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LABORATORY SERVICE

PROVINCIAL BOARD OF HEALTH
OF ONTARIO



MAIN LABORATORIES---5 Queen's Park,
Toronto

BRANCH LABORATORIES---Queen's Uni-
versity, Kingston, Ontario

BRANCH LABORATORIES---Ottaway Ave.
and Waterloo St., London, Ontario

(Use of Branch Laboratories optional with practitioners.)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:

Printed and Published by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1917

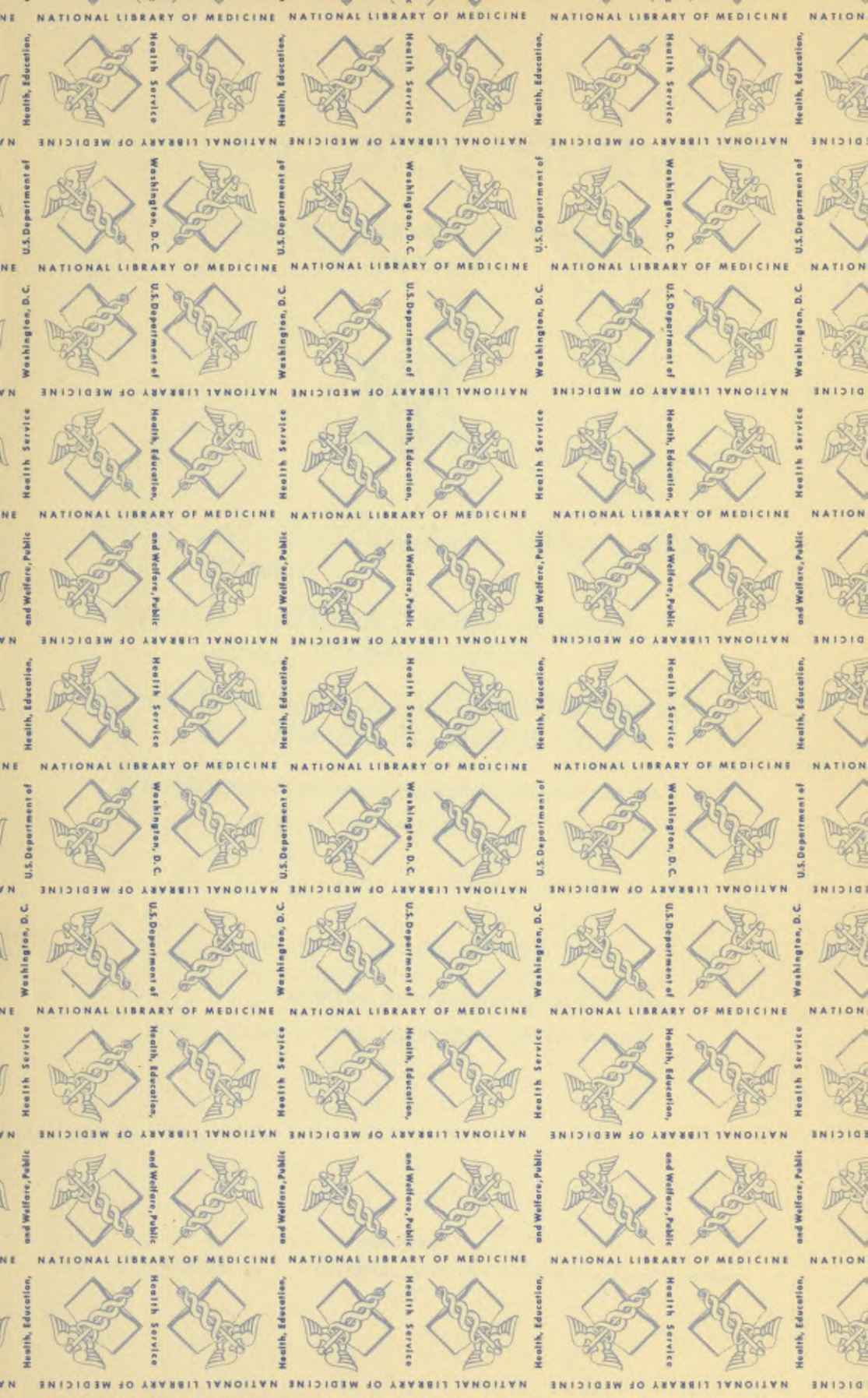
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TABLE OF CONTENTS

