355-S-2 Vol. 5

355-5-2 Vol 5

LABORATORY OF HYGIENE

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

FILE NO. 355-S-2 CLOSED VOLUME 5

SUBJECT

DISEASES

STAPHYLOCOCCUS

(PHAGE TYPING, ETC.)

HF

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VOL. 5

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June 1st 1958 to March 31st 1960

REGISTRY SERVICES

DATE ~~Nov. 6, 1958~~

PER BJL

355-5-2

Laboratory of Hygiene
O T T A W A

March 31, 1960

Dr. Bohan Park,
Assistant Professor of Bacteriology,
Department of Bacteriology,
Chonnam University Medical School,
Kwangju, Chollanam-Do,
Republic of Korea.

Dear Dr. Park,

Under separate cover we are forwarding you lyophilized samples of the phages and propagating cultures requested in your letter of March 23, 1960.

Your inability in obtaining lysis with some of the phages that were shipped to you in July 1958 may be due to loss in viability of the least stable phages caused by extreme changes in temperature during shipment. Better luck this time with this new material and let us know of anymore difficulty.

Please note that phage '52AV' has been re-numbered phage 82 by the International Sub-committee and phage 70 has been discarded from the 'basic' set.

With kind regards,

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RC/PL

555-5-2

CHONNAM UNIVERSITY MEDICAL SCHOOL

KWANGJU, CHOLLANAM-DO

REPUBLIC OF KOREA

March 23, 1960

Dr. R. D. Comtois
National Staphylococcus
Phage Typing Centre
Department of National
Health and Welfare
Ottawa, Ontario
Canada

Dear Dr. Comtois:

I shall be very happy if I can expect your help for my study. I am working about the phage typing of Staphylococci which isolated from hospital. For this, I am using the typing phages which you sent me on the 2nd of July, 1958. But, unfortunately, among the typing phages, I can not get any plaques of the phages, 52, 52A, 79, 70, 73, 75, 77, 42D and 52AV, even though I have exactly manipulated according to your suggestion. And also, the 2 kinds of propagating cultures, F/56A and H/6415, do not grow, too. I think, may be, these phages and propagating cultures would be die. So, if I can, I am really expecting to get again the above 9 kinds of phages and 2 kinds of propagating cultures from you.

With kindest personal regards,

Sincerely yours,

Bohan Park

Bohan Park, M.D.
Assistant Professor
of Bacteriology
Department of Bacteriology

I hoped March 31, 1960.

RDC

555-5-2

s.19(1)

Laboratory of Hygiene,
O t t a w a.

A I R M A I L

March 28, 1960.

Dr. L.S. Grant,
Pathology Department,
U.C.W.I.,
Kingston 7, Jamaica, W.I.

Dear Doctor Grant:

We are quite active in the field of staphylococcus typing now and shall be happy to type your strains for you. Don't tell me you have a staphylococcal problem in your hospital too? The people in Barbados say its no problem there(!)

It is indeed a long time since I visited Jamaica - [redacted] - and I have heard of the great developments that have been taking place there. The medical faculty at U.C.W.I. must have been a tremendous stimulus to you and the whole medical profession in the Island. I was down in the W.I. this winter but spent the whole time (8 weeks) [redacted] Unfortunately the plane did not stop in Jamaica or I would certainly have looked you up.

With kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2 P.A.

FACULTAD DE MEDICINA

INSTITUTO DE HIGIENE

"PROF. ARNOLDO BERTA"

DIRECCION POSTAL:
INSTITUTO DE HIGIENE
AV. A. RICALDONI 3051
MONTEVIDEO - URUGUAY

Montevideo, March 25, 1960.-

Dr. James Gibbard,
Director of the Laboratory of Hygiene,
Department of National Health and Welfare,
Otawa - Canada.-

Dear Dr. Gibbard:

Thank you for your letter November 12, I apologize for not having answered sooner but the letter remained at the Institute during the summer holidays.-

Your information about phage typing of Staphylococcus has been valuable for us. About the mettods and phages for the Vi typhoid typing Dr. Desranleau refered me to Colindale.-

Sincerely,

Haydeé Cantoni de Anzalone

Dra. Haydeé Cantoni de Anzalone
Ayudante de Investigación del Instituto
de Higiene

UNIVERSITY COLLEGE OF THE WEST INDIES

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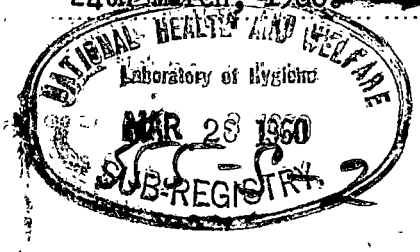
Pathology Departm
MONA ST. AND
JAMAICA. W.I.

OUR REFERENCE ISG/sl.

24th March, 1960.



Dr. E.T. Bynoe,
National Laboratory of
Hygiene Ottawa,
Ontario,
Canada.

Dear Dr. Bynoe,

It's many years since we last had the pleasure of meeting you here and since then there have been many changes and advances especially at the University College. It would be nice if you would visit us again sometime in the near future.

