intestinal tract, relieving the irritability of the stomach and bowel, protecting the inflamed membranes, and gradually changing the character of the intestinal secretions.

Pint .....	\$0.80
5 pints .....	3.50
Gallon .....	4.80

**SCARLET OIL COMPOUND "B"**

Contains Scarlet Red Medicinal, Menthol, Camphor, Balsam Peru, Thymol Iodide, Eucalyptol, Salol, Carbohc Acid and Oil Tar, dissolved in a bland mineral oil.

A stimulating antiseptic dressing for the treatment of cuts, wounds, abrasions or burns.

Applied freely, this preparation stimulates rapid repair, prevents infection, stops pain and prevents soreness. It keeps the tissues soft and pliable, and assists nature to reduce scar formation and assists in preventing subsequent contraction of muscles or ligaments.

Dressings moistened with Scarlet Oil Compound "B" do not adhere to the wound and may be changed without injury to the delicate granulations of repair.

Note: After repair of the wound has advanced to a point of safety, it is well to dilute the applications of this preparation with mineral oil to prevent over stimulation.

4-oz. bottles with applicator swab and direction label, per doz.....	\$3.50
Pint .....	.80
5 pints .....	3.50
Gallon .....	5.20

**Solutabs**

This name designates tablets especially designed to dissolve quickly and completely. They are hand-molded, true to weight and readily soluble.

**SOLUTABS CHLORAMINE T. 4½ grs.**

This tablet is intended for use as a chlorine antiseptic in solutions of from one-half to two per cent.

Solutabs Chloramine T. 4½ grs. are tested to insure the available chlorine content of 4½ grs of Chloramine T. When one tablet is dissolved in one fluidounce of water, a strongly germicidal solution is formed which does not precipitate albumin.

Packed in bottles of 100 only.	
Per 100 .....	\$0.55
Per 500 (5 bottles).....	2.50
Per 1,000 (10 bottles).....	4.80

**SOLUTABS MERCURIC-POTASSIUM IODIDE**

Each tablet represents:

Mercuric-Potassium Iodide .....1 4/10 grs.  
Sodium Bicarbonate .....q. s.  
Sodium Hydroxide .....q. s.

One tablet dissolved in one pint of water makes a 1 to 5,000 solution; equal in germicidal power to 1 to 1,000 Bichloride Solution. Contains added color to make solution light blue.

These tablets possess the following advantages:

The solution does not coagulate albumen; does not injure metal; does not irritate the hands; does not attack nickel or steel instruments because of the presence of free alkali which unites chemically with the carbon dioxide held in solution in water, thus preventing action on these metals.

The Mercuric-Potassium Iodide contained in this tablet is made before being added to the remaining ingredients, insuring accuracy of the formula.

These tablets are carefully tested to prove their bactericidal action.

Packed only in bottles of 100.

100 .....	\$0.55
500 (5/100s) .....	2.50
1,000 (10/100s) .....	4.80

**SYRUP CANNABIS COMPOUND, NO MORPHINE**

One fluidounce is equal to Cannabis Indica, 7½ grs.; Chloroform, 4 mins.; Lobelia, 7½ grs.; Tartar Emetic, ⅛ gr.; with Tolu and Aromatics.

Dosage—Horse: One fluidounce. Dog: One fluidram.

Syrup Cannabis Compound is an effective expectorant and sedative; it allays irritation, reduces inflammation and favors liquefaction and expectoration of bronchial mucus. The distinctive appearance and acceptable taste of this syrup and the certainty of its action have made it very popular among our customers.

Pint bottle .....	\$0.75
5-pint bottle .....	3.25
Gallon bottle .....	4.50

**SYRUP MELPINOL COMPOUND**

One fluidounce is equal to:

Chloroform .....	4 mins.
Syrup Wild Cherry .....	90 mins.
Syrup Sanguinaria .....	10 mins.
Syrup Senega .....	8 mins.
Syrup White Pine .....	60 mins.
Syrup Ipecac .....	20 mins.
Syrup Squills .....	160 mins.
Honey, Eucalyptol and Anise.	

Dose—Horse: One-half to one fluidounce every three hours.

This syrup has proven itself a very satisfactory preparation in the relief of troublesome conditions of the upper respiratory tract, where it acts as a sedative and stimulates secretion.

Pint .....	\$0.60
5 pints .....	2.50
Gallon .....	3.60

**SYRUP WHITE PINE COMPOUND No. 2**

Each fluidounce is equal to:

White Pine Bark .....	30 grs.
Cherry Bark .....	30 grs.
Blood-root .....	4 grs.
Balm Gilead .....	4 grs.
Spikenard .....	4 grs.
Sassafras .....	2 grs.
Chloroform .....	4 mins.

The value of this formula has long been recognized in the treatment of laryngeal and bronchial coughs.

Pint .....	\$0.60
5 pints .....	2.50
Gallon .....	3.60

**TERRAGENE**

This preparation contains earthy silicates, glycerin and antiseptics. It is an antiseptic, hygroscopic application which quickly relieves congestion and pain. It is useful wherever there is inflammation or congestion, whether superficial or deep seated.

Directions: Warm Terragene by setting the can in a pan of boiling water, being careful to prevent any water from mixing with it. When it is as warm as can be applied, spread it about an eighth of an inch thick over the inflamed part, cover with absorbent cotton, heavy cloth or oiled paper;

hold in place with bandages. Allow the dressing to remain in place twelve to twenty-four hours, when it will peel off, leaving the parts clean.

½-pound cans, per dozen.....	\$2.25
1-pound cans, per dozen.....	4.00
5-pound can .....	1.75

## THYCAMPHONE

Contains Menthol, Camphor, Balsam Peru, Thymol Iodide, Eucalyptol, Salol, Carbolic Acid and Oil Tar, dissolved in a special mineral oil base.

Thycamphone has thoroughly proved its high value in the local treatment of wounds—traumatic or surgical—abrasions, fistulous tracts, barb-wire cuts, burns and all similar conditions where a protective, antiseptic and healing dressing is required. It possesses marked germicidal, antiseptic and stimulant properties; when applied to wounds will promote healthy granulation and rapid healing, retard infection, relieve pain and irritation, and by keeping the tissues softened and pliable, will prevent formation of excessive scar tissue.

When in contact with alkaline fluids the salol in this formula is broken up, liberating free phenol, thus enhancing its antiseptic value.

The special oil base used in Thycamphone, in addition to preventing undue hardening of the tissues, avoids adhesion of dressings to injured parts, thus permitting changes of dressing without disturbing the delicate newly-formed tissue and retarding repair.

If desirable this preparation may be diluted with mineral oil of a good grade.

Pint .....	\$0.70
5 pints .....	3.00
Gallon .....	4.40

## TURCAPSOL

Each fluidounce represents:

Camphor, 20 grs.; Salicylic Acid, 15 grs.; Turpentine, 120 minims., in a specially concentrated preparation of Capsicum and Ginger.

Dose—Horse: One-half to one fluidounce, repeated as indicated. Use undiluted in capsule, or well shaken with water in dose syringe or as drench.

Turcapsol deservedly is one of the most popular of our veterinary specialties.

**TURCAPSOL—Cont'd**

It fully conforms to modern methods in the treatment of colics, by relieving pain, shock and fermentation without disguising pathological symptoms. Containing no opiates it does not check peristalsis, but rather stimulates normal bowel action.

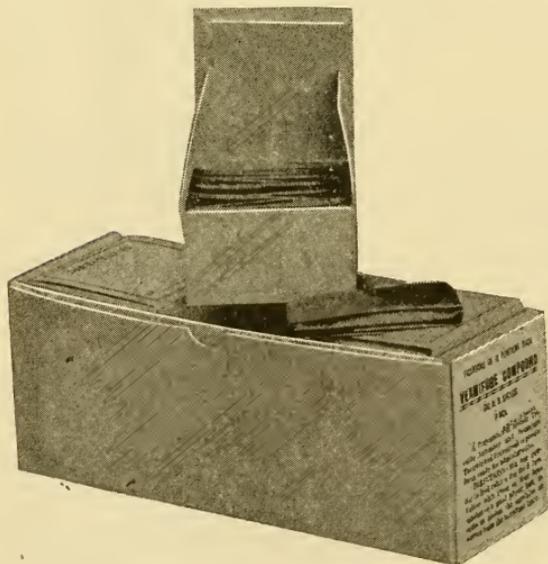
These features make Turcapsol a safe and reliable remedy for the treatment of those troublesome gastric or intestinal derangements which are characterized by gas formation, pain, shock and circulatory disturbances. This preparation can be dispensed with safety for administration by stable attendants.

Freely used, it will act as an efficient circulatory and systemic stimulant, stimulate peristalsis, check fermentation, and relieve pain.

Pint .....	\$0.80
5 pints .....	3.50
Gallon .....	5.20

**VERMIFUGE COMPOUND: Dr. N. D. Backus**

Contains: Arsenous Acid, 2 5/6 grs.; Tartar Emetic, 1/4 oz. Avd., and Foenugreek.



Directions — Mix the powder with feed twice a day for five days (10 powders), then follow with Bolus Aloin Compound or other equally active cathartic.

This anthelmintic treatment can be easily administered by the attendant, and the distinctive package makes it desirable for dispensing. Its use enables the practitioner to replace, with an ethical and efficient remedy, the patent "worm-expellers" (?) of the market.

The value of Arsenous Acid and Tartar Emetic as anthelmintics is well recognized, when given in repeated doses as recommended for this preparation. The addition of Foenugreek gives the desired palatability.

Per pack (6 cartons, each containing one complete treatment) .....	\$ 2.25
2 packs (twelve treatments).....	4.25
6 packs (thirty-six treatments) .....	12.00

## VETERINARY ZEAMANTINE COMPOUND

Each fluidounce represents:

Uromantine (Hexamethylenamine), 80 grs.; Uva Ursi, 40 grs.; Zea Mays, 64 grs.; Sodium Citrate, 16 grs.; Aromatics, q. s.

Dose—Horse: One fluidounce. Repeat every two hours if necessary.

Uromantine (hexamethylenamine) breaks down in the kidneys and liberates free formaldehyde, thereby affording an efficient agent for sterilizing the entire urinary tract.

Veterinary Zeamantine Compound carries a sufficient quantity of Uromantine to be effective, in combination with powerful diuretics and demulcents.

In the treatment of those conditions characterized by urine containing blood, pus or other evidence of infection, Veterinary Zeamantine Compound will give marked and pleasing results. Its use reduces the irritation of acid urine, allays congestion, increases kidney function with practically no irritation, and quickly relieves the clinical symptoms in septic conditions of the urinary tract, pyelitis, cystitis, and edema.

This preparation has been endorsed by many veterinarians as a valuable adjuvant in the treatment of Azoturia, in which disease it merits a thorough trial.

Pint .....	\$1.05
5 pints .....	4.75
Gallon .....	7.20

## Some Distinctive Features of Pitman Moore Tablet Making

Tablet medication at this time is of vital interest to the veterinary profession. Through this type of medication, accuracy of dosage and economy of administration are gained, costs are reduced, waste is avoided and time and space are conserved.

Pitman-Moore tablet equipment is designed to produce quality tablets, and it must be remembered that the process in the production of tablets can not be automatic, but requires close supervision of each individual formula to produce active therapeutic preparations.

1. The various components of a formula are double checked to insure against error.
2. In mixing the component parts of a formula, methods insuring proper division of the various drugs are used, a factor of special value when potent alkaloids or chemicals enter into the formula.
3. When being dried for granulation, the heat used is carefully regulated to prevent any damage to the active ingredients.
4. The granulations are made with a view to rapid disintegration, when in contact with the stomach fluids.
5. When ready for compression the tablet machines are set to insure just enough pressure to hold the tablet in shape with ordinary handling, yet soft enough to be crushed easily. (Exceptions to this rule are tablets like Nitrate of Potassium, etc., which require harder compression.) The weight of the finished tablet is carefully checked to insure uniformity and accuracy.
6. The finished lot is protected until ready for packing to insure clean tablets.
7. Before packing, each lot is carefully sorted to insure that only perfect tablets are marketed.

Our label on tablets means quality in material and workmanship, accuracy in dosage and honesty in purpose. They give results.

# Veterinary Tablets

	100	500	1,000
Acetanilid, 45 grs. ....	\$1.00	\$ 4.50	\$ 8.75
Acetanilid and Sodium Salicylate... 1.30		5.75	11.25
<b>Acid Salicylic (See Salicylic Acid, Page 57)</b>			
Aconite Root 5 min. Fldext. U. S. P. .90		4.00	7.75
Aloin Comp. Round .....	3.50	17.00	33.00
Aloin .....	.60 grs.		
Calomel .....	.15 grs.		
Ext. Nux Vomica.....	.3 grs.		
Powd. Ginger .....	.5 grs.		

Ammonium Chloride Round 60 grs. .80	3.50	6.75
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Anti-Flatus .....	1.25	5.50	10.50
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Each tablet represents:

Tr. Ginger .....20 min.

Tr. Capsicum .....40 min.

Camphor .....10 grs.

Salicylic Acid .....20 grs.

Indicated in the treatment of indigestion. This tablet supports circulation, retards gas formation and stimulates peristalsis.

Dose—Horse: 2 to 4 tablets. Repeat if necessary.

	100	500	1,000
Antiseptic No. 3—†Blue or Red.... .50		2.25	4.40

Corrosive Sublimate ....7 3/10 grs.

Citric Acid .....3 8/10 grs.

Hand molded, quickly soluble. Make colored solutions.  
For 1:1000 solution dissolve one tablet in one pint of water.

Antiseptic Bernay's—Blue .....	.25	.90	1.60
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Corrosive Sublimate.....1 3/4 grs.

Citric Acid .....87/100 grs.

For 1:1000 solution dissolve one tablet in four fluidounces of water; for 1:5000 solution dissolve one tablet in 1 pint, 4 fluidounces of water.

(See also Solutabs Chloramine T. 4 1/2 grs., and Solutabs Mercuric Potassium Iodide, page 46.)

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†Supplied on unspecified orders.

# Veterinary Tablets

	100	500	1,000
<b>Arsenic and Iron Compound</b> .....	.75	3.25	6.25
Arsenous Acid.....5 grs.			
Copper Sulphate .....30 grs.			
Iron Sulphate equal to crystal- ized Iron Sulphate.....60 grs.			
A suitable tonic for Horses and Cattle.			
Dose—One tablet as indicated.			
<b>Arsenous Acid Round 2¼ grs.</b> .....	.60	2.50	4.75
Equal to ½ fluidounce Fowler's Solution.			
<b>Astringent Wash "B" Round</b> .....	.90	4.00	7.75
Lead Acetate .....48 grs.			
Alum .....16 grs.			
Zinc Sulphate .....32 grs.			
For preparing White Lotion dissolve one tablet in one pint of water.			
<b>Barantco Compound</b> .....	1.50	7.00	13.75
Barium Chloride .....30 grs.			
Tartar Emetic .....30 grs.			
Powdered Ginger .....10 grs.			
Strychnine Sulphate .....½ gr.			
Barium Chloride and Tartar Emetic have been highly recommended in atony of the rumen in cattle. The formulae here listed represent the combinations and dosages that have been found best suited to the various phases of this condition. The desired dose of these tablets should be suspended in water, well shaken and given orally.			
<b>Barium Chloride 30 grs.</b> .....	.60	2.50	4.75
<b>Barium Chloride and Tartar Emetic Comp.</b> .....	.90	4.00	7.75
Barium Chloride .....15 grs.			
Tartar Emetic .....15 grs.			
Ginger .....10 grs.			
Strychnine Sulphate.....⅛ gr.			
(See also Tablet Tartar Emetic and Barium Chloride, page 58.)			
<b>Belladonna Leaves 60 min. Fldext.</b>			
<b>U. S. P.</b> .....	1.00	4.50	8.75
<b>Calcium Iodized 15 grs.</b> .....	1.00	4.50	8.75
A useful alterative in the treatment of nutritional diseases. Has been used with success in certain cases of so-called posterior paralysis in swine, when due to nutritional insufficiency.			
<b>Calcium Sulphide 30 grs. Plain</b> .....	.75	3.25	6.25

	100	500	1,000
<b>Calcium Sulphide Compound Round</b>	1.35	6.00	11.50
Calcium Sulphide .....30 grs.			
Echinacea .....30 grs.			
<b>Calomel 20 grs.</b> .....	1.25	5.50	10.50
<b>Calomel and Soda "C"</b> .....	1.65	7.50	14.75
Calomel .....30 grs.			
Sodium Bicarbonate .....30 grs.			
<b>Capsicum 30 grs.</b> .....	.75	3.25	6.25
Each tablet represents:			
Capsicum Powdered.....30 grs.			
<b>Chloral Hydrate 20 grs.</b> .....	1.00	4.50	8.75
<b>Chloral Hydrate 60 grs.</b> .....	2.50	....	....
<b>Colic "B" Round</b> .....	1.10	5.00	9.75
Camphor, 10 grs., with special concentration of Capsicum and Ginger.			
<b>Cough "B"</b> .....	1.20	5.35	10.40
Ammonium Chloride .....60 grs.			
Fldext. Belladonna Lvs...20 mins.			
Strychnine Sulphate .....1/10 gr.			
<b>Dichromate and Ammonium Compound</b> .....	1.00	4.50	8.75
Potassium Dichromate .....5 grs.			
Ammonium Chloride .....60 grs.			
Fldext. Stramonium .....5 min.			
Useful in chronic cough. *Dose—			
Horse: 1 tablet three times a day.			
<b>Echinacea 30 grs. "B" Round</b> .....	1.00	4.50	8.75
<b>Ginger 60 grs.</b> .....	1.00	4.50	8.75
Each tablet represents:			
Ginger Powdered .....60 grs.			
<b>Iron Sulphate 45 grs.</b> .....	.60	2.50	4.75
<b>Laminitis</b> .....	.65	2.75	5.50
Powdered Alum .....45 grs.			
Sodium Nitrate .....45 grs.			

	100	500	1,000
<b>Mercury Bichloride &amp; Phenolsulphonates Compound</b> .....	.80	3.50	6.75

(For Fowl Cholera)

Zinc Sulphocarbolate .....	6 grs.
Calcium Sulphocarbolate ....	6 grs.
Sodium Sulphocarbolate ....	6 grs.
Copper Sulphocarbolate ....	2 grs.
Mercury Bi-chloride .....	2 grs.

When ordered in quantities of 5,000 tablets, will be supplied in bottles of 50 or 100, with private prescription label.

5,000 in bottles of 50.....\$39.50

5,000 in bottles of 100..... 35.00

Directions: Dissolve one tablet in each pint of drinking water, or mix a solution of one tablet with each pound of soft feed.

Poultry practice offers an additional source of revenue to the veterinarian. Intestinal infections form a large part of the troubles found in fowls. That our Tablets Mercury Bi-chloride and Phenolsulphonates Compound offer practically a specific treatment for intestinal infections in fowls is the experience of practitioners who use them extensively.

	100	500	1,000
<b>Naphthalin 60 grs.</b> .....	.70	3.00	5.75

<b>Nux Vomica 60 grs. Round</b> .....	\$0.75	\$3.25	\$6.25
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Each tablet represents:

Nux Vomica, standardized..60 grs.

<b>Phenolsulphonates 30 grs.</b> .....	.75	3.25	6.25
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Sodium Phenolsulphate ....10 grs.

Calcium Phenolsulphonate..10 grs.

Zinc Phenolsulphonate ....10 grs.

<b>Phenolsulphonates 60 grs. Round</b> ..	1.20	5.35	10.40
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Sodium Phenolsulphonate..20 grs.

Calcium Phenolsulphonate..20 grs.

Zinc Phenolsulphonate.....20 grs. .

<b>Phenolsulphonates with Arsenite of Copper</b> .....	.80	3.50	6.75
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Phenolsulphonates .....

Arsenite Copper .....

<b>Potassium Arsenite, 28 grs.</b> .....	1.50	6.90	12.50
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For preparing Fowler's Solution extemporaneously, dissolve one tablet in four fluidounces of water. Eliptoid shape to admit passing tablet through neck of bottle, water then to be added. Makes distinct red solution.

<b>Potassium Arsenite Solution (Fowler's) 1 floz. Round</b> .....	100 \$0.70	500 \$3.00	1,000 \$5.75
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	100	500	1,000
<b>Potassium Chlorate 30 grs.</b> . . . . .	.60	2.50	4.75
<b>Potassium Chlorate 90 grs.</b> . . . . .	.70	3.00	6.75
<b>Potassium Dichromate 5 grs.</b> . . . . .		.80	1.50
A useful tablet in the treatment of coughs, distemper, sore throat, purpura hemorrhagica, etc.			
Dose: Horse, one tablet dissolved in water every three or four hours.			
	100	500	1,000
<b>Potassium Dichromate 40 grs.</b> . . . . .	1.00	4.50	8.75
<b>Potassium Nitrate 30 grs.</b> . . . . .	.60	2.50	4.75
<b>Potassium Nitrate 90 grs.</b> . . . . .	.70	3.00	6.75
<b>Potassium Nitrate 120 grs.</b> . . . . .	1.00	4.50	8.75
<b>Salicylic Acid 30 grs. Round</b> . . . . .	.70	3.00	5.75
<b>Salicylic Acid 60 grs. Round</b> . . . . .	1.10	5.00	9.75
<b>Sodium Bicarbonate Red <math>\frac{1}{4}</math> Av. Oz.</b>			
<b>Round</b> . . . . .	.60	2.25	4.50
<b>Sodium Bicarbonate Red 60 grs.</b>			
<b>Round</b> . . . . .	.60	2.25	4.75
<b>Sodium Chloride 30 grs.</b> . . . . .	.60	2.25	4.50
<b>Sodium Chloride 60 grs. Round</b> . . . . .	\$0.60	\$2.25	\$4.50
<b>Sodium Chloride 90 grs. Round</b> . . . . .	.60	2.25	4.50
<b>Sodium Nitrate 90 grs. Round</b> . . . . .	.75	3.25	6.25
<b>Sodium Oxalate Compound</b> . . . . .	.60	2.25	4.50
Each tablet represents Oxalic Acid 4 grs. with Sodium Bicarbonate.			
<b>Sodium Salicylate 60 grs. Round</b> . . . . .	1.20	5.35	10.40
<b>Strychnine Sulphate <math>\frac{1}{2}</math> gr.</b> . . . . .		2.35	4.50
<b>Strychnine Sulphate 1 gr.</b> . . . . .		3.80	7.50
<b>Sulphocarbolates—(See Phenolsulphonates)—</b>			
<b>Tartar Emetic 15 grs.</b> . . . . .	.60	2.25	4.50

# Veterinary Tablets

	100	500	1,000
<b>Tartar Emetic and Barium Chloride</b>	1.00	4.50	8.75
Tartar Emetic .....30 grs.			
Barium Chloride .....30 grs.			
See also Tablets Barantco and Barium Chloride.			
<b>Tonic</b> .....	.60	2.50	4.75
Contains Strych. Sulph. 1/10 gr., Arsenous Acid 1 gr., Ferrous Sulphate equal to 120 grs. of crystalline salts.			
<b>Triple Bromides 45 grs.</b> .....	.75	3.25	6.25
Ammonium Bromide .....15 grs.			
Potassium Bromide .....15 grs.			
Sodium Bromide .....15 grs.			
<b>Uromantic 60 grs.</b> .....	2.25	.....	.....

## Veterinary Hypodermic Tablets

	Per tube	Per 100 in tubes
<b>Aconitine 1-12 gr.</b> ..... Tube of 10	\$0.20	\$ 1.75
Aconitine, Amorphous .....1/12 gr.		
<b>‡H. T. Apomorphine Hydrochloride 1-10 gr.</b> .....	Tube of 20 .... .30	1.35
<b>‡H. T. Apomorphine Hydrochloride 1-5 gr.</b> .....	Tube of 20 .... .50	2.15
<b>Arecoline Hydrobromide ½ gr.</b> .....	Tube of 10 .... .50	4.40
<b>Arecoline Hydrobromide 1 gr.</b> .....	Tube of 10 .... .90	8.00
<b>Arecoline Compound</b> .....	Tube of 10 .... 1.25	12.00
Arecoline Hydrobromide ..... 1 gr.		
Eserine Salicylate .....½ gr.		
Strychnine Sulphate .....½ gr.		

‡Federal Narcotic order required. Federal Tax 1 cent per tube.

	Per tube	Per 100 in tubes
<b>Arecoline and Lobeline</b> . . . . Tube of 10 . . .	.65	6.00
Arecoline Hydrobromide . . . . . $\frac{1}{2}$ gr.		
Lobeline Sulphate . . . . . $\frac{1}{10}$ gr.		
<b>Arecoline and Strychnine</b> . . Tube of 10 . . . .	.95	8.50
Arecoline Hydrobromide . . . . . 1 gr.		
Strychnine Sulphate . . . . . $\frac{1}{2}$ gr.		
<b>Atropine Sulphate <math>\frac{1}{2}</math> gr.</b> . . Tube of 10 . . . .	.40	3.50
<b>Atropine Sulphate 1 gr.</b> . . . Tube of 10 . . . .	.55	5.00
<b>Barium Chloride <math>2\frac{1}{2}</math> grs.</b> . . . Tube of 10 . . . .	.20	1.00
<b>Cardiac Tonic</b> . . . . . Tube of 10 . . .	.25	2.10
Digitalin . . . . . $\frac{1}{10}$ gr.		
Sparteine Sulphate . . . . . $\frac{1}{2}$ gr.		
Strychnine Nitrate . . . . . $\frac{1}{8}$ gr.		
<b>‡Cocaine Hydrochloride 1 gr.</b> Tube of 10 . . . .	.60	5.60
<b>‡H. T. Cocaine Hydrochloride <math>1\frac{1}{8}</math> gr. for so-</b> <b>lution</b> per bottle of 25, \$1.50; per bottle of 100, \$5.75.		
<b>‡H. T. Codeine Sulphate <math>\frac{1}{2}</math> gr.</b> Tube of 20 . . .	.45	2.00
<b>H. T. Digitalin 1-60 gr.</b> . . . Tube of 20 . . . .	\$0.20	\$0.85
<b>Digitalin <math>\frac{1}{4}</math> gr.</b> . . . . . Tube of 10 . . . .	.40	3.25
<b>Eserine Salicylate <math>\frac{1}{2}</math> gr.</b> . . Tube of 10 . . . .	.60	5.50
<b>Eserine Salicylate 1 gr.</b> . . . Tube of 10 . . . .	1.10	10.00
<b>Eserine and Pilocarpine</b> . . . Tube of 10 . . .	1.40	13.50
Eserine Salicylate . . . . . $\frac{1}{2}$ gr.		
Pilocarpine Hydrochloride . . . . . 1 gr.		
<b>Lobeline Sulphate 1-10 gr.</b> . Tube of 10 . . .	.45	3.75
<b>Lobeline Sulphate 1-5 gr.</b> . Tube of 10 . . .	.70	6.50
<b>Lobeline Sulphate <math>\frac{1}{4}</math> gr.</b> . . Tube of 10 . . .	.85	7.75

‡Federal Narcotic order required. Federal Tax 1 cent per tube.

‡H. T. Morphine Sulphate			
$\frac{1}{4}$ gr. ....	Tube of 20 ....	.25	1.15
‡H. T. Morphine Sulphate			
$\frac{1}{2}$ gr. ....	Tube of 20 ....	.30	2.25
‡Morphine Sulphate 1 gr....	Tube of 10 ....	.45	2.00
Nitroglycerin 1-10 gr. ....	Tube of 10 ....	.20	1.00
Nitroglycerin 1-5 gr. ....	Tube of 10 ....	.20	1.25
Physostigmine—See V. H. T. Eserine.			
H. T. Pilocarpine Hydro-			
chloride $\frac{1}{8}$ gr. ....	Tube of 20 ....	.35	1.35
Pilocarpine Hydrochloride			
$\frac{1}{2}$ gr. ....	Tube of 10 ....	.50	4.50
Pilocarpine Hydrochloride			
1 gr. ....	Tube of 10 ....	.80	8.50
H. T. Strychnine Sulphate			
1-60 gr. ....	Tube of 20 ....	.15	.45
H. T. Strychnine Sulphate			
1-40 gr. ....	Tube of 20 ....	.15	.45
H. T. Strychnine Sulphate			
1-30 gr. ....	Tube of 20 ....	.15	.45
Strychnine Sulphate $\frac{1}{4}$ gr.	Tube of 10 ....	.15	.75
Strychnine Sulphate $\frac{1}{2}$ gr.	Tube of 10 ...	.20	1.00
Strychnine Sulphate 1 gr. .	Tube of 10 ...	.20	1.25

# Tablets for Canine Practice

The following are suggestions of tablet formulae convenient for canine and feline medication. The formulae presented cover a wide range of indications, but no attempt has been made to cover the entire field of therapeutic agents for these species of animals.

We will be glad to receive suggestions for additional formulae and to prepare special formula tablets where ordered in quantities sufficient for manufacturing requirements. Write for quotations.

Note: Since the dosage of canine medicinal preparations must vary with the size of the animals, only the approximate average dose can be given herein.

	100	500	1000
<b>Absorbent Dyspeptic (Canine)</b> . . . . .	\$.25	\$1.05	\$2.00

Pepsin 1:3000 . . . . . 1 gr.  
 Charcoal . . . . . 2 grs.  
 Sodium Bicarbonate . . . . . 2½ grs.

For indigestion, fermentation, dyspepsia.  
 One to four tablets after feeding.

<b>Acetanilid Compound (Canine)</b> . . . . .	.25	1.05	2.00
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Acetanilid . . . . . 3 grs.  
 Sodium Bicarbonate . . . . . ¾ grs.  
 Caffeine Citrated . . . . . ½ gr.  
 Capsicum . . . . . 1/10 gr.

Anodyne, Antipyretic.  
 One or two tablets repeated in three  
 or four hours if needed.

<b>Acetyl-Salicylic Acid (Aspirin) 2 grs.</b> <b>(Canine)</b> . . . . .	.15	.50	.90
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Antirheumatic, anodyne.  
 For small animals; one or two every  
 three or four hours.

<b>Acetyl-Salicylic Acid (Aspirin) 5 grs.</b> <b>(Canine)</b> . . . . .	.25	.85	1.60
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Antirheumatic, anodyne.  
 For large dogs; one or two every three or  
 four hours.

<b>Acetphenetidin 2 grs.</b> . . . . .	.25	1.10	2.10
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<b>Acetphenetidin 5 grs.</b> . . . . .	.50	2.20	4.25
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<b>Acetphenetidin Compound (Canine)</b> . .	\$.45	\$2.10	\$4.00
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Acetphenetidin . . . . . 3½ grs.  
 Caffeine Alkaloid . . . . . ¼ gr.  
 Sodium Bicarbonate . . . . . 1¼ grs.

Anodyne, antipyretic.

	100	500	1000
<b>Acetphenetid in and Magnesium Salicylate Compound No. 2 (Canine) . . . .</b>	<b>.40</b>	<b>1.60</b>	<b>3.10</b>
Acetphenetid in . . . . .	1 gr.		
Magnesium Salicylate . . . . .	1½ grs.		
Phenol Salicylate . . . . .	1 gr.		
Quinine Sulphate . . . . .	½ gr.		
Aloin . . . . .	⅛ gr.		
Caffeine Alkaloid . . . . .	⅛ gr.		
In coryza, influenza, distemper; one or two every three hours.			
<b>Aconite Root Tincture 2 min. (Canine)</b>	<b>.15</b>	<b>.45</b>	<b>.80</b>
One tablet every two hours until fever is reduced.			
<b>Alkaline and Antiseptic . . . . .</b>	<b>.25</b>	<b>.90</b>	<b>1.75</b>
Sodium Bicarbonate, Sodium Borate, Sodium Benzoate, Sodium Salicylate, Sodium Chloride, Eucalyptol, Thymol, Menthol, Oil Gaultheria.			
One tablet dissolved in 2 ounces of water makes a cleansing alkaline solution.			
<b>Aloin Cascarin Compound (Canine)</b>			
<b>Coated Brown . . . . .</b>	<b>.20</b>	<b>.80</b>	<b>1.50</b>
Aloin . . . . .	¼ gr.		
Cascarin . . . . .	¼ gr.		
Ext. Belladonna . . . . .	⅛ gr.		
Podophyllin . . . . .	¼ gr.		
Hepatic stimulant and laxative. One tablet one to four times daily.			
<b>Alphenine (Canine) Coated Brown . . . . .</b>	<b>.25</b>	<b>.90</b>	<b>1.75</b>
Aloin . . . . .	⅛ gr.		
Podophyllin . . . . .	⅛ gr.		
Phenolphthalein . . . . .	½ gr.		
Gingerine . . . . .	⅛ gr.		
Laxative and hepatic stimulant. One or two tablets, one to three times daily.			
<b>Antacid (Canine) . . . . .</b>	<b>.15</b>	<b>.55</b>	<b>1.00</b>
Calcium Carbonate . . . . .	3½ grs.		
Magnesium Carbonate . . . . .	2½ grs.		
Sodium Chloride . . . . .	1 gr.		
To correct hyper-acidity. One or two as required.			

	100	500	1000
<b>Anti-Bilious (Canine)</b> .....	\$0.20	\$0.65	\$1.25
Calomel .....			
Sodium Bicarbonate .....			
Podophyllin .....			
Ext. Belladonna .....			
Oleoresin Capsicum .....			
One or two, night and morning.			
<b>Bismuth Subnitrate 2 grs.</b> .....	.30	1.25	2.40
<b>Bismuth Subnitrate 5 grs.</b> .....	.55	2.60	5.00
<b>Boric Acid 5 grs.</b> .....	.15	.55	1.00
<b>Bronchitis (Canine)</b> .....	.30	1.35	2.50
Ammonium Chloride .....			
Terpin Hydrate .....			
Ext. Glycyrrhiza .....			
Powdered Squill .....			
Oil Anise .....			
Stimulating expectorant. One or two every two or four hours.			
<b>Calcium Iodized 1-3 gr.</b> .....	.20	.70	1.25
<b>Calcium Iodized ½ gr.</b> .....	.20	.75	1.35
<b>Calcium Iodized 1 gr.</b> .....	.25	1.05	2.00
<b>Calcium Iodized 2 gr.</b> .....	.35	1.55	3.00
<b>Calcium Iodized 5 grs.</b> .....	.55	2.55	5.00
Alterative. Produces systemic effect of iodine. One tablet three or four times daily.			
<b>Calcium Lactate 5 grs.</b> .....	.30	1.20	2.25
<b>Calcium Sulphide ¼ gr. Coated Brown</b> .....	.15	.55	.90
<b>Calcium Sulphide ½ gr. Coated Brown</b> .....	.15	.55	1.00
<b>Calcium Sulphide 1 gr. Coated Brown.</b> .....	.20	.60	1.10
<b>Calomel 1-10 gr.</b> .....	.15	.45	.75
<b>Calomel ¼ gr.</b> .....	.15	.50	.80
<b>Calomel ½ gr.</b> .....	.15	.55	.90
<b>Calomel and Phenolphthalein (Canine)</b> .....	.15	.60	1.10
Calomel .....			
Phenolphthalein .....			