	PAGE
INTRODUCTION	3
FREE EXAMINATION OF SPECIMENS.	
Diphtheria	5
Tuberculosis	5
Typhoid Fever	6
Meningitis	6
Water	7
Sewage	7
Milk	7
Meat	8
Rabies	8
Antirax, Actinomycosis	8
Syphilis	9, 10
Gonorrhoea	10
FREE OUTFITS FOR SENDING SPECIMENS	12
BIOLOGICAL AND OTHER PRODUCTS (OBTAINABLE ONLY FROM MAIN LABORATORIES).	
Typhoid—Paratyphoid Vaccine	13
Pertussis Vaccine	15
Silver Nitrate for prevention of Ophthalmia Neonatorum	16
Pasteur Treatment for prevention of Rabies, administered at Main and Branch Laboratories	12

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INTRODUCTION

The Provincial Board of Health provides facilities in its laboratories at Toronto, Kingston and London for the free examination of specimens concerned with the control of communicable diseases. Diagnostic reports on Diphtheria, Tuberculosis, Typhoid Fever, Syphilis and Gonorrhoea are issued free of charge to the qualified medical practitioners of the province. Local boards of health are also given all possible assistance in controlling supplies of water and of milk, and in preventing the spread of diseases such as Rabies and Anthrax which may be transmitted from the lower animals to man.

In order to facilitate the sending of specimens, free outfits are provided at all three laboratories. These should be kept in supply by local boards of health, but may be obtained from the laboratories by physicians upon request.

Vaccines are proving useful weapons with which to combat some diseases, and consequently the distribution of such material is properly the work of a Public Health Laboratory.

The laboratories are not provided with funds for the payment of transportation charges on outfits, specimens or vaccines, but there is no charge for the outfits, for the examination, or for the vaccines and treatments described in this pamphlet.

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DIPHTHERIA DIAGNOSIS

DIRECTIONS FOR COLLECTING SPECIMENS.

(For description of outfits see page 12.)

The swabs and tube have been sterilized.

No local antiseptic application should be made for at least two hours previous to taking specimen. The patient's throat should be cleared of any adherent food particles, etc.

Rub the cotton swab gently but freely against any visible exudate, or pseudo-membrane or lesion in the throat or nose, revolving the swab between the fingers in such a manner as to bring all portions of the cotton in contact with it.

Use one swab for the throat, the other for the nose.

Return both swabs to the glass tube, and replace the cotton plug.

Fill out the data sheet provided, and enclose, with the tube, in the mailing case addressed to the Laboratory.

Direct smear examinations are made only on request. It is more satisfactory to wait for the culture to grow.

Reports are mailed to the physician on the day following the receipt of the swabs. The usual routine examinations of these specimens are carried on every day in the year. POSITIVE reports, in cases of DIAGNOSIS, are sent by telegraph, COLLECT, unless otherwise requested. Reports in cases of Release are sent by mail.

Reports state only the presence or absence of the bacilli in the swabs submitted. A positive result is especially useful. *A negative result does not demonstrate the absence of Diphtheria in the patient.* At best, a first swab does not likely catch more than 85 per cent. of the cases. A second or even a third swab may be necessary before a negative report can be taken as saying the case is not likely Diphtheria.

The early use of antitoxin is recommended in doubtful cases. Antitoxin should be given as a safeguard without waiting for the laboratory report.

TUBERCULOSIS

DIAGNOSIS OF TUBERCULOSIS. DIRECTIONS FOR COLLECTING SPUTUM.

(For description of outfits see page 12.)

Sputum should be collected in the bottle provided. Do not remove the solution of carbolic acid which it contains and avoid smearing the outside of the bottle or the stopper with infected material.

The expectoration discharged in the morning is to be preferred. If the expectoration be scanty, the entire amount discharged in twenty-four hours should be collected. Care should be taken that the contents of the stomach, particles of food, etc., are not discharged during the act of expectoration and collected instead

of pulmonary sputum. Purulent, cheesy and muco-purulent sputum most frequently contains the bacilli. Pure mucus, blood or saliva do not, as a rule, contain the bacilli. When hemorrhage has occurred, if possible, some muco-purulent sputum should be collected for the examination.

Place the carefully stoppered bottle in the mailing case, along with the filled out data sheet.

Reports are sent by post card, the reports of each day dealing with specimens received by the morning mail and the afternoon mail of the day previous.

A positive result is diagnostic of Tuberculosis. *When a negative result is obtained, if there is still reason to suspect Tuberculosis, repeated samples should be taken until satisfaction is obtained.*

The examination of sputum under the most favorable conditions entails considerable danger to the examiner while doing such laboratory investigation.

For the protection of those doing this work it has been decided that samples will not be examined unless submitted in tightly cork-stoppered, wide-mouth bottles, enclosed in proper boxes. Bottles with screw tin tops will not be received. No specimen will be examined if leaking from the bottle has occurred.