I write to ask if you could help us by doing phage typing on about 50 Staph. Coagulase positive cultures which we are doing as part of our Epidemiological Survey of Staph. infection and cross infection in the University College Hospital.

We are in no hurry for the results and would appreciate your help.

With best wishes,

Yours very sincerely,

L. S. Grant.

BY AIR MAIL

AIR LETTER

IF ANYTHING IS ENCLOSED
THIS LETTER WILL BE SENT
BY ORDINARY MAIL

DR. E.T. BYNOE,

NATIONAL LABORATORY OF
HYGIENE OTTAWA,
ONTARIO,

CANADA.

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Second fold here

To open cut here

Sender's Name and Address:—

DR. L. S. GRANT,
PATHOLOGY DEPARTMENT,
U.C.W.I.,
KINGSTON 7,
JAMAICA W.I.

000013

UNIVERSITY OF SASKATCHEWAN

DEPARTMENT OF BACTERIOLOGY

SASKATOON, CANADA

March 22, 1960.

Dr. R. D. Comtois,
Laboratory of Hygiene,
Department of Health & Welfare,
OTTAWA, Canada.

Dear Dr.Comtois:

I am engaged in research on Staphylococcus aureus. My interest has centred largely on the role of capsules in the virulence of the organism. Our work has progressed to the stage where we have no difficulty in demonstrating capsules in a large number of our strains. We have devised a virulence test using intravenous inoculation of 13 day-old embryonated hens' eggs. This test gives promise of showing differences in virulence between strains of S. aureus. whose source is given below:

601828	Wound M	infected suture
" 1829	RLM	egg passage of a strain from a staphylococcal pneumonia
" 1830	204 M	blood culture
" 1831	203 M	lung swab
" 1832	206 M	peritoneal fluid
" 1833	LIS	fatal pneumonia following influenza
" 1834	P. 81	propagating strain for phage 81
" 1835	Jones	fatal septicemia
" 1836	Boil	severe boil on hand
" 1837	WP_2	egg passage of infected suture strain
" 1838	41 N	nasal carrier (nurse)
" 1839	62 N	nasal carrier (nurse)

All of the strains are encapsulated and undergo capsular swelling reactions. The first five strains were rendered mucoid in the lab by passage in casámino acids glycerol broth. The other strains are naturally occurring encapsulated strains. The virulence of these twelve strains ranges from an LD_{50} of 1100 organisms for the Wound M strain to an LD_{50} of 350,000 organisms for the 62 N nasal carrier strain.

I would like very much to know what phage types these strains represent. I would sincerely appreciate any help you might give me in this regard. The organisms should arrive under separate cover. They are growing on nutrient agar slants.

Very sincerely,

Cultures rec. March 25/60

Bill B. Wiley

Dr. B. Wiley,
Assistant Professor,
Bacteriology Department.

BW:mf.

555-5-2

Laboratory of Hygiene,
O t t a w a.

March 17th, 1960.

Dr. L.P. Lansdown,
Director of Laboratory Services,
Dept. of Health and Public Welfare,
WINNIPEG, Manitoba.

Dear Doctor Lansdown:

After receiving your letter of March 10th, Mr. Comtois retested our dried strains of phages 29 and 29A and their reactions on their propagating strains. In every instance only typical results were obtained as follows:

phage 29 lyses both PS 29 and PS 29A
phage 29A lyses only PS 29A
phages 80 and 81 gave inhibition with PS 29
phage 81 lyses PS 29A
phage 80 shows no lysis with PS 29A

We therefore cannot explain your discrepant results. We have, however, as you requested sent you fresh supplies of phage 29 and PS 29 and PS 29A.

I hope you will have no further difficulties.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

BTB/md

355-3-2

Laboratory of Hygiene,
O t t a w a.

March 17, 1960.

Dr. R.E.O. Williams,
Director,
Staphylococcus Reference Laboratory,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9 England

Dear Robert:

Because of apparent discrepancies with some of our phages in the recent comparative typing trial we requested new stocks of PS 29A, PS 47 and phages 52, 52A, 80 and 73. We received these from Dr. Asheshov on March 9 with the comments that "all group 1 phages give a 3 reaction on PS 47 and all except phage 79 give reactions on PS 29A varying between a 3 and a 4".

We have obtained some very disturbing results. We added 1 ml. of trypticase soy broth to each of the phages 52, 52A and 80 as received and spotted them directly on the newly received strains PS 29A and PS 47. Results were:

	Phages 52	52A	80	(Colindale-dried)
PS 29A (Colindale)	-	-	-	
PS 29A (L.H.)	-	-	-	
PS 47 (Colindale)	-	-	-	
PS 47 (L.H.)	-	-	-	

This complete lack of lysis appears to indicate only one thing to us, viz. that our test medium is unsatisfactory, for we could in no way have altered the reaction of your phages since we did not attempt to propagate them before testing. It is possible that the titre of the dried phages was too low to give definite lysis on the strains tested. We will now propagate these phages to secure

.....

a good titre, re-test with our standard typing medium and modifications of it to see whether we can not duplicate your findings.

With reference to your letter of February 23rd, we shall be very happy to run your new phage 75 along with the older one in our routine tests and will let you know what we find.