# Canine Tablets

	100	500	1000
<b>Calomel and Soda No. 1 (Canine)</b> . . . . .	\$0.15	\$0.45	\$0.75
Calomel . . . . .			
Soda Bicarbonate . . . . .			
1/10 gr.			
. . . . .1 gr.			
<b>Calomel and Soda No. 2 (Canine)</b> . . . . .	.15	.50	.80
Calomel . . . . .			
Soda Bicarbonate . . . . .			
1/4 gr.			
. . . . .1 gr.			
<b>Calomel and Soda No. 3 (Canine)</b> . . . . .	.15	.55	.90
Calomel . . . . .			
Soda Bicarbonate . . . . .			
1/2 gr.			
. . . . .1 gr.			
<b>Cascara Rhubarb and Ipecac Compound Special (Canine)</b> . . . . .	.20	.65	1.20
Rhubarb Powdered . . . . .			
Ipecac Powdered . . . . .			
Sodium Bicarbonate . . . . .			
Oil Peppermint . . . . .			
Fldext. Cascara Sagrada . . . . .			
1/2 gr.			
. . . . .1/16 gr.			
. . . . .5 grs.			
. . . . .1/10 gr.			
. . . . .2 1/2 grs.			
Antacid, laxative and carminative. One or two tablets after feeding			
<b>Cascarin Compound (Canine) Coated</b>			
<b>Brown</b> . . . . .	.20	.75	1.40
Aloin . . . . .			
Podophyllin . . . . .			
Cascarin . . . . .			
1/4 gr.			
. . . . .1/4 gr.			
. . . . .1/4 gr.			
<b>Cathartic Compound U. S. P. (Canine)</b>			
<b>Coated Brown</b> . . . . .	.30	1.20	2.25
Ext. Colocynth Comp. . . . .			
Extract Jalap . . . . .			
Calomel . . . . .			
Gamboge . . . . .			
1 1/4 grs.			
. . . . .1/2 gr.			
. . . . .1 gr.			
. . . . .1/4 gr.			
As a laxative, one; cathartic, two.			
<b>Cathartic Improved (Canine) Coated</b>			
<b>Brown</b> . . . . .	.30	1.30	2.50
Extract Colocynth Comp. . . . .			
Extract Jalap . . . . .			
Podophyllin . . . . .			
Leptandrin . . . . .			
Extract Hyoscyamus . . . . .			
Extract Gentian . . . . .			
1 gr.			
. . . . .1/2 gr.			
. . . . .1/4 gr.			
. . . . .1/4 gr.			
. . . . .1/4 gr.			
. . . . .1/2 gr.			

Dose: One to three tablets.

	100	500	1000
<b>Chlorodyne, no Morphine, half strength (Canine)</b> .....	.20	.70	1.25
Extract Cannabis .....			
Extract Hyoscyamus .....			
Nitroglycerin .....			
Oleoresin Capsicum .....			
Oil Peppermint .....			
Relieves gastric and intestinal pain. One tablet every 15 minutes for two or three doses, then at longer intervals, if required.			
<b>Conjunctivitis (Canine)</b> .....	.15	.55	1.00
Zinc Sulphocarbolate .....			
Boric Acid .....			
Two dissolved in 1 fluidounce of water makes an effective eye lotion in conjunctivitis.			
<b>Febrile Laxative (Canine) Coated Brown</b> .....	.60	2.80	5.50
Quinine Sulphate .....			
Acetanilid .....			
Tr. Gelsemium U. S. P. ....			
Aloin .....			
Podophyllin .....			
Capsicum .....			
One every hour until fever is reduced.			
<b>Ferruginous Cascara Comp. (Canine)</b> .	.20	.70	1.20
Blaud's Mass.....			
Ext. Cascara Sagrada.....			
Arsenous Acid .....			
Excellent Iron Tonic.			
<b>Fever Davis (Canine)</b> .....	.15	.45	.75
Tr. Aconite, U. S. P. ....			
Tr. Belladonna, U. S. P. ....			
Tr. Bryonia .....			
One every 15 minutes until fever is reduced.			
<b>Gastritis (Canine)</b> .....	.25	.95	1.75
Silver Nitrate .....			
Extract Hyoscyamus .....			
Extract Nux Vomica.....			
Sodium Bicarbonate .....			
One before feeding.			

	100	500	1000
<b>Glycerophosphates Calcium and Sodium (Canine)</b> .....	.35	1.40	2.75
Calcium Glycerophosphate....1 gr.			
Sodium Glycerophosphate.....1 gr.			
Tonic and restorative. One or two three times daily with feed.			
<b>Heart Tonic (Canine) Coated Green...</b>	.25	1.05	2.00
Digitalin .....			
Strophanthin .....			
Strychnine Sulphate .....			
Sparteïn Sulphate .....			
Nitroglycerin .....			
Fldext. Cactus .....			
For weak, irregular and irritable heart action. One after feeding.			
<b>Heart Tonic and Stimulant Dr. DaCosta, Coated Brown (Canine)</b> .....	.15	.65	1.10
Nitroglycerin .....			
Tr. Strophanthus U. S. P....1 min.			
Tr. Digitalis U. S. P.....3 min.			
Tr. Belladonna U. S. P..... $\frac{3}{8}$ min.			
One after feeding.			
<b>Intestinal Antiseptic (Canine)</b> .....	.20	.80	1.50
Calcium Sulphocarbolate ..1 $\frac{1}{2}$ grs.			
Sodium Sulphocarbolate...1 $\frac{1}{2}$ grs.			
Zinc Sulphocarbolate .....			
One with water before feeding. Increase if necessary to two every two or three hours.			
<b>Laxothalen 2 grs. (Canine)</b> .....	.35	1.45	2.75
Each tablet contains Phenolphthaleïn 2 grs., with sugar and aromatics.			
Dose: Dog, one or two, night and morning. Recommended by many canine specialists as one of the best laxatives for dogs.			
<b>Magnesium Salicylate 5 grs. (Canine)</b> .	.25	.95	1.75
Anti-rheumatic, anodyne.			
<b>Phenolsulphonates Comp. (Canine)</b> ..	.40	1.80	3.00
Bismuth Subgallate .....			
Zinc Phenolsulphonate .....			
Bismuth Naphtholate .....			
Copper Arsenite .....			
Cinnamon .....			
Bowel antiseptic and sedative. One every hour if required.			

# Canine Tablets

	100	500	1000
<b>Rhinitis (Canine) Coated Brown</b> .....	.40	1.75	3.40
Camphor .....	1/2 gr.		
Fl'dext. Belladonna Root.....	1/4 min.		
Quinine Sulphate .....	1/2 gr.		
One every three hours if required.			
<b>Salol 1 gr.</b> .....	.15	.50	.90
<b>Salol 2 1/2 grs.</b> .....	.20	.80	1.50
<b>Salol 5 grs.</b> .....	.30	1.30	2.50
Intestinal antiseptic. One to five grains four times daily.			
<b>Salol and Bismuth Comp. (Canine)</b> ...	.25	1.00	1.90
Salol .....	1/8 gr.		
Mercury Iodide (yellow).....	1/120 gr.		
Bismuth Subsalicylate .....	1 gr.		
One tablet every two hours for eight doses, and then every three hours as required.			
<b>Santonin and Calomel No. 1 (Canine)</b> .	2.50	....	....
Santonin .....	1/2 gr.		
Calomel .....	1/2 gr.		
Vermifuge, laxative. One to three tablets.			
<b>Santonin and Calomel No. 2 (Canine)</b> 1.30	....	....	....
Santonin .....	1/4 gr.		
Calomel .....	1/4 gr.		
<b>Santonin and Calomel No. 3 (Canine)</b> .	.60	....	....
Santonin .....	1/10 gr.		
Calomel .....	1/10 gr.		
<b>Sodium Salicylate 5 grs.</b> .....	.20	.80	1.50
<b>Sulphur and Cream Tartar (Canine)</b> ..	.15	.55	1.00
Sulphur .....	4 grs.		
Potassium Bitartrate .....	2 grs.		
One to three, night and morning.			
<b>Uromantic 5 grs. (Canine)</b> .....	.30	1.15	2.25
Urinary antiseptic.			
<b>Vermifuge (Canine)</b> .....	2.60	....	....
Calomel .....	1/2 gr.		
Podophyllin .....	1/20 gr.		
Santonin .....	1/2 gr.		
Sodium Bicarbonate .....	1 gr.		
Oil Worm Seed .....	1/4 min.		
Anthelmintic, laxative. One night and morning if required.			
<b>Zinc Sulphocarbolate 2 1/2 grs.</b> .....	.15	.55	1.00

# Elixirs

Elixirs are sweetened aromatic liquids containing active medicinal agents, and having the taste of the active drug modified or disguised by flavoring agents.

Originated for use in human medicine to permit administration of drugs in more palatable form, a number of elixir formulae have found their way into veterinary medicine because of the adaptability of their formulae to veterinary requirements.

The following list contains those elixirs that have been found most useful in veterinary practice:

Dosage—The usual dose of this class of products is as follows:  
Dog, one fluidram; cat,  $\frac{1}{4}$  to  $\frac{1}{2}$  fluidram; hog or sheep, 3 fluidrams; horse, 1 to 2 fluidounces.

## Buchu Juniper and Acetate Potassium

See formula and description under specialties, page 32.

Pint, \$1.60                      5 Pints, \$7.50                      Gallon, \$10.50

## Calisaya Iron and Strychnine

Each fluidounce is equal to:

Calisaya Bark ..... 40 grs.  
Iron Pyrophosphate ..... 8 grs.  
Strychnine .....  $\frac{8}{64}$  gr.

Pint, \$1.00                      5 Pints, \$4.50                      Gallon, \$6.80

## Cranesbill Compound

Each fluidounce is equal to:

Geranium (Cranesbill) ..... 64 grs.  
Zinc Sulphocarbolate ..... 8 grs.  
Cloves ..... 8 grs.

Pint, \$1.00                      5 Pints, \$4.50                      Gallon, \$6.80

**Digitalis and Lobelia Compound, Dr. Roberts, (See Specialties, page 33)**

## Diuretic

One fluidounce is equal to:

Buchu ..... 40 grs.  
Juniper Berries ..... 24 grs.  
Potassium Acetate ..... 16 grs.

Pint, \$1.30                      5 Pints, \$6.00                      Gallon, \$9.00

## Echinacea Compound, Special, Prescription "B"

Each fluidounce is equal to:

Echinacea .....	80 grs.
Red Clover .....	40 grs.
Stillingia .....	16 grs.
Berberis .....	16 grs.
Lappa (Burdock) .....	16 grs.
Phytolacca (Poke Root) .....	16 grs.
Prickly Ash Bark .....	4 grs.
Potassium Iodide .....	8 grs.

Pint, \$1.30	5 Pints, \$6.00	Gallon, \$9.20
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## Ferrogen "B" (See Specialties, page 33)

### Gentian Iron and Strychnine

Each fluidounce is equal to:

Gentian .....	32 grs.
Tr. Iron Citro-chloride .....	40 grs.
Strychnine .....	8/60 gr.

Pint, \$0.90	5 Pints, \$4.00	Gallon, \$5.80
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### Iron Quinine and Strychnine Phosphates No. 2

Each fluidounce contains:

Iron Phosphate .....	8 grs.
Quinine Phosphate .....	2 grs.
Strychnine Phosphate .....	8/64 gr.

Pint, \$0.80	5 Pints, \$3.50	Gallon, \$5.20
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### Salicylic Acid Compound

Each fluidounce is equal to:

Salicylic Acid .....	40 grs.
Gelsemium .....	12 grs.
Cimicifuga .....	40 grs.
Potassium Iodide .....	10 grs.
Sodium Bicarbonate .....	q.s.

Pint, \$1.00	5 Pints, \$4.25	Gallon, \$6.00
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**See Veterinary Elixir Uva Ursi Comp. and Zeamantine Comp. in Specialties.**

# Fluidextracts

The Pitman-Moore line of fluid extracts is designed and made for veterinarians who want the best.

Probably nowhere in manufacturing pharmacy is there to be found a wider variation in quality than in the various fluidextracts of the market. "Cheap" fluidextracts (so-called) are usually lacking in the essentials of quality, accurate drug strength and permanence.

Pitman-Moore fluidextracts are made from carefully selected crude drugs of the best quality only. The same care governs our processes of drying, grinding, packing, maceration and extraction. Finally, each lot of fluidextract is exactly standardized by chemical assays or physiological tests.

Fluidextracts of character and absolute reliability can be produced in no other way, and they can not be produced at the price of a "cheap" product.

As an example of what quality in fluidextracts means, our Fluidextract Nux Vomica—popularly known as "the Nux with the kick"—has established a wide reputation for its unvarying drug-strength, unusual permanence and certainty of action.

The same qualities will be found characteristic of our entire fluidextract line.

	Per Pint Bottle
<b>Aconite Root—Aconitum Napellus</b> .....	\$2.60
Standard 0.4 per cent Aconitine—U. S. P. method.	
Powerful sensory, cardiac, respiratory and spinal depressant.	
Horse, 5 to 15 min.; cattle, 20 to 40 min.; dog, 1/10 to 1 min.	
<b>Aloes—Perryi, or other species</b> .....	1.50
Stomachic, purgative.	
Horse, 2 to 4 floz.; cattle, 2 to 4 floz.; hog, 1/2 to 1 floz.; dog, 1/2 to 1 fdr.	
<b>Apocynum—See Black Indian Hemp.</b>	
<b>American Hellebore—See Veratrum.</b>	
<b>†Belladonna leaves—Atropa Belladonna</b> .....	2.00
Per Gallon, \$12.50	
Standard 0.30 per cent mydriatic alkaloids—U. S. P. method.	
Toxic narcotic, mydriatic, checks secretions, antispasmodic, anodyne. Horse, 1/2 to 2 fdr.; cattle, 1 1/2 to 2 fdr.; hog, 3 to 10 min.; dog 1/2 to 4 min.	

†Sent unless otherwise ordered.

Per Pint Bottle

- Belladonna root—*Atropa Belladonna*..... 2.60**  
 Per Gallon, \$18.00  
 Standard 0.4 per cent mydriatic alkaloids—U. S. P. method.  
 Internally same as leaves; externally anodyne, antigal-actagogue.  
 Horse,  $\frac{1}{2}$  to  $1\frac{1}{2}$  fdr.; cattle, 1 to 2 fdr.; hog, 2 to 10 min.; dog,  $\frac{1}{4}$  to 3 min.
- Berberis aquifolium ..... 1.90**  
 Dose—Horse, 2 to 6 fdr.
- Black Haw—*Viburnum prunifolium*..... 2.65**  
 Per Gallon, \$15.50  
 Uterine tonic, astringent, alterative, antispasmodic.  
 Mare, 1 to 4 floz.; cow, 2 to 4 flozs.; bitch, 30 to 120 min.
- Black Indian Hemp—*Apocynum cannabinum*..... 3.40**  
 Cathartic, emetic, diuretic expectorant.  
 Horse, 1 to 4 fdr.; cattle, 2 to 4 fdr.; hogs, 1 to 3 min.; dog,  $\frac{1}{8}$  to 1 min.
- Bloodroot—*Sanguinaria canadensis* ..... 2.50**  
 Expectorant Dose—Horse, 1 to 3 fdr.; dog,  $\frac{1}{2}$  to 5 min.  
 Emetic Dose—Dog, 5 to 30 min.
- Bryonia white—*Bryonia alba* ..... 2.00**  
 Cathartic, hydragogue, discutient.  
 Horse,  $\frac{1}{2}$  to 1 floz.; dog, 5 to 30 min.
- Buchu—*Barosma betulina* ..... 5.60**  
 Diuretic, tonic, stimulant, carminative.  
 Horse, 1 to 2 floz.; dog, 10 to 60 min.
- Buckthorn bark—*Rhamnus Frangula*..... 1.75**  
 Tonic, laxative and stomachic.  
 Dog, 30 to 120 min.; cat, 15 to 60 min.
- Cactus Grandiflorus—*Cereus grandiflorus*..... 2.85**  
 Dose—Horse, 2 to 4 floz.
- Cannabis (American grown drug) ..... 3.60**  
 Per Gallon, \$21.00

- Capsicum—Capsicum fastigiatum** . . . . . 2.90  
Per Gallon, \$20.00  
Powerful stimulant, excitant, rubefacient, pungent, aphrodisiac.  
Horse, 1 to 3 fdr.; dog, 2 to 5 min.
- Cardamon Compound** . . . . . 2.00  
Dose—Horse, 2 to 4 fdr.
- Cascara Sagrada—Rhamnus Purshiana** . . . . . 1.25  
Per Gallon, \$7.75  
Bitter tonic, laxative.  
Dog,  $\frac{1}{2}$  to 2 fdr.  
See also Liquid Cascara Flavored, in Specialties.
- Cherry bark—Prunus serotina** . . . . . 1.50  
Sedative, pectoral tonic.  
Horse,  $\frac{1}{2}$  to 2 foz.; dog,  $\frac{1}{4}$  to 1 fdr.
- Colchicum root—Colchicum autumnale** . . . . . 2.40  
Standard 0.35 per cent colchicine.—U. S. P. method.  
Horse, 1 to 2 fdr.; sheep or hog, 5 to 20 min.; cattle, 2 to 3 fdr.; dog, 2 to 10 min.
- Colchicum seed—Colchicum autumnale** . . . . . 3.00  
Standard 0.4 per cent colchicine.—U. S. P. method.
- Columbo—Jateorhiza palmata** . . . . . 2.50  
Bitter tonic, stimulant, non-astringent.  
Horse,  $\frac{1}{2}$  to 2 foz.; sheep, 2 to 6 fdr.; hog, 1 to 4 fdr.; dog, 10 to 30 min.
- Corn Silk (fresh)—Zea Mays** . . . . . 1.75  
Demulcent, diuretic.  
Dog, 1 to 2 fdr.
- Couch grass—Agropyrum repens** . . . . . 1.25  
Diuretic; used in irritable conditions of the bladder.  
Horse, 1 to 2 foz.; dog,  $\frac{1}{2}$  to 1 fdr.
- Cramp bark—Viburnum Opulus** . . . . . 2.25  
Antispasmodic, sedative, uterine tonic.  
Mare, 1 to 4 foz.; cow, 2 to 4 foz.; bitch,  $\frac{1}{2}$  to 2 fdr.
- Cranesbill—Geranium maculatum** . . . . . 2.25  
Powerful astringent.  
Colts, 1 foz.; hog,  $\frac{1}{2}$  foz.

	Per Pint Bottle
<b>Digitalis—<i>Digitalis purpurea</i></b> .....	2.50
Heart tonic, diuretic.	
Horse, 20 to 60 min.; cattle, 1 to 2 fldr.; sheep or hog, 5 to 15 min.; dog, 1 to 3 min.	
<b>Echinacea—<i>Echinacea angustifolia</i></b> .....	3.00
Per Gallon, \$17.90	
Eliminative, antiperiodic, alterative, antiseptic, stimulant.	
Horse, ½ to 2 floz.; dog, 5 to 30 min.	
<b>Ergot—<i>Claviceps purpurea</i></b> .....	5.00
Label dated to show date of manufacture.	
Oxytoxic, hemostatic.	
Mare or cow, 2 floz.; sheep or hog, 1 to 2 fldr.; bitch, ¼ to 1 fldr.	
<b>Eucalyptus—<i>Eucalyptus globulus</i></b> .....	2.25
Aromatic, febrifuge, tonic, antiperiodic, antiseptic.	
Horse, ½ to 3 floz.; dog, ¼ to 1 fldr.	
<b>Gelsemium—<i>Gelsemium sempervirens</i></b> .....	2.40
Per Gallon, \$15.50	
Standard 0.5 per cent alkaloids.	
Antineuralgic, antispasmodic, antipyretic, nerve sedative, reduces arterial tension.	
Horse, 1 to 4 fldr.; dog, 2 to 5 mins.	
<b>Gentian—<i>Gentiana lutea</i></b> .....	1.60
Per Gallon, \$10.80	
Bitter tonic.	
Horse, ½ to 2 floz.; sheep, 2 to 4 fldr.; hog, 1 to 3 fldr.; dog, ¼ to 1 fldr.	
<b>Gentian Compound</b> .....	1.90
One pint is equal to gentian 10 oz., bitter orange peel 4 oz., cardamon 1 oz. Stomachic tonic, aromatic bitter.	
<b>Geranium—See Cranesbill</b>	
<b>Ginger—<i>Zingiber officinale</i></b> .....	3.60
Stimulant, carminative, aromatic.	
Horse, 2 to 4 fldr.; dog, 2 to 10 min.	
<b>Golden Seal—<i>Hydrastis canadensis</i></b> .....	14.50
Standard 2.0 per cent white alkaloid hydrastine.—U. S. P. method.	
Tonic to mucous tissues; stimulant to secretions.	
Horse, 2 to 4 fldr.; dog, 2 to 10 min.	

	Per Pint Bottle
<b>Grindelia—Grindelia robusta</b> .....	2.25
<b>Grindelia Soluble</b> .....	1.25
Bronchial relaxant, antispasmodic.	
Horse, $\frac{1}{2}$ to 1 floz.	
<b>Hamamelis—See Witch Hazel.</b>	
<b>Henbane—Hyoscyamus niger</b> .....	2.75
Per Gallon, \$18.00	
Standard 0.075 per cent mydriatic alkaloid.—U. S. P. method.	
Sedative, antispasmodic, analgesic, mydriatic, intestinal relaxant.	
Horse, $\frac{1}{2}$ to 1 floz.; cattle, 1 to $1\frac{1}{2}$ floz.; dog, 2 to 15 min.	
<b>Hydrastis—See Golden Seal.</b>	
<b>Indian Cannabis—See Cannabis.</b>	
<b>Ipecac—Cephaelis Ipecacuanha</b> .....	7.50
Standard 1.5 per cent alkaloids.—U. S. P. method.	
Dogs, as expectorant, $\frac{1}{2}$ to 2 min.; as an emetic, 10 to 30 min.; horse, $\frac{1}{2}$ to 2 fldr.; cattle, 2 to 4 fldr.; sheep, $\frac{1}{2}$ to 1 fldr.	
<b>Jaborandi—Pilocarpus Jaborandi</b> .....	3.00
Standard 0.4 per cent alkaloids.—U. S. P. method.	
Diaphoretic, sialogogue.	
Horse, $\frac{1}{2}$ to 1 floz.; dog, 15 to 30 min.	
<b>Juniper Berries—Juniperus Communis</b> .....	1.50
Diuretic, stimulant.	
Horse, $\frac{1}{2}$ to 1 floz.; dog, 30 to 60 min.	
<b>Lobelia Herb—Lobelia inflata U. S. P. 1890 Alcoholic</b>	2.00
Emetic, diaphoretic, bronchial relaxant.	
Horse $\frac{1}{4}$ to 1 fldr.; dog, $\frac{1}{2}$ to 10 min.	
<b>Mandrake—Podophyllum peltatum</b> .....	2.65
Standard 4.25 per cent resin.	
Cholagogue cathartic.	
Dog, 3 to 20 min.	
<b>Nux Vomica—Strychnos Nux-vomica</b> .....	2.10
Standard 1 per cent strychnine.—U. S. P. method.	
Stimulant to heart, nerves and muscle.	
Horse, $\frac{1}{2}$ to 1 fldr.; cattle, 1 to 2 fldr.; sheep, 10 to 20 min.; hog, 5 to 20 min.; dog, $\frac{1}{4}$ to 5 min.	

Per Pint Bottle

**Podophyllum—See Mandrake**

**Poke Root, Green—*Phytolacca decandra* . . . . . 1.50**  
 Per Gallon, \$8.00

Alterative, emetic, purgative.  
 Horse,  $\frac{1}{4}$  to 1 floz.; cattle  $\frac{1}{2}$  to 2 floz.; sheep,  $\frac{1}{2}$  to 1  
 fldr.; hog, 20 to 40 min.; dog, 5 to 10 min.

**Rhamnus Purshiana—See Cascara Sagrada**

**Rhubarb—*Rheum officinale* . . . . . 3.00**  
 Per Gallon, \$19.00

Laxative, stomachic, astringent.  
 Dog, 10 to 120 min.

**Rhubarb Aromatic—for Aromatic Syrup Rhubarb**  
**U. S. P. . . . . 2.25**

Mix fldext.,  $\frac{3}{4}$  floz.; Potassium carbonate, 5 grs.; alcohol,  
 $\frac{3}{8}$  floz.; water,  $\frac{3}{8}$  floz.; simple syrup,  $8\frac{1}{2}$  floz.

**Sanguinaria—See Bloodroot**

**Senega—*Polygala Senega* . . . . . 4.50**  
 Stimulant, expectorant, diuretic.  
 Horse, 1 to 4 fldrs.

**Senna—*Cassia Acutifolia* . . . . . 1.25**  
 Purgative.  
 Dog,  $\frac{1}{2}$  to 4 fldrs.

**Serpentaria—*Aristolochia Serpentaria* . . . . . 4.90**  
 Stimulant, diaphoretic.  
 Horse,  $\frac{1}{2}$  to 1 floz.; dog, 10 to 30 min.

**Stavesacre Seed—*Delphinium Staphisagria* . . . . . 3.50**  
 Emetic, narcotic.  
 Locally fldext. 10 per cent, alcohol 90 per cent, as par-  
 asiticide.

**Stillingia—*Stillingia sylvatica* . . . . . 2.00**  
 Alterative, laxative.  
 Horse,  $\frac{1}{2}$  to 2 floz.; dog, 10 to 30 min.

- Stramonium Leaves—*Datura Stramonium* . . . . . 2.25**  
 Standard 0.35 per cent mydriatic alkaloids.—U. S. P. method.  
 Narcotic, antispasmodic.  
 Horse,  $\frac{1}{4}$  to 1 fldr.; cattle,  $\frac{1}{2}$  to 2 fldr.; dog,  $\frac{1}{2}$  to 5 min.
- Uva Ursi—*Arctostaphylos Uva Ursi* . . . . . 1.25**  
 Astringent, tonic, urinary antiseptic.  
 Horse, 1 to 2 floz.; dog, 10 to 30 min.
- Valerian—*Valerian officinalis* . . . . . 2.50**  
 Nerve sedative, antispasmodic, anodyne.  
 Horse,  $\frac{1}{2}$  to 1 floz.; cattle, 1 to 3 floz.; dog, 10 to 30 min.
- Veratrum—*American Hellebore* . . . . . 3.25**  
 Powerful arterial sedative.  
 Horse,  $\frac{1}{4}$  to 1 fldr.; cattle 1 to 2 fldr.; sheep or hog, 20 to 30 min.; dog, 1 to 3 min.
- Viburnum Opulus—See Cramp bark.**
- Viburnum Prunifolium—See Black Haw.**
- White Bryonia—See Bryonia.**
- White Pine Compound for Syrup (No Morphine) . . . . 1.35**  
 Each pint is equal to White Pine bark, 4 oz.; cherry bark, 4 oz.; sanguinaria, 224 gr.; balm gilead buds, 256 gr.; spikenard, 256 gr.; sassafras, 128 gr.; chloroform, 256 min. For syrup mix fldext., 4 floz.; simple syrup, 12 floz.  
 Dose of fldext.—Horse, 2 fldr.; dog, 15 to 30 min.
- Wild Cherry—See Cherry Bark.**
- Witch Hazel—*Hamamelis virginiana* . . . . . 1.50**  
 Antiseptic, astringent, styptic.  
 Dog,  $\frac{1}{2}$  to 2 fldr.
- Yellow Dock—*Rumex crispus* . . . . . 2.00**  
 Alterative, laxative.  
 Dog, 30 to 60 min.
- Yerba Santa Aromatic . . . . . 2.50**  
 For syrup mix fldext., 4 floz.; simple syrup, 12 floz.
- Zea Mays—See Corn Silk.**

## Liniments

### Liniment Camphor Compound, \*white and pink

Camphor, Ammonium Carbonate, Oil Origanum, Castile Soap, Oil Turpentine.

Anodyne and stimulant; sprains, bruises, rheumatism, neuralgia, etc.

Pint, \$0.45                      5 Pints, \$1.95                      Gallon, \$2.50

### Liniment Chloroform

Chloroform, 30 per cent; Soap Liniment, 70 per cent. Stimulant; may blister sensitive surfaces if covered.

Pint, \$1.15                      5 Pints, \$5.25                      Gallon, \$8.00

**Liniment Solidified—See Capsosal, page 27.**

**Capsiphor—See Specialties, page 27.**

## Ointments

See Also Blisters—in Specialties

**Ointments Ophthalmic—See Specialties, page 40.**

**Ointment Alcumethone—See page 39.**

**Ointment Antiseptic . . . . .lb. \$0.65    5 lb. tins, \$2.75**

Contains Boric Acid, Zinc Oxide and Eucalyptol.  
Antiseptic, anodyne, astringent.

**Ointment Belladonna, U. S. P. . . . .1-lb. jar    1.50**

Contains Extract Belladonna Leaves, 10 per cent in a wool fat and Benzoinated Lard Base.

Useful for checking secretions of milk in inflammation of the udder. As an anodyne for the relief of pain in muscular rheumatism and other inflammation of the glands or joints.

**Ointment Diachylon Compound. . . . .1-lb. jar    1.25**

Contains Ammonium Sulpho-Ichthyolicum, Carbolic Acid, Boric Acid incorporated in Ointment Diachylon.

**Ointment Lassar's . . . . .lb. \$0.65    5-lb. tins \$2.75**

Contains Zinc Oxide, 25 per cent; Salicylic Acid, 4 per cent. Antiseptic, astringent, protective.

\*Supplied unless otherwise ordered.

**Ointment Mercurial—See Chemical list, page 196.**

Contains Metallic Mercury, 50 per cent.

**Ointment Mercurial Diluted (Blue Ointment) See Chemical list, page 196.****Ointment Mercury Ammoniated (Ointment White Precip.) . . . . .lb. \$1.25**

Contains Ammoniated Mercury, 10 per cent. Stimulant, antiseptic.

**Ointment Mercuric Iodide Yellow. . . . .lb. 1.50**

Contains Yellow Mercuric Iodide, 4 per cent.

**Ointment Mercuric Nitrate (Citrine Ointment), See Chemical list, page 192.****Ointment Mercuric Oxide Yellow. . . . .lb. 1.50**

Contains Yellow Mercuric Oxide, 10 per cent.

**Ointment Mercuric Oxide Yellow Ophthalmic—See Specialties, page 40.****Ointment Phycamphol—See Specialties, page 39.****Ointment Sulphur . . . . .lb. 1.00**

Contains washed Sulphur, 15 per cent. Antipruritic. In parasitic skin diseases.

**Ointment Tar . . . . .lb. 1.00**

Contains Pine Tar, 50 per cent. Antiseptic.

**Ointment Zinc Oxide**

1-lb. jar, \$0.75                      1-lb. tin, \$0.65                      5-lb. tin, \$2.75

Contains impalpable Zinc Oxide, 20 per cent; astringent, anodyne.

**Cerate Cantharides—See page 20.****Cerate Lead Subacetate (Goulard's Cerate) 1-lb. jar, \$1.00**

Contains Solution of Lead Subacetate, 20 per cent. Astringent, anodyne; use cautiously in chronic cases.

**Cerate Resin . . . . .lb. jar, 1.00**

Rosin, 35 per cent; Yellow Wax, 15 per cent; Lard, 50 per cent.

Reduces inflammation, swellings, etc.

## Solutions

**Solutions Ophthalmic—See Specialties, page 41.**

**Solution Arsenous Acid—Contains 1 per cent arsenous acid** .....Pint \$0.40

**See also Solution Potassium Arsenite, page 55**

**Compactoid Arsenic Compound, page 35.**

**Solution Boroglyceride** .....Pint 1.25

**Solution Cresylic Acid Comp.**

Contains Cresol 50 per cent with soap. Use 1 fluidram in 1 pint of water. With soft waters makes a clear solution.

Pint, \$0.60; 5 Pints, \$2.25; Gallon, \$3.00; 5 Gallons, \$10.00  
bbls. (about 40 gal.) \$1.50 per gallon

**Solution Fowler's**

This solution contains Arsenous Acid 1 per cent with Potassium Carbonate.

Pints, \$0.40                      5 Pints, \$1.25                      Gallon, \$1.50

**Solution Iron Chloride—See Chemical List.**

**Solution Lead Subacetate Goulard**

This solution contains Lead Subacetate 25 per cent. For local application add one fluidram to four to ten fluidounces of water.

Pint, \$0.50                      5 pints, \$2.00                      Gallon, \$2.80

**Solution Lugol's** .....Pint, 1.50

This solution contains Iodine 5 per cent, Potassium Iodide 10 per cent. It can be diluted in water without precipitation.

**Solution Monsell's (Iron Subsulphate)—See Chemical list**

**Solution Nitroglycerin 1 per cent—See Spirit Nitroglycerin**

**Solution Potassium Iodide Saturated—See Chemical list.**

## Spirits

**Spirit Ammonia Aromatic**

Pint, \$1.35                      5 Pints, \$6.25                      Gallon, \$9.00  
 See also Compactoid Ammonia Comp.

**Spirit Camphor** ..... Pint, 1.50  
 Contains Camphor 10 per cent.

**Spirit Nitrous Ether** ..... Pint, 1.75  
 Antipyretic, diuretic.  
 Standard 4.0 per cent Ethyl Nitrate.—U. S. P. Method.

**Spirit Nitroglycerin, 1 per cent.** ..... Ounce, 2.75  
 Quickly acting cardiac stimulant, vaso-motor dilator.

## Tinctures

**Aconite** ..... \$2.25  
 Standard, not less than 0.045 nor more than 0.055 per cent  
 of ether-soluble alkaloids. U. S. P. method.  
 Dose: Horse, 10 to 30 min.; cattle, 1 to 2 fldr.; dog, ½  
 to 2 min.

**Arnica** ..... 1.35  
 One hundred minims equal Arnica flowers 19 grains. Ex-  
 ternally, apply freely.

**Belladonna Leaves** ..... 1.50  
 Standard, not less than 0.027 nor more than 0.033 per  
 cent total alkaloids. U. S. P. method.

**Camphor**—See Spirit Camphor

**Cantharides** ..... 2.75  
 Ten minims are equal to Cantharides .95 grain.  
 Dose: Horse, ½ to 1 fldr.; dog, 1 to 5 min.

**Capsicum** ..... 2.10  
 Ten minims are equal to Capsicum .95 grain.  
 Dose: Horse, 1 to 4 fldr.; dog, 5 to 30 min.

**Digitalis** ..... 1.85  
 Ten minims are equal to Digitalis .95 grain. Physio-  
 logically tested.  
 Dose: Horse, 2 to 8 fldr.; dog, 2 to 30 min.

<b>Digitalis Fat Free</b> . . . . .	2.00
Prepared from selected digitalis leaves, deprived of acids and fats. Physiologically tested.	
Dose: Horse, 2 to 8 fdr.; dog, 2 to 30 min.	
<b>Gelsemium</b> . . . . .	1.75
Standard 0.05 per cent alkaloid.	
Dose: Horse, $\frac{1}{2}$ to 1 floz.; dog, 15 to 60 min.	
<b>Gentian Compound</b> . . . . .	1.40
One hundred minims are equal to Gentian $9\frac{1}{2}$ grs., Bitter Orange Peel 3 8-10 grs., Cardamon .95 grs.	
Dose: Horse, 1 to 2 floz.	
<b>Ginger</b> . . . . .	2.45
One hundred minims are equal to Ginger 38 grs.	
Dose: Horse, $\frac{1}{2}$ to 1 floz.; dog, 5 to 30 min.	
<b>Green Soap (Liniment Soft Soap)</b> . . . . .	1.35
Contains Green Soap, 65 per cent.	
<b>Henbane</b> . . . . .	1.50
Standard not less than 0.0055 nor more than 0.0075 per cent total alkaloids. U. S. P. method.	
Dose: Horse, 1 to 2 floz.; dog, $\frac{1}{2}$ to 3 fdr.	
<b>Iodine</b> . . . . .	1.00
Contains Iodine 7 per cent; Potassium Iodide, 5 per cent.	
<b>Iron Chloride (Muriate)</b> . . . . .	1.50
Contains 13 per cent of Anhydrous Ferric Chloride corresponding to 4.48 per cent of Metallic Iron.	
Dose: Horse, $\frac{1}{2}$ to 2 floz.; sheep and swine, 15 to 30 min.; dog, 5 to 60 min.	
<b>Iron Citro-Chloride</b> . . . . .	1.20
<b>Nux Vomica</b> . . . . .	1.50
One fluidounce is equal to 45.6 grs. of Nux Vomica. Bitter tonic and stimulant.	
Dose: Dogs, 5 to 20 minims; horse, $\frac{1}{2}$ to 2 fluidounces.	
<b>‡Opium (Laudanum)</b> . . . . .	3.50
Standard, not less than 0.95 per cent nor more than 1.05 per cent Anhydrous Morphine. U. S. P. method.	
Dose: Horse, $\frac{1}{2}$ to 2 floz.; dog, 3 to 20 min.	