The examination of urine, spinal fluids, effusions and exudates for tubercle bacilli necessitates an animal inoculation. The final reports in such cases are, therefore, not completed until after a period of about three weeks has elapsed.

TYPHOID DIAGNOSIS—WIDAL REACTION

DIRECTIONS FOR TAKING SPECIMENS.

(For description of outfits see page 12.)

Cleanse the skin of the lobe of the ear avoiding the use of bichloride of mercury, carbolic acid, or other strong reagents. Soap and water followed by alcohol and ether is recommended.

Manipulate the lobe with the finger to render it hyperaemic. Prick the lobe deeply to insure a free issue of blood. A surgical needle or a pointed tenotome may be used for the puncture.

Touch the drop with the etched portion of the glass slide provided, and allow it to dry completely. Do not use heat to hasten the drying. Do not cover until it is dry.

Place the slide in the holder, secure it with rubber bands and enclose in the envelope, along with the filled out data sheet, giving the full name and address of sender.

Reports are sent by mail after twelve o'clock noon on specimens received that morning or the afternoon of the day before.

A positive result is nearly positive evidence of Typhoid Fever. A negative result does not demonstrate the absence of Typhoid. Additional specimens should be submitted, if symptoms continue suspicious. The Widal reaction is somewhat irregular in its appearance and persistence. It rarely appears during the first week of the attack and may continue for a few days or for years after recovery.

A successful inoculation with typhoid vaccine is usually followed by a positive Widal Reaction which persists for months.

Agglutination tests for paratyphoid will be made upon request.

MENINGITIS

EXAMINATION OF SPINAL FLUID.

At least 10 c.c. of fluid obtained by lumbar puncture should be sent to the laboratory in a sterilized test tube.

WATER

As only questionable results are obtained in the examination of water samples submitted in old containers which have been used previously for other purposes, it is well to begin by applying to the laboratories for special bottles. These are sent upon request by *express collect*. Instructions as to method of collecting samples are sent with the bottles.

The data cards to be filled out and returned with the specimens are used as an aid in interpretation of results and for statistical purposes.

The formal declaration before a commissioner is waived in cases where no municipal problems are involved, as for instance, in supplies for summer homes and in unorganized districts.

Where the municipality is concerned with investigations of this character, the collection of specimens should be under the direction of the local health authorities.

SEWAGE EFFLUENTS

The general precautions to be observed in sampling sewage effluents are the same as in sampling water. In obtaining representative samples from sewage disposal works, small samples may be taken at one hour intervals and stored in a half gallon bottle containing a few cubic centimetres of chloroform. The bottle should be shaken after each addition and kept in the ice box until shipped.

MILK

The Ontario Milk Act provides that the councils of municipalities may pass by-laws for the control of production and sale of milk, but it is stipulated that milk sold for human consumption shall contain at least 12 per cent. total solids of which at least 3 per cent. shall be butter fat. The fat standard is a very moderate one and may be increased if it is thought that better milk can be secured by so doing.

Every municipality should have a milk by-law and have laboratory control of the milk supply.

Our routine reports deal with percentage content of total solids and of butter fat, preservatives (all preservatives are prohibited for milk), dirt and bacteria.

Care must be taken in sampling to make sure that the body of milk from which the sample is to be taken is made homogeneous by stirring or by pouring immediately before the sample is taken. The laboratories will supply bottles upon request. In sampling bottled milks send the pint bottle as sold to the consumer.

Samples should be packed in ice, if possible, in order that they reach the laboratory before souring. If the milk is sour the determinations of solids and fats are more difficult but still possible. The bacteriological examinations of milks are of no value unless samples are in ice when they reach the laboratory. The bacteriological examination is valuable, but should not be relied upon for all purposes. For instance, if it is suspected that the cow is tubercular, have a veterinary apply the tuberculin test to the animal. Again, if circumstances indicate that a milk supply is responsible for an epidemic of typhoid fever, look to the condition of persons handling the milk. Widal examinations form a useful starting point in the detection of such carriers. The isolation of typhoid bacilli from the milk is

not a practical possibility for routine. The bacterial count is a valuable index of the efficiency of technique by which the pasteurization process is carried out. *Pasteurization is recommended as a safeguard for municipal supplies.*

Copy of a *Model* milk by-law may be obtained from the Provincial Board of Health, Parliament Buildings, Toronto.

MEAT

Laboratory examinations are particularly valuable in cases of Trichinosis, Actinomycosis, Tuberculosis and Carcinoma.