Re your 15th March letter. Your plan of preparing large stocks of the typing phages seems an excellent one and we shall send you promptly around 3 ml of the concentrated suspensions of our routine typing phages together with their propagating strains. While this helps you, we shall also be most interested in knowing what results you get with our phages.

We have also just received your letter of March 10 and proposed outline of "Standard" methods. After Comtois and I have had a chance to review it, we shall send you our comments.

It sounds like you have had a busy winter. [redacted] Winter is still on us over here.

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph. D.,
Chief,
Bacteriological Laboratories

ETB/md

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON N.W.9
Cables: DEFENDER, NORPHONE, LONDON

15th March 1960

Ref: 208

Dear Ted,

We are considering the possibility of preparing a very large batch of each of the typing phages to serve as a standard which might be tested for lytic spectrum in parallel with each new batch of phage that will be prepared. This would mean that one had a sample of the standard phage as one's reference point for the lytic spectrum rather than the record of the average of past propagations and it should be much easier to sort out the reason for any discrepancies that turn up. Before we do this we should like to be sure that the basic set phages that we are using correspond pretty closely to those used in a number of other laboratories and I am therefore writing to four or five laboratories of which you are one to ask whether you could send us a sample of each of your basic set phages and of the propagating strains that you are now using. If possible we should like to have enough of the phage to use without the need for further propagation in doing our comparative tests. We should be very grateful for your help.

Yours ever,

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

Shipped March 23/60

RDC

3 ml of 9.
PS in stab culture.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON

6

-016-

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000019

PUBLIC HEALTH LABORATORY SERVICE

(Directed by the Medical Research Council for the Ministry of Health)

355-S-2

Telephone: COLINDALE 7041 (8 Lines)
Telegrams: DEFENDER, NORPHONE, LONDON

CENTRAL PUBLIC HEALTH LABORATORY,
COLINDALE AVENUE,
LONDON, N.W.9.

10th March 1960

Dear Ted,

During the last year or two the number of laboratories engaged in phage typing of staphylococci has increased considerably and as you will have seen from the journals there is an indication that some commercial laboratories may be interesting themselves in the production of phage. For these reasons it seemed to us that there was a case for publishing a fairly detailed statement on the recommended methods for propagation and testing of typing phages and for their use in routine type identification of staphylococci. The enclosed draft was prepared jointly by us in consultation at Colindale during January of this year. We would propose that it might be submitted for publication in some widely read scientific journal.

We should therefore like to have any comments on the technique described in the statement and also to have your agreement as a member of the Committee to the publication of the statement in substantially the form presented (with any amendments that seem agreeable to the majority of the Committee).

In large part the technique described in the paper is that which has been standard now for some years. We have, however, taken the opportunity to introduce a few small modifications on which we should like your agreement. These concern particularly the list of phages recommended for general use and also the list of strains recommended for testing the phages.

At the meeting of the Committee in Stockholm we discussed at some length the possibility of omitting phage 73 from the typing set. At the time Professor Charlotte Ruys felt that this phage should be retained but in conversation with her subsequently it seems that she may now be prepared to abandon this view. Phage 73 has never been an easy one to prepare and in our experience it very rarely lyses strains that are otherwise untypable. We would like to propose therefore that phage 73 be removed from the basic typing set and transferred to the set of "additional phages".

At Stockholm it was decided not to include phage 81 in the basic typing set because of the wide overlap of this phage's activity with that of phage 80. Nevertheless we know that many laboratories have included 81 in their routine typing set and we should like to have the opinion of the Committee as to whether this ought to be included as a "basic set" phage.

We should like to propose a very great reduction in the list of "additional phages". The maintenance of these phages and their supply to other laboratories requires a considerable amount of work and analyses that we have done on the last 10,000 strains typed at Colindale suggest that only 7 or 8 of them are of any appreciable value to us. These are phages 42B, 47C, 52B, 69, 78, (83 and 83A). 83 is the number given to Dr. Blair's phage VA4 in the form at present being circulated from the Hospital for Joint Diseases and used in the United States. A strain of phage 83 which was sent to Colindale in 1953 appears to be somewhat different from the strain now in circulation in the United States, but has proved to be extremely valuable in

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typing what is clearly a widespread epidemic strain circulating in the United Kingdom at present. We propose that this phage should be called 83A. (It has been circulated from Colindale to a small number of laboratories during the last few months under the number 83.)

We propose that the other phages hitherto available as additional phages for use in pools should now be withdrawn and relegated to the Colindale museum from which they would only be issued to laboratories making a very special case for their supply.

The list of strains recommended for testing the phages' lytic spectra as set out in our draft paper has been modified slightly from that which was suggested for discussion at the Stockholm meeting so as to use as far as possible the propagating strains of the current basic set phages, thus doing away with the necessity of holding more than the minimum number of special testing strains.

We feel that if the statement on phage typing techniques is to be of value it is desirable that it should be published as soon as possible and we would therefore be very grateful if we could have your comments as a matter of some urgency. If we do not hear from you before the end of April 1960 we shall assume that you agree with the suggestions set out in the statement and in this letter. We should be glad if you could address any comments that you may have to Dr. Williams at Colindale.