**§Opium Camphorated (Paregoric)..... 1.35**

One hundred minims are equal to Powdered Opium, Benzoic Acid, Camphor, Oil Anise each .38 grain.

Dose: Dog,  $\frac{1}{2}$  to 4 fldr.

**Strophanthus Seed ..... 2.30**

Ten minims are equal to Strophanthus, .95 grain.  
Physiologically tested.

Dose: Horse, 1 to 4 fldr.; dog, 2 to 10 min.

**Veratrum ..... 2.00**

One hundred minims are equal to Veratrum Viride,  $9\frac{1}{2}$  grains.

Dose: Horse and cattle,  $\frac{1}{2}$  to  $1\frac{1}{2}$  floz.; dog 2 to 15 min.

**PART TWO**



**Veterinary Biological  
Products**



**Including Notes on  
Modern Biological Therapy**

# Pitman Moore Biological Laboratories

The biological laboratories of the Pitman-Moore Company were established in 1913.

Realizing the utmost importance of avoiding any possible contamination in biological products, and the unquestionable influence of surroundings on the purity of such products, the location for these laboratories was chosen with care. They are situated in the open country, fourteen miles outside Indianapolis, and are accessible by a private entrance only, being one-fourth mile from the nearest public highway. This complete isolation from public stock-yards, congested districts and the dust and smoke of crowded city conditions, greatly lessens the danger of contamination of the biologics produced in these laboratories.

The laboratory buildings and the quarters for laboratory animals are situated on high rolling ground, affording perfect drainage away from the premises, aiding greatly in the thorough sanitation for which these laboratories are noted.

The grounds occupy one hundred and ten acres of farm and woodland, the largest area in the world devoted exclusively to producing veterinary biological products.

The buildings are of hollow tile and stucco construction, and in every detail conform to the latest ideas of sanitary hospital design. White glazed walls, with all corners and angles rounded, specially designed heating and ventilating systems, adequate provisions for excluding dust and flies, and daily flushing of the entire interiors of laboratory and pen-rooms all assist in maintaining the highest possible degree of cleanliness.

## Equipment

The great majority of the apparatus and utensils used in our laboratory operations have been specially designed by us, and are used exclusively in our own laboratory work. The requirement of first importance in designing this equipment, is the safeguarding of our products against contamination.

No equipment or apparatus that does not meet this test successfully can have a place in our operations. As an example, our method of collecting hog cholera virus from

virus pigs may be cited. Instead of the usual method of cutting the pig's throat and catching the spurting blood in an open pail, a hollow canula knife is inserted in the carotid artery and the blood collected in closed bottles, without contact with the body of the animal or the open air. In the defibrination of blood in our laboratories, the usual whipping of the blood in open vessels by means of a long fork, gives place to an electric whirl, in which the blood is tightly sealed in sterile bottles, thus avoiding even air contamination. Similar precautions safeguard the collection of blood from serum-producing hogs.

From beginning to end, equally efficient measures protect each step of our operations from the danger of contamination in our finished products. Our complete line of veterinary biologics are produced under United States Government license and inspection, and are identified by United States Veterinary License No. 6. While each of our products comply fully with all official tests and regulations, in many ways our own tests and requirements are more stringent than, and are in excess of, all government regulations.

No scientific means is omitted that will add to the safeguards of the potency and purity of our products.



# Veterinary Biological Products

The following list of biological products for veterinary use have been offered to the profession, only after very careful study by, and the full endorsement of, our scientific staff.

Commercial considerations are not permitted to influence the judgment of our staff of scientists with regard to marketing any product, or regarding our recommendations of any product.

## HOG CHOLERA VIRUS

(For description and use, see page 154.)

Supplied in special rubber stoppered, sealed vials.

Code	Per
<i>Vain</i> —10 Mil (Cc) vials.....	100 Mils
<i>Valid</i> —25 Mil (Cc) vials.....	\$1.75
<i>Vapor</i> —50 Mil (Cc) vials.....	
<i>Vast</i> —100 Mil (Cc) vials.....	

Dose—For developing permanent immunity, not less than two Mils (Cc) of virus should be used. Pigs may be permanently immunized at any time after reaching 40 pounds in weight. We do not advise the simultaneous treatment for pigs weighing less than 40 pounds, because such treatment often fails to produce permanent immunity. However, if smaller pigs are given simultaneous treatment, a less dosage (1 to 1½ mils) may be used, but animals so treated should be given a second simultaneous treatment after reaching the proper weight, but in not less than six weeks after the first treatment is given.

Caution: Veterinarians must always use extreme caution to prevent the escape of virus on the premises, and all virus bottles and unused virus must be destroyed by fire.

## ANTI-HOG-CHOLERA SERUM

Physiologically and Bacteriologically Tested.

Code	Per
<i>Abaft</i> —500 Mil (Cc) bottles.....	100 Mils
<i>Abet</i> —250 Mil (Cc) bottles.....	\$1.00
<i>Able</i> —100 Mil (Cc) bottles.....	

For methods of production and administration, dosage, etc., see Notes on Hog Cholera, pages 149-159.

## ANTI-HOG-CHOLERA SERUM, CLEAR

Code	Per
<i>Cleak</i> —500 Mil (Cc) bottles.....	100 Mils
<i>Clede</i> —250 Mil (Cc) bottles.....	\$1.15
<i>Cleft</i> —100 Mil (Cc) bottles.....	1.10

**ANTI-HOG-CHOLERA SERUM, CLEAR, CONCENTRATED**

Code		Per
<i>Clack</i> —500 Mil (Cc) bottles.....		100 Mils
<i>Clare</i> —250 Mil (Cc) bottles.....		<del>\$1.50</del>
<i>Clasp</i> —100 Mil (Cc) bottles.....		1.30

**Antitoxins and Anti-Bacterial Sera****ANTI-BLACKLEG SERUM**

Prepared from the blood of horses hyperimmunized against numerous virulent strains of *B.chauveaui*.

Prophylactic Dose: 20 to 30 Mils (Cc), subcutaneously or intravenously.

Therapeutic Dose: 100 to 200 Mils, subcutaneously or (preferably) intravenously. Repeat at 12 hour intervals where indicated.

Note: Following the prophylactic use of Anti-Blackleg Serum, Blackleg Filtrate should be administered 7 days later to confer active immunity. See Biological Therapy, page 120.

Code		
<i>Seal</i> —50 Mil (Cc) vial.....		\$1.20
<i>Scar</i> —250 Mil (Cc) vial.....		5.00

**ANTI-CALF-SCOUR SERUM**

Recommended for the treatment and prevention of Calf-Scour and associated pneumonia. (See notes on Calf-Scour, page 125.)

Produced from the blood of horses hyperimmunized with *B.coli* and *B.para-coli*, isolated from cases of Calf-Scour.

Prophylactic Dose: 10 to 30 Mils (Cc) to be given soon as possible after birth.

Therapeutic Dose: 30 to 100 Mils (Cc) as indicated by patients condition, repeated each 12 to 24 hours until improvement is marked. Inject subcutaneously.

Code		
<i>Saber</i> —20 Mil (Cc) vial.....		\$0.70
<i>Sabin</i> —50 Mil (Cc) vial.....		1.60
<i>Sable</i> —100 Mil (Cc) vial.....		3.00

**ANTI-DISTEMPER SERUM, CANINE**

For the prevention and treatment of distemper in dogs.

Prepared from the blood of horses hyperimmunized against virulent strains of *B.bronchisepticum*, isolated from cases of canine distemper.

Prophylactic Dose: 5 to 10 Mils (Cc) subcutaneously. More active immunity is obtained if this is followed by bacterin treatment.

Therapeutic Dose: 10 to 30 Mils. Repeat in 24 hours if indicated. See Canine Distemper, page 122.

Code		
<i>Sabum</i> —20 Mil (Cc) vial.....		\$0.60
<i>Sabux</i> —50 Mil (Cc) vial.....		1.20

## ANTI-DISTEMPER SERUM, EQUINE

For the treatment and prevention of distemper and its complications, in horses.

(See discussion of this disease on page 128.)

Produced from the blood of horses hyperimmunized against highly virulent bacteria isolated from acute cases of equine distemper.

Prophylactic Dose: 10 to 30 Mils (Cc), subcutaneously.

Therapeutic Dose: 50 to 100 Mils (Cc), depending upon size and condition of animal, repeated as frequently as indicated. Inject subcutaneously.

Code	
<i>Sadaw</i> —20 Mil (Cc) vial.....	\$0.60
<i>Sadar</i> —50 Mil (Cc) vial.....	1.20
<i>Sadax</i> —100 Mil (Cc) vial.....	2.20

## ANTI-HEMORRHAGIC SEPTICEMIA SERUM (for CAT-TLE)

Produced from the blood of horses hyperimmunized against many virulent strains of *B.bovissepticum*.

Prophylactic Dose: 20 to 40 Mils (Cc). For protecting healthy animals in infected or exposed herds, the above dose simultaneously with 2 Mils of Hemorrhagic Septicemia Vaccine (Bovine) is recommended as producing lengthy, active immunity. (See Notes on Biologic Therapy, page 135.)

Therapeutic Dose: 100 to 300 Mils (Cc), as indicated by size and condition of patient, repeated at 18 to 24 hours intervals until symptoms subside. Intravenous administration is preferable; may also be used subcutaneously.

Code	
<i>Sacco</i> —50 Mil (Cc) vial.....	\$1.20
<i>Sack</i> —100 Mil (Cc) vial.....	2.20
<i>Sady</i> —250 Mil (Cc) vial.....	5.00

## ANTI-HEMORRHAGIC SEPTICEMIA SERUM (EQUINE)

Produced from the blood of horses hyperimmunized against virulent strains of *B.equisepticum*.

Prophylactic Dose: 10 to 30 Mils (Cc) intravenously. Longer immunity will be secured if this is followed by bacterin treatment.

Therapeutic Dose: 50 to 200 Mils (Cc) depending upon size of animal and severity of case. Repeat each 24 hours, if indicated.

Refer to Notes on this disease, page 134.

Code	
<i>Sadem</i> —50 Mil (Cc) vial.....	\$1.20
<i>Sadew</i> —100 Mil (Cc) vial .....	2.20

## ANTI-HEMORRHAGIC SEPTICEMIA SERUM (for RAB-BITS) (Anti-Snuffles Serum)

Produced from the blood of horses hyperimmunized with *B.bipolaris* cuniculum, isolated from rabbits affected with snuffles.

Prophylactic Dose: 5 Mils (Cc).

Therapeutic Dose: Intravenously, 3 Mils (Cc). Subcutaneously, 5 to 10 Mils (Cc). Repeat injections at 12 to 24 hour intervals until marked improvement is obtained. For intravenous injections, the marginal ear vein is best adapted.

Code

*Salad*—20 Mil (Cc) vial.....\$0.60

*Sane*—50 Mil (Cc) vial..... 1.20

## ANTI-HEMORRHAGIC SEPTICEMIA SERUM (for SWINE) (Anti-Swine-Plague Serum)

For the treatment and prevention of Hemorrhagic Septicemia in swine (swine plague).

Produced from the blood of horses hyperimmunized against numerous virulent strains of *B.suisepiticum*.

Prophylactic Dose: 20 to 30 Mils (Cc). The immunity produced is passive. Immunity of longer duration is obtained from Hemorrhagic Septicemia Bacterin.

Therapeutic Dose: 50 to 200 Mils (Cc) repeated each 18 to 24 hours until symptoms subside. Intravenous injections, through the marginal ear vein, give best and quickest results. Also used subcutaneously or intramuscularly.

This disease and its treatment is described under Biologic Notes, see page 139.

Code

*Sage*—50 Mil (Cc) vial.....\$1.20

*Sail*—100 Mil (Cc) vial..... 2.20

*Saint*—250 Mil (Cc) vial ..... 5.00

## ANTI-INFLUENZA SERUM (EQUINE)

For the treatment and prevention of influenza and its complications, in horses.

Produced from the blood of horses hyperimmunized against highly virulent bacteria isolated from acute cases of equine influenza.

See notes on Equine Influenza, page 130.

Prophylactic Dose: 10 to 30 Mils (Cc).

Therapeutic Dose: 50 to 100 Mils (Cc) as indicated by size and condition of patient, to be repeated until desired effect is obtained. Inject intravenously.

Code

*Sadit*—20 Mil (Cc) vial.....\$0.60

*Sadon*—50 Mil (Cc) vial..... 1.20

*Sadug*—100 Mil (Cc) vial..... 2.20

## ANTI-MIXED INFECTION SERUM (for SWINE)

For the treatment of so-called mixed infection in swine, also of Necrotic Enteritis, whether following Hemorrhagic Septicemia or existing independently of the latter.

For Notes on these conditions, refer to Mixed Infection and Necrotic Enteritis, page 162.

This serum is produced from the mixed blood of individual horses hyperimmunized against *B.suisepiticum*, *B.suipestifer*, *B.paratyphosus*

b. and B.coli, respectively. All antigens used are of porcine origin.

Prophylactic Dose: 10 to 30 Mils (Cc).

Therapeutic Dose: 30 to 100 Mils (Cc) repeated each 12 to 24 hours until improvement is noted.

Inject subcutaneously or intramuscularly.

Code	
<i>Sally</i> —50 Mil (Cc) vial.....	\$1.20
<i>Salp</i> —100 Mil (Cc) vial.....	2.20
<i>Salt</i> —250 Mil (Cc) vial.....	5.00

## ANTI-STREPTOCOCCIC SERUM (EQUINE)

For the treatment of septicemia, pyemia and all infections of horses suspected of being due to streptococcus.

This serum is produced from the blood of horses hyperimmunized against numerous strains of streptococci isolated from cases of septicemia, pyemia and many localized suppurative conditions in horses.

Therapeutic Dose: A minimum dose of 50 Mils (Cc) is recommended. The maximum dose will depend upon the acuteness of the case and size of patient. Repeat as frequently as indicated. Inject intravenously.

Code	
<i>Saper</i> —50 Mil (Cc) vial.....	\$1.20
<i>Sapot</i> —100 Mil (Cc) vial.....	2.20

## NORMAL HORSE SERUM

For usage and description please refer to notes on Biological Therapy, page 165.

Code	
<i>Sarex</i> —20 Mil (Cc) vial.....	\$0.60
<i>Sarim</i> —50 Mil (Cc) vial.....	1.20
<i>Sarut</i> —100 Mil (Cc) vial.....	2.20

## TETANUS ANTITOXIN

For the prevention and treatment of tetanus in all species of animals. Produced from the blood of horses hyperimmunized against the toxin of B.tetani.

Prophylactic Dose: 500 to 1500 units, injected subcutaneously or intravenously. If the immunizing injection is delayed more than 48 hours, after injury is sustained, a second injection should be made within 3 days.

Therapeutic Dose: 5000 to 20000 units or more. Results depend upon the use of sufficient antitoxin to neutralize all of the toxin in the system. Repeat as frequently as the judgment of the attending veterinarian directs and the condition of the patient indicates.

Heavy dosage, both intravenously and intramuscularly is often advisable.

Please refer to "Tetanus" under Notes on Biological Therapy, page 170.

## TETANUS ANTITOXIN—Cont'd

## In Syringe Packages

Code	
<i>Tade</i> —500 Units	.....\$0.45
<i>Taffy</i> —750 Units	..... .60
<i>Tags</i> —1500 Units	..... .75
<i>Tally</i> —3000 Units	..... 1.50
<i>Tame</i> —5000 Units	..... 2.40

## In Vial Packages

Code	
<i>Tan</i> —500 Units	.....\$0.30
<i>Tape</i> —750 Units	..... .45
<i>Tart</i> —1500 Units	..... .60
<i>Task</i> —3000 Units	..... 1.20
<i>Tawny</i> —5000 Units	..... 2.10

## Bacterins

Note: When ordering biologics it should be remembered that Pitman-Moore **Bacterins** are sterile suspensions of **killed** bacteria, and that Vaccines contain **living** (attenuated) organisms.

In Pitman-Moore Bacterins all sterilization is by chemical action, not by heat; thereby the preservation of full antigenic power is secured. In most strains of bacteria used for bacterin production high virulence is necessary for the best results. In all such strains the virulence is maintained by frequent animal passage, by the use of culture media best suited to each organism, and by storage under proper temperature conditions.

The bacterial count of each product in this class is carefully adjusted to secure best results according to the best scientific teaching, and is neither lessened through selfish motives, nor made uselessly high to support extravagant claims.

Each Pitman-Moore bacterin is specific; the organisms used in each product being isolated from the same conditions for which the product is recommended. An interesting discussion of bacterin production and bacterin therapy will be found on page 114.

Our biological packages are convenient and safe

Their content is easily removed without exposure to contamination



<p><b>HEMORRHAGIC SEPTICEMIA BACTERIN (FOR RABBITS)</b> (Snuffles Bacterin)</p> <p>Recommended for the prevention and treatment of rabbits affected with Hemorrhagic Septicemia. This package contains six vials, each being one dose. Each dose contains two billion killed H. bipolaris bacilli.</p> <p>Serial No. _____ Use before _____ U. S. Veterinary License No. 6 <b>PITTMAN-MOORE COMPANY</b> Indianapolis, Indiana U. S. A.</p>	<p>While the cause of snuffles is not positively known, since the Hemorrhagic Septicemia organism is regularly isolated from such cases, this product is recommended. It is producing good results in the prevention and treatment of snuffles.</p> <p>As a prophylactic: Whole good results frequently follow one injection, best and most permanent immunity follows two or three injections at 5 to 7 day intervals.</p> <p>As a therapeutic agent: Inject at 2 to 7 day intervals (depending upon the reaction) until improvement is marked.</p> <p>Administer subcutaneously.</p>
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## AUTOGENOUS BACTERINS FOR LOCAL SUPPURATIVE CONDITIONS

Code Word—*Back*

Our laboratories are especially equipped for the preparation of autogenous bacterins. Fistula, poll evil, quitter and all other suppurative conditions which do not respond to surgical treatment or to the use of stock bacterins, will generally respond quickly and very satisfactorily to the use of autogenous bacterin.

To obtain material for producing an autogenous bacterin, take pus from a freshly opened pocket, avoiding edges and surface of wound. Send this material to us in a small sterile bottle or test tube.

Tests tubes and swabs made specially for this purpose mailed without charge upon request.

Autogenous bacterins for suppurative cases, including examination and sufficient bacterin for 5 doses.....\$5.00

(A nominal charge is made for rabbits or guinea pigs if required in making the examination.)

## AUTOGENOUS BACTERINS FOR SYSTEMIC INFECTIONS

Code Word—*Badge*

In order to make proper autogenous bacterins a very careful bacteriological examination of the specimens submitted is necessary. This examination is needed to determine the organism actually responsible for the trouble or the presence of unusual organisms, and serves also to confirm the clinical diagnosis of the practitioner.

In order to assure proper results from autogenous bacterins for systemic infections, it is necessary that the offending organism not only be isolated, but that its pathogenicity be determined by tests upon small animals. In our laboratories this is done in every instance.

Autogenous bacterin, if 50 doses or less are ordered.....\$5.00

Autogenous bacterin, when more than 50 doses are ordered, per dose.. .10

**CALF-SCOUR MIXED BACTERIN**

For prevention and treatment of calf-scour and associated pneumonia. Each dose (2 mils) contains 60 billion killed bacteria as follows:

B. coli communis (bovine).....	60%
B. paracoli (bovine) .....	30%
B. abortus (bovine) .....	10%

Prophylactic Dose: Calves 1 to 3 days old, 1 mil (Cc). 4 days old and over, 2 mils (Cc). Best and most lasting immunity follows three doses at 5 to 7 day intervals. The initial dose should be given as quickly as possible after birth.

Therapeutic Dose: 2 mils (Cc) repeated each 3 days or oftener until improvement is marked. See discussion of calf-scour on page 125.

Code

*Belt*—20 Mil (Cc) vial (10 doses).....\$1.20

*Bess*—Package containing six 2 Mil vials... 1.00

**DISTEMPER MIXED BACTERIN (CANINE)**

For the prevention of distemper in dogs.

Each dose contains 40 billion killed bacteria as follows:

B. bronchisepticum .....	40%
Streptococci .....	30%
Staphylococci	
Albus and aureus (combined).....	30%
All isolated from cases of canine distemper.	

Dose: 2 Mils (Cc) subcutaneously. Most lasting immunity is obtained from three injections at 3 to 7 day intervals.

See Notes on Canine Distemper, page 122.

Code

*Befar*—20 Mil (Cc) vial (10 doses).....\$1.20

*Befel*—50 Mil (Cc) vial (25 doses)..... 2.75

*Befit*—Package of three 2 Mil (Cc) vials... .65

**DISTEMPER MIXED BACTERIN (EQUINE)**

For the prevention and treatment of strangles and distemper in colts and horses.

Contains streptococcus equi 70%, streptococcus pyogenes (equine) 30%.

Dilution No. 1 contains 30 billion killed bacteria.

Dilution No. 2 contains 40 billion killed bacteria.

Dilution No. 3 contains 60 billion killed bacteria.

Prophylactic Dose: 2 Mils (Cc). Best and most lasting immunity follows three injections at 5 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) at 3 to 7 day intervals, or oftener (depending upon the reaction) until marked improvement is obtained.

See Notes on Equine Distemper, page 128.

Code

*Beach*—Package of three 2 Mil (Cc) vials,

Dilutions 1, 2 and 3.....\$0.65

*Bear*—20 Mil (Cc) vial (10 doses), Dilution

No. 3 .....

1.20

## FOWL CHOLERA MIXED BACTERIN

For the prevention of fowl cholera or hemorrhagic septicemia.

Each dose (1 Mil) contains 12 billion killed *B. avisepiticum*, isolated from acute cases of fowl cholera.

Prophylactic Dose: 1 Mil (Cc). Best results are obtained from three subcutaneous injections, given at 3 to 5 day intervals.

Refer to Notes on Fowl Cholera, page 132.

Code	
<i>Begin</i> —20 Mil (Cc) vial.....	\$1.20 1.00
<i>Begot</i> —50 Mil (Cc) vial.....	<del>2.75</del> 2.00
<i>Begum</i> —100 Mil (Cc) vial.....	5.00 3.00

## HEMORRHAGIC SEPTICEMIA BACTERIN (for CATTLE)

Each dose (2 Mils) contains 40 billion killed *B. bovisepiticum*.

Prophylactic Dose: 2 Mils (Cc) at 5 to 7 day intervals until three injections are given.

Therapeutic Dose: 2 Mils (Cc) at 2 to 5 day intervals until improvement is marked.

For further information see Notes on Biologic Therapy, page 135.

Code	
<i>Blab</i> —20 Mils (Cc) vial (10 doses).....	\$1.20
<i>Bleak</i> —50 Mils (Cc) vial (25 doses).....	2.75
<i>Blind</i> —100 Mil (Cc) vial (50 doses).....	5.00

## HEMORRHAGIC SEPTICEMIA BACTERIN (for HORSES)

Each dose contains 40 billion killed *B. equisepticum*.

Prophylactic Dose: 2 Mils (Cc). Best and most lasting immunity follows three injections at 3 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) each forty-eight hours or oftener until improvement is marked.

Inject subcutaneously.

A discussion of Equine Hemorrhagic Septicemia will be found on page 134.

Code	
<i>Biden</i> —Package of six 2 Mil (Cc) vials....	\$1.00
<i>Bidit</i> —20 Mil (Cc) vial (10 doses).....	1.20
<i>Bidox</i> —50 Mil (Cc) vial (25 doses).....	2.75

## HEMORRHAGIC SEPTICEMIA BACTERIN (for SHEEP)

Each dose (2 Mils) contains 24 billion killed *B. ovisepticum* of highly virulent strains.

Prophylactic Dose: 2 Mils (Cc). Best results are obtained from three injections at 5 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) repeated each 1 to 3 days until improvement is marked.

See page 137.

Code	
<i>Vicar</i> —20 Mil (Cc) vials (10 doses).....	\$1.20
<i>View</i> —50 Mils (Cc) vials (25 doses).....	2.75
<i>Vixen</i> —100 Mil (Cc) vials (100 doses).....	5.00

## HEMORRHAGIC SEPTICEMIA BACTERIN (for SWINE) (Swine Plague Bacterin)

Each dose (2 Mils) contains 40 billion killed *B. suis* septicum of many virulent strains secured from all parts of the country.

Prophylactic Dose: 2 Mils (Cc). Although a single dose often produces apparently satisfactory immunity, strongest and most lasting protection is obtained from three injections at 5 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) at 2 to 5 day intervals until improvement is marked.

See Biological Therapy in Hemorrhagic Septicemia, page 139.

Code

*Brain*—20 Mil (Cc) vial (10 doses).....\$1.20

*Brook*—50 Mil (Cc) vial (25 doses)..... 2.75

*Brush*—100 Mil (Cc) vial (50 doses)..... 5.00

## INFLUENZA MIXED BACTERIN (EQUINE)

For the prevention and treatment of equine influenza (shipping fever) and its complications.

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

*Streptococcus equi* .....40%

*B. equisepticum* .....30%

*Staphylococcus aureus* (equine) .....15%

*Staphylococcus albus* (equine) .....15%

Prophylactic Dose: 2 Mils (Cc) while good results often follow a single injection, best and longest immunity is obtained by three injections at 5 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) at 3 to 7 day intervals (depending upon the reaction) until improvement is marked.

See Notes on Equine Influenza, page 130.

Code

*Bible*—Package of six 2 Mil (Cc) vials....\$1.00

*Bisk*—20 Mil (Cc) vial (10 doses)..... 1.20

## MASTITIS MIXED BACTERIN (for CATTLE)

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

*Streptococcus mastitis* (bovine) .....60%

*Staphylococcus albus* (bovine) .....15%

*Staphylococcus aureus* (bovine) .....15%

*B-coli communis* (bovine) .....10%

Therapeutic Dose: 2 Mils (Cc). Inject subcutaneously at 5 to 7 day intervals until improvement is marked.

See Notes on Bovine Mastitis, page 160.

Code

*Buck*—Package of six 2 Mil (Cc) vials....\$1.00

*Budge*—20 Mil (Cc) vial (10 doses)..... 1.20

## METRITIS MIXED BACTERIN (for CATTLE)

For the prevention and treatment of metritis, endometritis, and other inflammatory or suppurative conditions of the uterus and vagina.

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

B. pyogenes (bovine) .....	30%
Streptococcus (bovine) .....	25%
Staphylococcus albus (bovine) .....	25%
B.coli, communis and communiior (bovine) ..	20%

Prophylactic Dose: 2 Mils (Cc) a few days before, at the time of, and a few days following parturition.

Therapeutic Dose: 2 Mils (Cc) repeated each 48 hours until improvement is well marked.

See Biological Therapy in Bovine Metritis, page 161.

Code

<i>Bifed</i> —Package of six 2 Mil (Cc) vials....	\$1.00
<i>Bifn</i> —20 Mil (Cc) vial (10 doses).....	1.20
<i>Bifar</i> —50 Mil (Cc) vial (25 doses).....	2.75

## MIXED BACTERIN (for FOWLS)

For the prevention and treatment of fowl affected with or exposed to the complications of roup, avian diphtheria and allied conditions.

Each Mil (Cc) contains 20 billion killed bacteria as follows:

B. pseudodiphtheria .....	30%
Streptococci .....	30%
Staphylococci .....	20%
B. avisepticum .....	10%
B. pyocyaneus .....	10%

Dose: 1 Mil (Cc) administered subcutaneously beneath the wing. Two or preferably three injections should be given at 3 to 7 day intervals.

Under Notes on Biologic Therapy, see Roup and Pox in chickens, page 166.

Code

<i>Bayat</i> —20 Mil (Cc) vial (20 doses).....	<del>\$1.20</del> 1.00
<i>Baydo</i> —50 Mil (Cc) vial (50 doses).....	<del>2.75</del> 2.00
<i>Bayfu</i> —100 Mil (Cc) vial (100 doses).....	<del>5.00</del> 3.00

## MIXED BACTERIN (for RABBITS).

### (Snuffles Bacterin)

For the prevention and treatment of snuffles and hemorrhagic septicemia in rabbits.

Each dose (2 Mils) contains 24 billion killed bacteria as follows:

B. bronchisepticum (cunine) .....	35%
B. cuniculisepticum .....	35%
Streptococcus pyogenes (cunine) .....	5%
Staphylococcus pyogenes, albus, aureus and citreus (cunine) .....	25%

Prophylactic Dose: 2 Mils (Cc) subcutaneously at 5 to 7 day intervals for two or (preferably) three doses.

Therapeutic Dose: 2 Mils (Cc) at 5 to 7 days intervals or oftener (as indicated by condition of patient).

See Notes on Hemorrhagic Septicemia in Rabbits, page 146.

<i>Bobet</i> —Package of six 2 Mil (Cc) vials....	\$1.00
<i>Bobix</i> —20 Mil (Cc) vial (10 doses).....	1.00

**MIXED BACTERIN (for SWINE)**

For the prevention of necrotic enteritis and so-called mixed infection in swine.

Each dose (2 Mils) contains 40 billion killed bacteria as follows:

B. suisepiticum .....	20 billion
B. paratyphosus b. (porcine) .....	8 billion
B. suipestifer .....	8 billion
B. coli (porcine) .....	4 billion

Prophylactic Dose: 2 Mils (Cc). Best results are obtained by repeating at 5 to 7 day intervals until two, or preferably three, injections are given.

Therapeutic Dose: 2 Mils (Cc) repeated as indicated.

Inject subcutaneously or intramuscularly.

Under Notes on Biological Therapy, see Necrotic Enteritis and Mixed Infection, page 162.

Code

*Build*—20 Mil (Cc) vial (10 doses).....\$1.20

*Bully*—50 Mil (Cc) vial (25 doses)..... 2.75

*Bump*—100 Mil (Cc) vial (50 doses)..... 5.00

16 " " (5 " ) .75

**PIG SCOUR MIXED BACTERIN**

For the prevention of diarrhea and scours in pigs.

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

B. paratyphosus b. (porcine) .....	40%
B. suipestifer .....	40%
B. suisepiticum .....	20%

Prophylactic Dose: 2 Mils (Cc) using two or three injections at 3 to 7 day intervals.

Therapeutic Dose: 2 Mils (Cc) every 3 days or oftener until improvement is marked.

See Notes on Pig Scour, page 168.

Code

*Bofed*—20 Mil (Cc) vial (10 doses).....\$1.20

*Bofix*—50 Mil (Cc) vial (25 doses)..... 2.75

*Bofut*—100 Mil (Cc) vial (50 doses)..... 5.00

**STREP-STAPH-COLI BACTERIN (for CATTLE)**

For the treatment of all suppurative conditions in cattle.

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

Streptococcus pyogenes (bovine).....	40%
Staphylococcus albus (bovine) .....	25%
Staphylococcus aureus (bovine).....	25%
B. coli communis (bovine).....	10%

Dose: 2 Mils (Cc) repeated at 5 to 7 day intervals until marked improvement is obtained.

Inject subcutaneously.

Under Notes on Biologic Therapy, see Suppurative Conditions in Horses and Cattle, page 169.

Code

*Burst*—Package of six 2 Mil (Cc) vials.....\$1.00

## STREP-STAPH-COLI BACTERIN (for HORSES)

For the treatment of fistula, poll-evil, quittor, abscesses, open joints, navel ill, arthritis and all suppurative conditions in horses.

Each dose (2 Mils) contains 60 billion killed bacteria as follows:

Streptococcus pyogenes (equine).....	30%
Staphylococcus albus (equine).....	30%
Staphylococcus aureus (equine).....	30%
B. coli communis (equine).....	10%

Dose: 2 Mils (Cc) repeated at 5 to 7 day intervals until improvement is marked.

Inject subcutaneously.

See "Suppurative Conditions in Horses and Cattle," page 169.

Code

*Brute*—Package of six 2 Mil (Cc) vials....\$1.00

*Bulk*—20 Mil (Cc) vial (10 doses)..... 1.20

## Bacterial Filtrates

Including Diagnostic Agents

### BLACKLEG FILTRATE

A bacteria-free filtrate of *B. chauveaui*, containing the antigen capable of producing active immunity against blackleg.

To be used for prophylaxis only.

Dose: 5 Mils (Cc) injected subcutaneously.

In herds in which the disease exists, Anti-Blackleg Serum should be used, followed in 7 days by Blackleg Filtrate. This is fully explained in Notes on Biologic Therapy under Blackleg, page 120.

Code

*Faber*—50 Mil (Cc) vials (10 doses).....~~\$1.25~~ <sup>2.00</sup>

*Fabin*—250 Mil (Cc) vials (50 doses)..... ~~5.00~~ <sup>7.00</sup>

### TUBERCULINS

For summary of B. A. I. regulations governing tuberculin testing, see Tuberculosis and Tuberculins in Notes on Biologic Therapy, page 172.

### TUBERCULIN, SUBCUTANEOUS

Each dose (4 Mils) contains 0.6 gram of Koch's Old Tuberculin.

Dose: 4 Mils (Cc) injected subcutaneously.

Code

*Tabad*—20 Mil (Cc) vial (5 tests).....\$0.65

*Tabef*—100 Mil (Cc) vial (25 tests)..... 2.65

### TUBERCULIN, INTRADERMAL

Each Mil (Cc) equals 0.5 gram of Koch's Old Tuberculin.

Dose: 0.1 to 0.2 Mil (Cc) injected intradermally.

Code

*Tabor*—1 Mil (Cc) vial (5 to 10 tests)....\$0.25

*Tabux*—5 Mil (Cc) vial (25 to 50 tests).... .85

**TUBERCULIN, OPHTHALMIC DISCS**

Each disc contains the equivalent of 0.5 gram of Koch's Old Tuberculin.

Dose: 1 disc. See directions on page 176.

Code

*Tabig*—Package containing 10 tests.....\$0.65

**TUBERCULIN, TRIPLE STRENGTH**

For retesting cattle or to detect so-called "plugged" cattle.

Each dose contains 1.8 grams of Koch's Old Tuberculin.

Dose: 4 Mils (Cc) subcutaneously.

Code

*Tripe*—20 Mil (Cc) vial (5 tests).....\$1.60

*Trist*—100 Mil (Cc) vial (25 tests)..... 6.60

**Vaccines**

Pitman-Moore Vaccines are suspensions of living (attenuated or unattenuated) organisms.

**ABORTION VACCINE (BOVINE)**

For the prevention of infectious abortion in cattle.

Each dose (10 Mils) contains 200 billion living *B. abortus bovis*.

Dose: 10 Mils (Cc) injected subcutaneously two to three months before breeding. The treatment should be repeated before subsequent pregnancies.

This product should be used only on non-pregnant animals in infected herds.

Under Notes on Biologic Therapy, see Infectious Abortion in Cattle, page 116.

Code

*Vabac*—50 Mil (Cc) vials (5 doses).....\$ 5.00

*Vabor*—250 Mil (Cc) vials (25 doses).... 22.50

*Vabug*—10 " " (1 dose) 1.00

**CHICKEN POX VACCINE**

For the prevention and treatment of chicken pox.

Prepared from the lesions of birds affected with chicken pox. An attenuated virus prepared according to the method of Beach. It should be used only in infected flocks.

Dose: 1 Mil (Cc) subcutaneously beneath the wing. Repeat at 3 to 7 day intervals until three doses are given.

See Roup and Pox in Chickens, under Notes on Biologic Therapy, page 166.

Code

*Vabet*—20 Mil (Cc) vials (20 doses).....\$1.60

*Vabis*—50 Mil (Cc) vials (50 doses)..... 3.75

*Vabyx*—100 Mil (Cc) vials (100 doses)..... 7.00

## HEMORRHAGIC SEPTICEMIA VACCINE (for CATTLE)

For immunizing cattle against hemorrhagic septicemia.

Each dose (2 Mils) contains 20 billion living (attenuated) *B. bovis*-septicum.