Specimens of meat suspected of being unsound should be delivered at the laboratories in as fresh a condition as possible. Packing in ice is essential, especially in the summer months.

RABIES

In the case of suspected Rabies, where human beings have been bitten, the animal should be captured alive, if possible, be detained in a place where it can do no harm, and be carefully watched for at least ten days. If affected with Rabies the animal may show typical symptoms within forty-eight hours, and die within a few days. It very rarely happens that there is complete recovery. If the animal dies, in order that causes of death other than Rabies may be excluded, material should be forwarded to the Laboratory for confirmatory diagnosis. The head should be removed from the body, wrapped in paper, packed in ice with straw or sawdust, and forwarded to the Laboratory. The package should be accompanied by all available information.

MILK

ACTINOMYCOSIS, ANTHRAX, ETC.

In suspected Actinomycosis, a small portion of the diseased tissue may be placed in a sterilized bottle, then packed in ice with sawdust.

In suspected Anthrax, a portion of the spleen or other organ, or blood, may be placed, without antiseptic, in a sterilized bottle, then packed in ice and sawdust. Mutilation of the carcass should be avoided as far as possible. If an examination is desired before the animal dies, dried blood smears on glass or paper may be sent to the laboratory.

PATHOLOGICAL SPECIMENS

MEDICO LEGAL INVESTIGATIONS.

The routine of a Public Health Laboratory does not properly include the examination of pathological specimens such as stomach contents, urine, suspected carcinoma, blood for cell-count, etc. If these are sent through misunderstanding, they are to be returned to the sender.

Medico legal work, including suspected poisoning, is not dealt with in these laboratories. Applications for analytical work of this character should be made to the Attorney-General's Department. In a private investigation, no action being taken by that department, it is necessary to consult analytical chemists outside the Government Service, and to pay the usual fee.

VENEREAL DISEASES

GENERAL AND SPECIFIC INFORMATION REGARDING LABORATORY INVESTIGATIONS MADE BY THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.

GENERAL INFORMATION.

The Provincial Board of Health has provided facilities in its Laboratories for the free examination of bloods and smears from primary lesions, for evidence of syphilitic infection and smears for evidence of gonococcal infection.

Such specimens are examined for and reported only to qualified physicians of this Province. The purpose of such examinations is to aid the physicians in making diagnoses as early as possible, in order to enhance the possibilities of effecting complete cure of disease in question.

All reports are sent by mail unless otherwise requested. Telegrams from the Laboratory are always sent *collect*. Specimens should be addressed to the laboratories and should be forwarded by express or post, prepaid.

More specific information is given on the following pages.

SYPHILIS—WASSERMANN REACTION.

Blood Serum Examination.

Special mailing cases and outfits will be supplied free of charge for the collection of such samples and for the transportation of same to the laboratories.



The collection of blood for the Wassermann reaction requires care but is not a serious operation.

Outfits may be obtained on application to Local Boards of Health or to the Laboratories.

These outfits consist of an outer container in which is placed a corked, sterile, glass tube for collecting the specimen. Inside the tube is a sterilized needle, wrapped in tissue paper, to be used in collecting blood from vein of forearm. Strict asepsis is necessary in collecting specimens.

The blood should fill three-quarters of the tube and tube should be slanted for one-half hour at room temperature to coagulate the blood.

When the specimen is coming any great distance to the laboratory, special delivery is advisable.

In the mailing case supplied, there is also a data sheet on which a number of questions are asked and on which more specific instructions regarding the collection of specimens are given in detail. These questions must be answered, otherwise no report will be forwarded.

Replies and reports are strictly confidential, being for statistical and laboratory purposes only.

GONORRHEAL DISCHARGE.

Examination of Smears.

Special mailing outfits will be supplied free of charge for the making of smears and for transportation of same to the laboratories. These may be obtained by application to Local Boards of Health or to the Laboratories.

The individual outfit consists of mailing envelope enclosing data circular and two glass slides enclosed in a wooden block.

Thin, evenly spread smears should be made from a drop of discharge, upon the slides submitted and then allowed to dry thoroughly in the air before placing slides back into the block previous to forwarding to the Laboratories.

On data sheet supplied in mailing envelope are a number of questions to be answered and also more specific instructions regarding the making of smears. These questions must be answered otherwise reports will not be forwarded.

Replies and reports are strictly confidential, being for statistical and laboratory purposes only.

A positive report signifies gonococcal infection. A negative report in practically all cases signifies absence of such, but when symptoms continue suspicious, additional specimens should be submitted.

SYPHILIS—PRIMARY LESIONS.