Yours sincerely,

J.E. Blair

R.E.O. Williams

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

PHAGE TYPING OF STAPHYLOCOCCI

A STATEMENT PREPARED ON BEHALF OF THE INTERNATIONAL COMMITTEE ON PHAGE TYPING OF STAPHYLOCOCCI *

Introduction

The wide adoption of phage typing for the characterization of coagulase-positive staphylococci in public health and hospital laboratories makes it highly desirable to have a common basis upon which an intelligent comparison of the results reported by those laboratories can be made. This goal can be approached only if all laboratories employ those reagents and procedures which have been demonstrated to be the most acceptable. Of fundamental importance are the test methods by which the suitability of the phages for typing is determined. It is the purpose here to describe in some detail the procedures for propagating and testing the phages and for typing, to indicate those which are regarded as essential, and to point out the limits of any permissible deviations.

The propagation methods to be described are designed primarily for the large scale production of phage and for the testing of phage so prepared. The production of phage in bulk (e.g. 500 ml.) has a distinct advantage over its preparation on a small scale: once a suitable preparation is obtained, the stability of the phage assures a uniform source of supply for many months, and the tedious task of determining the lytic spectrum (essential for each new batch) is reduced to a minimum. It is now the practice in certain countries for central laboratories to produce the phages in bulk and to distribute sets of phages to co-operating laboratories for routine use and there are indications that the typing phages may be made available eventually by some commercial manufacturers. The full complement of control tests is essential for every batch of phage prepared on a large scale. The individual laboratory which purchases commercially prepared phages should require evidence from the manufacturer that the testing requirements for bulk preparations have been satisfied in every detail. When laboratories have to prepare the phages for their own use and propose to use them within their own institution some tests may be modified in certain details, as will be mentioned below.

Regardless of whether phages are obtained from a central distributing laboratory, from a commercial manufacturer, or are prepared for local use on a small scale, the individual laboratory has the responsibility of performing certain tests on the phages before they are used for typing. The laboratory must determine the routine test dilution of each phage by titration against the specific strain used for its propagation; this requires that a distributing laboratory or a commercial manufacturer shall provide proper test strains together with the phages. The laboratory must also check the potency and stability of the routine test dilutions by frequent tests.

Phages Used

There would be a distinct advantage in the use of a set of phages each of which is type-specific in the sense that it would lyse only a single type of staphylococcus and no other. Naturally-occurring, type-specific phages are not common, nor has it been possible to produce from a single parent staphylococcal phage a series of specifically adapted phages such as were derived from the typhoid Vi phage II. Most strains of staphylococci, therefore, must be characterized by "pattern reactions" which represent susceptibility of the strains to various combinations of the typing phages. The number of patterns that are observed in the course of routine typing of staphylococci is large and it may be questioned whether each pattern actually represents a different "type" of staphylococcus. It would be impracticable to attempt to employ a very large series of phages for routine typing.

* This statement was prepared by Dr. J.E. Blair (Hospital for Joint Diseases, New York 35), Chairman of the Committee and Dr. R.E.O. Williams (Staphylococcus Reference Laboratory, Colindale, London, N.W.9), Secretary, with the collaboration of Elizabeth H. Asheshov and M. Patricia Jevons.

/over

The typing phages are temperate phages and are potentially liable to some variation. While variation of the phages should not ordinarily occur when they are handled according to accepted methods, the chance that it might occur is always present. For this reason detailed tests of the host range (lytic spectrum) of each new batch of phage are necessary to detect either a variation or a contamination. It is most inadvisable to substitute a new strain of staphylococcus for any one of the established propagating strains. To do so is to risk a modification of the typing phage.

A relatively small, conveniently handled, set of phages has been found to be adequate for the identification of the majority of strains of staphylococci. For this purpose a set of 19 "basic" phages was selected by the International Subcommittee at its meeting in Rome in 1953, and this set was extended to include 21 basic phages when the Committee met in Stockholm in 1958. The set of basic phages has been selected so that, as far as possible, all strains of staphylococci are lysed by at least one phage, and yet the phages are sufficiently specific so that relatively few strains are lysed by many of them.

The International Subcommittee now recommends that a set of 20 basic phages should be the minimum number used for routine typing. These are:

Group I	29, 52, 52A, 79, 80
Group II	3A, 3B, 3C, 55, 71
Group III	6, 7, 42E, 47, 53, 54, 75, 77
Group IV	42D
Miscellaneous	187

There is no objection to the use by the individual laboratory of such additional phages as may be found to be useful locally, e.g. some of the additional phages listed below. However, it is recommended that all publications which report the results of phage typing there should include a list of all phages employed.

Under certain circumstances strains which do not react with the routine series of typing phages at 1000 x R.T.D. may be tested with a group of additional phages. The phages available are: 42B, 47C, 52B, 69, 73, 78, 81, 83, 83A (phage 81 is already widely used). If desired, they may be combined into pools, each phage in a pool being present at its R.T.D. Since only a very small proportion of cultures are typable with these extra phages when not typable with the basic set the results do not appear to justify the added burden of attempting to maintain them in the average laboratory. It is recommended that the extra phages be restricted to central reference laboratories where they may be used for special studies.