Dose: 2 Mils (Cc) subcutaneously. The most satisfactory method for immunizing healthy cattle in exposed or infected herds is by the simultaneous treatment with this vaccine and Anti-Hemorrhagic Septicemia Serum, as explained under Hemorrhagic Septicemia in Cattle, page 135.

Code

*Veal*—20 Mil (Cc) vial (10 doses) .....\$1.20

*Venal*—50 Mil (Cc) vial (25 doses)..... 2.75

*Vent*—100 Mil (Cc) vial (50 doses)..... 5.00

In addition to the products heretofore listed, we are prepared to supply the following:

## ANTI-ANTHRAX SERUM AND ANTHRAX SPORE VACCINE (Simultaneous Method)

Code

*Abate*—Packages containing 10 complete prophylactic treatments .....\$4.00

## ANTI-ANTHRAX SERUM

Code

*Absurd*—Package containing 100 Cc bottle..\$3.50

## ANTHRAX SPORE VACCINE (Double Vaccination)

Code

*Acute*—Package of 2 vials, containing Vaccine No. 1 and Vaccine No. 2, 10 complete vaccinations .....\$1.50

*Adorn*—Package of 2 vials, containing Vaccine No. 1 and Vaccine No. 2, 20 complete vaccinations ..... 2.75

## ANTHRAX PROPHYLAXIS (for SHEEP)

Code

*Arson*—Package containing 20 complete treatments of 5 Cc Anti-Anthrax Serum and 1 Cc Vaccine.....\$4.00

## OPHTHALMIC MALLEIN (Concentrated)

Code

*Mart*—Vial containing one Cc, sufficient for 10 tests, with camel's hair brush .....\$1.00

## PITUITARY EXTRACT

Code

*Peck*—Package containing 10 Cc vial.....\$1.60

## RABIES VACCINE (Dilution Method of Hogyes)

Code

*Rent*—Vial Package: Complete treatment for horses and cattle .....\$6.00*Rag*—Vial Package: Complete treatment for dogs and cats ..... 6.00*Rabies Vaccine (P-MC)*

<i>1 dose</i>	<i>60¢</i>
<i>10 doses</i>	<i>@ 55¢ per dose</i>
<i>25 "</i>	<i>50¢ " "</i>

# The Pitman Moore Telegraph and Cable Code

Avoid Mistakes, Get Quicker Service and Save Telegraph Tolls by Its Use

Cable address: "Pitmore."

Western Union Code used: Universal and Five Letter Editions.

For each package of our biological products, there is a code word. The code word for each package precedes the description and price of the package in this list.

These code words, used in connection with the code given below, will enable our patrons to send, in a very few words, complete instructions for shipping any amount of any number of our biologics.

Copies of our code are in the hands of all our branches and orders may be sent in code to all our branches and distributors.

## Code Words for Shipping Instructions

*Cabal*—Ship by express.

*Cache*—Ship by parcel post.

*Cage*—Ship by freight.

*Cadet*—Ship by parcel post, special delivery.

*Cake*—Ship by express, collect on delivery.

*Cater*—Ship by parcel post, collect on delivery.

*Calix*—Ship on open account.

## Code Words for Expressions Commonly Used in Ordering Biologics

*Dace*—Of hogs averaging (number) pounds.

*Dado*—Pounds of hogs.

*Daily*—Head of cattle.

*Dalk*—Head of sheep.

*Dame*—Head of horses.

*Dance*—Head of rabbits.

(To be preceded by the code word for the *number* of animals.)

## Numerical Code

The following numerical code provides for condensing telegrams by writing any amount in one, two or three words.

EXAMPLE—"Tatam" signifies ten thousand; "tatam tanmy," ten thousand five hundred; "tatam tanmy tahip" reads ten thousand five hundred and forty.

**Important**—Numerical code words preceding a code word for a biological product is understood to mean number of mils. (Cc) wanted. However, the numerical code may be used for transmitting numbers of any kind, as for example, "tatam dado" will mean "10,000 pounds of hogs,"

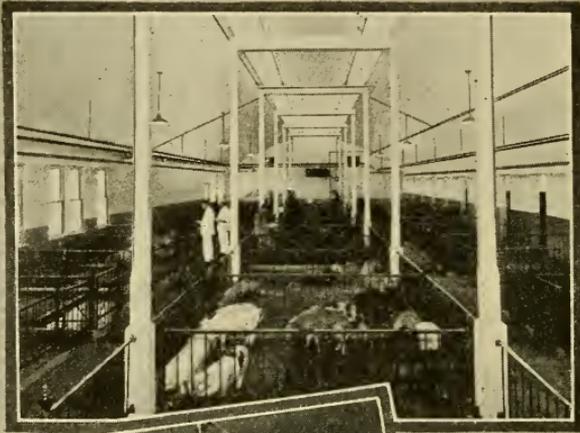
or "tanfe hogs" will read "one hundred head of hogs." Thus, "one hundred head of hogs averaging sixty pounds in weight" can be written "tanfe dace tahup," which literally translated, would read "one hundred head of hogs averaging pounds sixty."

Quantity	Code Word	Quantity	Code Word
10 Mils.	taghe	2300 Mils.	tapna
20 Mils.	tagna	2400 Mils.	tappo
25 Mils.	tagos	2500 Mils.	tapug
30 Mils.	tahap	2600 Mils.	tapus
35 Mils.	tahbo	2700 Mils.	taral
40 Mils.	tahip	2800 Mils.	taray
45 Mils.	tahol	2900 Mils.	tarbo
50 Mils.	tahon	3000 Mils.	tarce
60 Mils.	tahup	3100 Mils.	tardi
70 Mils.	taico	3200 Mils.	tarek
75 Mils.	taidi	3300 Mils.	tarfo
80 Mils.	taigs	3400 Mils.	tarha
90 Mils.	tailu	3500 Mils.	taric
100 Mils.	tanfe	3600 Mils.	tarka
150 Mils.	tange	3700 Mils.	tarpy
200 Mils.	tango	3800 Mils.	tarto
250 Mils.	tanib	3900 Mils.	tasar
300 Mils.	tanim	4000 Mils.	tasba
350 Mils.	tanja	4100 Mils.	tasci
400 Mils.	tan̄ki	4200 Mils.	tasdo
450 Mils.	tanlo	4300 Mils.	tasec
500 Mils.	tanmy	4400 Mils.	tasfy
550 Mils.	tanod	4500 Mils.	tasko
600 Mils.	tanpa	4600 Mils.	tasid
650 Mils.	tanri	4700 Mils.	tasit
700 Mils.	tanto	4800 Mils.	tasjo
750 Mils.	tanux	4900 Mils.	tasko
800 Mils.	taoba	5000 Mils.	tasly
850 Mils.	taode	5500 Mils.	tasmo
900 Mils.	taofs	6000 Mils.	tasob
950 Mils.	taogi	6500 Mils.	taspe
1000 Mils.	taohs	7000 Mils.	tasru
1100 Mils.	taolp	7500 Mils.	tasso
1150 Mils.	taorb	8000 Mils.	tasti
1200 Mils.	taoro	8500 Mils.	tasul
1250 Mils.	taosh	9000 Mils.	tasus
1300 Mils.	taost	9500 Mils.	tatag
1350 Mils.	taotu	10000 Mils.	tatam
1400 Mils.	taoxi	11000 Mils.	tatbo
1500 Mils.	tapan	12000 Mils.	tatda
1600 Mils.	tapba	13000 Mils.	tater
1700 Mils.	tapeg	14000 Mils.	tatge
1750 Mils.	tapes	15000 Mils.	tatip
1800 Mils.	tapfi	16000 Mils.	tatle
1900 Mils.	tapho	17000 Mils.	tatma
2000 Mils.	tapid	18000 Mils.	tatod
2100 Mils.	tapjo	19000 Mils.	tatpa
2200 Mils.	tapli	20000 Mils.	tatto
2250 Mils.	tapme	22500 Mils.	tatur

# Telegraph Code

Quantity	Code Word	Quantity	Code Word
25000 Mils. ....	.tauba	250000 Mils. ....	.tawup
27500 Mils. ....	.taucs	275000 Mils.s ....	.taxap
30000 Mils. ....	.taude	300000 Mlpls. ....	.taxbe
32500 Mils. ....	.taugn	325000 Mils. ....	.taxdi
35000 Mils. ....	.tauki	350000 Mils. ....	.taxer
37500 Mils. ....	.tauli	375000 Mils. ....	.taxfe
40000 Mils. ....	.tauma	400000 Mils. ....	.taxib
42500 Mils. ....	.taung	425000 Mils. ....	.taxma
45000 Mils. ....	.taups	450000 Mils. ....	.taxto
47500 Mils. ....	.taurl	475000 Mils. ....	.tayan
50000 Mils. ....	.taust	500000 Mils. ....	.taydo
55000 Mils. ....	.taval	600000 Mils. ....	.teado
60000 Mils. ....	.taven	700000 Mils. ....	.teaks
65000 Mils. ....	.tawan	800000 Mils. ....	.teama
70000 Mils. ....	.tawba	900000 Mils. ....	.teams
75000 Mils. ....	.tawel	1000000 Mils. ....	.teaps
80000 Mils. ....	.tawgi	1500000 Mils. ....	.teary
85000 Mils. ....	.tawho	2000000 Mils. ....	.tebag
90000 Mils. ....	.tawin	2500000 Mils.s ....	.tebbe
100000 Mils. ....	.tawko	3000000 Mils. ....	.teber
125000 Mils. ....	.tawly	3500000 Mils. ....	.tebgo
150000 Mils. ....	.tawol	4000000 Mils. ....	.tebin
175000 Mils. ....	.tawpe	4500000 Mils. ....	.teble
200000 Mils. ....	.tawse	5000000 Mils. ....	.tempo
225000 Mils. ....	.tawta		

**VIRUS PEN  
HOUSE**



**PREPARING TO  
DRAW VIRUS**

**VIEWS  
IN  
VIRUS  
LABORATORY**



**COLLECTING  
HOG-CHOLERA VIRUS**

# Notes on Modern Biological Therapy

## INTRODUCTION

These notes on Biological Therapy are not intended to replace standard text books but are presented in the hope that they will afford the busy practitioner a ready, concise, yet authentic summary of the present status of the diseases discussed, as well as of the production and proper use of biological products available for their prevention and treatment. In accordance with this idea many points have been omitted from consideration since their presentation would require a voluminous edition and would be merely a repetition of the data already available in text books on pathology, bacteriology and medicine.

Under treatment and prevention there is discussed only the factors which pertain to biological therapy but this should not be construed to mean that other proven methods of treatment should not also be used. Producers of biologics do not, and users should not, consider biological products as "cure alls," capable of curing and preventing all diseases and conditions without taking into consideration other cardinal essentials such as sanitation, disinfection, proper housing, feeding and correct medical or surgical treatment. Rather, biologics are intended to supplement other proven and valuable methods of disease control and to be used in diseases that prove refractory under other forms of treatment.

The successful use of biologics is dependent upon a working knowledge of the inseparably associated science of immunology, since the object which is desired when biologics are used, is the development of immunity or the diagnosis of infection. This knowledge develops an appreciation not only of the uses but also of the limitations and contraindications of biologics. For that reason, the following short discussion of immunology is offered.

## SUSCEPTIBILITY

This condition is the reverse of immunity and has been defined as meaning "easily affected." Most individuals have permanent susceptibility to certain diseases while they are

relatively resistant to others. Relatively high resistance, however, may be changed to susceptibility by any devitalizing condition such as shipping, cold, heat or exposure. After this occurs individuals may suffer from disease caused by bacteria to which they are ordinarily extremely resistant.

## IMMUNITY

Immunity means resistance to disease and is the reverse of susceptibility. Immunity is divided into natural and acquired, although in any instance immunity is not absolute, but relative.

### NATURAL IMMUNITY

All species of animals are naturally immune to some disease. Thus, man is naturally immune to hog cholera, while swine are naturally immune to smallpox and diphtheria. Certain individuals are naturally immune to disease to which the majority of the specie are ordinarily susceptible. Thus, many calves are naturally immune to blackleg, although this is a fatal disease to most young cattle.

### ACQUIRED IMMUNITY

Individuals which are naturally susceptible to certain diseases may develop resistance, or immunity, to these. This is spoken of as acquired immunity and may be acquired either naturally or artificially. Swine which recover from hog cholera and persons who have recovered from smallpox, have developed within their bodies, antibodies which prevent their contracting these diseases a second time. This is referred to as naturally acquired immunity. This same result may be brought about by artificially inducing the production of antibodies following the injection of an antigen. This is spoken of as artificially acquired immunity and it is upon this type of immunity that the value of biologics depends. This type of immunity is again divided into two kinds, passive and active.

**Passive Acquired Immunity.** This is a condition of passive and temporary protection or immunity and may be obtained by the use of any of the immune sera. These sera, as described on page 111, are made from the blood of horses or cattle which have been previously hyperimmunized (although other animals may be used as in the case of swine

producing anti-hog cholera serum.) These immune sera contain the desired antibodies which, when injected into animals, mechanically protect them against specific infection or combat infection already present, without any associated stimulation of the body cells. It is for this reason that immune sera are so valuable for combatting disease in individuals already infected without the associated delay and reaction necessary for immunity following the injection of antigens. Unfortunately the immunity conferred by such sera is of relatively short duration (a few weeks) and for this reason it is advisable to use other available biologics after recovery in order that the passive immunity may be made active.

**Active Acquired Immunity.** To obtain this type of immunity it is necessary that the individual establish the production of antibodies within its own system. This is accomplished by the injection of an antigen which is capable of stimulating the body cells to produce the desired antibodies. The antibodies which are capable of preventing infection or combating that which already exists differ in different diseases. In some the necessary antibodies are in the nature of antitoxins whereas in others they are opsonins, precipitins, or agglutinins. Biologics which are used to develop these antibodies must be capable of stimulating that antibody which is most capable of accomplishing the desired result. To accomplish this purpose a variety of biologics have been developed, amongst which are:

1. Unattenuated viruses, such as hog cholera virus which, when used with anti-hog cholera serum, confers active and lengthy immunity. Such a product is fully virulent and should be used only in conjunction with its specific immune serum.

2. Attenuated bacteria or viruses. These products are properly called *vaccines* and should not be confused with *bacterins*. Well known examples of this class are black-leg, anthrax, hemorrhagic septicemia and pox vaccines. These products are so attenuated during their production that when injected they produce only a mild attack of the disease and confer immunity, the duration of which is longer than that conferred by bacterins. The use of vaccines is not entirely without danger on account of the unusual susceptibility of some individuals and the likelihood of abscess

formation in others. For these reasons *vaccines should be used on only perfectly healthy animals.*

3. Bacterins are suspensions of killed bacteria in a suitable vehicle, usually normal saline solution, to which is added phenol or trikresol as a preservative. Bacterins are successfully used for the prevention and treatment of a large number of acute and chronic diseases. For successful use of bacterins the etiological factor responsible for the disease should be known and the bacterin to be used for its prevention or treatment should contain this organism or organisms, as the case may be. This is referred to as specific treatment and the greater the specificity of the product the better the results which follow its use.

Bacterins are known as stock and autogenous. In the case of the former, the product is prepared in advance and is available when required. It contains bacteria ordinarily associated with a given condition and the results from the use of stock bacterins are generally entirely satisfactory.

Autogenous bacterins are, strictly speaking, prepared from the individual on which they are to be used. In veterinary practice this term is also used to describe a product containing bacteria isolated from one individual and intended for use in other members of the same herd or flock. In exceptional cases stock bacterins fail to accomplish their purpose either because of the presence of some organism not ordinarily associated with such cases or because of unusual virulence possessed by some organism present in the individuals under treatment. In such cases bacterins which contain the specific bacteria present in the case may be prepared. These are referred to as autogenic bacterins. It is fortunate that in most cases stock bacterins are entirely efficacious since the preparation of autogenous products requires time which may be urgently needed for treatment and since their production is naturally somewhat expensive.

At Pitman-Moore Biological Laboratories great care is given to the preparation of autogenous bacterins. The organisms are carefully studied by our staff of bacteriologists and only bacteria having etiological significance are placed in the finished product. See page 114 for discussion regarding bacterins.

4. Filtrates and Bacterial By-Products. These consist of the purified and sterile by-products of bacterial growth.

Some, such as blackleg filtrate and aggressin, are used as antigens for the production of antibodies while others, as the tuberculins and mallein, are used for diagnostic purposes. This latter use is possible on account of the hypersusceptibility which infected animals display for the by-products of the bacteria with which they are infected. These products are rendered free of bacteria by filtration during the course of production. This process of filtration prevents any possibility of disease being reproduced by such filtrates.

## THE PREPARATION OF PITMAN-MOORE IMMUNE SERA

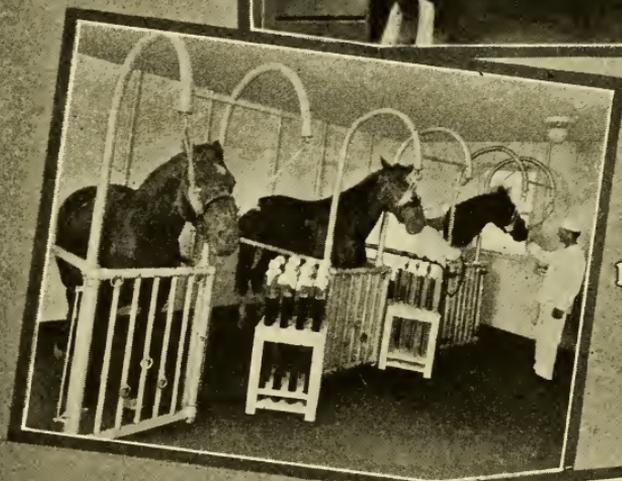
All of the recognized principles of modern biological therapy are exercised in the production of this line of immune sera.

These products, twelve in number, are prepared for the treatment of animals affected with, or for passive immunization against, an equal number of specific diseases. These sera which may be either anti-bacterial or antitoxic are all made from the blood of specially selected healthy young horses which are used only for this purpose. After being subjected to thorough physical and biological examinations to prove their freedom from disease, each horse is immunized against one specific kind of organism and after immunization, is subjected to a series of injections with the toxin or living organisms against which it is to produce an immune serum. The number of bacteria injected is gradually increased with each injection until the animal is capable of withstanding overwhelming amounts of what, under ordinary circumstances, would be life destroying bacteria.

In the production of antitoxin, the horses eventually receive injections of toxin, hundreds of times stronger than an ordinarily fatal amount. These repeated injections are followed by stimulation of the body cells, resulting in antibody production which eventually becomes excessive, as a result of which the blood stream becomes laden with the specific protective bodies. At the proper time a small amount of blood is drawn from each horse to determine the amount of antibody production, or, in other words, the potency of the serum. This is spoken of as a "trial bleeding."

If, upon test, this proves satisfactory, the animal is bled from the jugular vein, several quarts of blood being with-

**HORSES USED IN  
PRODUCING  
VETERINARY  
BIOLOGICS**



**HORSE  
BLEEDING  
ROOM**



**A ROOM IN THE  
TUBERCULIN DEPARTMENT**

drawn. The plasma portion of the blood is separated from the corpuscles and fibrin, rendered sterile and a preservative added. This is now ready for a test to determine the potency of the serum which varies somewhat depending upon the identity of the product. Each product is subjected to the tests which are recognized as most satisfactory for determining the potency of the particular type of serum, whether this be the agglutination, complement fixation, or animal inoculation test. After the product has been found fully potent it is subjected to a series of exacting tests to determine its freedom from contamination.

Between each bleeding the producing horses are injected with massive doses of the specific antigen which causes the cells to continue functioning thus maintaining the high antibody content of the serum. The bacteria contained in the antigen used for the production of Pitman-Moore Immune Sera are obtained in a special manner. The stock cultures used for this purpose are carefully selected strains originating in many parts of the country from acute outbreaks of the disease for which the serum is recommended. Cultures are never used until their antigenic ability has been proven, after which special scientific care, such as very frequent passaging through laboratory animals, is exercised to insure the retention of these antigenic activities. These are some of the factors which account for the uniformly good results obtained with Pitman-Moore immune sera.

Among the sera prepared in the above manner are the following:

- Tetanus Antitoxin.
- Anti-Calf Scour Serum.
- Canine Anti-Distemper Serum.
- Anti-Influenza Serum (Equine).
- Anti-Distemper Serum (Equine).
- Anti-Blackleg Serum.
- Anti-Streptococcic Serum (Equine).
- Anti-Hemorrhagic Septicemia Serum (Swine).
- Anti-Hemorrhagic Septicemia Serum (Cattle).
- Anti-Hemorrhagic Septicemia Serum (Equine).
- Anti-Snuffles Serum (Rabbits).
- Anti-Mixed Infection Serum (Swine).

The use of each of these serums is described under the disease for which it is recommended.

**GENERAL CONSIDERATIONS REGARDING IMMUNE  
SERA**

Results following the use of these are generally very satisfactory. To insure best results the following factors should be observed.

1. Diagnosis must be correct.
2. The specific serum prepared for the disease in question must be used.
3. Large doses should be the rule. Serum should be used early, and whenever possible, intravenously.
4. Immunity conferred by immune sera is passive in type and of relatively short duration. After the animal has recovered, its passive immunity should be reinforced by the use of other biologics which confer active immunity.

**PITMAN-MOORE BACTERINS**

Realizing that the field results obtained with bacterins are directly dependent upon several factors connected with their production, every safeguard known to modern science is exercised in the production of these products. Every culture used has been carefully selected from a virulent case of the disease which the bacterin is intended to combat. Each is subjected to the most painstaking examination to prove its identity, but even when this is established the culture is not used until its antigenic ability has been proven by inoculations into laboratory animals. The virulence of our stock cultures is maintained by frequent animal passages and the cultures are constantly studied to maintain purity of growth and retention of their antigenic activities. The media upon which they are grown is given careful consideration and every step used in the production of bacterins is closely guarded.

All Pitman-Moore bacterins are sterilized by chemicals rather than by heat, resulting in the retention of the antigenic substances which are destroyed in bacterins sterilized by heat. The preservative is added in such a manner that burning of the bacteria is prevented and autolysis is minimized. Each lot is standardized so that the count given *on the label is actually contained in the product.*

Lastly, each formula is arranged in accordance with the bacteriological findings from field cases in all parts of the country. This eliminates the inclusion of bacteria having no etiological significance and increases the percentage of fully antigenic bacteria having etiological significance. The count is arranged according to present biological knowledge and is not made excessive for selling purposes. A proper bacterial count is necessary but a bacterin containing *an excessive number of bacteria having no etiological significance does not carry the immunizing advantages of one prepared in accordance with the above standards* and containing a moderate number of fully antigenic, specific organisms.

**BACTERINS FOR PROPHYLAXIS.** The first requisite in immunizing against disease with bacterins is that the product contain the organisms known to cause the disease against which we wish to protect. To accomplish this the true etiological factor must be known to the clinician and the bacterin must contain these specific organisms; it must not be a "shot gun" formula containing many kinds of bacteria which are devoid of significance. Next in importance is the dosage, which is usually two c.c. except in the case of very small animals and birds in which case one c.c. is ordinarily used.

Lack of results is at times attributable to the use of but one injection. It has been conclusively proven by numerous investigators that maximum antibody production follows only after three injections have been administered. Occasionally results, apparently satisfactory, follow one injection but this cannot be depended upon and three injections at intervals of three to seven days should be the rule.

**BACTERINS FOR THERAPEUTIC PURPOSES.** At one time it was believed, and this belief is still retained by some, that bacterins should be used therapeutically, only in chronic infections, and that they are contra-indicated in acute systemic infections. This belief was entirely theoretical and is not concurred in by the many practitioners who regularly and successfully use these products in the treatment of acute infections.

Wright, to whom belongs the credit for originating bacterin therapy, has recently championed the use of bacterins in acute septicemias, whereas, he formerly opposed this practice. The change of opinion by this illustrious investigator

is due largely to his experience in treating acute infections in the English armies during the World War. These cases were most successfully treated by the use of bacterins. In championing the use of bacterins for therapeutic purposes Wright states that the rule for dosage should be: "*The more acute the disease the larger and the more frequent the dose.*" He further states that failure to obtain satisfactory therapeutic results in the treatment of acute infections is due to:

1. Incorrect diagnosis and the consequent use of the improper bacterins.
2. Insufficient dosage.
3. Improperly prepared bacterins.

In practice bacterins are now extensively used for the treatment of acute disease particularly in grade animals whose limited value makes the liberal use of immune sera impractical. Although in acute conditions immune sera should be preferred to bacterins whenever possible, good results may be expected from the latter when properly used. In acute conditions the rule of Wright should be followed and animals should receive *full doses every day* until temperature drops to normal and the acute symptoms subside. Such results are frequently observed after the second or third subcutaneous injection.

## Infectious Abortion in Cattle

This disease for many years has constituted a serious menace to the live stock industry since the losses which it inflicts are not exceeded in any other disease of cattle. For this reason its control offers one of the big problems of veterinary medicine.

### CAUSE

Abortion disease is due to a specific micro-organism, the bacillus abortus (Bang). This organism is responsible for a group of pathological changes in the uterus and placenta resulting in a clinical syndrome of which the aborted fetus is a part. Following this abortion there may be retained placenta, metritis and sterility as well as scour and pneumonia in the calves from affected cows which do not abort. *B. abortus* may be isolated from the diseased uterus,

the placenta, particularly from the chorionic layer, and from the stomach, liver and lymphatic glands of the aborted fetus.

Bacteria other than *B. abortus* have in some instances been isolated from the uterus or vaginal discharge of affected cattle. Among the other organisms which have been credited with ability to cause abortion may be mentioned *B. coli*, *B. pyogenes*, *B. paratyphosus* and *vibrio fetus*. Notwithstanding the presence of such micro-organisms and the absence of *B. abortus* in a few cases it should be considered that whenever abortions assume epizootic proportions we are dealing with true infectious abortion and that the Bang bacillus is the etiological factor. Other bacteria with the possible exception of *vibrio fetus* are undoubtedly secondary invaders and are responsible not for the abortion itself but for the metritis and sterility which follow.

## SOURCE OF INFECTION

Many of the older beliefs regarding the mode of transmission of this disease have of late been disproven by carefully controlled experiments and investigations. The bull as a possible spreader is no longer feared since Schroeder has shown that infection does not occur through the female genitalia.

It is now believed that infection always occurs through the digestive system after pregnant animals ingest food or water contaminated with discharges from affected cows. The bacteria in this infectious material pass through the blood and lymphatic systems to the epithelial layer of the chorion and become established in that tissue which, during the period of pregnancy, constitutes an extremely favorable medium for the bacterial growth. After parturition the non-gravid uterus is no longer a favorable habitat for these organisms and they then establish a permanent abode in the udder. From here they migrate to the uterus only during subsequent pregnancies. The expelled placental membranes and subsequent discharge containing large numbers of *B. abortus*, contaminate foodstuffs, bedding, etc., which is then a menace to susceptible individuals.

## CARRIERS

When the abortion bacillus establishes itself in the udder the affected animals may remain carriers for years.

*B. abortus* can generally be demonstrated in the milk of such animals whereas any vaginal discharge during or following pregnancy is badly contaminated. Such animals even though they do not abort are a prolific source for the spread of the disease.

It is fortunate that, contrary to former beliefs, calves suckling infected cows do not become permanently infected even though they ingest large numbers of *B. abortus* in the milk. If such calves are maintained in a manner which prevents their contact with infectious material after weaning they will mature as healthy individuals. The percentage of animals raised in this manner which later react to an agglutination test is no greater than those which nursed healthy dams.

## SYMPTOMS

A premature expulsion of the fetus is ordinarily the first symptom which is observed. This may occur at any time between the third and the seventh month of pregnancy. This abortion is generally followed by vaginal discharge, retained placenta, metritis and in some instances by sterility. Although these complications are caused by bacteria of secondary etiological significance, the damage which they occasion is as serious as the abortion itself, since the subsequent breeding efficiency is seriously impaired.

## DIAGNOSIS

This is most accurately obtained by the agglutination test. For this purpose a few cubic centimeters of blood from affected animals should be obtained. This should not be defibrinated but should be allowed to coagulate. The test is quite accurate and should be used as a herd rather than an individual index. All animals which have aborted may not react to this test nor does a positive reaction insure an impending abortion on the part of the reactor. Schroeder has aptly summarized this condition as follows: "An abortion is, strictly speaking, the supreme or superlative event in bovine infectious abortion and not the essential event. We may reasonably say that as all children attacked by diphtheria do not die, so all cows attacked by bovine infectious abortion do not abort." However, if a positive reaction is obtained from any of the herd members *the entire herd should be handled as though infected.*

## PREVENTION

Since no known method of treating affected animals is effective our efforts must be centered on prevention. In this respect disinfection and isolation are important factors. The isolation of all animals with vaginal discharges and the disinfection of all contaminated material is most advisable. Uterine douches in the treatment of metritis and retained placenta following abortion are sometimes beneficial. However strong antiseptic solutions are inadvisable for this purpose since they are generally devoid of results and are conducive to tissue destruction. Metritis bacterin which contains the organisms associated with these cases of metritis offers the best possibility of controlling these sequelae.

Killed suspensions of *B. abortus* have been used in an effort to immunize against infectious abortion. In all carefully controlled experiments with this product, the results have shown that little if any immunity resulted.

Many eminent authorities on abortion have investigated the ability of living *B. abortus* to immunize against this disease. These investigators are agreed that the rate of abortion following the use of living cultures (vaccine) is materially reduced and that this product offers the most rational method of immunization. This conclusion has been reached by McFadyean, Stockman and Bland of England, by Zwick, Zeller, Krage and Gminder of the Imperial Bureau of Health, Berlin, as well as by Hadley and numerous other investigators in this country. In view of the proven value of this product as shown by such authorities there is now available

### PITMAN-MOORE ABORTION VACCINE (BOVINE)

This product contains living *B. abortus* (Bang) suspended in a vehicle which is particularly favorable for preserving both the viability and the antigenic properties of the organisms. The medium in which the organisms are suspended eliminates the danger of lost viability, thus insuring the greatest possible amount of antibody production following injection. The bacterial count is carefully adjusted to permit of full antibody production without the increased danger of abscess formation encountered in bacterial antigens of excessive protein content.

## RECOMMENDATIONS FOR USE

Abortion vaccine should not be used until after a positive agglutination test reveals the presence of infectious abortion in the herd. As soon as possible after this diagnosis has been established all non-pregnant females should receive a subcutaneous injection of ten c.c. Such animals should not be bred until two to three months after this prophylactic treatment. Only one injection is required but this should be repeated before subsequent pregnancies. For the treatment of the sequelae which follows abortion in pregnant cattle see Metritis on page 161.

## Blackleg

Blackleg is an acute infectious and extremely fatal disease of young cattle. On rare occasions other animals are affected. The disease is characterized by high fever, crepitant swellings in the heavily muscled parts of the body and a heavy mortality.

**ETIOLOGY.** The disease is caused by *Bacillus gangraenae emphysematosae*, an anaerobe which is found in the soil and water of certain infected districts. The organism is most prevalent in swampy pastures and land which becomes inundated from time to time. The ability of the organism to remain alive in the soil by spore formation helps it to retain its infectivity over long periods of time which accounts for land remaining permanently contaminated.

Infection generally occurs through the digestive system when contaminated material is ingested but may also occur through wounds obtained while on infected territory.

**SUSCEPTIBILITY.** Calves between the ages of six months and two years of age are most susceptible. The disease is rarely observed in older cattle or in suckling calves. Well bred and good conditioned animals are more susceptible than scrubs or lean calves. The period of incubation is from one to five days.

**SYMPTOMS.** Ordinarily the temperature is very high with a marked tendency to become subnormal just before death. Localized lameness in one leg, marked depression and complete suspension of rumination is followed by localized swellings which appear on the thigh, loin, shoulder, throat or breast. These are at first hot and painful, later

becoming diffuse and non-sensitive. The swellings develop a marked crepitation beneath which is a fetid, sweetish fluid admixed with blood. These swellings are never observed below the hock or knee nor on the tail. Crepitant swellings may become apparent about the mouth and throat and these are followed by dyspnoea and by pneumonia in cases where death is postponed although death usually occurs in twelve to forty-eight hours. In some cases large areas of the body particularly over heavily muscled areas become covered with edematous and crepitant swellings.

**LESIONS.** Intense bloating and gas formation, particularly about the tumors, is characteristic of blackleg. A bloody foamy fluid may exude through the skin and from any of the natural openings. Tissue, other than that actually affected, may assume a scarlet hue when exposed to the air. The affected muscles emit a rancid sweetish gas and a foamy dark fluid which is mixed with disintegrated muscle.

The post mortem lesions are confined largely to the affected parts, other portions of the body being largely devoid of pathological changes.

**PREVENTION.** Biologics which in the past were extensively used for the prevention of blackleg have gradually been supplanted by newer products which are less hazardous and which can be more accurately standardized. Of these newer products Blackleg Filtrate and Blackleg Aggressin are the ones now in general use. Both products are of a similar biological nature since both are aggressins, the one a natural aggressin produced in the diseased muscles of affected animals while the other (filtrate) is produced in the laboratory in suitable culture media. Blackleg filtrate has been used to immunize millions of cattle in many countries, particularly in Japan and America. It is used in Japan to the exclusion of all other products with entirely satisfactory results.

The immunity conferred by this product is not exceeded in intensity nor in its duration by any other biologic capable of immunizing against this disease. The average immunity conferred by these two products is of approximately one year's duration. In heavily infected districts it is advisable to reinforce the immunity by a second injection in six months. Blackleg Filtrate should be used *only on healthy animals* at least seven to ten days before exposure.

**PITMAN-MOORE BLACKLEG FILTRATE**

Strains of the "blackleg bacillus" which have proven their antigenic ability are grown in specially prepared media until this is thoroughly saturated with the desired antigen. This is then filtered through Berkefeldt filters to insure its freedom from all bacteria after which a suitable preservative is added. The finished product is next subjected to several tests to determine its potency or ability to confer immunity on calves, after which it is subjected to the most rigid scientific tests to determine its sterility. It is impossible for such a product to cause disease in the animals into which it is injected.

**DOSE.** Five c.c. injected subcutaneously. After calves are immunized against blackleg, a period of four to twelve days elapses before immunity is established. This point should be considered in treating calves in infected herds since animals treated during the period of incubation may not be protected.

**TREATMENT.** For this purpose Anti-Blackleg Serum is available. This is made from the blood of horses as described on page 111. When this product is used in the early stages of the disease, particularly before the temperature drops, it results in the recovery of many affected animals. It is advised that large doses (200 to 500 c.c.) be injected intravenously and that this be repeated if necessary.

The immunity conferred by Anti-Blackleg Serum is of exceedingly short duration (ten to twenty days), hence the product *should be used only in affected cattle and should be followed in ten to twelve days by five cc. of Blackleg Filtrate.*

In herds where blackleg is prevailing, suspicious cases should receive anti-blackleg serum in preference to filtrate on account of the time required for the filtrate to produce immunity, whereas by the use of serum protection is obtained almost immediately.

**Canine Distemper**

This is an acute infectious disease of dogs, not transmissible to other species. It is attended by high mortality. It is particularly a disease of the young and few puppies reach maturity without being affected.

**ETIOLOGY.** Investigators are not in accord as to the real cause of this disease. Carre, Lignieres and others attribute the disease to a filterable virus while Ferry, McGowan, Torrey and others designate bacillus bronchisepticum as the causative agent. Present opinion, in America at least, tends to the belief that while a filterable virus may be associated with the disease, the serious aspects of the disease are due to bacillus bronchisepticus and associated secondary invaders. Animals properly immunized against this organism rarely suffer from the effects of the virus, whereas, typical cases of distemper may be produced in susceptible dogs by the injection of bacillus bronchisepticum. This organism is almost invariably present in the nasal and other secretions, the tissue, and at times in the blood of affected dogs.