Examination of Smears for Spirochaetes (Treponema Pallida), (India Ink Method).

Special outfits and mailing cases are supplied free of charge for the making of smears from suspected primary syphilitic lesions and for transportation of such to the laboratories for examination. These may be obtained on application to Local Boards of Health or to the Laboratories.

The outfit supplied is enclosed in a small paste-board box and is composed of a mailing case envelope, a needle and a beeswax ampule containing India ink. The mailing envelope contains two glass slides enclosed in a wooden block also a data sheet on which are a number of questions to be answered and more specific instructions as to making smears.

Smears having been made by mixing a drop of ink (supplied in ampule which is punctured with needle also supplied) with a drop of serum from doubtful lesion, and allowed to dry in air, the slides are inserted in the block again and mailed to laboratory in the envelope. The box, needle and ampule may be discarded.

All questions must be answered otherwise no report will be sent. All information is strictly confidential and for statistical and laboratory purposes only.

A positive report signifies syphilitic infection and with such an early positive diagnosis the value of proper therapeutic measures is greatly enhanced. A negative report in the great majority of cases signifies absence of syphilitic infection but should case continue suspicious, further specimens should be forwarded as the organisms are at times extremely difficult to locate in smears, especially if very few in number. In such suspicious cases a Wassermann Test on blood should be tried at that time, and later if necessary.

As the Wassermann Reaction often does not become positive until the secondary stage of the disease has been reached it necessarily follows that this method of examination is extremely valuable in that it is an attempt at a much earlier positive diagnosis in the hope of getting earlier treatment and a more hopeful prognosis of case in question.

Again we wish to call the attention of the Physicians of the Province to the fact that the Laboratories of the Provincial Board of Health are in existence to help them in any way possible toward making early and correct diagnoses, so that patients may receive proper therapeutic measures early in disease thus producing a more favorable prognosis in many cases, and preventing contact or secondary cases.

OUTFITS FOR SENDING SPECIMENS

In order to facilitate the preparation of specimens for shipment, the department supplies free outfits, obtainable from the laboratories upon request. These outfits are sent by *express collect* from both the main and the branch laboratories. For places where there is no express office it is recommended that stamps be sent for mailing by parcel post.

DIPHTHERIA.—For suspected Diphtheritic exudate, each outfit consists of two sterilized swabs enclosed in a heavy glass tube contained in a mailing case addressed to the laboratory. These outfits are assembled for shipment in boxes containing six. The parcel postage on such a box of outfits is about ten cents.

SPUTUM.—For sending Sputum suspected of containing tubercle bacilli, there is provided a small wide mouth bottle with cork stopper, contained in a mailing case addressed to the laboratories. Boxes containing five such outfits are convenient for shipment from the laboratories. The parcel postage required is about ten cents.

TYPHOID.—The dried blood method is still the most practical method of sending in specimens for the Widal examination in cases of suspected typhoid fever. The outfit provided consists of a ground glass slide, placed in a block with a heavy paper envelope addressed to the laboratories. The stock box for shipment contains six of these units. Parcel postage is about eight cents.

SYPHILIS.—The collection of blood for the Wassermann reaction is not a serious or difficult operation. The outfit consists of a sterilized needle, sterilized test tube and mailing case. These will be supplied in any quantity desired.

The detection of early syphilitic infection will be greatly assisted if use is made of the outfit supplied for the preliminary preparation with India Ink smears in which the spirochaetes may be detected. It consists of two glass slides, an ampule containing India ink, a needle and mailing envelope ready addressed to the laboratories for return. These outfits are not assembled in any specific number for shipment but as many as required will be sent.

GONORRHEA.—For suspected gonorrhoeal exudate, two glass slides are provided in each outfit with facilities for mailing safely to the laboratories.

WATER AND SEWAGE.—Water bottles supplied are of two sizes—six ounce bottles for bacteriological examination and half gallon bottles for chemical analysis. The stoppers are held in place with rubber dam or oiled silk, secured by elastic bands. There are days when hundreds of these bottles are in demand for use of municipalities in controlling operations of water purification plants. For this reason an early return of bottles is requested. Boxes in which these are shipped, carry address of the laboratories in stencil which will be exposed when the shipping label is removed.

All outfits should be stocked by local boards of health, but may be obtained by physicians upon application to the laboratories.

PASTEUR TREATMENT FOR RABIES

The Pasteur treatment for prevention of rabies is advised in all cases where there has been exposure to this disease.