It may be noted here that the propagating strains are identified by the same numbers used to designate the phages. Thus, "PS 29" is used for the propagation of phage 29, "PS 52" for the propagation of phage 52, and so on. Both phages 52A and 79 are propagated on "PS 52A/79".

"Screening" of cultures by typing with a selected few of the phages rather than the entire series cannot be recommended. Although a strain of a particular type is known to predominate in a given epidemiologic situation, screening for that type alone does not permit the detection of other strains of potential significance. Moreover, the establishment of a strain as, for example, type 52A/79 demands not only the demonstration of specific lysis but also the absence of lysis by other phages.

Culture Media

In general any good nutrient media can be employed for phage propagation and typing. Dehydrated media such as Difco "Bacto" nutrient broth, B.B.L. trypticase soy broth, and Oxoid nutrient broth, and solid media prepared from these, have all been widely used with success. Alternatively good nutrient broth prepared from fresh meat is satisfactory.

The phages require calcium ions for adsorption to or growth in the cocci; broth media used for propagation are best enriched with 400 micrograms per ml. calcium chloride. Media containing agar do not usually require additional calcium. Recent

observations at Colindale suggest that even a slight excess heating of the medium in preparation may "bind" the calcium in some way so that there is insufficient available for the more calcium-dependent phages. This defect can be rectified by the addition of calcium (400 µg./ml.) but since the resulting agar may be slightly cloudy it seems better not to add the calcium unless it is found to be necessary.

Solid media for propagation and typing should be kept rather soft to facilitate the recognition of small phage plaques. 1-1.2% shred agar is usually quite sufficient and care should be taken not to dry the plates more than enough to remove surface moisture.

Each batch of medium should be tested for suitability for typing before use; this can be readily accomplished by setting up a plate of the new medium in comparison with the old by the method used for routine testing of the working phages, as described below (p. 6).

Propagation

There are basically two different methods for propagating the phages: in liquid medium (broth) and on the surface of solid medium. Broth propagation is undoubtedly the simpler method and can be used with most of the basic set typing phages, yielding phage titres between 5×10^8 and 1×10^{10} particles per ml., corresponding to routine test dilution (R.T.D.) levels between 1/5000 and 1/100,000. However where higher titres are required and also in particular with some of the typing phages (see Table 1) propagation on solid medium is preferable; it can be used as an alternative to broth propagation for all phages.

Several methods for propagation on solid medium have been described - the soft agar layer method (Swanstrom and Adams, 1951), the freeze and thaw method (Williams and Rippon, 1952), the cellophane method (Liu, 1958) and a surface method described recently by Zierdt (1959). These different methods have been compared recently and the details will be published elsewhere (Asheshov, in preparation); of the four methods, the soft agar layer method is the easiest to perform and yields the highest titre phage preparation.

Culture and Phage

Stock cultures and phages should be used as the starting material for the propagation of each new batch. It is important that both the propagating strains and phages should be maintained in some stable form and freeze-drying is most suitable for this purpose. It is advisable, therefore, for laboratories undertaking phage propagation to dry the propagating strains and some of their first batch of each of the typing phages and to use this as starting material for all subsequent propagations. Laboratories with no facilities for freeze-drying should preserve a number of small samples of their first batch of each phage in the liquid state at +4°C. Cultures of the staphylococci may be preserved in agar stab cultures. The practice of propagating phage serially from batch to batch should be avoided since it entails dangers of propagating mutations and modifications of the phages.

The propagating strain is first subcultured from the freeze-dried ampoule or agar stab to a blood agar plate. A single colony is picked for use and the phage pattern is checked, using the phages of the basic set at R.T.D. and 1000 x R.T.D. The phage pattern of the propagating strain should conform to its standard pattern as given in Table 2. Any marked deviation in the typing pattern suggests that the strain has undergone modification and, since the typing phages are very liable to undergo host-induced modification, a change in the propagating strain may be reflected in a change in the phage propagated on that strain; such propagating strains should therefore not be used.

Titration of Phage

Before propagation is commenced, the titre of the phage has to be measured to indicate the dose of phage to be added to the propagation medium. The dried phage is suspended in 1.0 ml. of broth; this or a fluid stock is diluted in 10-fold steps to 1/1,000,000; one 0.02 ml. drop of each dilution is then applied to the surface of an agar plate previously spread with the propagating strain and the plate is incubated at 30°C. overnight. Separate pipettes must be used for each dilution. The plate is

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examined the following day and the phage titre and the routine test dilution (R.T.D.) are determined. The R.T.D. is the highest dilution that just fails to give confluent lysis (see Fig. 1). Nearly-confluent lysis is preferred to confluent lysis for defining the R.T.D. because it is more exactly determined; confluent lysis can be produced by all phage dilutions up to a certain point, while nearly-confluent lysis is produced only in one narrow range of dilutions. Where none of the 10-fold dilutions tested gives the required phage concentration for R.T.D., simple interpolation may be used (see Fig. 1). In reading titrations, secondary growth of staphylococci developing in the titration drop area is ignored. The concentration of phage sufficient to give nearly-confluent lysis varies somewhat depending on the plaque size of the particular phage but lies between 5×10^4 and 2×10^5 particles per ml. The phage concentration required for confluent lysis is about 2 to 10 times greater than that required to produce the R.T.D. as defined above.