Two types of the disease are commonly observed, the respiratory and the intestinal, while involvement of the nervous system either directly or as a sequelae is common. The latter is recognized as chorea.

**SYMPTOMS.** Sniffing with lachrymation and nasal discharge, at first watery and later purulent, typify the onset of the disease. High temperature, inappetence, progressive weakness and general pulmonary disturbances usually follow. Vomiting is not uncommon and this frequently presages the onset of the intestinal form which is characterized by bloody diarrhoea, high temperature, pronounced weakness and an excessively high mortality.

**TREATMENT.** Sanitation should be considered since, although dogs maintained under ideal conditions are affected at times to a degree equally as great as those maintained under less favorable environment, it is known that insanitary surroundings render the animals more susceptible to the secondary invaders. Proper sanitation therefore is a factor in reducing the mortality while for the same reason correct diet is extremely essential. This should consist of easily assimilated, highly concentrated liquids.

## CANINE ANTI-DISTEMPER SERUM

The results with this product have varied greatly under different conditions. Some are most enthusiastic as to its value and use it regularly in all cases, others have not obtained satisfactory results. Success with the product depends

upon, first, its early use, and secondly, upon large, frequently repeated doses. Small doses in severe cases offer little hope for success. Large doses, 30 to 100 c.c. repeated as necessary in developing cases, is our most rational treatment and is being used by many of the best canine specialists with excellent results. The dosage may be decreased approximately one-third if intraperitoneal injections are used.

The treatment of the intestinal type of canine distemper has always proved extremely difficult since cases have been most refractory to treatment and the mortality exceedingly high. Considerable success in treating this type is now being obtained by the intraperitoneal injections of canine anti-distemper serum and by high intestinal enemas of normal saline solution followed in a few hours with a rectal injection of canine anti-distemper serum, 20 to 50 c.c.

**PREVENTION.** For this purpose both canine anti-distemper serum and canine distemper bacterin are used.

The bacterin should be administered in three injections of two c.c. each at intervals of five to seven days. This form of immunization is being successfully used in many places where previously the disease claimed a heavy toll.

Canine anti-distemper serum when used for prophylaxis should be used in ten to fifteen c.c. doses. Immunity conferred in this manner should not be depended upon after three weeks but should be prolonged either by repeated injections of serum or by the use of bacterin.

The ability of Pitman-Moore Canine Anti-Distemper Serum and Canine Distemper Bacterin to protect against distemper has been conclusively proven in many hospitals. It has been a common experience in many such institutions that patients admitted for minor operations or treatment would contract distemper while on the premises or shortly after returning home. Several such hospitals have completely eliminated this trouble by administering ten to fifteen c.c. of canine anti-distemper serum or three injections of bacterin to every patient admitted. In hospitals and kennels this treatment should not be used to the exclusion of sanitation and disinfection. When these precautions are constantly and thoroughly executed the possibilities of biological control of the disease are greatly enhanced.

## Calf Scour

Calf Scour, also known as white scour, is essentially a disease affecting calves during the first few weeks of life. Although white-scour is seen in the young of all species, it is most prevalent and of most economic importance in the bovine.

The disease, although prevalent in all parts of the country, has caused its greatest loss in the large dairy districts where the mortality frequently reaches 90 to 100 per cent of all calves born on farms where the disease is prevalent. Many animals which might recover from calf scour, develop pneumonia and die from this complication, thus enhancing the need for the control of this disease.

**ETIOLOGY.** Formerly considered a milk-borne dietary disturbance, this disease is now known to be a bacterial infection. While many organisms have at different times been considered of etiological importance, scientists are now quite generally agreed that *B. coli* is the primary invader, while *B. paracoli* is closely associated as a secondary invader.

The unusual prevalence of the disease in herds where the animals are known to be affected with infectious abortion, justifies the consideration of *B. abortus* as an etiological factor. This possibility has been noted by Williams on several occasions. Theobald Smith cites a case in which calf scour was caused by the injection of *B. abortus*. Guinea pigs were inoculated with small sections from a pneumonic area of the infected calf and *B. abortus* in pure cultures was recovered from the guinea pigs after death.

**TRANSMISSION.** The disease at times appears in new localities in such a manner that we are justified in assuming that *B. coli* and *B. paracoli*, ordinarily present in the intestinal tract or in the stables occupied by the infected animals, have in some manner developed unusual virulency. The reverse may be the case and the disease follow any condition which lowers the vitality of the calves.

Infection once present in a stable is extremely difficult of eradication; this for the reason that the contents of the stable may harbor contaminated material or that the disease may be constantly propagated by infected animals. Healthy calves frequently become infected from eating contaminated food, coming in contact with contaminated bedding ma-

terial, or by the hands or clothes of unclean attendants.

A very common and direct route for infection of the suckling calf is from the udder of the mother which becomes contaminated by contact with bedding material or by vaginal or rectal discharges. The umbilicus is a common source of infection for many animals, while the possibility of intra-uterine infection is always present.

Undoubtedly the latter is one of the most important considerations in this disease since in cases where intra-uterine infection occurs, calves are born harboring enormous numbers of *B. coli*. That the disease may be of intra-uterine origin was shown by Kitt, who administered an intravenous injection of *B. coli* to a cow advanced in pregnancy. The calf born eight days later showed profuse diarrhea from birth and died of calf scour. Many other investigators have isolated virulent *B. coli* capable of reproducing calf scour from various parts of the body immediately after birth, while others have proven the presence of the same organisms in the chorium before birth.

**SYMPTOMS.** In badly infected herds symptoms frequently appear during the first or second day, occasionally in a few hours after birth. In other herds symptoms do not appear until the animals are three or four days old. The affected animals are greatly depressed, develop a high temperature, cease suckling and show a decided tendency to lie down. A profuse fetid diarrhea appears. As the disease progresses, the eyes become very dull. The tongue becomes dry and later is covered with mucus, while the animal shows a profuse salivation. There is a striking, penetrating sweetish odor from the skin and feces. Respiration becomes greatly accelerated and the animal finally becomes comatose followed by death. In the animals which live, pneumonia frequently develops while inflammation of the joints is a common sequel.

**PREVENTION AND SANITATION.** This is of the utmost importance. Stables must be kept clean and all the sunshine possible should be obtained. Regular disinfection of the entire stable is a valuable asset. Stalls occupied by pregnant animals should be regularly cleaned and disinfected. All contaminated bedding should be promptly disposed of after being thoroughly disinfected. Three or four days before gestation, pregnant animals should be removed to special quarters provided for that purpose. Just previous

to parturition, the external genitalia of the mother should be thoroughly washed and disinfected.

A point of utmost importance is the care given the newborn calf. All efforts should be made to prevent its coming in contact with contaminated material. The udder of the mother should be thoroughly washed before the calf is allowed to suckle. It is essential that the calf should be allowed one or two nursings from the mother, regardless of the conditions under which it is later kept; this for the reason that the colostrum materially assists the young calf when help is so urgently needed. The care given the umbilicus is equally important, since streptococcus, so frequently present as a secondary invader, generally gains entrance at the umbilicus. Since this condition seriously complicates the disease, it is strongly advised that the umbilicus be thoroughly disinfected, after which it should be tied with sterilized silk.

Although sanitation is of the utmost importance, we should not place too much confidence in controlling the disease by this method, because even though sanitation were so thorough as to prevent all possibility of infection from this source, the birth of a few infected animals would again contaminate the stables.

## ANTI-CALF SCOUR SERUM

undoubtedly offers the most rational treatment in herds where the disease is prevalent. In these cases all animals should be given a subcutaneous injection of ten to thirty mils anti-calf scour serum as soon as possible after birth. This may be repeated in two days to good advantage.

In case symptoms of calf scour appear, from thirty to one hundred mils of serum, depending upon the severity of the infection, should be administered each twenty-four hours or oftener, until improvement is marked. In herds where the infection is known to be severe, symptoms of calf scour may appear in an occasional individual, notwithstanding the use of serum, since in such herds many animals are harboring myriads of *B. coli* at the time of birth. While best results cannot be expected in these animals since they have been infected in utero for a considerable period, this fact offers the best reason for the use of serum in large quantities and as soon as possible after birth. The most serious cases are those in which symptoms appear earliest.

Since serum confers only a passive immunity, it is advisable that such immunity be fortified when the animals are a few days old, by the administration of calf scour mixed bacterin. This will result in an immunity which will usually carry the animals past the danger point. For this purpose three injections of two mils each at intervals of five to seven days are recommended.

## CALF SCOUR MIXED BACTERIN

is recommended for the prevention of calf scour and associated pneumonia. It should be used in herds where the disease ordinarily does not appear until several days after birth. In herds where the disease appears shortly after birth and serum is used as a prophylactic, the immunity conferred by the serum will be lengthened by the subsequent injection of calf scour bacterin. While good results frequently follow one injection of bacterin, best and most lasting immunity follows three subcutaneous injections of two mils each at intervals of five to seven days. The first injection should be given as soon as possible after birth.

If used as a curative, bacterin should be given in two mil doses each day until improvement is marked.

Pitman-Moore Anti-Calf Scour Serum and Calf Scour Bacterin are truly polyvalent products and fully capable of accomplishing the objects for which they are intended. All organisms used in the bacterins and as antigens for hyperimmunizing the horses producing this serum have been isolated from acute cases of calf scour and have been collected from many parts of the country. The bacterin is produced in accordance with principles which allow the retention of the full antigenic ability of these bacteria. The serum upon potency test shows an exceedingly high titre which is largely responsible for the exceedingly good results which are attributed to this product by leading practitioners in large dairy districts.

## Distemper in Horses

Distemper, or strangles, is an infectious and highly contagious disease of young horses and mules. It is characterized by catarrhal inflammation of the upper respiratory tract and abscess formation, usually occurring in the glands of

the head and throat. As pneumonia is a very common complication the disease is of a serious nature and in localities where the infection is known to exist methods should be employed to prevent and abort attacks.

**ETIOLOGY.** Although not conclusively proven, it is now generally conceded that streptococcus equi is the etiological factor. In a large percentage of cases this organism may be isolated in pure culture from the abscesses associated with strangles and in fatal cases from various organs. In some cases streptococcus pyogenes is associated with the above mentioned organism.

**SYMPTOMS.** Animals from two to five years of age are most susceptible. It is very uncommon for an animal to suffer a second attack as it is also for older animals to develop the disease.

Among the first symptoms are high fluctuating temperature, inappetence, pica and general depression. Circumscribed hard swellings soon develop in the submaxillary and parotid regions at which time considerable difficulty in swallowing is observed. A mucopurulent rhinitis practically always occurs. As a result there develop first sneezing and a watery discharge followed in a few days by a very thick, tenacious discharge. Empyema of the sinuses frequently develops. The swellings, at first circumscribed, soon become diffuse as a result of an edematous, periglandular infiltration.

This frequently fills up the entire intermaxillary space. Abscess formation is comparatively rapid. Death may result from suffocation due to occlusion of the larynx through edema while some danger exists of abscesses forming in the throat and discharging into the larynx. Unless the various abscesses are incised early in their development considerable sloughing usually follows. As the disease progresses symptoms of a general toxemia are seen. The bowels become inactive, depression increases, edematous swellings of the extremities occur, the pulse becomes weak and thready and a septicemia is established. In many instances death is directly due to pneumonia.

**TREATMENT.** Sick animals should, if possible, be isolated due to the contagious nature of the disease. Early incision and free drainage of all abscesses should be carried out. Hot applications are frequently of benefit in relieving the stagnant circulation and edema. In addition they some-

what hasten abscess formation. Disinfectants should be used liberally and careful nursing carried out.

Very favorable results follow the use of Anti-Distemper Serum (Equine). Depending upon the size and condition of the animal an initial dose of from fifty to one hundred c.c. should be given. Somewhat quicker results can be expected from intravenous administration. Subsequent doses of the serum must be governed by the course of the disease but until there has been a decided improvement in the animal with lowering of temperature and cessation of abscess development a daily injection of at least fifty c.c. should be made.

**PREVENTION.** For conferring immediate immunity the serum may be used in ten to thirty c.c. doses. The protection thus afforded is but passive and of short duration so that the serum should only be used for prevention when immediate protection over a short time is desired.

For actually immunizing animals Distemper Mixed Bacterin is indicated. Pitman-Moore Distemper Mixed Bacterin contains sixty billion killed bacteria to the dose. These consist of 70 per cent streptococcus equi and 30 per cent of streptococcus pyogenes. It is recommended that at least two, but preferably three, injections be made at intervals of three to seven days.

## Equine Influenza

As ordinarily used this expression applies to a group of infectious diseases characterized by pulmonary disturbances, acute inflammation of the mucous membranes and general septicemia. So-called "green horses" or horses coming from farms to city stables are particularly susceptible. The mortality is ordinarily about ten per cent, but in some instances where the virulency of the etiological factors is high, the mortality may be greatly increased. The acuteness of the disease is greatly enhanced following any devitalizing condition, such as undue exposure, shipping, etc. As a result most horses which are shipped contract the disease, hence it is referred to as shipping fever. Sales stables, railroad cars and public marts are constantly infected as a result of which most animals passing through the same show subsequent infection. Infection occurs by the digestive system from contaminated food and water. Horses which have ap-

parently recovered may remain carriers for a considerable period and are thus responsible for the spread of the disease.

**ETIOLOGY.** Investigators are not agreed as to the cause of this disease. It is quite generally believed that a filterable virus is a predisposing factor but that the more serious complications and mortality are due not to the virus but to bacteria which act as complicating organisms. These are streptococcus equi, staphylococcus and bacillus equisepticum.

**SYMPTOMS.** The period of incubation is from three to eight days and when symptoms are first observed they are quite intense. The temperature is usually higher than 103 degrees F. and the pulse becomes rapid, irregular and weak. There is marked inappetence and languor which may progress to prostration. Quite early there is noted a nasal discharge which at first is clear but which becomes creamy and profuse. There is usually a strong moist cough. Conjunctivitis is apparent almost from the start. This may develop into a purulent conjunctivitis or keratitis, or may rapidly disappear as improvement occurs. The visible mucous membranes assume a yellowish hue and some oedema and stocking of the limbs may be seen. If pulmonary infection occurs any of the symptoms ordinarily associated with pneumonia will then become apparent.

**TREATMENT.** Anti-Influenza Serum has proven most efficacious in the treatment of this disease when it is used in the early stages. The serum should be used intravenously in large, frequently repeated doses. Amounts varying from 50 to 100 c.c. should be used and this should be repeated each twelve to twenty-four hours until improvement is marked. The use of serum does not eliminate the need for proper nourishment but it does terminate the disease much sooner and with less mortality than occurs under any other treatment.

**PREVENTION.** Anti-Influenza Serum is used successfully for prophylaxis. For this purpose ten to thirty c.c. should be injected subcutaneously. Immunity following this treatment is usually of a few weeks' duration and is used extensively when shipping valuable horses.

Equine Influenza Mixed Bacterin in the hands of many large practitioners has given excellent results in immunizing against influenza. This product contains streptococcus equi

forty per cent, staphylococcus thirty per cent and *B. equisepticum* thirty per cent. All organisms used in preparing the product have been isolated from acute cases of influenza. The dose is two c.c. which contains sixty billion organisms. To obtain best results three injections should be given at intervals of three to seven days.

## “Flu” in Swine

The existence of so-called “flu” as a specific disease of swine has never been definitely established. Most investigators are of the opinion that this condition is a peracute form of hemorrhagic septicemia, since the symptoms and lesions of both are identical. Murray isolated a coccus from these cases but other investigators have obtained only *B. suisepiticum* in pure culture. Cases of so-called “flu” respond in a satisfactory manner to hemorrhagic septicemia bacterin or anti-hemorrhagic septicemia serum, therefore it is recommended that the treatments and preventive measures described under Hemorrhagic Septicemia be used in these cases.

## Fowl Cholera

This, the most serious of all diseases of fowls, is an acute septicemia to which all domesticated birds are susceptible. The disease is highly infectious and is prevalent in all parts of the country. Its introduction into a flock is followed by a mortality ranging from 90 to 100 per cent.

**ETIOLOGY.** Fowl cholera is caused by a member of the hemorrhagic septicemia group, *B. avisepiticum*. The organism usually enters the body by way of the digestive tract although it is believed that the mucous membranes sometimes act as a portal of entrance. *B. avisepiticum* is readily isolated from the blood and organs of affected birds.

**SYMPTOMS.** These may be entirely absent in which case birds are found dead on or near the roost without previous evidence of sickness. The period of incubation is from 18 to 72 hours and death ordinarily intervenes after but a few hours of apparent sickness. In some flocks the last birds to be affected show some evidence of increased resistance in which case the acute lesions subside and there is a marked tendency toward chronicity.

The symptoms of fowl cholera are essentially those of an intestinal infection. The droppings usually develop a yellowish color and this is followed by diarrhoea. The droppings may vary from a greenish pasty consistency to a brownish red mucus or a viscous transparent fluid while the feathers about the vent are badly soiled. Drowsiness and disinclination to move are marked and this is followed by congestion of the comb and later by cyanosis. Inappetence is complete but the affected birds evidence great desire for water while drooling of mucus is sometimes pronounced. The temperature may be as high as 106 to 112 degrees F. In the chronic form, usually observed toward the end of an outbreak, the birds show a persistent diarrhoea. In these cases progressive depression and emaciation is associated with pale mucous membranes, lameness and arthritis. The comb is congested or cyanotic.

**LESIONS.** Petechiation and hemorrhages are characteristic of this disease. These are generally confined to the heart and duodenum although in some instances they may also be observed in other portions of the intestinal tract and the muscles. Involvement of the lungs is constant and ranges from congestion to hepatization and caseation. The air sacs contain a serofibrinous exudate while the intestinal tract is filled with a pasty mass of feces mixed with blood.

**TREATMENT.** On account of the septicemic nature of the disease and the rapidity with which death occurs, no pharmaceutical or biological treatment is of value.

**PREVENTION.** Close attention to sanitation is of utmost importance. All dead birds should be disposed of quickly and carefully since other birds become infected from eating these carcasses.

Fowl cholera bacterin has proven of great value in immunizing exposed birds. Although some investigators have been unable to prove the immunizing value of this product against artificial infections, others have been successful in doing so. Of even greater value than such experimental data is the fact that for several years fowl cholera bacterin has demonstrated its ability to protect birds against natural infection. This has caused bacterins to be almost universally used for prevention against fowl cholera, which in turn has been followed by a marked reduction of losses in infected flocks. The dose consists of 1 c.c. which is in-

jected subcutaneously. This may be done most advantageously in the unfeathered spot under the wing. For most effective immunity three injections of 1 c.c. each should be administered at intervals of three to seven days.

## Hemorrhagic Septicemia

Under this heading is included a group of diseases which occur in practically all species of animals and in which the more acute cases are characterized by general bacteremia, hemorrhages of the internal organs and rapid death.

**ETIOLOGY.** A bipolar organism, *Bacillus Bipolaris Septicus*, which is morphologically identical in all species of animals, is the causative agent. These organisms are extremely prevalent, being found in the soil of most barnyards, in stagnant water and on many plants. Under normal conditions the organisms may be non-pathogenic or of extremely limited virulency and most animals have acquired a marked tolerance toward those which possess low virulence, as is shown by the presence of the organism in the digestive or respiratory tracts of many apparently healthy animals. However, when this nicely balanced tolerance between the host and the organism is disturbed by any devitalizing condition, the bacteria acquire added virulence and are responsible for outbreaks of disease. This may be sporadic or enzootic in type while in some cases the infection rapidly spreads from one animal to another until the outbreak assumes epizootic form. In such cases the disease ordinarily is confined to one specie, although in certain instances other species have become affected; particularly have chickens become affected from swine, or swine from cattle.

The most reasonable assurance of immunizing animals against this disease is offered by the use of specific hemorrhagic septicemia bacterins. Thus for swine a bacterin containing *B. suis* septicum should be used while in cattle one containing *B. bovis* septicum will best accomplish its purpose.

In the treatment of affected animals very gratifying results are obtained by using a specific immune serum which is made from the blood of horses hyperimmunized against the offending organisms.

## Hemorrhagic Septicemia in Horses

This acute infectious disease of horses is frequently mistaken for equine influenza. The mortality, however, is

much higher, and for successful treatment requires specific biologics other than those ordinarily used for influenza.

**ETIOLOGY.** An organism of the hemorrhagic septicemia group, *B. equisepticum*.

**SYMPTOMS.** These are the symptoms associated with an acute septicemia and consist of high temperature, rapid onset, labored breathing, prostration and restlessness. The appetite is usually retained until prostration is complete.

**LESIONS.** The lesions of this disease in horses are practically the same as are observed in other species of animals affected with the same disease. Petechiation and hemorrhages predominate, particularly on the heart, but these may also be observed on any other organs, while congestion of the lymphatic glands is marked. An excessive amount of straw colored fluid is frequently found in the abdominal or thoracic cavities. If the animal lives through the first few days following the appearance of symptoms the lungs become progressively involved and may be found in all pathological stages from congestion to pneumonia.

**TREATMENT.** This should consist of intravenous or subcutaneous injections of Anti-Hemorrhagic Septicemia Serum (Equine). Doses should consist of 50 to 200 c.c. and should be repeated each 12 to 24 hours until acute symptoms subside.

**PREVENTION.** Exposed animals are satisfactorily protected against infection by the use of Hemorrhagic Septicemia Bacterin (Equine) which contains *B. equisepticum*. Three subcutaneous injections of 2 c.c. each should be administered at intervals of three to seven days.

## Hemorrhagic Septicemia in Cattle

This is an acute or subacute infectious disease of cattle characterized by involvement of the respiratory, digestive or nervous systems and less frequently involving the skin. Some investigators believe it to be synonymous with "corn stalk disease." It is found in all parts of the United States but particularly in the West. The mortality may be as high as ninety per cent.

**ETIOLOGY.** *Bacillus bovisepiticus*.

**SYMPTOMS.** The period of incubation is short, one to two days, while the temperature is elevated from 104 to 108 degrees. Swelling of the sternum is frequently observed. Just previous or subsequent to death hemorrhages from any of the natural openings are commonly observed.

**Pulmonary Form.** Labored respiration is associated with nasal discharge and cough. Rumination is suspended and inappetence is marked. Cyanosis of the mucous membranes, admixed with petechia, is followed by dyspnoea and death. Cases which do not terminate in an early death develop the symptoms usually associated with pneumonia.

**Intestinal Form.** Temperature may or may not be elevated. Marked cessation of milk flow and peristalsis which is followed by constipation, then by diarrhoea. Abdominal pains may be followed by a bloody discharge from any of the body openings and by bloody urine.

**Edematous Type.** This is marked by local swellings of the dewlap, legs and other connective tissue parts. The tongue becomes swollen and the mucous membranes cyanotic and covered with petechia, while drooling is profuse. Conjunctivitis and lachrymation are frequently present and the local swellings become hot and painful. The tongue may be so swollen as to fill the entire mouth and cause asphyxiation.

**Nervous Type.** Frequently referred to as "mad itch." Any or all of the symptoms already described may be observed. However, there may be no apparent symptoms other than intense itching and cerebral symptoms. In such cases death occurs in twenty-four to forty-eight hours.

**LESIONS.** The disease is characterized by hemorrhages and petechia of the subcutaneous tissue, heart, bowels, kidneys, bladder, peritoneum and all other organs. They are particularly marked on the serous surfaces and vary greatly both in size and shape. The feces and urine are blood stained while subcutaneous and intramuscular hemorrhages may be marked. There is frequently observed an excessive amount of straw colored serous fluid in the abdominal or thoracic cavities. The latter may be associated with an endocarditis.

**TREATMENT.** Medicinal treatment for this disease is of little value on account of the acute septicemic nature of the disease and the rapidity with which death occurs. A

most valuable treatment is available in the form of Anti-Hemorrhagic Septicemia Serum (Bovine). Best results follow the use of a specific serum made from the blood of horses hyperimmunized against *B. bovis* septicum, rather than against *B. suis* septicum, *B. avis* septicum, or others of the hemorrhagic septicemia group of organisms. Treatment should, whenever possible, be administered intravenously in doses of from 100 to 300 c.c. This should be repeated each twelve to twenty-four hours until the acute symptoms subside. One or two such treatments are generally all that are required unless the disease has progressed to the advanced stage before treatment is started. Hemorrhagic septicemia bacterins have been used successfully in this connection, but since the results following the use of bacterins require twenty-four to forty-eight hours, it is advisable that immune sera be used in acute cases since the assistance afforded by this product is almost immediate.

**PREVENTION.** For this purpose Anti-Hemorrhagic Septicemia Serum (Bovine) may be used and its results are entirely dependable; however, the immunity conferred is passive in type and is of but a few weeks' duration, therefore an immunity of longer duration is sought in the use of other biologics.

Hemorrhagic Septicemia Bacterin is successfully used in immunizing cattle against this disease. For this purpose two c.c. should be injected subcutaneously at intervals of three to seven days, until three doses have been given. Most animals immunized in this manner will successfully withstand exposure to field infection.

The simultaneous treatment consisting of twenty to thirty c.c. of Anti-Hemorrhagic Septicemia Serum (Bovine) and two c.c. of Hemorrhagic Septicemia Vaccine (living organisms) is used with most excellent results in territories which are constantly infected and in which the virulency of the outbreak is marked. Immunity conferred by this treatment is of considerable length and may be depended upon for at least one year following treatment.

## Hemorrhagic Septicemia in Sheep

In sheep this disease is usually an acute septicemia, while in the less frequent subacute cases it is marked by pleuropneumonia with nasal and eye discharges. Young sheep are most susceptible and in lambs it extorts a heavy toll, particularly in those kept on low marshy pastures at

weaning time. Infection occurs through the digestive tract from contaminated foods and water.

**ETIOLOGY.** *B. ovissepticus*, a member of the hemorrhagic septicemia group of organisms.

**SYMPTOMS.** An acute form of the disease is observed in young sheep whereas in older animals it tends to chronicity with the general symptoms of cachexia.

The acute form is ushered in by a high temperature, shivering, inappetence, dyspnoea, trembling of the muscles and colicky pains. Death generally occurs in one to three days. If the attack is less acute pulmonary symptoms develop. These consist of labored breathing, discharge from the eyes and nose, followed by enteric disturbances, particularly colic and diarrhoea. Petechiation and cyanosis of the visible mucous membranes is at times followed by ulceration, particularly of the tongue and cheeks. The mortality in the active type is from ninety to one hundred per cent.

In adult sheep the disease tends to be less acute or the chronic type may follow an acute attack. The symptoms of chronic pneumonia predominate, although these may be associated with swelling of various parts of the body, particularly the joints. Coughing, nasal discharge and labored breathing are pronounced. Emaciation is progressive and persists until death.

**LESIONS.** Petechia and hemorrhages occur on all serous surfaces and are particularly marked on the kidneys, heart and lungs, while the lymphatic glands are hemorrhagic. The glands are at times completely engorged with blood while subcutaneous hemorrhages in any part of the body are by no means rare. All mucous membranes are hyperemic and somewhat thickened. The lung involvement varies from petechiation, red and gray hepatization to pleuropneumonia, while the bronchi may be filled with bloody mucus. An excessive amount of straw-colored fluid may be found in the abdominal or pleural cavity, in which case an endocarditis is quite regularly observed.

In the chronic form, observed most frequently in older animals, large areas of lung tissue and pleura are involved. This involvement progresses from hepatization to necrosis which is marked by yellow caseation surrounded by layers of connective tissue. In some, these lesions are absent and are replaced by enteric changes and the lesions of a toxemia associated with anaemia.

**TREATMENT.** In the fulminating type of the disease treatment is impossible due to the rapidity with which death occurs. In the less acute type medicinal treatment is of no value, and the best hope for successful treatment lies in the use of Anti-Hemorrhagic Septicemia Serum or Hemorrhagic Septicemia Bacterins. In this, as in all other diseases, serum should be used in large, frequently repeated doses, and since it confers an immunity of short duration the affected animals should after recovery have their immunity strengthened by the use of Hemorrhagic Septicemia Bacterin. The more chronic types are best treated by frequently repeated subcutaneous doses of Hemorrhagic Septicemia Bacterin.

**PREVENTION.** Hemorrhagic Septicemia Bacterin has given entirely satisfactory results for this purpose. For most lasting immunity three injections of two c.c. each should be administered at intervals of three to seven days.

Anti-Hemorrhagic Septicemia Serum as a prophylactic confers an immunity which is of too short duration to be practical, however when this is used simultaneously with Hemorrhagic Septicemia Vaccine an active immunity results. Both should be administered subcutaneously—the serum in doses of twenty to thirty c.c. and the vaccine in two c.c. doses.

## Hemorrhagic Septicemia in Swine

(Swine - Plague)

An infectious disease of swine which usually occurs in enzootic form but which may become epizootic and which may result in an acute septicemia or a pleuro-pneumonia. At one time it was erroneously believed that this disease existed only in association with hog cholera. It is now known that while this disease and hog cholera may co-exist in the same animal, it may also exist as an entity and is observed alike in cholera immune and cholera susceptible swine. Our present attitude on this question is aptly summarized in White's Principles and Practice of Veterinary Medicine as follows: "Irrespective of these claims and the denials of some authorities as to the existence of Hemorrhage Septicemia in swine, enough scientific evidence seems at hand to warrant placing swine plague in a chapter by itself and considering it a disease separate and distinct from hog cholera."

ETIOLOGY. Hemorrhagic Septicemia is caused by *B. suis* (*B. bipolaris suis*). This organism is identical in most respects with those causing the disease in other species. The organism inhabits the respiratory tract of swine and in this manner is normally present in many healthy animals. This fact has caused some investigators to minimize the significance of this organism and its relation to disease. This same form of reasoning might be applied to the pneumococcus, streptococcus, *B. tuberculosis* and many others which can be isolated from the respiratory tract of healthy individuals. As a matter of fact, none of the bacteria ordinarily present in the respiratory or intestinal tract has great significance while the resistance of the host is normal. However, when this normal resistance becomes lowered from any cause, any or all of these organisms may constitute a serious menace to future health and frequently cause the appearance of disease. There are certain bacteria whose virulency is so high that their presence is always followed by disease (as *B. tetani*). Others there are which may or may not be virulent, depending upon the environment in which they find themselves. Thus *B. suis* when residing in a host having a high or even normal resistance may be incapable of propagating sufficiently to cause disease, until the animal's normal resistance becomes lowered, when the environment becomes more suitable to the organism, which then propagates unhindered and hemorrhagic septicemia results.

While any devitalizing condition may bring about this result, it is particularly prone to follow exposure to prolonged wet or cold weather, shipments, hog cholera immunization and parasitic infestations.

In the acute stages of the disease the organisms migrate from the respiratory tract and permeate the circulatory system, in which case they may be isolated from the congested lymphatic glands and from localized lesions in the lungs and intestines. A few hours after death the organism is readily isolated from the spleen. The location of the organism has considerable significance since a strain isolated from the bronchi, trachea or epiglottis undoubtedly has limited significance, whereas the presence of a virulent strain in the blood, glands, subserous hemorrhages, mucosa of the intestines, spleen or even from lung lesions has great diagnostic importance if supported by clinical findings. This is particularly true when the organism is isolated in pure culture and upon animal inoculation proves virulent.

**SYMPTOMS.** The onset of this disease is generally sudden. Animals which were apparently healthy one evening may be decidedly sick the following morning. In this respect the onset differs from that seen in hog cholera, in which case the disease develops slowly and progressively. The incidence of disease is not as high as in hog cholera since it may not exceed twenty to fifty per cent and some animals apparently recover spontaneously and quickly, which is not the case in cholera.

Respiratory symptoms are pronounced with the appearance of a marked labored breathing, referred to as "thumps," which is in reality a normal inhalation with a short, snappy exhalation. Nasal discharge is generally apparent and may be unilateral or bilateral. This is mucous in type, tending to become ropy and creamy in color. In many cases a characteristic and persistent cough is manifested. Lachrymation may be present in varying degrees. Prostration may be marked from the start or may be only moderate in type.

Except in most marked cases the animal retains its desire for food and does not bury itself in the bedding, which is in marked contrast with cholera-sick swine. The knuckling at the hocks and straightening of the ankles so characteristic of cholera pigs is not observed, but this is generally replaced by a profound weakness accompanied by staggering or incoordination. However, this does not resemble the knuckling seen in cholera but is that present in any weakened animal.

The temperature may rise rapidly and shows a tendency to fluctuate rather than to remain consistently high. Not infrequently the taking of temperatures furnishes a considerable surprise since the visibly sick animals show a normal or nearly normal temperature, whereas those which are apparently healthy reveal a high temperature.

Hemorrhagic septicemia is not a highly contagious disease, yet frequently many animals in the same herd are affected. This is not surprising since any condition which is responsible for lowering the vitality of one individual undoubtedly causes the same condition in the majority of the animals in the herd.

The symptoms may become progressively worse so that any of the symptoms of pneumonia or pleurisy are observed, whereas not infrequently bacteria from the intestinal tract seize the opportunity to cause secondary infection, as a result of which the symptoms of intestinal infection become apparent.

The nervous type is only occasionally observed. In this case animals show symptoms of cerebral disturbances, such as incoordination, blindness, muscular twitching and convulsions, all of which may resemble the symptoms of spinal meningitis. In this type symptoms may be entirely absent until the animals are handled, after which the appearance of nervous symptoms or convulsions quickly become apparent.

**POST MORTEM LESIONS.** In the septicemic type the lesions may closely resemble those found in cholera since in this as in the uncomplicated form of the latter the lesions are those of an acute septicemia, viz.: hemorrhages and petechia. These may be observed in any portion or any organ of the body. They tend to be more extensive than in cholera and *lack uniformity in size and shape, rarely being circumscribed* but developing a tendency to coalesce as the disease progresses. The lymphatic glands are congested or engorged with less tendency to be sharply petechiated than in cholera. Subserous hemorrhages of the heart and lungs may be marked, which is true also of the mucosa of the bladder and intestines. The mucosa of the bladder may be so thoroughly hemorrhagic that it has the appearance of being granular. An excessive amount of straw-colored fluid is frequently found in the abdominal cavity.

**PECTORAL FORM.** The character of the lesions found varies with the duration of the attack. These may range from petechiation, congestion, red or gray hepatization, to all stages of pneumonia or caseation. Pleuritic complications are frequently observed. Not infrequently there are observed new areas of infection showing bright scarlet petechiation adjacent to extensive chronic lesions. In the more chronic cases abscess formation with encapsulated caseous lesions are observed. The bronchi are filled with mucus practically from the beginning of the infection. In the less severe cases there are varying sized areas of grey or red hepatization having a glassy serous appearance. This condition, if extensive, is responsible for the marbled appearance of the lungs, which is so frequently present. In addition to these localized lesions, hemorrhages and petechia are commonly observed on the heart, particularly on the auricles, or may be seen in any part of the body. This is the type of the disease most frequently seen in swine which have recently been subjected to the simultaneous treatment and is often erroneously diagnosed as a "cholera break."

In such cases most animals show a chronic though small lung lesion. This consists of an area of red or grey hepatization having a glassy appearance and frequently situated in either anterior lobule. The chronicity of the lung lesion and the acuteness of the septicemia lesions make it quite apparent that the pulmonary lesion was present before vaccination and predisposed the animal to the acute septicemia which follows by maintaining the foci from which the causative organisms (*B. suis*septicum) migrate.

**DIAGNOSIS.** This is ordinarily beset with many difficulties and calls for close observation and good judgment. A careful study of the history and symptoms is indispensable. Frequently this makes a diagnosis possible, whereas the same could not be made by autopsy alone. The opinion formed from autopsy findings should be from a compilation of the findings from several autopsies since a single necropsy may be misleading. Since petechia and hemorrhages are observed in hemorrhagic septicemia, in hog cholera and in other septicemias, it will be apparent that factors other than petechia must be depended upon for diagnosis. This is particularly true since an animal may be affected with both hog cholera and hemorrhagic septicemia at one time. Unless we can be reasonably certain of the freedom from hog cholera infection this should not be excluded from our diagnosis, whereas if swine are known to have been properly immunized this must of necessity be a factor in arriving at a diagnosis.