When a dog bites any person, the wound should be cauterized, preferably with concentrated nitric acid, and dressed. The dog should be securely tied or kept

where it can do no damage, for a period of ten days. If at the end of that time the animal appears able to eat and drink without difficulty, there is no danger from rabies and Pasteur treatment is unnecessary. If, however, the dog develops symptoms of Rabies and comes down with the disease, the diagnosis should be confirmed by the examination of the brain. But even when the microscope does not reveal the evidence of disease and the symptoms shown by the animal previous to death were strongly indicative of rabies, Pasteur treatment should be taken by all persons bitten.

There is also danger of infection in cases where persons with abrasions on the hands have been handling rabid animals.

If through any misunderstanding the dog is destroyed soon after biting, the head should be sent to the Laboratory, with a full history of the case. If the report of the microscopical examination is negative, the final diagnosis must be made from the symptoms shown by the animal.

It is not wise to risk complications that may follow the bite of an unknown or stray dog that escapes capture leaving no evidence by which it may be traced. Pasteur treatment should be taken in all such cases.

Applications for treatment should be accompanied by name, age, address of patient, and a description of the location and the severity of the bite. Usually it is possible to begin treatment the day following the notification that treatment is desired. There are slight modifications according to circumstances but in general, the treatment is given in a series of hypodermic injections, and it is necessary for the patient to appear daily at the laboratories for a period of three weeks. Severe reactions are rare and there is seldom any great interference with ordinary work. Patients coming from a distance should come prepared to stay for three weeks. If it is any saving to return home every day, the laboratory staff usually arrange appointments to suit the transportation time-table.

INOCULATION AGAINST TYPHOID AND PARATYPHOID FEVERS

NATURE OF THE VACCINE.—The vaccine consists of a suspension of dead typhoid and paratyphoid bacilli (Alpha and Beta). The latter organisms have been added in order to give protection against paratyphoid infection, which is not secured by the use of anti-typhoid vaccine. Experience has shown that a mixed vaccine of this nature will give adequate protection against both infections. Although Paratyphoid Fever is comparatively rare in this Province sufficient cases have been recorded to warrant this addition to the vaccine.

While the therapeutic value of the vaccine has not been established so that a definite pronouncement can be made, still its value in prophylaxis is unquestionable. It is not wise for those who have been inoculated to expose themselves unnecessarily to infection. Immunity is not absolute or permanent, and probably subject to a time limit of nine or twelve months.

Two strengths of vaccine are supplied and must be carefully used in accordance with the directions given.

SINGLE STRENGTH (1 c.c. contains 500 million bacilli) in bottles and ampules with yellow labels.

B. Typhosus	250 million.
B. Paratyphosus (Alpha)	125 million.
B. Paratyphosus (Beta)	125 million.

VACCINE OF THIS STRENGTH IS USED FOR BOTH FIRST AND SECOND INOCULATIONS. THE DOSE IS 1 c.c. FOR EACH INJECTION.

DOUBLE STRENGTH (1 c.c. contains 1,000 million dead bacilli) in bottles or ampules with white labels.

B. Typhosus	500 million.
B. Paratyphosus (Alpha)	250 million.
B. Paratyphosus (Beta)	250 million.

This is used only for the third or final inoculation. The dose is 1 c.c. Bottles are for the use of institutions or for physicians who are called upon to make several inoculations at one time. If more than ten persons are to be inoculated on the same day there is economy in using bottles.

INOCULATION AND DOSAGE.—The most satisfactory method of immunizing appears to be by three inoculations at intervals of one week. Thus an individual receiving first inoculation on a Tuesday will receive on the following Tuesday a second inoculation and will receive the final inoculation on Tuesday one week later.

As previously stated, vaccine of single strength (yellow label) is used for both first and second inoculations. The quantity injected is 1 c.c. on each occasion. The third inoculation is made with 1 c.c. of double strength vaccine (white label).

The following modification should be employed when immunizing children.

For children from 7 to 12 years	$\frac{1}{4}$ dose.
For children from 12 to 15 years	$\frac{1}{2}$ dose.
For children from 15 to 18 years	$\frac{2}{3}$ dose.

METHOD OF ADMINISTERING THE VACCINE.

FILLING THE SYRINGE.—First, the syringe must be boiled to ensure sterility. It must be allowed to cool before filling with vaccine. When using from ampule, shake well and then make a light file mark at base of neck of the ampule and break with the fingers. The ampule can be inverted over the needle without any danger of the vaccine escaping. The needle must always be kept below the level of the fluid while this is being withdrawn, thus avoiding the entrance of air into the syringe and allowing every drop to be removed from the capsule.

To remove vaccine from bottle, first shake well, then wipe the rubber cap thoroughly with iodine or carbolic acid, pierce the rubber with the needle, invert the bottle and withdraw required amount.