Propagation in Liquid Medium

The optimal phage/culture ratio varies slightly with different phages but a standard procedure, which gives satisfactory results with most of the phages, consists in adding an overnight broth culture of the propagating strain to the medium to give a final dilution of 1/100; phage is then added to give a final dilution equivalent to 1 x R.T.D. The mixtures are incubated at 37°C., preferably with shaking, for 6 hr.

When little phage is available for propagation it may be helpful to use the phage present in a lysed area of the plate that has been used for the preliminary titration. The agar of one or more of the drop areas showing confluent lysis is cut out and added to the broth, together with a small amount of the young culture from the plate.

Immediately after incubation the lysate is centrifuged and the supernatant taken off and titrated by spotting serial 10-fold dilutions on a plate spread with the propagating strain. The suspension is then stored overnight at +4°C. and if the titre is sufficiently high it is filtered and retitrated. The filtrate is then distributed into sterile screw-cap bottles which are kept at +4°C. without preservative.

Titres of 10^9 - 10^{10} phage particles per ml., corresponding to R.T.D. of 1/10,000 to 1/100,000 should be obtained by this method; ordinarily filtrates with R.T.D. lower than 1/1,000 are discarded.

Propagation in Soft-agar Layers

Six-inch (15 cm.) Petri dishes containing nutrient agar to a depth of about 5 mm. are used. Nutrient broth containing 0.5% fibre agar and 400 ug./ml. of $CaCl_2$ is prepared and cooled to 45°C. A log-phase broth culture or the growth from an overnight agar slope culture of the propagating strain is added to the melted agar to give a final concentration of $2 - 5 \times 10^7$ cells/ml. followed by phage in a concentration sufficient to produce nearly-confluent lysis after overnight incubation. This concentration will vary somewhat with the different phages, between 10^4 and 10^5 particles per ml. of soft agar. After mixing, 7.5 - 10 ml. of the mixture is transferred to the surface of the agar plate. The plates are incubated for 18 hr.; the optimal incubation temperature varies with the phage, some yielding higher titres when incubated at 37°C. while others give best results at 30°C. (see Table 1). After incubation 20 ml. of broth is added to each plate. The soft agar layer is removed with a sterile bent glass rod and both agar and broth are taken off. The agar lumps are broken up by rapid pipetting or shaking and the mixture is then centrifuged. The supernatant is removed, titrated and stored overnight at 4°C. If the titre is sufficiently high the lysate is filtered the following day and retitrated after filtration.

It is undesirable to carry out more than two serial propagations from the stock material. Provided the medium and inoculum are satisfactory it is found that high titre phage lysates can be prepared directly from the freeze-dried stock material.

Sterilization of Lysates

It is not sufficient to rely on lysis by the phage to produce a lysate free from staphylococci, nor is it satisfactory to attempt removal of the staphylococci by centrifugation. Cocci remaining in a lysate can liberate their carried phage, or may adsorb some of the specific phage and lower the titre. Sterilization is best achieved by filtration and any bacteriological filter capable of removing bacteria without

adsorbing too much phage can be used. Sintered glass ("5/3") filters appear to be the best. Berkefeld candles and membrane filters are satisfactory in that they do not absorb phage but difficulty may be experienced in obtaining sterile filtrates. Seitz filters are good for sterilization but tend to adsorb too much phage.

Sterilization of phage lysates by chemical means has been widely used, but generally has the disadvantage that there is some residual bactericidal effect in the strong lysate.

Testing of Phage Filtrates

The proper testing of new batches of phage filtrates is probably the most important part in the production of typing materials. Staphylococcus typing phages are very liable to undergo host-induced modifications so that alteration in the propagating strain used may have a profound effect on the phage produced. And almost all the propagating strains of staphylococci are themselves lysogenic, so that there is always a risk that the phages from the propagating strain may be present in significant concentration in the final lysate. The fact that the types of staphylococci are determined by pattern reactions makes it important that the typing phages should conform with the standard in their minor as well as their major reactions.

The standard testing routine comprises three phases:- (1) the preliminary titration to determine the R.T.D., carried out by the method given on page 3, (2) the comparison of the "lytic spectrum" of the phage - i.e. its lytic activity on a defined range of staphylococci - with that regarded as standard for the particular phage, and (3) the routine testing of the diluted phage in use for typing to verify that its titre remains adequate.

Determination of Lytic Spectrum

The lytic spectrum is determined by testing the phage against a set of standard test strains (see below, Table 4) and is carried out to detect any possible mutations or modifications which may have occurred during propagation. The 15 test strains are chosen to distinguish between phages having similar lytic spectra.

A stock filtrate having a R.T.D. higher than 1/10,000 is diluted to a concentration 10,000 times stronger than that of the R.T.D. before testing; so that a filtrate with a R.T.D. of 1/100,000 is diluted 10-fold. This eliminates many "inhibitory effects" and reduces the subsequent number of titrations. Stock filtrates having a R.T.D. of 1/10,000 or less are tested undiluted. Testing is carried out on the same agar medium as is used for routine typing and plates are incubated for the same time and at the same temperature as routine typing plates.