**TREATMENT.** Unless the possibility of the filterable virus of hog cholera being a factor can be positively excluded, our first treatment should consist of anti-hog-cholera serum, after which supplementary treatment for hemorrhagic septicemia is advisable. If, however, our diagnosis be incorrect and the disease is hemorrhagic septicemia, or if it be hog cholera complicated by a secondary lung infection caused by *B. suis*septicum, the simultaneous treatment is certain to be followed by heavy losses. *Therefore, the simultaneous treatment is inadvisable in herds where lung lesions are prevalent.*

In uncomplicated cases where a diagnosis of hemorrhagic septicemia is certain, either anti-hemorrhagic septicemia serum or hemorrhagic septicemia bacterin may be used, although undoubtedly anti-hemorrhagic septicemia serum affords the quickest and most dependable results for

the treatment of affected animals. This serum may be injected subcutaneously or intramuscularly. The dose is from thirty c.c. upwards, depending upon the size and condition of the animal, and may be repeated each twelve hours, if indicated, until temperature and acute symptoms subside. In acute cases where the diagnosis is correct the results following the use of this product are both safe and gratifying. Its injection is frequently followed by a drop of several degrees in temperature within twelve hours. The product is absorbed rapidly and its action is begun almost instantaneously.

**HEMORRHAGIC SEPTICEMIA BACTERIN** is used extensively for therapeutic purposes where the value of the animals will not justify the use of anti-hemorrhagic septicemia serum. When used for therapeutic purposes at least two c.c. should constitute a dose. This may be repeated advantageously in acute cases each twenty-four hours until the animal shows marked improvement. In many cases a rapid drop in temperature and a general improvement of the patient follows two or three injections.

In addition to biological treatment as outlined above, the rations of the affected herd should be very carefully investigated. It is imperative that the feeding of highly concentrated food or food rich in nitrogenous material be eliminated. For this reason it is recommended that all corn and tankage be withheld and that the animals be lightly fed upon soft feed. The sanitary conditions should be carefully investigated and the quarters should be bright, dry and free from drafts. Prolonged cold or wet weather is frequently the factor responsible for an outbreak of hemorrhagic septicemia. Therefore protection from exposure requires considerable attention.

**PREVENTION.** Anti-Hemorrhagic Septicemia Serum will confer passive immunity of three to six weeks' duration. It is valuable in exposed animals since its protective action is obtained almost immediately after injection. Twenty to thirty c.c. constitute a protective dose. The injections may be made subcutaneously or intramuscularly, but intravenous injections produce quickest results.

**Hemorrhagic Septicemia Bacterin.** At least two, and preferably three, injections of two c.c. each should be administered at intervals of five to seven days. The exact duration of immunity conferred varies considerably in different individuals but is ordinarily of from one to six months duration.

## **PITMAN-MOORE HEMORRHAGIC SEPTICEMIA BACTERIN (Swine)**

This product is prepared in accordance with the most modern ideas of bacterin production. It is thoroughly polyvalent since numerous strains isolated from cases of porcine hemorrhagic septicemia from various parts of the country are used in its production. These strains are kept at the highest possible degree of virulency by frequent animal passages. Strains which do not maintain their virulency to this high degree are discarded. This product is sterilized by chemicals, thus eliminating the objections to the inferior method of sterilization by heat, which process is known to injure the antigenic properties of bacterins. The product is standardized so that each dose (two mils) contains sixty billion killed *B. suis* septicum. It will be seen from the above that every effort is made to make certain that this product is highly antigenic when leaving the laboratories. In addition, every lot of Pitman-Moore bacterin is most thoroughly examined for sterility and freedom from injurious toxins or aggressins.

## **PITMAN-MOORE ANTI-HEMORRHAGIC SEPTICEMIA SERUM (Swine)**

This product is made from the blood of horses which are hyperimmunized against *B. suis* septicum. The same strains of organisms as described under bacterin production are used in hyperimmunizing the horses which are used in the production of this product. Only healthy young horses are used and their immunity is developed by gradually increasing doses of antigen. The first injection which the animal receives consists of killed *B. suis* septicum in small doses. After the animal's immunity has been established by this method it is given minute doses of the living organisms, which doses are gradually increased until the individual withstands enormous intravenous injections of the living organisms. When the horse has reached this point, a trial bleeding is made and tested for potency. If this test proves the serum produced by the animal to be of sufficient potency, it is then bled for serum production. The serum is subjected to rigid tests for sterility and to the most scientific serological tests and animal inoculations to prove its potency.

## Hemorrhagic Septicemia in Rabbits

(Snuffles)

This acute disease of rabbits is usually enzootic but has during the past few years assumed epizootic proportions and is a troublesome factor in most large rabbitries. Veterinarians are now frequently consulted regarding the control of the disease.

**ETIOLOGY.** While the exact cause of snuffles has never been definitely ascertained it is generally agreed that the bacillus *bipolaris septicus* (*B. bipolaris cuniculum*) is responsible for the disease. Associated with this organism although in a secondary manner are streptococcus and staphylococcus. These are the only organisms isolated from such cases with any degree of regularity. They may be isolated from the heart blood, secretions and pathological lesions. Abscesses found throughout the body frequently yield pure cultures of the bipolar organisms, although in chronic cases staphylococci and streptococci are sometimes found in such abscesses.

**SYMPTOMS:** Usually the first symptoms observed are a discharge from the nose and persistent sneezing. The nasal discharge is usually watery, later becoming mucopurulent and less profuse. The appetite gradually becomes poor and the animal shows a rise in temperature. Many animals die showing no symptoms other than those already mentioned. If the disease tends to chronicity, weakness and emaciation become marked and the animal shows dyspnoea and cough. Abscesses frequently appear in the submaxillary region and occasionally in other parts of the body. Once the disease appears, the case incidence is high and the disease spreads rapidly while the mortality may be 50 per cent or higher.

**POST MORTEM LESIONS.** The respiratory mucous membranes, particularly the nasal passages, appear greatly congested. The bronchi contain a mucous or a mucopurulent exudate. The lungs show varying pathological lesions, such as petechia, congestion, hepatization, lobar and lobular pneumonia, frequently accompanied by pleurisy. An extensive pericarditis develops as the disease progresses, while abscesses of the myocardium are not uncommon. The excessive amount of fluid frequently found in either the thoracic or the peritoneal cavity is straw colored and quite stringy orropy.

**TRANSMISSION.** The disease spreads rapidly from one animal to another. The material sneezed or discharged from the nostrils is undoubtedly the greatest factor in the transmission of the disease both as a droplet infection and by contaminating the bedding and feed used by other animals. Attendants going from one animal to another are frequently responsible for spreading the disease.

If pyogenic bacteria cause a secondary invasion, abscesses throughout the various organs are found.

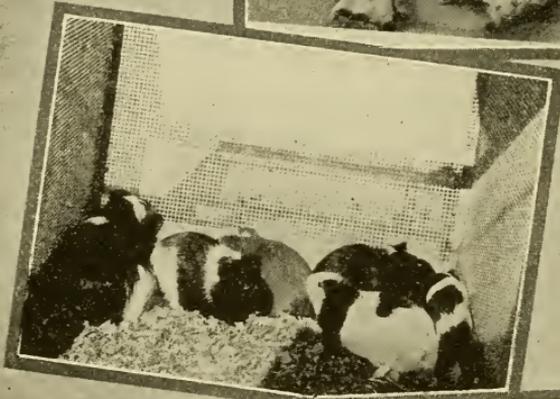
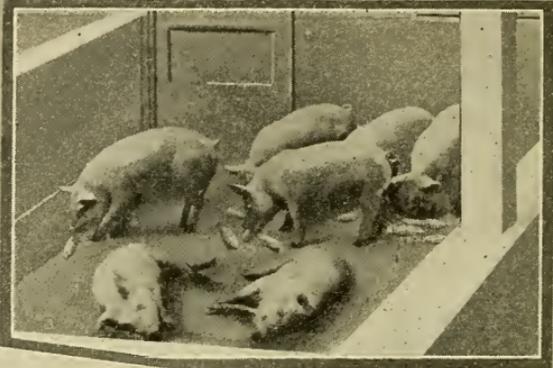
**TREATMENT.** Medicinal treatment is of no value, while sanitation is of the greatest importance. The cages or pens should be frequently disinfected and kept scrupulously clean. All sick or suspicious animals should be isolated. Avoid exposure to cold and dampness and allow all the sunshine possible.

Best results from the treatment of affected animals have been obtained by the use of Anti-Hemorrhagic Septicemia Serum (Snuffles Serum). Quickest results follow intravenous injections of this product in 3 c.c. doses. For this purpose the marginal ear vein is best adapted. If used subcutaneously, five to ten mils should be given. Very small animals should receive one-half the amount recommended for adult animals. Best results will follow the frequent administration of medium sized doses rather than maximum doses at infrequent intervals.

**PREVENTION.** Snuffles Mixed Bacterin should be used upon the healthy exposed animals. This product contains *B. cuniculisepticum*, streptococci and staphylococci in well balanced proportions. Each dose of two c.c. contains six billion killed organisms, which have been isolated from cases of snuffles in all parts of the country, making this a truly polyvalent bacterin. Although good results frequently follow one injection best and most lasting immunity follows the full treatment of three injections at intervals of five to seven days.

Anti-Hemorrhagic Septicemia (Snuffles) Serum may also be used for prophylaxis. The protection afforded by such treatment is almost immediate and an immunity of several weeks is conferred. Five c.c. should be administered intravenously or subcutaneously.

**THE "7 PIG"  
POTENCY TEST**



**GUINEA PIGS  
INOCULATED  
WITH SERUM**

**MICROSCOPIC  
TEST**



***A few of the methods used in testing  
PITMAN-MOORE ANTI-HOG-CHOLERA SERUM  
and HOG-CHOLERA VIRUS for potency & purity***

## Hog Cholera

This is an acute septicemia to which only swine are susceptible.

**ETIOLOGY.** The exact cause of hog cholera is not known. The blood of affected individuals contains the infectious material and will reproduce the disease when injected into susceptible swine. If such blood be passed through Berkefeld filters, the filtrate is infectious, hence we say that the causative agent is an ultra microscopic or filterable virus.

**SYMPTOMS.** In the fulminating type symptoms and postmortem lesions may be entirely lacking and death very sudden. Not infrequently this condition exists in the first few animals which succumb, after which subsequent cases resolve into the acute type. In the latter the incidence is high, affecting practically every susceptible animal in the herd, resulting in a mortality of seventy to ninety per cent.

In the acute type the onset is gradual, the affected individuals being "slow" previous to the appearance of acute symptoms. Later, inappetence and prostration are marked. Affected animals can be made to move only with difficulty and manifest a marked tendency to hide under the bedding. The temperature rises four to five days after exposure and ranges from 104 to 108, showing a tendency to remain high rather than to fluctuate.

Intestinal disturbances are quite regularly observed. In cases tending to chronicity the appearance of pronounced respiratory or intestinal disturbances indicate secondary infection. *These are not caused by the virus of hog cholera.*

When cholera pigs are made to move two cardinal symptoms of great diagnostic importance should be observed. These consist of a peculiar and typical "breaking" sideways at the hock and a straightening of the ankle joint so that the individual appears to be "standing on its toes." The latter symptom is usually the first observable in cholera sick swine and differs considerably from the staggering seen in many diseases or conditions and which is due to weakness.

The period of incubation is from four to seven days, while death occurs in from seven to twenty-one days.

POST-MORTEM LESIONS. It is now generally agreed that the only lesions caused by the filterable virus of cholera are those of an acute septicemia, viz.: hemorrhages and petechia. Whenever extensive lung or intestinal lesions are observed we must conclude that bacteria acting as secondary invaders are responsible for the same. In many cases these secondary lesions are caused by bacteria which were present in the body but which were not capable of causing pathological changes until the filterable virus of hog cholera has broken down the natural resistance of the host.

Button ulcers of the intestinal tract were at one time considered diagnostic of cholera. It is now known that these cannot be depended upon for diagnosis because while they are frequently present in cholera-sick swine they are also found in animals which were apparently healthy before slaughter. They are caused, not by hog cholera virus, but by bacillus *suipestifer*.

Petechiation of various organs has long been the sheet-anchor in hog cholera diagnosis. While this still continues to be our most dependable lesion, even here our examination must be most thorough and our understanding of the lesions of allied diseases complete, since it is now realized that the same, or lesions apparently identical, may be caused by factors other than hog cholera virus. These minute hemorrhages may be caused by acids, by an excess of oily food and by many septicemias other than cholera.

Notwithstanding this, petechiae continue to be diagnostic of hog cholera when found in outbreaks in which the history and symptoms indicate cholera, particularly if the *petechiae be circumscribed and uniform in size*.

While petechiae of the kidneys, bladder, lungs and heart may be present alike in hog cholera and hemorrhagic septicemia this does not apply to the lymphatic glands and the ileocecal valve. In conditions other than hog cholera the glands may be enlarged and engorged or the valve, as well as other parts of the intestines, may be diffusely hemorrhagic, but when the lymphatic glands and ileocecal valve show well-marked petechiae a diagnosis of hog cholera is reasonably safe. For this reason our examination of these two should be most searching. Glands, particularly the mesenteric and inguinal, should be thoroughly sectioned and the crest of the ileocecal valve carefully examined for the presence of these diagnostic petechiae. Petechia of the trachea and epiglottis may be present in both cholera and hemorrhagic septicemia, so that this cannot be relied upon.

**DIAGNOSIS.** From the foregoing it will be seen that a differential diagnosis is beset with many difficulties. It should be arrived at only after a combined and careful study of the *history, symptoms and post-mortem lesions*. Many times a real study of the history and symptoms will make possible a correct diagnosis not afforded by the lesions. It is seldom safe to arrive at a conclusion following one autopsy, and diagnosis had best be made only after a compilation of the findings from several autopsies.

When clinical diagnosis is impossible, laboratory examinations should be resorted to. In making such an examination the blood is first cultured for the presence of bacteria causing diseases other than cholera, after which it is passed through Berkefeld filters and the filtrate injected into susceptible pigs. Whenever possible the blood from acute cases should be used. Blood for this purpose must be thoroughly defibrinated in order to prevent coagulation.

**PREVENTION.** The fact that anti-hog-cholera serum and hog cholera virus are the only agents capable of preventing this disease is too well known to require discussion. There are two methods of using these products for the prevention of hog cholera.

1. Serum only treatment.
2. Simultaneous treatment.

1. **Serum Only Treatment.** This consists of injecting anti-hog-cholera serum subcutaneously or intramuscularly into susceptible swine and is followed by a temporary or passive immunity lasting from three to six weeks. This single or serum only treatment is indicated in the treatment of young pigs, in pregnant sows close to farrowing and in sick individuals. The immunity conferred by this method is entirely mechanical and passive except when administered to animals already infected with hog cholera. Several years ago infected swine were treated by this method on the assumption that the animals already had enough virus within their system to insure active immunity after recovery. Experience, however, taught that this method was not safe and it largely has been supplanted by the simultaneous treatment.

2. **Simultaneous Treatment.** This consists of the subcutaneous or intramuscular injection of liberal doses of anti-hog-cholera serum (see table of dosage) and simultaneously but *at a different site two or more* cubic centimeters of hog

cholera virus. An active immunity which persists for the life of the animal can be depended upon provided:

1. That the animals weigh 40 lbs. or more at the time of vaccination.
2. That at least 2 c.c. of virus are used.
3. That the virus is fully virulent and the serum fully potent. Provided the animals are perfectly healthy at the time of vaccination this treatment is followed by no visible or thermic reaction. However, even though apparently healthy, undesirable post-vaccination results may be observed. These are due to the virus being superimposed upon an already existing infection.

In these immunizing procedures either whole blood or clear anti-hog-cholera serum may be used with equally satisfactory results. So-called "clear virus" has not been found dependable and is now an obsolete product.

The care afforded vaccinated animals both previous and subsequent to vaccination has considerable bearing on the results obtained. The animals to be treated should be in quarters which are *dry and clean*. If this precaution is not observed abscesses or infection frequently result regardless of the quality of the products used. Dust, mud or filth very easily gain access to the body tissue through abrasions made by the syringe needle and may be followed either by abscesses or by septicemia.

Whenever possible feed should be withheld for twenty-four hours previous to treatment. Before and following treatment enough water should be allowed to alleviate suffering, but not enough to allow pens to become wet or dirty. For forty-eight hours following vaccination the diet should be very greatly restricted, while corn and concentrates are best prohibited. The ration should consist of soft feed only and the return to full diet should be very gradual.

**SYRINGES.** Immediately upon completing the vaccination, syringes should be washed inside and out with cold water to remove any serum which may adhere to the same. *The same syringe should never be used for vaccinating a second herd without being re-sterilized.*

**TEMPERATURES.** Whenever possible the temperatures of all animals to be vaccinated should be taken. When the number of animals or lack of help precludes this a rea-

sonable number should be ascertained, by taking at least one temperature to each ten animals. This precaution frequently reveals high temperatures in animals showing no symptoms, thus making it possible to notify the owner that infection already exists in the herd. This averts responsibility for sickness which is almost certain to follow in such herds and enables the operator to use the larger doses of serum needed, whereas failure to determine this incipient infection causes blame to attach itself to the operator or to the products which he has used. Undoubtedly failure to take temperatures most frequently accounts for the appearance of so-called breaks, due to latent infection.

## DOSE OF SERUM

Following are the doses as generally recommended:

### WHOLE BLOOD AND CLEAR SERUM

Suckling Pigs .....	20 Cc.
20 to 40 pounds .....	30 Cc.
40 to 90 pounds .....	35 Cc.
90 to 120 pounds .....	45 Cc.
120 to 150 pounds .....	55 Cc.
150 to 180 pounds .....	65 Cc.
180 pounds and over .....	75 Cc.

### CONCENTRATED CLEAR SERUM

Suckling Pigs .....	15 Cc.
20 to 40 pounds .....	25 Cc.
40 to 90 pounds .....	30 Cc.
90 to 120 pounds .....	35 Cc.
120 to 150 pounds .....	45 Cc.
150 to 180 pounds .....	50 Cc.
180 pounds and over .....	60 Cc.

Some practitioners regularly use smaller amounts of serum than is given above and apparently obtain satisfactory results. While this is frequently possible it is not a safe procedure to follow and the dosage given should be the minimum in any case. If one is to err on dosage it is much safer that it be on the side of larger doses since this will help materially in protecting against breaks due to animals which may be in the incubative stage of hog cholera. Both tables represent only the doses for healthy animals. When infection is present in the herd the dose administered to each individual should be increased at least fifty per cent.

## DOSE OF VIRUS

At least two c.c. should be used. No greater mistake can be made than to entertain a fear of using too large doses of virus, since immunity is directly dependent upon this product. Animals receiving five c.c. of virus will give no more visible reaction than those receiving one c.c. and resultant immunity is more certain. As a matter of fact a dose of one c.c. of virus is more dangerous than one of five c.c. since the smaller dose may fail to overcome the resistance of the animal. When this occurs we fail to confer active immunity, as a result of which a true break may occur at a later period. It should be remembered that immunity is dependent upon virus and that large doses of really virulent virus are absolutely essential to obtain true-lasting immunity.

ANTI-HOG CHOLERA SERUM AS A CURATIVE. Although this product is not recommended for therapeutic purposes, it is frequently the means of saving swine sick with hog cholera. Therefore unless the animal is beyond help it should be injected with liberal doses of serum. In such cases the dose should be at least fifty per cent greater than is recommended for the simultaneous treatment.

## Hog-Cholera Virus

Many persons, while giving considerable attention to the production and use of anti-hog-cholera serum, fail completely to appreciate the great importance of hog-cholera virus. While potent serum is necessary to protect swine during the reaction of the simultaneous treatment, the real immunity, which is the desired object of the treatment, is dependent absolutely on the *virulency and purity of the virus*.

Virus, unlike most antigens used in developing immunity against disease, cannot be grown on artificial culture media. On the contrary it is produced by inoculating susceptible pigs with virulent blood. Approximately seven days later these animals are acutely sick with hog cholera and are then bled from the throat, their blood defibrinated and a preservative added, after which the blood from several animals is mixed to comprise a serial lot of simultaneous virus.

There is considerable difference in the surroundings under which this product is prepared and the actual technique used in its production. When produced in a crude

manner or under unsanitary surroundings the product may become contaminated during processing, causing it to lose its virulency or to undergo chemical changes. It is a grave mistake to assume that all virus is alike or of equal virulency because it is produced under inspection. The technique used and attention paid to details of production are the factors which determine freedom from harmful properties and the length of time for which virulency is retained. The value of this can hardly be over-estimated when it is realized that real immunity following simultaneous treatment is absolutely dependent upon these factors and that the reputation of the practitioner is at stake each time he administers the treatment.

## PITMAN-MOORE VIRUS

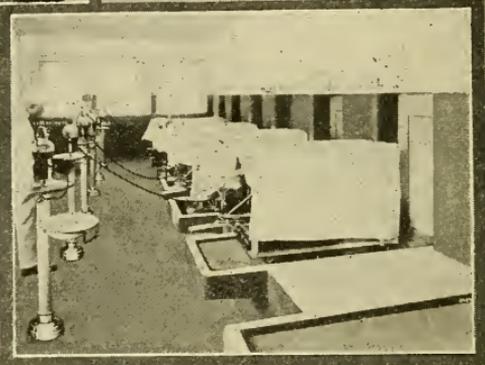
Every precaution known to modern biological production is exercised in the production of Pitman-Moore virus. The product is prepared in specially designed buildings of modern hospital construction which are completely isolated in the open country. All animals used in the production of this product are very carefully selected, purchased in the open country and in no instance are animals used which have ever passed through public stockyards. The virus is bled directly from the animal's heart through a sterile canula into tightly closed, sterile bottles. It is then mechanically defibrinated and at no stage in this process is it exposed to the air for even an instant. It is only by exercising these distinctive features and precautions, which are necessarily expensive and in excess of the methods ordinarily used in virus production, that Pitman-Moore Company is able to offer virus which is free from all pathogenic bacteria, toxins, aggressins or other harmful substances.

Every serial lot of Pitman-Moore simultaneous virus is tested for virulency on susceptible swine before leaving our laboratories. In addition to this we make certain that all virus retains its virulence for the full length of time for which it is recommended by a *second virulency test which is conducted when the virus reaches the date of expiration*. In the latter case several susceptible pigs are inoculated with each lot of virus after it reaches its expiration date. There has never been a lot of Pitman-Moore virus so tested which has not proved to be fully virulent after reaching its expiration date. We are therefore safe in concluding that if Pitman-Moore virus is kept under proper conditions and is

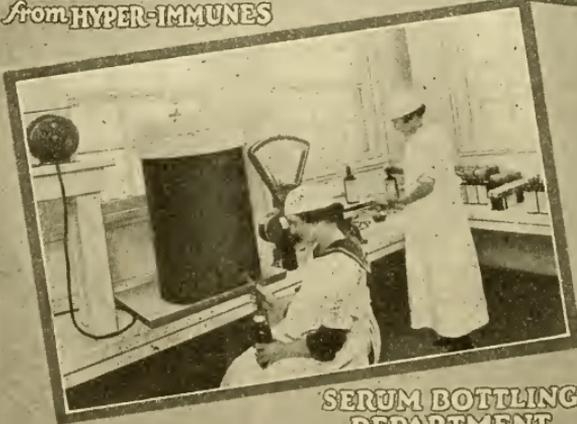


**SERUM-PRODUCING  
HOGS  
(HYPER-IMMUNES)**

**MAKING  
HYPER-IMMUNES**



**COLLECTING SERUM  
From HYPER-IMMUNES**



**SERUM BOTTLING  
DEPARTMENT**

**VIEWS  
IN  
SERUM  
LABORATORY**

used in the proper manner, active immunity is certain to result from its use for simultaneous treatment.

In addition to the above tests we conduct on every lot of virus the same tests for purity which are described under the production of anti-hog-cholera serum.

Each serial lot of virus is given a dating of sixty days from the time it is produced. Although virus retains its virulency beyond this date the use of expired virus is not advised whenever unexpired virus is available.

## PRODUCTION OF ANTI-HOG-CHOLERA SERUM

This is sometimes referred to as a crude biological product due to the fact that the red blood corpuscles remain in the finished product. The presence of these corpuscles does prevent the product from having the finished appearance possessed by other immune sera. The presence of corpuscles is in no way harmful, in fact recent researches indicate the great value of the transfusion of red blood corpuscles, which are decidedly beneficial to the recipient. In addition to this we must realize that no biological product known has given more uniformly satisfactory and dependable results than high-quality whole blood anti-hog-cholera serum. Neither has any other biological product accomplished a greater saving by the prevention of disease.

In the production of anti-hog-cholera serum, swine which have been immunized by the simultaneous treatment at least sixty days previously, are subjected to the process of hyperimmunization. This is accomplished by injecting intravenously through the marginal ear vein a quantity of virus which represents five c.c. for every pound which the animal weighs. Healthy animals, if properly immunized, manifest little or no reaction to this process, whereas swine not properly immunized develop acute hog cholera.

The hyperimmunizing process is followed by an interval of ten days during which time the cells of the body, again stimulated by this enormous dose of antigen, are actively engaged in the production of antibodies. These antibodies formed by the cells are liberated and are present in enormous quantities in the blood of the animal within ten days after hyperimmunization. After this interval the animal may have a portion of its blood extracted from the tail by a special vacuum apparatus or may be bled to death.

After defibrination and the addition of a preservative the blood thus obtained constitutes whole blood anti-hog-cholera serum. The custom most generally followed is to subject the animal to one, two or three tail bleedings at intervals of seven days after which the animal is bled to death and all of the bleedings from each animal mixed. It has been conclusively proven that these various bleedings each contain the same degree of potency. After all of the blood from several hogs is mixed into a serial lot it is tested for potency upon seven susceptible pigs.

## THE PREPARATION OF PITMAN-MOORE SERUM

In the Pitman-Moore Biological Laboratories both whole blood and clear anti-hog-cholera serum are produced under the same ideal conditions as described under the production of hog-cholera virus. Every effort and precaution known to science is utilized in producing this product to maintain in it the highest possible potency and to insure its freedom from any pathogenic bacteria, toxins or aggressins. The purity of each serial lot of serum is determined by tests which are distinctive and which are in excess of the requirements of the U. S. Government. Each lot is subjected to most rigid bacteriological and microscopical examinations to determine the freedom from pathogenic bacteria, while the absence of toxins and aggressins is determined by the injection of white mice and rabbits, both of which are particularly susceptible to these substances.

## THE PRODUCTION OF CLEAR ANTI-HOG-CHOLERA SERUM

Several different methods are used for producing this product which results in considerable variation in the appearance of the finished product. The essential point utilized in all methods is the removal of the red blood corpuscles, after which the product is heated, phenolized and tested for potency. Two varieties of clear serum are available. These are known as concentrated and unconcentrated. The difference lies in the amount of true serum contained in each since it is necessary to add dilutents to both while processing. Concentrated serum contains 80% true serum while unconcentrated contains 65% which is equivalent to that contained in whole blood. Although the true serum content differs, the amount of true serum actually injected into

swine corresponds on account of the difference in the dosage (See page 153). Equally satisfactory results may be expected following the use of any of the three kinds of anti-hog-cholera serum.

## PITMAN-MOORE CLEAR ANTI-HOG CHOLERA SERUM

This product may be had in either concentrated or un-concentrated form. By means of a special process these sera are rendered perfectly transparent, thereby eliminating the smoky appearance as well as the precipitate which is observed in the ordinary clear serum. The same scientific precautions used in producing and testing our whole blood serum are maintained throughout the production of our clear anti-hog cholera serums.

## Keratitis of Cattle

This disease is also spoken of as "pink eye" of cattle and infectious ophthalmia. Ordinarily enzootic in type, the disease has frequently assumed epizootic proportions and affected large numbers of cattle over great territories. Blindness is a common sequelae while loss of weight and emaciation make the disease of economic significance.

**ETIOLOGY.** Various organisms have been considered as significant in this respect but none have been definitely proven as the etiological factor. In outbreaks during the past few years *B. bovissepticum* has been found to be present in practically all cases.

**SYMPTOMS.** The disease develops as an acute conjunctivitis with intense lachrymation which becomes mucopurulent and with primary corneal localization. Keratitis usually develops in twenty-four to forty-eight hours after the symptoms of conjunctivitis. The cornea becomes opaque with intense congestion around the corneal border and eventually this resolves into ulceration. The entire process is accompanied by considerable pain and generalized thermic reaction.

**TREATMENT.** Isolation of affected animals is most desirable.

During the extensive outbreaks which occurred in Illinois during 1919, 1920 and 1921 it was found that afflicted animals responded promptly to a bacterin containing *B. bovissepticum*. Results were equally satisfactory whether

the product contained this organism alone or combined with others. It was further observed that exposed animals which received such a bacterin for prophylaxis did not develop the disease whereas in unvaccinated cattle the incidence was high. In view of these results Hemorrhagic Septicemia Bacterin (Bovine) is now extensively used for the prevention and treatment of this disease.

## Mastitis in Cattle

This condition which is ordinarily sporadic sometimes becomes enzootic and affects all available animals in the herd. The affected quarters may undergo sufficient pathological change to completely destroy the functioning ability of the organ, rendering the affected animal valueless for dairy purposes. During the disease the milk flow is seriously curtailed and frequently this is followed by a generalized septicemia which results in death.

**SYMPTOMS.** Locally there is swelling and inflammation of the udder in one or more quarters, which may also exhibit tenderness. The duct may become occluded and the milk supply scant. The small amount of milk which is secured is ropy and contains flakes of fibrin or pus. An admixture of blood and pus in the milk is not uncommon. The associated lymphatic glands are swollen and tender and as the toxins from the infected udder are absorbed there is inappetence and fever, while necrosis and gangrene of the affected quarters frequently follows prolonged cases.

**TREATMENT.** Bacterins containing the pyogenic streptococcus associated with these cases are generally beneficial. Pitman-Moore mastitis bacterin contains 4000 million bacteria to the dose. This consists of streptococcus sixty percent, staphylococcus thirty per cent, and *B. coli* ten per cent. All organisms used in this product were carefully selected from cases of mastitis. The dose is two c.c. which should be administered subcutaneously and repeated each three to five days until desired results are obtained.

In acute cases associated with high temperature and evidence of generalized septicemia good results are obtained with anti-streptococcic serum in doses of fifty to one hundred c.c. which should be repeated as indicated.

## Metritis and Endometritis

These and other suppurative conditions of the female genitalia are extremely common in cattle following parturition. The condition is seldom sufficiently acute to cause the death of affected animals, but the chronicity of the disease interferes with the normal functional activity of the uterus thus preventing pregnancy and seriously interfering with the breeding efficiency of the affected animals. These infections frequently progress through the fallopian tubes to the ovaries causing chronic infection in these organs which results in sterility.

These conditions although sporadic in type are extremely troublesome in herds in which infectious abortion is prevalent, since in these cases a majority of all cattle are affected after calving. In such cases these complications are more serious than abortion itself, and result in permanently disabling many cattle, either from sterility or from acute toxemia or bacteremia.

**ETIOLOGY.** A variety of bacteria have been associated with this condition. Those occurring most frequently and apparently of the greatest etiological significance are *B. pyogenes*, *B. coli*, streptococcus and staphylococcus.

**TREATMENT.** For the treatment of this condition we offer Pitman-Moore Metritis Bacterin, which contains 60 billion killed bacteria to the dose, as follows:

<i>B. pyogenes</i>	30%
Streptococci	25%
Staphylococci	25%
<i>B. coli</i>	20%

This proportion corresponds with the frequency with which the organisms are found to occur in field cases.

The treatment should consist of subcutaneous injections of two c.c. of the above bacterin, repeated each twenty-four hours until acute symptoms and the profuse vaginal discharge are modified. Since three injections ordinarily produce this result, following the use of Metritis Bacterin the duration of the disease is considerable shortened and the breeding efficiency of the animal greatly enhanced.

**PREVENTION.** In herds where these conditions are prevalent as a sequelae of abortion the use of metritis bacterin as a prophylactic reduces the disease incidence. For

this purpose two cubic centimeters should be injected subcutaneously a few days before parturition, the same amount at the time of and again a few days subsequent to parturition. In cases in which symptoms are not entirely prevented by this treatment it has been observed that treated animals respond to subsequent treatment much more readily than the untreated, and that the symptoms are much less acute.

### **Mixed Infection in Swine**

This condition so frequently diagnosed in swine, does not exist as an entity but is usually the coexistence of hemorrhagic septicemia and necrotic enteritis in the same individual. For that reason it is advised that the treatments and preventive measures described under necrotic enteritis be applied to this condition.

### **Necrotic Enteritis**

This is a condition affecting swine and characterized by progressive emaciation following congestion, thickening and necrosis of the intestinal mucosa. In certain sections of the country it is extremely prevalent and occasions great losses.

**ETIOLOGY.** The exact cause of this disease is not known. It is believed that the condition may be brought about by any of several different bacteria which are normally present in the intestinal tract and which assume increased virulence after some devitalizing condition has lowered the resistance of the affected animals. The organisms most frequently isolated from necrotic enteritis are *B. paratyphosus b.*, *B. suispestifer*, *B. coli* and *B. suissepticum*. The disease is known to be extremely prevalent following hemorrhagic septicemia, hog cholera or parasitic infestations. While other devitalizing conditions may precede necrotic enteritis, the disease most frequently follows those mentioned above.

**SYMPTOMS.** Necrotic Enteritis is most frequently observed as a chronic affection characterized by great emaciation, an arched back, unthrifty coat and tough leathery skin. The gradual and progressive loss of flesh causes the animal to become greatly emaciated resulting in this disease being referred to as "Drying up Disease."

While these are the symptoms most frequently mentioned there is a good reason to suppose that the symptoms ordinarily associated with the early stages of an acute infection are present in such cases, but remain unobserved. It is known that necrotic enteritis frequently follows an attack of acute enteritis characterized by high temperature, intestinal disturbances and inappetence. The appetite, except in the early stages, is retained throughout the disease although it is frequently deprived. After the pathological changes associated with the chronic form of the disease have developed there is little or no elevation of temperature. Notwithstanding the retained appetite the loss of flesh is characteristic and is due to the intense inflammation and necrosis of the intestinal mucosa which prevents the assimilation of ingested food. In herds where the chronic form of the disease prevails there is little indication of the disease being of an infectious nature although many animals may be affected, since the devitalizing conditions which precede the attack are applicable to the entire herd. In the acute form there is some justification for the belief that the disease is of an infectious nature.

**POST MORTEM LESIONS.** These consist of inflammation and congestion of the intestinal mucosa followed by swelling which may be so marked that a large portion or all of the intestinal lumen becomes occluded. As the disease progresses button ulcers are extremely common and small areas of localized necrosis appear. These eventually become confluent so that large areas become necrotic, thickened and dry until eventually the intestinal mucosa assumes a leathery appearance. In the acute stages petechiation of various organs, particularly those in the abdominal cavity, may be observed. The mesenteric lymphatic glands are generally engorged and darkened in color. The lungs may be found in all stages of pathological change in which case it must be assumed, particularly in the presence of chronic lesions, that the original infection was hemorrhagic septicemia and that necrotic enteritis follows as a secondary complication. This latter condition is extremely prevalent.

**TREATMENT.** The food should be soft and of such a character that it is easily assimilated since rough and coarse feed only intensifies the existing condition and affords less possibility of assimilation. Intestinal antiseptics such as sulphocarbolates or cupric sulphate are always advisable in these cases. These are best administered in the drinking water.

Chronic cases may be benefitted by the judicious use of a mixed bacterin containing the four organisms most frequently observed in such cases. This bacterin should be administered subcutaneously at intervals of three to five days and the dose should consist of at least two c. c. In cases where pathological changes of the intestinal tract are marked, satisfactory results cannot be expected from any treatment.