INSTRUCTIONS FOR MAKING INOCULATION. The most suitable site for the injection is into the subcutaneous tissue immediately below the collar bone. The injection must not be made deeply into the muscles. The area should first be thoroughly cleansed with soap and water, and then some antiseptic applied. Tr. Iodine diluted $\frac{1}{2}$ with alcohol is very suitable for this purpose. When many individuals are to be immunized at one time the previous preparations can be made by an assistant.

The syringe need not be sterilized between injections but the needle must be. It is advisable to have several needles and drop them as used into boiling water, thus preventing loss of time in sterilizing. The needles should always be of small calibre and sharp, then little objection will be raised to the injection. Then, too, the rubber caps on the bottles will not be perceptibly injured. When the latter have been seriously damaged by the use of large needles, the remaining contents should be discarded because of the possibility of infection.

CLINICAL SYMPTOMS RESULTING FROM INOCULATION.

LOCAL REACTION. In all cases a certain amount of redness and swelling occurs at the site of injection. This is quite transient, passing away within twenty-four to forty-eight hours.

GENERAL REACTION. This consists of malaise with slight rise of temperature and is usually quite transient.

THOSE INOCULATED SHOULD BE ADVISED TO REST FOR 24 HOURS AFTER THE INOCULATION. THIS WILL PREVENT SEVERE REACTIONS.

The vaccine should be stored in a cool, dark place.

Vaccine should not be used after the date stamped on the bottom of label.

This product, distributed only from the Toronto laboratory, is FREE for Public Health Use, NOT TO BE SOLD.

PERTUSSIS VACCINE

FOR PREVENTION AND CURE OF PERTUSSIS (WHOOPIING COUGH).

Pertussis vaccine is used as a prophylactic and therapeutic agent in pertussis. Evidence of the immunity incited by its use has been obtained both in man and lower animals. Although at present no definite statement of the value of the vaccine either as a cure or preventive can be made, the results obtained both in Europe and on this continent are sufficiently encouraging to warrant its use. It appears that as a preventive the vaccine is of value in controlling the spread of the disease. Reported experiences indicate that the use of the vaccine shortens the duration of the attack, decreases the frequency and severity of the paroxysms and of the vomiting and lessens the danger of complications.

The vaccine is injected with a sterile hypodermic syringe not too deeply into the subcutaneous tissue. The site of the inoculation should be cleansed with soap and water and disinfected with alcohol or tincture of iodine. Often in inoculating small children it is expedient to choose the back as a site for inoculation, to prevent the infection of the site from scratching.

Reactions following its use are rare. There may be slight local reactions, consisting of congestion, redness, swelling and tenderness, which disappear in twenty-four hours and are without significance. General reactions are only occasionally seen. They consist of varying degrees of systemic disturbances, general malaise and fever. These indicate that the interval between doses should be lengthened and the dose more gradually increased. The vaccine is put up for distribution in ampules and in rubber capped bottles. The latter are for the use of institutions and physicians requiring the vaccine in large quantities. Each cubic centimetre of the vaccine contains 1,000 million dead bacilli. The dosage is as follows:

PROPHYLACTIC USE.

Three injections are given, one every third day.

For children: first injection, $\frac{1}{2}$ cc.; second injection, 1 cc.; and third injection, 2 cc.

For adults: first injection, 1 cc.; second injection, 2 cc.; and third injection, 3 cc.

THERAPEUTIC USE.

Depending upon clinical symptoms, at least four or five injections are given, one every second or third day.

For children under one year: first injection, $\frac{1}{4}$ cc.; second injection, $\frac{1}{2}$ cc.; third injection, 1 cc.; fourth injection, $1\frac{1}{2}$ cc.; and fifth injection, 2 cc.

For children over one year and adults: first injection, $\frac{1}{2}$ cc.; second injection, 1 cc.; third injection, 2 cc.; and fourth injection, 2 cc.

This product, distributed only from the Toronto laboratory, is FREE for Public Health Use, NOT TO BE SOLD.

USE OF SILVER NITRATE (1% SOLUTION) FOR PREVENTION OF OPHTHALMIA NEONATORUM

It is important to note that this is not for treatment, but for *prevention*, as there is danger of serious infection in many cases of child-birth. As soon as the baby is born, carefully clean the eyelids with water that has been boiled, using a separate, clean, soft cloth or absorbent cotton for each eye. Wipe the brows and eyes from the nose outward, making no attempt to open the eyelids. Then separate the lids and drop two drops of the silver nitrate solution into each eye.