The phage in the concentration just mentioned is first tested against all 15 test strains ("L.S.1") and is subsequently titrated on those strains that give any degree of lysis or inhibition ("L.S.2") (see Fig. 2). The titre on each strain is compared with that on the homologous propagating strain and recorded as below:-

5 = maximum titre (i.e. on homologous propagating strain)
4 = 10^{-1} - 10^{-2} of titre on the propagating strain
3 = 10^{-3} - 10^{-4} " " " " "
2 = 10^{-5} - 10^{-6} " " " " "
1 = very weak lysis

High titre phages may inhibit the growth of many of the strains when used undiluted, but produce no discrete plaques when diluted. In some cases the inhibition may simulate confluent lysis but generally it appears as a thinning of the growth in the drop area. Such reactions are recorded as '0' on Tables 3 and 4.

In general the appearance of a grade 3, 4 or 5 reaction where none should exist, or the complete absence of such a reaction where one should exist, is an indication for rejection of a batch of phage. Variations of grade 4 to 5, 3 to 4, etc., and loss or gain of a grade 1 reaction are permissible. Before rejecting a batch of phage it is, of course, necessary to be certain that it is not one of the indicator strains of staphylococci that is at fault.

An example of the lytic spectrum of phage 47 is given in Table 3 and the standard spectra for the typing phages appear in Table 4.

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Experiments are at present in progress to discover whether it would be practicable to prepare samples of a 'standard' phage which could be tested in parallel with any new batch of phage. The lytic spectrum of the new batch would then have to conform with that of the standard tested at the same time and on the same cultures and there would be less need for the sometimes difficult comparison with the recorded results of previous tests.

The testing routine described is necessarily somewhat complex if possible variations in the typing phage, with consequent differences in the typing patterns reported, are to be recognized. It may be emphasized, however, that by the use of either of the propagation methods described it is possible to prepare large batches of phage and that almost all of the typing phages are sufficiently stable to be stored in the fluid state for at least 2-3 years before use. With batches of this size, even an elaborate testing scheme should not prove too onerous.

Where phage is prepared centrally for distribution to several laboratories it is important that no step in the testing scheme is omitted. A hospital preparing phage simply for its own use could consider the use of a single dilution (e.g. R.T.D.) for estimation of the lytic spectrum. Even for laboratories that do not have to distribute phage, it seems preferable to make relatively large batches and carry out the full testing.

Routine Testing

The phages for routine use are diluted in broth and should be checked during use by spotting on their propagating strains. A fresh dilution should be made when nearly-confluent lysis is no longer produced. It may be found convenient to prepare a stock of phage at 100 x R.T.D. from which working phage can readily be made as required. Phages at R.T.D. should never be used for periods of longer than 7 days without checking. All phage filtrates should be stored at about +4°C.

Typing Technique

Routine Test Dilution

The technique of titration and the criterion for determination of the routine test dilution have been described above. The routine test dilutions are stored at +4°C. and are tested for potency at least once a week. This is accomplished by spotting a drop of the test dilution of each phage on a small area on an agar plate seeded from a 4- to 5-hour broth culture of its propagating strain.

A test dilution is satisfactory for typing as long as the spot test shows nearly-confluent lysis. When nearly-confluent lysis no longer is produced, the dilution is discarded and a fresh dilution is made from the stock phage; its potency is confirmed by a spot test before it is placed in the set of dilutions used for typing. A test dilution should not be used for typing unless it has been spot-checked within at least 7 days just prior to typing. The routine test dilutions of the majority of phages usually remain satisfactory for typing from 4 to 6 weeks and sometimes longer. However, the stability of the test dilution of any given phage is not predictable, and frequent periodic checks of the test dilutions of all phages are essential.

Typing

The typing phages under discussion are designed for the examination of staphylococci from human sources or closely related environmental sources. While bovine strains are susceptible to these phages, most strains from other animal species are not; all must be examined with phages derived specifically for use with the appropriate animal strains of staphylococci.

Only pure cultures of coagulase-positive staphylococci should be submitted to typing; coagulase-negative strains are not susceptible to these phages. The cultures should be obtained by fishing from one or more well isolated colonies according to the established practice of the individual laboratory. Impure or mixed cultures should not be submitted to a central laboratory for typing for the usual work load of the central laboratory precludes the added burden of purifying cultures.

Cultures always are typed first with the phages at R.T.D. They are submitted to further testing only when no significant lysis is produced by any phage of the typing series at R.T.D.

One standard 9-cm. agar plate is used for each culture to be typed. The agar should be free of surface moisture.

When the phages are applied individually by hand, rulings in the form of a grid of 25 or more squares on the bottom of the plate greatly facilitate both the application of the phage dilutions to the plate and the orientation of the phages when the lytic reactions are read subsequently. The grid may be etched permanently on the plate, ruled with a glass-marking pencil, or applied with a rubber stamp. Alternatively, a template containing the grid may be placed beneath the plate as a guide when the phages are applied.