In the treatment of acute cases characterized by high temperature and intestinal disturbances, satisfactory results should obtain from the use of anti-mixed infection serum. This product is made from the blood of horses which have been hyperimmunized against the offending organisms and its therapeutic effect becomes apparent shortly after use, provided pathological involvement is not marked and the serum is used in large quantities. For this purpose a dose of fifty to one hundred c.c. should be used depending upon the size and condition of the animal. A marked drop in temperature and improvement in general condition is generally promptly apparent following this treatment. However, when necessary the treatment should be repeated in twelve to twenty-four hours. Whenever possible the serum should be administered intraperitoneally since more prompt results follow this method.

In acute cases in which the value of the animals does not justify the use of immune serum, mixed bacterin may be used to good advantage. For this purpose injections should be made daily into the muscular or subcutaneous tissue until improvement is marked. Good results frequently follow two or three such injections.

**PREVENTION.** Affected animals should be isolated from the remainder of the herd. The incidence of the disease is considerably diminished by the treatment of exposed and infected animals with mixed bacterin. For this purpose three injections of two c.c. each should be administered subcutaneously or intramuscularly at intervals of three to five days.

Necrotic enteritis is frequently observed in a few days after hog cholera immunization of animals which were apparently perfectly healthy previous to that time. This is due to the fact that many apparently healthy animals are harboring a mild form of the disease which becomes acute when any devitalizing condition, such as hog cholera im-

munization, is superimposed. Such cases should not be considered as "hog-cholera breaks" since other animals in the herd, treated at the same time, but which had no intestinal or pulmonary infection, remain perfectly healthy. In sections where this condition is prevalent the trouble is minimized if mixed bacterin is used simultaneously with the serum-virus treatment. This is sometimes referred to as the triple treatment. For best results one injection of bacterins should be given a few days before, one at the time of, and one a few days subsequent to the use of the serum and virus.

## Normal Horse Serum

This product is produced from the blood of horses which are handled in the same manner as those producing immune sera except that the horses from which it is drawn have never been hyperimmunized with bacteria. The horses used in its production are used only for this purpose and are tested for their freedom from disease in the same manner as those which produce immune sera.

This product is extensively used in large hospitals for the treatment of wounds. For this purpose it may be kept constantly dripping on the wound, or gauze which has been thoroughly saturated with the serum, is left in contact with the wound. It is known that obstinate wounds such as summer sores and abscesses which are so refractory to other treatment, respond when treated in this manner.

Normal horse serum is extensively used following hemorrhages, following operations where the loss of blood has been excessive, in cases of anemia and in any cases where blood transfusion is advisable.

In Europe and South America, normal horse serum is used extensively for the treatment of specific infections. It has been claimed by several investigators that anthrax will respond to the use of normal horse serum as well as to anti-anthrax serum. While this product may have some beneficial effect in such specific infections it will be found that specific immune serum will give much more dependable results.

The dose of normal horse serum must of necessity be left to the judgment of the practitioner. Any amount may be used without fear of harmful results.

## Roup and Pox in Chickens

Under this classification is grouped a number of pathological conditions referred to by various authorities as roup, canker, avian diphtheria, chicken pox and ordinary colds. Although there has been little unison among investigators as to the relation which each of these bears to the others, it is now quite generally agreed that the primary etiological factor of all of these conditions is a filterable virus. This virus is responsible for the condition known as contagious epithelioma and commonly called chicken pox, which is characterized by lesions of the skin; where as the other class of conditions affecting the eyes, oral and nasal passages is due to bacteria which act in a secondary manner. The confusion regarding these conditions is considerably increased by an apparent geographical difference in the clinical aspect of the disease. On the Pacific coast chicken pox is a serious and primary condition and roup is secondary and of less importance. In other sections of the country pox is not a particularly virulent disease and is more frequently seen as a complication of roup. Irrespective of the accuracy of these divergent opinions and aspects of the disease it is quite generally agreed that losses from the filterable virus are not particularly serious but that the more serious factor and the cause for the high mortality associated with these conditions is the group of bacteria which act as secondary invaders and are responsible for the complications. Among this group the most important are probably *B. pseudodiphtheria*, *B. pyocyaneus* and streptococcus.

**SYMPTOMS OF ROUP.** This disease may assume any one of several forms as a result of which the symptoms show some variation. In some cases the mortality may not exceed ten per cent while in others it may reach ninety per cent. The disease is most prevalent during the fall and winter months.

The first symptoms are usually apparent in the eyes, when one or both display a watery discharge which rapidly becomes thick and cheesy. The eyelids become adherent, destroying the vision and allowing an accumulation to occur in the conjunctival sac. The local inflammation and the pressure caused by this accumulation eventually causes the destruction of the eyes. A nasal discharge becomes apparent. This is cheesy in character and because of its accumulation and pressure on the palate causes a distention and swelling on one or both sides of the head below the

eyes. The infection from the nasal passage spreads to the mouth and may involve the larynx and pharynx with the formation of croupous exudates of a diphtheritic nature. This form of the disease is commonly called avian diphtheria. It is accompanied by sneezing and later by dyspnoea which terminates in death. During the period of dyspnoea, breathing is entirely through the mouth which causes a foul odor and intense dryness of the oral membranes.

The affected birds become extremely dull, inappetence is complete, emaciation is marked, while many birds are comatose for several hours before death. The temperature is elevated and diarrhoea may be present. Death may result in a few days from toxemia, from dyspnoea or from starvation. Less frequently the symptoms are of a subacute nature and the birds recover although such birds constitute a menace by acting as carriers.

**SYMPTOMS OF CHICKEN POX OR CONTAGIOUS EPITHELIOMA.** These consist of local skin lesions on the unfeathered portions of the body, particularly on the comb, wattles and eyelids. These lesions are wart-like growths which appear as small white tumors rapidly increasing in size and changing in color. From white they become yellow, then dark brown or black red, varying from one-eighth to one-fourth inch in diameter and covered with a hard dry scab. The virus is contained in these scabs.

**TREATMENT AND PREVENTION OF ROUP.** Since the serious symptoms and lesions of this group of conditions are due to bacteria which act as secondary invaders it is but natural that satisfactory results have been obtained with bacterins which contain such bacteria. Results should not be expected in cases where diphtheritic exudates are excessive nor where the cheesy deposits have caused considerable tissue destruction. In birds treated before the disease reaches this stage and in birds coming in contact with such cases, properly prepared bacterins offer much encouragement.

## **PITMAN-MOORE MIXED BACTERIN (FOR FOWL)**

Contains twenty billion killed bacteria per c.c. as follows:

B. pseudodiphtheria	.....30 per cent
Streptococci	.....30 per cent
Staphylococci	.....20 per cent
B. avisepticum	.....10 per cent
B. pyocyaneus	.....10 per cent

These are the organisms, and the proportions in which they are most frequently found in roup. All strains used have been isolated from acute cases of roup and are handled in such a manner that their antigenic activities are fully retained.

**DOSE.** One c.c. administered subcutaneously beneath the wing. Best results will be obtained by three injections at intervals of three to seven days.

**TREATMENT AND PREVENTION OF CHICKEN POX.** All infected and exposed birds should receive three subcutaneous injections of Pitman-Moore chicken pox vaccine. These should consist of one c.c. and be administered at intervals of three to seven days. This vaccine is an attenuated virus prepared according to the method of Beach from the scab lesions of affected birds. This product is given an expiration dating of only two months and is therefore supplied only on direct order to our home office at Indianapolis. This short dating is in accord with the findings of Beach and others, which indicates that a pox vaccine to be effective should be comparatively fresh.

## Scours in Pigs

This disease of young swine which in a manner corresponds to scour in the young of other species, is both epizootic and enzootic in type. It generally affects all of the animals in a litter and is accompanied by a heavy mortality.

**ETIOLOGY.** Dietary disturbances are undoubtedly a factor by causing a devitalized condition. Following this the bacteria ordinarily present in the intestinal flora find conditions favorable to their increased activity and pathogenicity and invade the circulatory system. The organisms most frequently associated with this condition are *B. paratyphosus* and *B. suispestifer*.

**SYMPTOMS.** Animals under three weeks of age are most susceptible and this susceptibility decreases with age. The affected animals cease nursing and are noticeably inactive. The temperature becomes elevated and a profuse yellowish or chocolate colored diarrhoea early is apparent. Prostration is marked and is followed by coma and death. When death does not occur the animals generally remain unthrifty and develop necrotic enteritis. On account of the pathological changes in the intestinal tract the food is not assimilated and emaciation becomes marked.

**TREATMENT.** Intestinal antiseptics in the form of dilute solutions of cupric sulphate or sulphocarbolates are most desirable. The food of the dam should contain little nitrogenous material while corn and tankage should be withheld. The feeding of buttermilk to the affected pigs is beneficial. Two to three injections of Pig Scour Bacterins at daily intervals is followed by cessation of the diarrhoea and recovery of many animals, particularly where tissue destruction has not been extensive.

**PREVENTION.** All exposed animals should receive two or three injections of Pig Scour bacterins at intervals of three to five days and their ration should be augmented by the addition of buttermilk.

## Suppurative Conditions of Horses and Cattle

No class of pathological conditions has proven more responsive to biological therapy than the numerous suppurative conditions and septicemic diseases which are so common in the bovine and equine and which are caused by pyogenic bacteria. The organisms most generally concerned in these local suppurative or generalized septicemic diseases are the pyogenic streptococci, staphylococci and *B. coli*, which are so widely distributed in nature and which so readily gain access to wounds, abrasions of the skin or which cause septicemias as a secondary condition following some other primary invasion. The activity of these organisms is responsible for a long list of localized suppurative conditions and generalized septicemias among which may be mentioned fistulous withers, quittor, poll evil, abscesses, suppurative nail wounds, wire cuts, open joints, navel-ill, septic arthritis and dermatitis following eczema or mange.

**TREATMENT.** The value of bacterins in the treatment of these conditions is too fully appreciated to require comment. For this purpose the so-called Strep-Staph-Coli bacterin containing organisms isolated from suppurative conditions is most capable of accomplishing the desired results. It must not be forgotten, however, that bacterins should not be used to the exclusion of surgical methods when these are advisable. Good drainage of suppurative areas should always be established before a bacterin is used. Bacterin should be administered subcutaneously in doses of two c.c. and should be repeated each five to seven

days until suppuration ceases. In cases where good results do not become apparent after the first or second injection the dose should be gradually increased. Occasionally stock bacterins do not accomplish the desired results in suppurative cases, which is generally due to the fact that some organism not ordinarily present in such cases and therefore not included in stock bacterins is responsible for the trouble. In such cases, if stock bacterins fail to accomplish the desired results, recourse should be had to autogenic bacterins which are described on page 93.

Anti-streptococcic serum is a most valuable biological product for the treatment of acute or generalized septiciemias due to streptococcus. The acute infections, such as purpura hemorrhagica, which so often follow other diseases and which are due to the activities of pyogenic streptococci, are most effectively combatted by the use of anti-streptococcic serum. This should be injected intravenously in doses of fifty to two hundred c.c. and should be repeated each twelve to twenty-four hours until improvement is marked. Unusual care is given to the production of Pitman-Moore anti-streptococcic serum. The antigen used in injecting the horses which produce this serum is made from cultures of pyogenic streptococci isolated from suppurative conditions and which possess great virulency. This virulency is maintained throughout the use of such cultures, thus making the anti-streptococcic serum extremely potent and thoroughly polyvalent.

## Tetanus

This is an acute toxemia which is most frequently seen in horses although all domestic animals are susceptible to the disease. It is characterized by muscular spasms due to involvement of the nervous system.

**ETIOLOGY.** The disease is caused by an anaerobic organism, *B. tetani*. This organism propagates and lives in the soil, in barnyards, manure pits and similar places. Such premises remain constantly infected and represent a menace to animals which are injured while on such territory since infection may occur through any fresh wound. When *B. tetani* gains entrance through such wounds it remains localized at the point of infection and causes the disease by the elimination of its toxin which travels to all parts of the body. The toxin involves the nervous system, after which

the characteristic symptoms of the disease appear. The period of incubation following such infection is from one to two weeks.

**SYMPTOMS.** The first symptom to be observed varies somewhat, depending upon the portion of the body involved. In some instances stiffness constitutes the first symptom while in others it may be an elevation of the tail, a rigidity of the ears, of difficulty in swallowing. As the disease progresses the head and neck become extended and the tail markedly elevated. The ears stand erect, the eyes are sunken with a marked protrusion of the nictitans membrane. The pupils are dilated, the nostril distended and trumpet shaped. The mouth is tightly compressed, and although drooling may be marked it is impossible to open the mouth to any degree. The gait is stilted, the legs barely bend, and the patient will move only when forced to do so. The muscles become tense, almost boardlike to the touch, which interferes with correct respiratory and circulatory activities and intensifies the animal's suffering or may hasten death. The reflex irritability is so materially increased that the animal is extremely sensitive to light, while any unusual noise intensifies the muscular spasms and causes profuse perspiration. The mortality is extremely high, death occurring in from two to ten days although consciousness is retained to the end.

**TREATMENT.** The patient should be kept in quarters which are quiet and dark. Liquid foods are frequently necessary on account of the inability to swallow. Tetanus antitoxin is indicated unless the nervous symptoms are extremely marked. It should be considered that tetanus toxin has a selective action for the nervous system and is enmeshed in the nerve tissue and also that the body is harboring considerable amounts of toxin when symptoms become apparent. Under these circumstances therapeutic results can hardly be expected unless large amounts of antitoxin are used. For this reason injections should consist of from 5,000 to 20,000 units, which should be administered intravenously and repeated each twelve to twenty-four hours.

**PREVENTION.** The effectiveness of tetanus antitoxin in preventing tetanus has been so conclusively demonstrated that this is usually the only precaution which is taken after an injury is received. Many surgeons use a prophylactic injection after all operations. An immunizing injection con-

sists of from 500 to 750 units which should be administered subcutaneously as soon as possible after the injury has been inflicted.

### **PITMAN-MOORE TETANUS ANTITOXIN**

This product is prepared by hyperimmunizing healthy young horses against the toxin of *B. tetani*. Beginning with minute amounts of the toxin these frequently repeated injections are gradually increased in amount until enormous antibody production is obtained in the blood. When trial bleedings show the antitoxin content of the blood to be sufficiently high, the horses are bled to obtain the serum portion of the blood which contains the antitoxic properties. This is then tested for potency or antitoxic units. Unlike anti-bacterial sera it is possible to determine the unit value of antitoxins. An Antitoxic Unit is the smallest amount of antitoxin which will protect a 250 gram guinea pig against one thousand lethal doses of tetanus toxin. Pitman-Moore Tetanus Antitoxin is unusually high in its antitoxic value as a result of which the volume is small. This is desirable, since it reduces the quantity necessary to inject for a given number of units. Each package contains 30% more units than is indicated on the label, which insures the full unit dosage. After the antitoxin is sterilized and tested it is subjected to the most exacting tests for sterility.

### **Tuberculosis and Tuberculin**

This extremely prevalent disease affects practically all species of animals and constitutes the greatest menace of the livestock industry.

**ETIOLOGY.** This disease is caused by the bacillus tuberculosis. Three types of this organism have been identified. The human; bovine, which affects cattle and swine; and avian, which affects only fowls. It is felt that the symptoms and lesions of this disease are too well known to require any discussion.

**TREATMENT.** Although several different kinds of bacterins and vaccines have been claimed by various investigators to be efficacious for the treatment of affected individuals proper investigation has failed to demonstrate their value, and at this time it is the consensus of opinion that biologics for this purpose are without value. Medicinal

treatment is of no value. Present efforts of control consist of preventive measures such as disinfection and tuberculin testing. The most approved procedure at the present time consists of removing from the herd all affected and suspicious individuals and by conducting regular tuberculin tests, insuring that no incipient cases of the disease remain. In this manner it is possible to maintain a tuberculosis free herd.

**DIAGNOSIS.** While clinical diagnosis is possible in the advanced stages of the disease it would be impossible to control this disease if our sole dependence were placed upon the recognition of clinical cases. Fortunately biological therapy offers a product fully capable of causing the detection of animals affected with this disease. This product known as tuberculin is available in several different forms. Tuberculin is the end product of the tubercle bacilli and is obtained by growing this organism on suitable culture medium which after processing contains the desired active principle, tuberculin. These products when used on tuberculous animals cause a characteristic reaction, whereas when injected into individuals which are not affected with tuberculosis no reaction occurs. This reaction is thought to be caused by the hypersusceptibility of affected individuals toward the end product of the organisms causing the disease with which they are affected.

## Tuberculin Tests

For this purpose three tests are available:

1. Subcutaneous.
2. Intradermal.
3. Ophthalmic.

**THE SUBCUTANEOUS TEST.** This is the oldest and most generally used method of detecting tuberculosis. While the general principles of the test are understood by most practitioners some information regarding details is frequently desired. For that reason the following directions for the subcutaneous tuberculin test taken from B. A. I. publications are supplied.

1. So far as practicable, the cattle should be stabled under usual conditions and with usual surroundings.
2. The cattle should be fed and watered in the customary manner, except that it should be done only immediately

after the measuring of temperature. Occasionally it is advisable to limit the quantity of concentrated food given animals under test. This is especially true if large quantities of that kind of food are allowed.

3. A careful physical examination of each animal should be made before or during the application of the test.

4. During the period immediately before the injection of tuberculin each animal's temperature should be taken at least three times at not less than two-hour intervals. Care should be taken to let the thermometers remain inserted for a sufficient length of time to insure correct reading. Animals showing evidence of any acute disease or condition or showing extensive pus formations should not be injected with tuberculin. Any animal showing pronounced abnormal preliminary temperatures likewise should not receive the tuberculin test. Inquiry concerning the history of the herd should be made, and it should be ascertained, if possible, whether any animal in the herd has ever given a positive reaction to tuberculin, the number of tuberculin tests applied to the herd previously and also whether any cattle in the herd have been treated at any time in any other manner with tuberculin. The information thus obtained should be used in determining the method to be employed in the tuberculin testing of the herd.

5. The hypodermic syringes and needles should be disinfected before testing any herd with tuberculin. Before being used for the injection of each animal, needles should be washed in a disinfectant solution. A five per cent solution of carbolic acid is suitable for sterilizing the instruments. Open bottles of tuberculin should be protected from contamination. Thermometers should be sterilized before the temperature is taken, and should be dipped in a disinfectant solution before and after each reading.

6. For cattle which are apparently healthy, and which have not been injected with tuberculin within a period of at least 60 days, the dose of tuberculin prepared by the Bureau of Animal Industry is as follows:

Two mils for calves ranging from six months to one year of age.

Four mils for cattle more than one year old to maturity.

Older animals or animals clinically suspicious may receive a larger dose.

7. The measurements of temperature following the injection of tuberculin should commence at the eighth hour and be continued every two hours until the twentieth hour after injection, when, if there is no tendency for the temperature to rise, the test may cease. Temperatures upon cattle which are showing a rising tendency following the injection of tuberculin should be measured more frequently.

8. Suspected cattle should be submitted to a retest after the expiration of not less than 60 days. This class of cattle and those which show possible physical evidences of tuberculosis, emaciation, old age, or which have been tested repeatedly should receive double the dose of tuberculin indicated above.

9. Experience has shown that animals, especially those of doubtful record, receiving large doses of tuberculin, may respond early to the test, and inspectors are advised, wherever practicable, to obtain temperatures at from the fourth to sixth hour following the use of large doses of tuberculin.

10. A rise of  $2^{\circ}$  F., or more, above the maximum temperature observed prior to the injection of tuberculin, or a temperature above  $103.8^{\circ}$  F., should be regarded as an indication of tuberculosis, provided the temperature reaction shows the characteristic rainbow curve.

11. Animals which after injection show a rise of temperature of  $2^{\circ}$  F., with a maximum of between  $103^{\circ}$  and  $103.8^{\circ}$  F., as well as those which show a rise of less than  $2^{\circ}$  F., with a maximum temperature of  $103.8^{\circ}$  F., are regarded as suspicious. The presence of a general systemic reaction or a typical curve should be considered in determining the classification between suspects and reactors.

**THE INTRADERMAL TEST.** This is made by injecting a very small quantity (0.1 c.c. for young calves to 0.2 c.c. for adult animals) of specially prepared tuberculin INTO the skin. This is a very delicate test, which requires skill and constant practice. The tuberculin should be injected into the dermal tissue, special care being used to prevent its subcutaneous injection. For this purpose a special syringe and needles are required. Regular dental syringes with small calibre needles one-fourth inch in length are quite satisfactory.

The injection is generally made in the sub-caudal fold although in some instances the skin of the lower eyelid is used. When the injection is properly made a small pea-like swelling or nodule is immediately apparent, whereas if the tuberculin be injected subcutaneously this swelling is absent. This swelling subsides quickly and is of no diagnostic significance. A reaction consists of a circumscribed or diffuse swelling at the site of injection twenty-four hours or more after the injection. The following code adopted by the U. S. Livestock Sanitary Association for reading and recording an intradermal reaction will be of assistance and should always be used:

1. If one observation only is made it shall be at the seventy-second hour after injection.  
If two observations are made they shall be at the forty-eighth and ninety-sixth hours, respectively, after injection. Under special conditions more frequent observations over a more extended period of time are advisable.
2. An intradermic test shall be reported in accordance with the following code:
  - a. Animals showing no reaction shall be recorded at each observation as N— (Negative).
  - b. Reactors shall be recorded as follows:
    - a. For circumscribed swelling, pea size (diameter  $\frac{3}{16}$ " ) shall be used as a basic standard. Larger swellings shall be recorded as P-2, P-3, P-4, P-5, etc., in accordance with the findings being two, three, four or five times the size of a pea.
    - b. For diffused swellings, "Thick 2-X" shall be used as a basic standard, and signifies a diffuse swelling in which the injected caudal fold is twice as thick as the normal fold. Larger swellings shall be recorded as "Thick 3-X," "Thick 4-X," etc., in accordance with the findings.

**OPHTHALMIC TEST.** For this purpose the ophthalmic disc is most generally used. The disc is placed in the conjunctival sac beneath the lower eyelid. It should be held in place for one or two minutes, during which time the disc

is dissolved. Most satisfactory results from the ophthalmic test are obtained when one disc is used in the manner described to sensitize the eye, and in forty-eight to seventy-two hours placing one or two additional discs in the same eye.

The discharge of varying amounts of pus from the injected eye constitutes a reaction. This reaction is generally written as Negative when no pus is apparent, or as P-1, P-2, P-3 and P-4, depending upon the amount of discharge present. Animals subjected to the ophthalmic test should be observed each twenty-four hours up to and including the seventy-second hour.

**COMBINATION TESTS.** Formerly the only test officially recognized was the subcutaneous test. The United States Live Stock Sanitary Association and the Bureau of Animal Industry have officially endorsed so-called combination tests, and in the future, before being accredited, herds must be subjected to a final combination test. This combination test may include any two of the above mentioned tests. These combination tests are desirable since it has been demonstrated that all three tests are reliable and that the ophthalmic or intradermal tests frequently detect tuberculous animals which fail to react to the subcutaneous test.

It is of interest to note that if an animal reacts to the ophthalmic or intradermal tests and later is subjected to the subcutaneous test, a second local reaction of the eye or dermis is frequently observed.

The subcutaneous test is of limited value in cases of advanced or generalized tuberculosis, and in animals which have been repeatedly injected with tuberculin (so-called "plugged" cattle). In these cases physical examination and the other two tests furnish a means of detecting the affected animal. Excellent results have been obtained in these cases from the use of so-called "triple strength tuberculin," or by using large doses of regular subcutaneous tuberculin.

In retesting by the subcutaneous method at least six weeks should elapse between tests.

Uninformed persons sometimes claim that their cattle contracted tuberculosis as a result of the injection of tuberculin. In order that this point may be correctly understood and refuted the following brief description of the production of tuberculin is offered.

**PITMAN-MOORE TUBERCULINS**

Numerous strains of the tubercle bacilli which are known to be exceptionally desirable for tuberculin production are used for this purpose. These strains are grown on the surface of glycerine bouillon for a period of approximately twelve weeks, during which time they eliminate an effete end product which saturates the media. When the media is fully saturated or charged the tubercle bacilli are killed by subjecting the flasks and their contents to sterilization in an autoclave. The content of the various flasks is now placed on a water bath and evaporated to one-tenth of its original volume. After this evaporation the product is filtered in such manner that all bacteria are removed and there remains a sterile product incapable of causing disease. The product concentrated in this manner is known as Koch's Old Tuberculin. Beginning with Koch's Old Tuberculin as a basis or concentrate the various kinds of tuberculins are prepared.

**PITMAN-MOORE SUBCUTANEOUS TUBERCULIN** is prepared by adding to the concentrate described above a definite amount of glycerine and normal saline solution. The Bureau of Animal Industry requires that each cattle dose of subcutaneous tuberculin shall contain .5 grams of Koch's Old Tuberculin. Pitman-Moore subcutaneous tuberculin contains .6 grams of Koch's Old Tuberculin, thus insuring an ample amount of tuberculin to insure dependable reactions.

**PITMAN-MOORE INTRADERMAL TUBERCULIN.** In this, as in the case of subcutaneous tuberculin, the start is made with the concentrate or Koch's Old Tuberculin. Enough saline is added so that each cubic centimeter contains .5 grams of Koch's Old Tuberculin. This product is prepared in such a manner that it minimizes the possibility of reactions occurring from causes other than tuberculosis.

**PITMAN-MOORE TRIPLE STRENGTH TUBERCULIN** is prepared in the same general manner as subcutaneous tuberculin and contains 1.8 grams of Koch's Old Tuberculin to each cattle dose. This product is admirably suited for the subcutaneous retesting of cattle and for the testing of cattle suspected of having been "plugged." The dose is four c.c.

Each lot of Pitman-Moore subcutaneous, triple strength and intradermal tuberculins is carefully standardized for potency by animal inoculation, thus insuring that the desired results will be obtained. In addition to this each lot is most rigidly tested for sterility.

PITMAN-MOORE OPHTHALMIC DISCS are prepared by precipitating the active principle, tuberculin, contained in the concentrate after which it is subjected to special processes which eliminate all extraneous material. The precipitate after proper processing is made into discs suitable for ophthalmic use. These discs are made and retained in such a manner as to prevent undue hardness and to make possible the ability of the discs to dissolve readily when brought in contact with the normal secretions of the eye. These two factors are largely responsible for the desirable results which are being obtained with these discs.

TUBERCULIN TEST IN SWINE. This is best accomplished by the intradermal test, which is conducted in the same manner as in cattle. The site most suitable for this test in swine is the outer surface of either ear. The test is quite dependable in this specie of animal when properly applied.



**PART III**



**Sundries**  
**Surgical Dressings**  
**Chemicals**

# SUNDRIES

## Bottles, Boxes, Hypodermic Syringes and Needles, Thermometers, Apparatus, Etc.

Please note the quantities and packages priced in this list.

The packages can not be broken nor the quantities changed  
at prices advantageous to our customers.

**Bandages.. See Surgical Dressing List.**

**Bands, Rubber.**

Sizes No. 8 (small) to No. 19 (large), not assorted.  $\frac{1}{4}$  lb.  
boxes ..... each \$0.35

**Bottles—Washed and Corked.**

Lyric Ovals, graduated.

Prices quoted below are subject to discount of 5%, when  
ordered in lots of 5 cases or more, all one size or assorted.

*ALL BOTTLES SOLD F. O. B. INDIANAPOLIS.*

$\frac{1}{2}$ ounce—Per case of five gross.....	\$13.75
Per gross .....	3.10
Per carton—6 doz. ....	1.65
1 ounce—Per case of five gross.....	14.90
Per gross .....	3.35
Per carton—6 doz. ....	1.80
2 ounce—Per case of five gross.....	17.15
Per gross .....	3.90
Per carton—6 doz. ....	2.05
3 ounce—Per case of three gross.....	12.00
Per gross .....	4.50
Per carton—4 doz. ....	1.60
4 ounce—Per case of three gross.....	13.70
Per gross .....	5.15
Per carton—3 doz. ....	1.40
6 ounce—Per case of two gross.....	10.40
Per gross .....	5.85
Per carton—3 doz. ....	1.55
8 ounce—Per case of $1\frac{1}{2}$ gross.....	8.85
Per gross .....	6.75
Per carton—3 doz. ....	1.80
12 ounce—Per case of one gross.....	6.55
Per carton of $1\frac{1}{2}$ doz. ....	1.00
16 ounce—Per case of one gross.....	8.00
Per carton of $1\frac{1}{2}$ doz. ....	1.15
32 ounce—Per case of $\frac{1}{2}$ gross.....	6.05
Per carton of $1\frac{1}{2}$ doz. ....	1.80

## Boxes, Folding—Packages of 500

	500	1,000
No. 1, small .....	\$1.30	\$2.50
No. 2, medium .....	1.55	3.00
No. 3, large .....	1.80	3.50

## Boxes, Tin Ointment.

1/8 oz.....	1/2 gross boxes, each	\$0.40;	gross	\$0.75
1/4 oz.....	1/2 gross boxes, each	.45;	gross	.90
1/2 oz.....	1/2 gross boxes, each	.65;	gross	1.30
1 oz.....	1/2 gross boxes, each	1.00;	gross	1.80
2 oz.....	1/2 gross boxes, each	1.50;	gross	2.80
3 oz.....	1/3 gross boxes, each	1.35;	gross	3.65
4 oz.....	1/3 gross boxes, each	1.60;	gross	4.25
12 oz.....	1/8 gross boxes, each	1.15;	gross	7.75
16 oz.....	1/8 gross boxes, each	1.40;	gross	8.95

Patent seamless boxes, with either flat or round bottoms, as may be available in the market.

## Boxes, Tin Ointment—Myer's Patent, with label attached.

1/4 oz.....	1/2 gross boxes, each	\$0.90;	gross	\$1.75
1/2 oz.....	1/2 gross boxes, each	1.10;	gross	2.00
1 oz.....	1/2 gross boxes, each	1.60;	gross	3.10
2 oz.....	1/2 gross boxes, each	2.50;	gross	4.90

## Boxes, Powder, Slide—1/4 Gross in Package.

	1/2 gross	gross
No. 128, 2 1/8 in. x 1 7/8 in. x 1/2 in.....	\$0.75	\$1.40
No. 127, 2 5/8 in. x 1 3/4 in. x 5/8 in.....	.75	1.45
No. 126, 3 1/8 in. x 1 7/8 in. x 3/4 in.....	.80	1.55

## Brushes

Camel's Hair, 2-inch quill.....per doz. \$0.40

## Capsules, Veterinary

1 oz...Box of 100 \$2; 500 lots per 100 \$1.95; 1,000 lots per 100 \$1.90

## Capsules

No. 00.....	box of 1,000	\$1.70
No. 0.....	box of 1,000	1.50
No. 1.....	box of 1,000	1.32
No. 2.....	box of 1,000	1.19
No. 3.....	box of 1,000	1.10
No. 4.....	box of 1,000	1.10
No. 5.....	box of 1,000	1.05
No. 00.....	box of 100, each \$0.25; per doz. boxes	\$2.25
No. 0.....	box of 100, each .25; per doz. boxes	2.00
No. 1.....	box of 100, each .25; per doz. boxes	1.75
No. 2.....	box of 100, each .20; per doz. boxes	1.65
No. 3.....	box of 100, each .20; per doz. boxes	1.60
No. 4.....	box of 100, each .20; per doz. boxes	1.60
No. 5.....	box of 100, each .20; per doz. boxes	1.60

# Sundries

## Corks, Monogram—Extra Long.

	Bag of 500	Bag of 100
No. 1 .....	\$0.95	\$0.30
No. 2 .....	1.10	.35
No. 3 .....	1.30	.40
No. 4 .....	1.50	.45
No. 5 .....	1.65	.50
No. 6 .....	1.85	.55
No. 7 .....	2.10	.60
No. 8 .....	2.55	.70
No. 9 .....	3.00	.75
Assorted—		
Nos. 1 to 3 .....	\$1.10	\$0.35
Nos. 1 to 4 .....	1.20	.35
Nos. 1 to 6 .....	1.40	.40
Nos. 2 and 3 .....	1.20	.35
Nos. 2 to 4 .....	1.30	.40
Nos. 2 to 6 .....	1.50	.45
Nos. 3 and 4 .....	1.40	.40
Nos. 3 to 6 .....	1.60	.45
Nos. 4 to 6 .....	1.70	.45

## Dose Syringes—Capacity About Two Ounces.

	Per Doz.
Each with one long light and one short heavy pipe .....	\$10.00
Each with one long light and one long heavy pipe .....	12.00
Each with one 9 in. heavy pipe .....	12.00

## Envelopes.

Drug, open side $3\frac{1}{2} \times 2\frac{1}{8}$ in., white or assorted colors, no printing .....	per box of 1,000 \$1.15
Coin, open end, $3\frac{1}{2} \times 2\frac{1}{4}$ in., white or assorted colors, no printing .....	per box of 1,000 1.25
Veterinary Coin .....	per box of 500 1.40

## Graduates

	Scale	Double
Minim .....	each	\$0.50
1 ounce .....	each	.50
2 ounces .....	each	.60
3 ounces .....	each	.60
4 ounces .....	each	.65
8 ounces .....	each	.85
1 pint .....	each	1.30
Quart .....	each	2.20

## Hypodermic Needles—Veterinary

Slip, gauge No. 15, 16, 17, 18, 19; length		
1, $1\frac{1}{2}$ inch .....	each	\$0.25; per doz. \$2.50
Slip, gauge No. 18; length 2, $2\frac{1}{2}$ inch .....	each	.25; per doz. 2.50
Screw, gauge No. 18, $1\frac{1}{2}$ inch long .....	each	.25; per doz. 2.50

**Hypodermic Syringes—Virus and Serum Syringes.**

2 Cc Champion, 2 needles, 2 adapters, molded packing, wood case .....	each	\$3.20
8 Cc Champion, 2 needles, 2 adapters, molded packing, wood case .....	each	3.80
30 Cc Champion, 2 needles, molded packing, wood case.	each	5.30
40 Cc Champion, 3 needles, adapter, trocar, molded packing, wood case .....	each	5.60
2 Cc Champion Intradermal syringe graduated in minims in metal case with 2 needles.....	each	3.00
2 Cc Champion Intradermal syringe graduated in minims, no case, no needles.....	each	1.50
80 Cc Champion, 3 needles, adapter, trocar, molded packing, wood case .....	each	6.60
8 Cc Viking, 2 needles, expanding rubber washer on piston, wood case .....	each	3.40
10 Cc Viking, 2 needles, expanding rubber washer on piston, wood case.....	each	3.60
30 Cc Viking, 2 needles, adapter, expanding rubber washer on piston .....	each	4.90
2 Hand 40 Cc Viking, 2 needles, adapter, expanding rubber washer on piston .....	each	5.30
60 Cc Viking, 2 needles, adapter, expanding rubber washer on piston .....	each	5.35

(This size is not in stock but will be shipped direct from the manufacturer).

**Jars—Ointment**

Opal glass, metal screw caps.

$\frac{1}{4}$ ounce .....	per doz.	\$0.40
$\frac{1}{2}$ ounce .....	per doz.	.45
1 ounce .....	per doz.	.50
2 ounce .....	per doz.	.55
3 ounce .....	per doz.	.75
4 ounce .....	per doz.	.85
8 ounce .....	per doz.	1.35
16 ounce .....	per doz.	2.00

**Medicine Droppers**

Straight or bent .....per box of 1 doz. \$0.35

**Paper, Wrapping—In Rolls**Pink, Blue or White, 9 or 12 in. wide.....per lb. \$0.15 $\frac{1}{2}$ **Spatulas**

Wood Handle, riveted—

5 inch .....	each	\$0.60
6 inch .....	each	.70
8 inch .....	each	1.10
10 inch .....	each	1.75

**Surgical Needles—Veterinary**

Straight—

No. 1—3½ in. long.....	
No. 2—3¼ in. long.....	
No. 3—3 in. long.....	
No. 4—2¾ in. long.....	