The wax of the ampule is somewhat brittle when cold, but there should be no difficulty from cracking if the ampule is brought to ordinary room temperature by the heat of a flame or of the hand immediately before use.

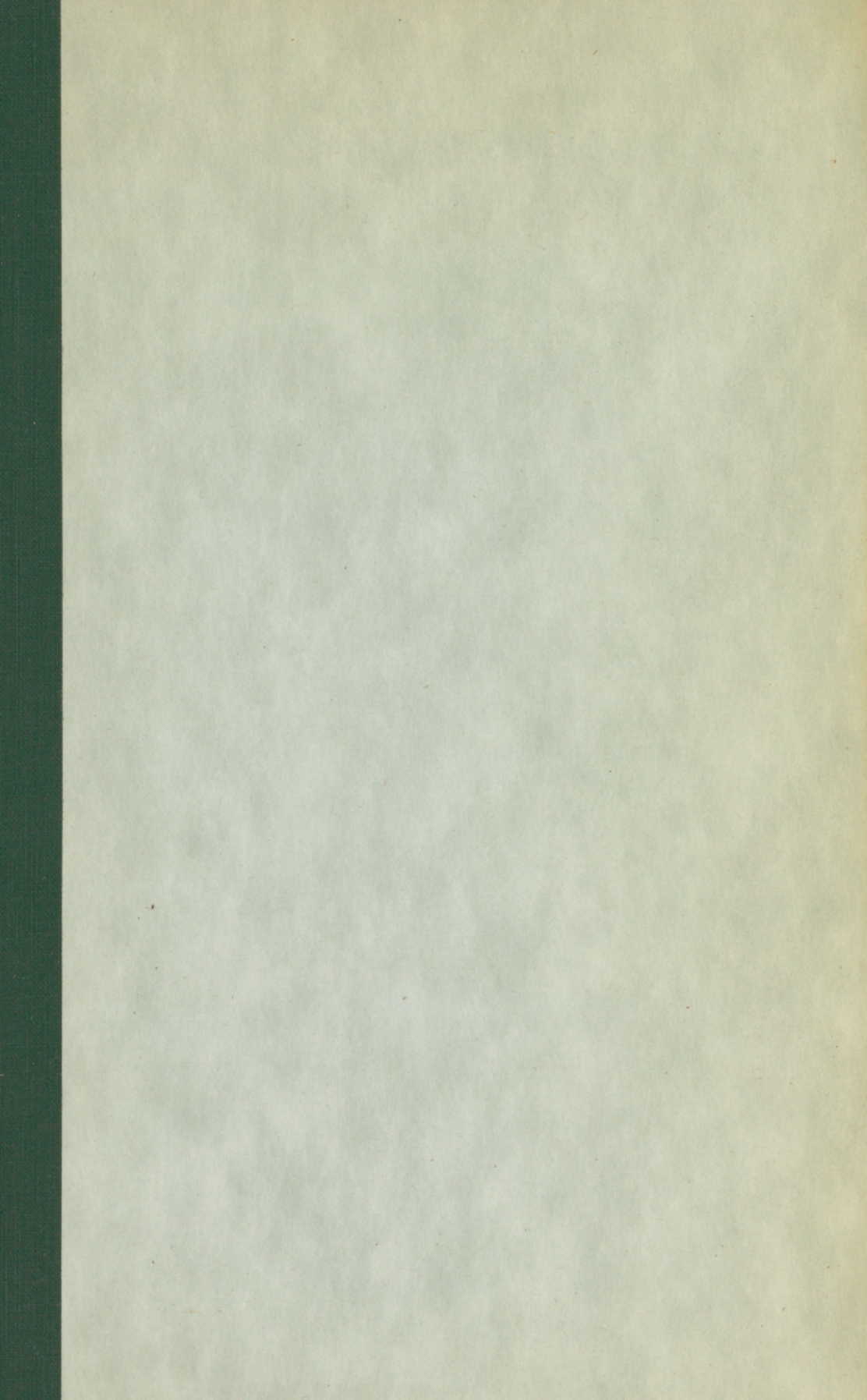
Pierce the tip of the ampule with the needle provided, as shown in the illustration. Then, holding between the thumb and first finger, apply gentle pressure against its sides. Drops of solution should issue from the opening as desired.

NOTE.—There is sometimes a slight discharge from the eye which is not dangerous. But if this discharge persists, it shows that the eye was infected previous to use of Silver Nitrate, and active treatment should be begun at once, as in such cases a few hours' delay may cause blindness.

This product, distributed only from the Toronto laboratory, is FREE for Public Health Use, NOT TO BE SOLD.

Ampules and needles are supplied in boxes containing five.





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