Half Curved—

No. 1—3½ in. long.....	
No. 2—3¼ in. long.....	
No. 3—3 in. long.....	
No. 4—2¾ in. long.....	
No. 5—2½ in. long.....	
No. 6—2¼ in. long.....	
No. 7—2 in. long.....	
No. 8—1¾ in. long.....	

Market  
Price

Full Curved—

Same numbers and lengths as Half Curved (above),  
measured from point to point.....per doz. Market  
Price

**Thermometers, Clinical—Veterinary**

	Each	Per Doz.
Special pig, 4 in. long, no case.....	\$1.00	\$10.20
With case .....	1.10	11.40
Champion No. 336, 5 in. pear bulb, ring end, no case .....	1.30	15.00
With hard rubber case .....	1.45	16.80

**Test Tubes**

	Length				
	3 in.	4 in.	5 in.	6 in.	7 in.
Per dozen .....	\$0.30	\$0.35	\$0.40	\$0.40	\$0.45

**SURGICAL DRESSINGS****Plasters, etc.****Absorbent Cotton**

1 lb. cartons .....	per lb.	\$0.65
½ lb. cartons .....	per lb.	.70
¼ lb. cartons .....	per lb.	.75
⅛ lb. cartons .....	per lb.	.85
1 oz. cartons .....	per lb.	1.00

**Absorbent Cotton—Rolls L & L**

Per lb., \$0.50; 5 lbs. at \$0.49; 10 lbs. at \$0.48; 25 lbs. at \$0.42.

**Bellevue Rolls**

1 yd. wide, 10 yds. long.....each \$1.25

## Bandages, Gauze—10 yards long; one dozen in carton

1 inch wide .....	dozen	\$0.70
1½ inches wide .....	dozen	.90
2 inches wide .....	dozen	1.10
2½ inches wide .....	dozen	1.30
3 inches wide .....	dozen	1.50
3½ inches wide .....	dozen	1.70
4 inches wide .....	dozen	1.90

## Bandages, Plaster Paris—In tins, ½ dozen in box

1½ inches wide, 5 yards long.....	dozen	\$2.70
2 inches wide, 5 yards long.....	dozen	3.00
2½ inches wide, 5 yards long.....	dozen	3.30
3 inches wide, 5 yards long.....	dozen	3.60
3½ inches wide, 5 yards long.....	dozen	3.90
4 inches wide, 5 yards long.....	dozen	4.20

## Cotton—See Absorbent Cotton

### Gauze

Lasalle, 100-yd. roll .....		\$4.75
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### Gauze, Absorbent—Plain, Sterilized

25 yard cartons .....		each \$3.00
5 yard cartons .....	dozen	7.00
1 yard carton .....	dozen	1.80
1 yard jars .....	each	.45
5 yard jars (aseptic) .....	each	1.40

### Gauze, Absorbent—Medicated

	5-yd. jar	1-yd. jar	5-yd. cart.	1-yd. cart.
Borated .....	\$1.50	\$0.45	\$1.25	\$0.30
Carbolated .....	1.50	.45	1.25	.30
Iodoform, 5 per cent .....	1.85	.55	1.65	.40
Iodoform, 10 per cent .....	2.10	.60	1.90	.45
Corrosive Sublimate—				
1:1000 or 1:2000.....	1.50	.45	1.25	.30

### Oakum

In 1-lb. cartons .....		each \$0.60
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### Ligatures, Catgut

Dry aseptic catgut in envelopes; plain or chromicized, each 30 in. long.		
Nos. 1, 2 or 3.....	doz. env.	\$1.20
No. 4 .....	doz. env.	1.50
Catgut in antiseptic solution; sterilized, carbolated, chromicized, or sublimate; each string 10 ft. long on spool, 3 spools in bottle.		
Nos. 0, 1, 2 or 3—3 spool bottle.....	each	\$1.00
No. 4, 3-spool bottle .....	each	1.00
Assorted, 3 spools in bottle.....	bottle	1.00

**Kordo Linen No. 5**

Veterinary .....per jar \$0.75

**Dry Twisted Silk on Reels**

Nos. 0, 1, 2, 3, 4, 6, 7, or 8.....doz. cards \$1.20  
 Nos. 9, 10, or 11.....doz. cards 1.20  
 Nos. 12, 13, or 14 .....doz. cards 1.20  
 Nos. 15, 16, 17, or 18 .....doz. cards 1.50

**Twisted Silk—In antiseptic Solution**

Strings of 5 yards on 3 spools in one bottle; carbolated, corrosive sublimate or sterilized.

Nos. 5, 9, 12, 3-spool bottles.....each \$1.00

**Dry Braided Silk on Card Reel—In Envelope**

Nos. 1 to 14, inclusive .....doz. cards \$1.50  
 Nos. 15 to 20, inclusive .....doz. cards 3.00

**Braided Silk—In Antiseptic Solution**

Strings of 5 yards on 3 spools in one bottle, carbolated or sterilized.

Nos. 4, 7, 10, 3-spool bottle.....each \$1.00

**Wool, Merritt's Antiseptic**

Prepared for padding, etc..... $\frac{1}{4}$ -lb. box \$0.85  
 Rope form for tampons, small (approx.  $\frac{1}{4}$  lb.).....each .75  
 Large (approx.  $\frac{1}{2}$  lb.) .....each 1.35

**Plasters****Plasters, Adhesive—Zinc Oxide, 10 yard Spools.**

$\frac{1}{2}$ in.....each	\$0.40	$2\frac{1}{2}$ in.....each	\$1.00
1 in.....each	.50	3 in.....each	1.20
$1\frac{1}{2}$ in.....each	.65	4 in.....each	1.60
2 in.....each	.80		
Rolls, 1 yd. by 7 in.....each			\$0.45
Rolls, 5 yd. by 7 in.....each			1.50
Rolls, 5 yd. by 12 in.....each			2.00

## CHEMICALS

## Crude and Powdered Drugs

Acetanilid, Crystal or Powd.....	¼ lb. 20c; ½ lb. 30c; lb.	\$0.55
Acetphenetidin .....	oz.	.30
Acid Acetic, 36 per cent.....	c. s. bottle, lb.	.30
Acid Acetic No. 8 .....	c. s. bottle, lb.	.25
Acid Acetic, Glacial, 99 per cent.....	oz. 10c; bottle, lb.	.40
Acid Arsenous, powdered .....	oz. 15c; lb.	.50
Acid Benzoic, from Benzoin .....	oz.	.75
Acid Benzoic, from Toluol .....	lb.	1.20
Acid Boric, crystals or powdered.....	1 lb. cartons	.35
Pure Impalpable powder for surgical use, in bottles.....		
.....	¼ lb. 15c; ½ lb. 25c; lb.	.44
Acid Carboic, pure crystals (silver label), bottle.....	lb.	.35
Acid Carboic Liquefied P-M Co.....	c. s. bottle, lb.	.35
Acid Chromic, crystals .....	c. s. vial, oz.	.35
Acid Citric, crystals or powd.....	lb.	.85
Acid Gallic .....	c. s. bottle, oz. 15c; lb.	1.25
Acid Muriatic—See Acid Hydrochloric.		
Acid Hydrobromic, U. S. P. 10 per cent....	c. s. bottle, oz. 15c; lb.	.40
Acid Hydrochloric, conc. pure.....	g. s. bottle, lb.	.55
Acid Hydrochloric Diluted P-M Co.....	c. s. bottle, lb.	.35
Acid Hydrocyanic, 2 per cent U. S. P. (prussic acid).....		
.....	c. s. bottle, oz. 16c, lb.	.55
Acid Lactic U. S. P., conc.....	bottle, oz. 20c; lb.	1.10
Acid Nitric, conc. pure .....	g. s. bottle, lb.	.60
Acid Nitric Diluted P-M Co.....	c. s. bottle, lb.	.40
Acid Nitrohydrochloric, conc. P-M Co.....	g. s. bottle, lb.	.60
Acid Nitrohydrochloric Diluted P-M Co.....	g. s. bottle, lb.	.45
Acid Nitromuriatic—See Acid Nitrohydrochloric.		
Acid Oleic .....	bottle, oz. 10c; lb.	.40
Acid Oxalic, crystals (technical) .....	carton, lb.	.40
Acid Phosphoric, conc. syrupy liquid .....	g. s. bottle, lb.	.60
Acid Phosphoric, Diluted P-M Co.....	c. s. bottle, lb.	.35
Acid Picric, crystals .....	c. b., oz. 25c; lb.	1.25
Acid Pyrogallic, resublimed crystals.....	oz. 25c; carton, lb.	2.10

Acid Salicylic .....	¼ lb. 20c; ½ lb. 30c; lb.	.55
Acid Sulphur, conc. pure .....	g. s. bottle, lb.	.55
Acid Sulphuric, Aromatic P-M Co.....	c. s. bottle, lb.	1.55
Acid Sulphuric, Diluted P-M Co.....	c. s. bottle, lb.	.40
Acid Sulphurous, 6 per cent.....	bottle, lb.	.55
Acid Tannic (Tannin)....	carton, oz. 20c; ¼ lb. 40c; ½ lb. 70c; lb.	1.35
Acid Tartaric, powd. ....	carton, lb.	.60
Acid Trichloroacetic, deliquescent crystals.....	bottle, oz.	.45
Aconite Root .....	lb. 40c; ground, lb. 45c; powd., lb.	.50
Adeps Lanae Hydrosus—See Lanum.		
Alcohol, denatured .....	gal. \$0.95; 5 gal.	4.25
Alcohol, wood .....	gal.	1.20
Aloin .....	oz. 15c; ¼ lb. 40c; ½ lb. 75c; lb.	1.40
Alum, lump .....	lb.	.25
Alum, powdered .....	lb.	.27
.....	5 lb. \$1.20; 10 lb. \$2.30; 25 lb.	5.50
Alum burnt, powd. ....	lb.	.25
Ammonia Water U. S. P.....	gal. \$1.25; c. s. bottle, pt.	.35
Ammonia Water, stronger 26 per cent....	gal. jugs \$2.00; bottle, pt.	.45
Ammonium Benzoate .....	oz.	.25
Ammonium Bromide .....	oz. 10c; ¼ lb. 20c; ½ lb. 35c; lb.	.60
Ammonium Carbonate .....	tin or bottle, lb.	.50
Ammonium Chloride—		
Granular .....	lb.	.40
Powdered .....	lb.	.40
Ammonium Iodide .....	oz. 50c; ¼ lb. \$1.70; ½ lb. \$3.30; lb.	6.50
Ammonium Salicylate .....	lb.	1.05
Amyl Nitrite .....	sealed tubes, oz.	.45
Antimony, Black, powdered .....	lb.	.50
Antimony Chloride, Solution (Butter of Antimony).....	bottle lb.	.50
Antimony and Potassium Tartrate (Tartar Emetic).....	lb.	.70
Antipyrine .....	oz.	.30
Apiol Fluid, green .....	c. s. bottle, oz.	.25
Arnica Flowers .....	lb. 25c; ground, lb.	.35
Arsenic Iodide .....	oz.	.65
Atropine Sulphate .....	15 grain vials	.40
Balm Gilead Buds .....	lb. \$1.00; ground, lb.	1.10

Balsam Copaiba .....	bottle, lb.	1.10
Balsam Peru .....	bottle, $\frac{1}{4}$ lb. \$1.05; $\frac{1}{2}$ lb. \$2.05; lb.	4.00
Balsam Tolu .....	tin, lb.	1.00
Barium Chloride, pure .....	lb.	.40
Belladonna Leaves .....	powd., lb.	.45
Belladonna Root .....	ground, lb.	.45
Beta Naphthol, resub., medicinal.....	oz.	.20
Bismuth Salicylate, basic 64 per cent..	$\frac{1}{4}$ lb. 50c; $\frac{1}{2}$ lb. \$1.70; lb.	3.25
Bismuth Subcarbonate .....	$\frac{1}{4}$ lb. 80c; $\frac{1}{2}$ lb. \$1.55; lb.	3.00
Bismuth Subgallate .....	$\frac{1}{4}$ lb. 80c; $\frac{1}{2}$ lb. \$1.55; lb.	3.00
Bismuth Subnitrate .....	$\frac{1}{4}$ lb. 80c; $\frac{1}{2}$ lb. \$1.50; lb.	2.90
Berberis Aquifolium .....	lb. 40c; ground, lb. 45c; powd., lb.	.50
Black Haw, U. S. P.....	lb. 55c; ground, lb. 60c; powd., lb.	.65
Black Cohosh .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Blistering Flies, Chinese .....	powd., lb.	1.75
Blood Root .....	ground, lb. 30c; powd., lb.	.35
Blue Cohosh .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Blue Flag .....	lb. 70c; ground, lb. 75c; powd., lb.	.80
Blue Mass U. S. P. (Mass of Mercury).....	powd., lb.	1.00
Blue Vitriol—See Copper Sulphate.		
Blue Ointment—See Mercurial Ointment.		
Borax, powdered .....	lb.	.20
Borax, lump .....	lb.	.15
Bromine .....	g. s. bottle in can, oz.	.40
Bromoform .....	bottle, oz.	.30
Buchu .....	lb. \$2.25; ground, lb. \$2.30; powd., lb.	2.35
Buckthorn Bark .....	lb. 25c; ground, lb.	.30
Burdock Root .....	lb. 20c; ground, lb. 25c; powd., lb.	.30
Burdock Seed .....	lb. 35c; ground, lb.	.40
Caffeine, alkaloid .....	oz.	.60
Caffeine Citrated P-M Co.....	oz.	.50
Calamine .....	lb.	.55
Calcium Bromide .....	oz. 15c; $\frac{1}{4}$ lb. 30c; $\frac{1}{2}$ lb., 50c; lb.	.90
Calcium Carbonate, precip.....	lb.	.25
Calcium Chloride, fused .....	lb.	1.05
Calcium Chloride, granulated .....	bottle, lb.	.45
Calcium Hypophosphite .....	oz. 15c; lb.	1.10

Calcium Lactophosphate, soluble .....	oz.	.30
Calcium Phosphate, precip. ....	carton, lb.	.40
Calcium Sulphide .....	bottle, oz. 13c; lb.	.55
Calcium Sulphocarbolate .....	oz. 20c; lb.	.95
Calendula Flowers .....	ground, lb.	1.20
Calomel .....	lb.	1.25
Calomel, English (original package contains 1 lb.).....	lb.	1.95
Camphor—See Gum Camphor.		
Camphor Monobromated .....	oz.	.30
Cannabis American .....	ground, lb.	.65
Cantharides, Chinese—See Blistering Flies.		
Capsicum .....	ground, lb. 60c; powd., lb.	.65
Caramel (Burnt Sugar).....	lb.	.40
Caraway Seed .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Carbon Disulphide .....	lb.	.45
Cardamon Seed .....	lb. 95c; powd., lb.	1.00
Carmine No. 40 .....	oz.	.55
Cascara Sagrada, old.....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Castor Oil—See Oil Castor.		
Catnip .....	lb. 35c; ground, lb.	.40
Celery Seed .....	lb. 40c; ground, lb.	.45
Cerium Oxalate, powder .....	oz. 15c; $\frac{1}{4}$ lb.	.30
Chalk, prepared, Eng. drops—See Calcium Carb.		
Charcoal, Willow, powdered .....	lb.	.20
Cherry Bark, thin.....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Chloral Hydrate, crystal, s. c. bottle, oz. 20c; $\frac{1}{4}$ lb. 40c; $\frac{1}{2}$ lb. 75c; lb.		1.40
Chloroform, purified for anesthesia .....	c. s. bottle, lb.	.72
Merck .....	lb.	.72
P-W-R .....	lb.	.72
Mallinckrodt .....	lb.	.72
Squibb .....	lb.	1.35
Cinchona, red .....	lb. 40c; ground, lb. 45c; powd., lb.	.50
Cinchonidine Sulphate .....	bottle, oz.	1.05
Cinnamon .....	lb. 50c; ground, lb. 55c; powd., lb.	.60
Citrine Ointment (Ointment Mercuric Nitrate).....	per lb.	.85
Cloves .....	lb. 60c; ground, lb. 65c; powd., lb.	.70
Cocoa, Butter of.....	lb.	.75

Colchicum Root .....	lb. 35c; ground, lb.	.40
Colchicum Seed .....	lb. 45c.; ground, lb.	.50
Collodion, U. S. P.....	1 lb can	.55
Collodion, Flexible, U. S. P.....	1 lb. can	.65
Columbo .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Copper Acetate .....	lb.	.80
Copper Arsenite .....	oz.	.15
Copper Subacetate (Verdigris) Technical.....	lb.	Mkt.
Copper Sulphate (Blue Vitriol) .....	in 5-lb. lots, lb. 25c; lb.	.30
Copper Sulphate, granular .....	lb.	.35
Copperas—See Iron Sulphate.		
Coriander Seed .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Corrosive Sublimate .....	lb.	1.10
Couch Grass .....	lb.	.30
Cranesbill .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Cream Tartar—See Potassium Bitartrate.		
Creolin—Pearson's .....	c. s. bottle, lb.	.75
Creosote U. S. P.....	oz. 20c; ¼ lb. 25c; ½ lb. 45c; c. s. bottle, lb.	.85
Creosote Carbonate .....	c. s. bottle, oz.	.35
Cubeb Berries .....	lb. \$2.00; ground, lb.	2.10
Culver's Root .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Damiana Leaves .....	lb. 25c; ground, lb.	.30
Dandelion .....	lb 25c; ground, lb. 30c; powd., lb.	.35
Diastase .....	oz.	.40
Digitalis .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Elecampane .....	lb. 25c; ground, lb.	.30
Elm Bark .....	ground, lb. 45c; powd., lb.	.50
Epsom Salts—See Salts.		
Ergot .....	lb. \$2.10; ground, lb. \$2.15; powd., lb.	2.20
Ergotin .....	jar, oz.	1.00
Eserine Sulphate .....	1-grain vials	.20
Ether for Anesthesia .....	lb.	.45
Merck .....	lb.	.45
P-W-R .....	lb.	.45
Mallinckrodt .....	lb.	.45
Squibb .....	lb.	.95
Ethyl Chloride .....	40 Gm. tubes \$1.10; 80 Gm.	1.75
Eucalyptol .....	c. s. bottle, oz. 20c; ¼ pt. 50c; ½ pt. 90c; pt.	1.75
Eucalyptus Leaves .....	lb. 25c; ground, lb. 30c; powd., lb.	.35

# Chemicals

False Unicorn .....	ground, lb. 80c; powd., lb.	.85
Fenugreek .....	ground, lb. 15c; 5 lbs. at 14c; 10 lbs. at	.13
Flaxseed Meal .....	lb.	Mkt.
Formaldehyde, 40 per cent solution.....	pt.	.35
Fringe Tree Bark .....	lb. 50c; ground, lb. 55c; powd., lb.	.60
Fuller's Earth .....	lb.	.15
Gaduol .....	oz.	.40
Gelsemium .....	lb. 35c; ground, lb.	.40
Gentian .....	lb. 25c; ground, lb. 30c; powd., lb. 35c; 5 lbs. at	.30
Ginger, African .....	powd., lb.	.30
Ginger, Jamaica .....	lb. 90c; ground, lb. 95c; powd., lb.	1.00
Glycerine, chemically pure .....		
.....	pt. 40c; qt. 75c; 5 pts. \$1.50; gal (10½ lbs.)	2.70
50 lbs. at.....	gal.	2.60
Gold and Sodium Chloride .....	15-grain vials	.50
Golden Seal .....	powd., lb.	7.00
Grindelia Robusta .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Guaiacol, Liquid .....	oz.	.45
Guaiacol Carbonate .....	oz.	.45
Gum Aloes Curacao (gourd).....	lb. 25c; powd., lb.	.30
Gum Aloes, Socotrine .....	powd., lb.	.80
Gum Arabic .....	powd., lb.	.50
Gum Asafetida .....	lump, lb.	.70
Gum Benzoin, Sumatra .....	lb.	.60
Gum Camphor .....	1-oz. blocks, per lb.	1.20
Gum Euphorbium .....	powd., lb.	1.20
Gum Gamboge .....	powd., lb.	2.25
Gum Myrrh .....	lb. 90c; powd., lb.	.95
Gum Tragacanth, flake or powdered.....	lb.	4.00
Hellebore, white .....	powd., lb.	.35
Hemlock Bark .....	lb. 25c; ground, lb.	.30
Henbane .....	ground, lb.	.45
Homatropine Hydrobromide .....	5-grain vial	1.00
Hydrangea .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Hydrogen Peroxide .....	4 oz. bottle, doz.	1.10
	pt. 30c; 5 pts., \$1.25; gal.	1.75
Iodine, resublimed .....	oz. 50c; ¼ lb. \$1.60; ½ lb. \$3.05; lb.	5.95
Iodoform, powdered, U. S. P....	oz. 55c; ¼ lb. \$1.70; ½ lb. \$3.30; lb.	6.50

Iotone P-M Co.....	¾ oz.	.95
Ipecac .....	powd., oz. 30c; ¼ lb. 95c; lb.	3.50
Iron Citrate, soluble .....	oz. 20c; lb.	1.40
Iron Hypophosphite .....	oz.	.30
Iron Phosphate, soluble .....	oz. 20c; lb.	1.45
Iron Pyrophosphate .....	oz. 20c; lb.	1.50
Iron and Quinine Citrate .....	oz. 45c; lb.	5.10
Iron Subsulphate (Monsel's), powdered.....	¼ lb. 15c; ½ lb. 25c; lb.	.45
Iron Subsulphate, solution (Monsel's) .....	lb.	.35
Iron Sulphate, coml. ....	lb.	.05
U. S. P., crystals or granular.....	lb.	.15
Dried, powdered Technical .....	lb.	.10
Iron and Potassium Tartrate.....	oz. 25c; lb.	1.75
Jalap .....	ground, lb. 40c; powd., lb.	.45
Ladies' Slipper Root.....	lb. \$1.00; ground, lb. \$1.05; powd., lb.	1.10
Lanum Hydrous .....	lb. tin	.30
Lead Acetate, granular or powdered.....	lb.	.45
Lead Oxide, yellow—See Litharge.		
Licorice Root .....	lb. 25c; powd., lb.	.30
Lime Chlorinated .....	12 oz. can	.25
Litharge .....	lb.	.35
Lithium Benzoate .....	oz.	.30
Lithium Bromide .....	oz. 35c; ¼ lb. 75c; lb.	2.75
Lithium Carbonate .....	oz. 20c; ¼ lb. 60c; lb.	2.20
Lithium Citrate .....	oz. 30c; ¼ lb. 70c; lb.	2.60
Lithium Salicylate .....	oz. 25c; ¼ lb. 50c; lb.	1.80
Litmus Paper, Books, Red or Blue.....	each	.10
Lobelia Herb .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Lobelia Seed .....	lb. \$1.50; ground, lb. \$1.55; powd. lb.	1.60
Lunar Caustic, Sticks, No. 1.....	oz.	.85
No. 2 Sticks.....	oz.	.70
No. 3 Sticks.....	oz.	.60
Lycopodium .....	lb.	4.00
Magnesia, Calcined, light or heavy.....	lb.	1.10
Magnesium Carbonate .....	2-oz. blocks, per lb.	.45
Male Fern, Extract (Oleoresin) .....	oz.	.40

Mandrake .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Marshmallow .....	lb. 25c; powd., lb.	.30
Menthol Crystals .....	oz.	.75
Mercurial Ointment, Dilute (Blue Ointment), 33 $\frac{1}{3}$ per cent.....	lb.	1.00
Mercurial Ointment, 50 per cent.....	lb.	1.25
Mercury redistilled .....	lb.	1.65
Mercury Ammoniated (White precip.).....	lb.	1.75
Mercury Bi-chloride—See Corrosive Sublimate.		
Mercury Chloride—See Calomel.		
Mercury Iodide, Red (Biniodide).....	oz. 40c; lb.	4.60
Mercury Iodide, Yellow (Protiodide) .....	oz.	.40
Mercury Oleate, 25 per cent.....	oz.	.25
Mercury Oxide, Red (Red Precipitate).....	oz. 15c; lb.	1.45
Mercury Oxide, Yellow (Yellow Precipitate).....	lb.	2.85
Mercury Subsulphate (Turpeth Mineral) .....	oz.	.25
Mercury Sulphate Neutral (Bisulphate) .....	oz. 10c; lb.	.85
Mercury with Chalk.....	lb.	.95
Methylene Blue, medicinal .....	oz.	.50
Milk Sugar .....	lb.	.40
Mustard Seed, yellow .....	powd., lb.	.30
Naphthalin, flake or balls.....	lb. 35c; 5 lb. at	.33
Naphthalin, purified .....	oz.	.15
Naphthol, Beta—See Beta Naphthol.		
Nutgall, Aleppo .....	powd., lb.	.35
Nutmeg .....	lb. 40c; powd., lb.	.45
Nux Vomica .....	powd., lb.	.35
Orris Root .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Oxgall, U. S. P. Powdered Extract.....	oz.	.40
Pancreatin, U. S. P., powdered.....	oz.	.30
Papain .....	oz.	.45
Paraldehyde .....	oz.	.20
Paraffin .....	lb.	.15
Pepsin, U. S. P. 1/3000.....	oz.	.35
Pepsin Saccharated .....	lb.	1.25
Petrolatum, extra amber .....	5 lb. can 85c; lb.	.20
Petrolatum, white .....	5 lb. can \$1.00; lb.	.25
Pilocarpine Hydrochloride .....	.5 grains 35c; 10 grains	.65

Plaster Paris, dental.....	5 lb. can. 40c; paper lb.	.09
Pleurisy Root .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Podophyllin .....	oz.	.60
Poke Root .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Poplar Bark .....	powd., lb.	.25
Potassa, Caustic, white sticks.....	c. s. bottle, lb.	.55
Potassium Acetate .....	c. s. bottles, ½ lb. 40c; lb.	.70
Potassium Arsenite .....	oz.	.25
Potassium Bromide, crystals or granulated.....		
	bottles, ¼ lb. 15c; ½ lb. 25c; lb.	.45
	cartons, ¼ lb. 14c; ½ lb. 22c; lb.	.40
Potassium Bicarbonate, crystals .....	carton, lb.	.45
Potassium Bichromate .....	lb.	.65
Potassium Bitartrate .....	carton, lb.	.55
Potassium Carbonate (Salts Tartar).....	lb.	.35
Potassium Chlorate, crystals, powder or granular.....	lb.	.35
Potassium Citrate .....	¼ lb. 35c; ½ lb. 65c; lb.	1.20
Potassium Ferricyanide (Red Prussiate).....	lb.	.90
Potassium Hypophosphite .....	oz. 25c; lb.	1.40
Potassium Iodide, crystals or granular.....		
	oz. 35c; ¼ lb. \$1.05; ½ lb. \$2.00; lb.	3.95
Potassium Iodide, Saturated Solution .....	Mkt. Price	
Potassium Nitrate, gran. or powd.....	lb.	.30
	5 lb. at 29c; 10 lbs. at 28c; 25 lbs. at	.26
Potassium Permanganate, crystals .....	lb.	.45
Potassium Sulphate, powdered .....	lb.	.45
Potassium Sulphocarbolate .....	oz.	.20
Prickly Ash Bark .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Queen of the Meadow.....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Quinine Bisulphate .....	bottle, 1oz. \$1.15; 5 oz. can at	1.10
Quinine Hydrobromide .....	bottle, oz.	1.25
Quinine Salicylate .....	bottle, oz.	1.25
Quinine Sulphate .....	bottle, 1 oz. \$1.00; can, 5 oz. at	.95
Red Precipitate—See Mercury Oxide, Red.		
Rhubarb .....	ground, lb. 75c; powd., lb.	.80
Rhus Aromatica .....	ground, lb. 25c; powd., lb.	.30
Rosin .....	lb.	.10

Saccharine, soluble .....	oz.	.35
Salol .....	oz. 18c; ¼ lb. 40c; ½ lb. 75c; lb.	1.40
Salts, Epsom .....	1 lb. carton at 12c; 10 lb., lb.	.10
Salts, Epsom, pink .....	lb. 15c; 10 lb., lb.	.12
Salts, Rochelle, U. S. P.....	lb.	.45
Salts, Tartar—See Potassium Carbonate.		
Sal Soda, Technical .....	5 1-lb. lot 5c; lb.	.08
Santonin .....	oz. Mkt. Price	
Sarsaparilla Root .....	lb. 80c; ground, lb. 85c; powd., lb.	.90
Sassafras Root Bark .....	ground, lb. 50c; powd., lb.	.55
Scullcap .....	lb. 60c; ground, lb. 65c; powd., lb.	.70
Senega Root .....	powd., lb.	1.75
Senna Alexandria, Siftings.....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Serpentaria Root .....	ground, lb. \$1.75; powd., lb.	1.80
Silver Nitrate, crystals.....	oz.	.80
Fused—See Lunar Caustic.		
Skunk Cabbage .....	lb. 40c; ground, lb. 45c; powd., lb.	.50
Soap, Green, U. S. P.....	5 lb. can at 33c; lb.	.35
Soda, Caustic, white sticks.....	bottle, lb.	.50
Sodium Bicarbonate, powdered .....	lb. 14c; 5 lbs. at	.12
Purified, powdered .....	lb.	.22
Sodium Bromide, crystals or granulated.....		
	bottle, ¼ lb. 15c; ½ lb. 25c; lb.	.45
	carton, ¼ lb. 12c; ½ lb. 22c; lb.	.40
Sodium Carbonate, Monohydrated, U. S. P.....	carton, lb.	.25
Sodium Citrate .....	lb.	1.20
Sodium Hypophosphite .....	oz. 20c; lb.	1.30
Sodium Hyposulphite, small crystals or granulated.....		
	lb. 12c; 5 lb. at 11c; 10 lb. at	.10
	25 lbs. at 9½c; 50 lbs. at	.09
Sodium Iodide .....	bottle, oz. 45c; ¼ lb. \$1.35; lb.	5.10
Sodium Nitrate.....	lb. 25c; 5 lb. at 23c; 10 lbs. at 22c; 100 lbs. at	.20
Sodium Phosphate, crystals or granulated....	bottle, lb. 35c; can, lb.	.30
Sodium Salicylate .....	¼ lb. 20c; ½ lb. 35c; lb.	.65
Sodium Silicate, solution .....	lb.	.20
Sodium Succinate .....	lb.	1.50
Sodium Sulphite, crystals or dried powder.....	tir, lb.	.35

Sodium Sulphocarbolate .....	carton, oz. 10c; lb.	.60
Spikenard .....	lb. 45c; ground, lb. 50c; powd., lb.	.55
Squaw Vine .....	lb. 30c; ground, lb. 35c; powd., lb.	.40
Squills .....	ground, lb.	.35
Stillingia Root .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Stramonium Leaves .....	.25c; ground, lb. 30c; powd., lb.	.35
Strontium Bromide .....	lb.	.60
Strontium Lactate .....	oz.	.25
Strontium Salicylate .....	oz.	.20
Strychnine Alkaloid .....	$\frac{1}{8}$ oz.	.35
Strychnine Arsenate .....	$\frac{1}{8}$ oz.	.40
Strychnine Nitrate .....	$\frac{1}{8}$ oz.	.40
Strychnine Sulphate .....	$\frac{1}{8}$ oz.	.30
Sugar of Milk—See Milk Sugar.		
Sulphur Sublimed (Flowers) .....	5 lb. lots at 14c; lb.	.15
Sulphur Precipitated (Lac Sulphur).....	cartons, lb.	.50
Sulphur, washed .....	cartons, lb.	.25
Talcum Powder .....	lb.	.20
Tannin—See Acid Tannic.		
Tartar Emetic—See Antimony-Potassium Tartrate.		
Terebene .....	oz. 20c; lb.	1.35
Terpin Hydrate .....	oz. 12c; lb.	.95
Thymol .....	oz.	.60
Turpentine .....		Mkt.
Turpentine, Venice, artificial.....	lb.	.50
Unicorn Root .....	ground, lb. 80c; powd., lb.	.85
Uva Ursi .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Valerian, prime .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Verdigris—See Copper Subacetate.		
Wahoo Root Bark.....	ground, lb. \$1.00; powd., lb.	1.05
Water, Distilled .....	gal.	.40
Wax, Bees, white.....	lb.	.60
White Precipitate—See Mercury Ammoniated.		
Wild Indigo .....	ground, lb. 25c; powd., lb.	.30
Wild Yam .....	lb. 25c; ground, lb. 30c; powd., lb.	.35
Witch Hazel Leaves .....	ground, lb. 25c; powd., lb.	.30
Witch Hazel distilled extract .....	pt. 40c; 5 pts. \$1.40; gal.	2.00

Zinc Acetate .....	cartons, lb. 60c; bottle, lb.	.70
Zinc Carbonate, precip. ....	lb.	.70
Zinc Chloride, granular .....	oz. 16c; lb.	.85
Zinc Iodide .....	oz.	.50
Zinc Oxide, powder .....	lb.	.35
Zinc Phosphide .....	oz.	.35
Zinc Sulphate, crystal .....	lb.	.30
Zinc Sulphocarbolate .....	$\frac{1}{4}$ lb. 20c; $\frac{1}{2}$ lb. 35c; lb.	.60

## OILS

## Essential — Fixed

	Oz.	$\frac{1}{4}$ Lb.	Lb.
Almond, Bitter .....	\$1.00	....	....
Almond, Sweet .....	.15	\$0.40	\$1.25
Amber, rectified .....	.25	.70	2.50
Anise .....	.20	.45	1.50
Bay, true .....	.40	1.30	5.00
Bergamot, Synthetic .....	.45	1.40	4.80
Cade .....	.20	.50	1.80
Cajeput .....	.20	.45	1.40
Caraway .....	.35	1.05	3.75
Cassia .....	.30	.95	3.50
Castor—qt. 75c; 5 pts. \$1.75; gal. \$2.25; 5 gal. at \$2.10.			
Cedar Wood .....		....	.90
Citronella .....	.20	.45	1.40
Clove .....	.40	1.30	4.75
Cocoanut .....		....	.40
Cotton Seed, bleached.....gal. \$1.75			
Croton .....	.25	.65	2.25
Cubeb .....	1.00	....	....
Eucalyptus .....		.30	.95
Fennel Seed .....	.40	1.00	3.75
Geranium, Rose, Turkish .....	.65	2.35	9.00
Hemlock .....	.20	.50	1.75

Huilene, Mineral Oil—Pts. 35c; 5 pts. \$1.40; gal. \$1.75; 5 gal. at \$1.70.			
Huilene, Mineral Oil, Aromatic—Pts. 40c; 5 pts. \$1.65; gal. \$2.00; 5 gal. at \$1.90.			
Juniper Berries .....	.35	.60	4.00
Lavender Flowers, U. S. P.....	.60	2.00	7.00
Lavender, Garden .....	.20	.50	1.75
Lemon .....	.20	.50	1.75
Linseed, Raw .....	Market Price		
Mustard, artificial .....	.50	....	....
Nutmeg, essential .....	.25	.65	2.20
Olive, Imported—Qt. can \$1.00; ½ gal. can \$1.90; 1 gal. can \$3.50.			
Orange, Sweet .....	.50	1.60	6.00
Origanum Compound .....	....	....	.75
Pennyroyal .....	.35	1.10	4.00
Peppermint U. S. P.....	.40	1.20	4.25
Pimenta (Allspice) .....	.40	1.20	4.25
Pine Needles .....	.45	1.50	5.50
Pinus Pumilio .....	.65	2.35	9.00
Rose, true .....			
.¼ oz. \$2.00			
Rosemary Flowers .....	.20	.45	1.40
Sandalwood, East India.....	.90	....	....
Sassafras, Synthetic .....	....	.30	1.00
Savin, true .....	.75	....	....
Tansy .....	1.00	....	....
Tar .....			
gal. \$0.90			
Thuja .....	.25	.65	2.25
Turpentine, rectified .....	....	....	.50
Wintergreen, artificial (Methyl Salicylate).....	....	....	.85
Wormseed .....	.50	1.70	6.25
Wormwood .....	1.25	....	....









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