Cultures to be typed are inoculated into broth and incubated at 37°C. for 4 to 5 hours, or sufficiently long to produce distinct turbidity. When cultures of this age are used, the broth usually is inoculated in the forenoon and the typings are set up in the afternoon. If the work load is so large that typing must be started in the forenoon, the broth cultures may be prepared on the previous day. Broth cultures incubated at 37°C. for 16-18 hours have been found to be satisfactory to seed the plates. Alternatively, the cultures may be incubated at 37°C. for 4-5 hours, held in the refrigerator overnight, and reincubated for about 30 minutes just prior to inoculation of the plates. The aim is to produce on the surface of the agar a uniform lawn of staphylococcal growth which supplies an adequate substrate for phage action but is not so heavy as to obscure the plaques.

The plates are inoculated either by (a) flooding the surface of the agar with 1-2 ml. of the broth culture and drawing off the excess with a pipette, or (b) by spreading the inoculum evenly over the entire surface of the agar with a swab that has been moistened thoroughly with the broth culture. The plates are then allowed to dry at room temperature; on plates that have been previously freed adequately of surface moisture the inoculum should dry within 10 to 30 minutes.

The phages are then applied to the seeded plate, a small drop of the routine test dilution of each phage being placed over the centre of a ruled square. The phages are always placed on the plates in an established sequence so that each square corresponds to a particular phage. Pasteur pipettes drawn out to a fine tip or 1 ml. syringes equipped with 27-gauge needles are used to apply the phages. The drops should be touched off on the agar and care should be taken not to touch the agar with the tip of the pipette or needle. Touching the agar may transfer staphylococci from one plate to the next and result in the appearance of plaques of non-specific lysis by phage that is harboured by the cocci so transferred; usually plaques of non-specific lysis are few in number and are distributed irregularly over the area of the drop.

When the drops of phage have dried the plates are incubated at 30°C. for 18 hours. Alternatively, they may be incubated at 37°C. for 4-6 hours and then held at room temperature overnight. The plates should not be incubated continusouly at 37°C. overnight since heavy growth of the staphylococci tends to obscure the phage plaques.

Several mechanical devices have been proposed for the simultaneous application of all the phages to the plate. These devices offer several advantages over the application of the phages individually by hand. There is a considerable saving of time (especially important when many cultures are typed daily); there is no risk of carrying over contaminants or staphylococci from one plate to the next, with, in the latter case, the consequent possibility of non-specific lysis due to phage harboured by the contaminating staphylococcus; and there is no need for specially ruled plates.

Two such devices are "multiple-loop" applicators devised by Tarr (1958) and Lidwell (1959), which simultaneously deposit 3 mm. loopfuls of each phage preparation on the previously seeded plate by means of wire loops carried on a horizontal arm. An applicator devised by Goldberg (personal communication) consists of steel pins set in concentric circles in a plastic disk 3 inches in diameter. The phages are transferred on the pins from an appropriate receptacle to the surface of the uninoculated plate; after the phage drops have dried the plate is seeded by flooding the surface with a broth culture and drawing off the excess with a pipette. Other devices for application of the phage are doubtless practicable.

If a culture cannot be characterized by a pattern of significant reactions when typed at R.T.D. it may be retested with the same phages in stronger concentrations or

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submitted to a wider range of phages. The former alternative is the more successful. Cultures which show no significant lysis or which are not lysed in any degree by any phage of the typing series when typed at R.T.D. are retyped with more concentrated phage preparations. The dilution recommended for this purpose is 1000 times stronger than R.T.D.; this implies that with phages of relatively low titre, it may be necessary to retype at 1:10 or even undiluted.

As was mentioned above, retyping with the "extra" phages should be restricted to central reference laboratories where these phages should be used only for special studies. Lysis by any of these phages is to be reported only when a lytic pattern is not obtained with any phage of the regular typing series, either at R.T.D. or at 1000 x R.T.D.

Reading and Reporting of Results

The plates are examined by indirectly transmitted light against a dark background with the aid of a hand lens of moderate magnification.

When strains are typed at R.T.D., susceptibility to the phages is indicated by varying degrees of lysis, from a few discrete plaques to completely confluent lysis which coincides with the area of the phage drop. Secondary phage-resistant growth may occur in the area of confluent lysis. Similar reactions ranging from discrete plaques to confluent lysis are also produced when strains are typed at 1000 x R.T.D. In addition, the more concentrated phages may produce a reaction of "inhibition" which sometimes is difficult to distinguish from secondary growth due to phage-resistant cocci. Its appearance frequently is that of a somewhat translucent film or "veil", covering the area of the drop or a distinct thinning of the growth in the area (Fig. 4).

When certain phages of high titre are spotted on some strains of staphylococci they may produce an inhibitory effect which is represented by clearing in the drop area entirely like the confluent lysis which results from true phage action. This effect and inhibition which simulates confluent lysis with secondary growth can be distinguished from true lysis by titration of the phage against the inhibited strain; no plaques will be produced in any dilution if the reaction is one of inhibition but plaques will occur in some dilution if the reaction is one of lysis.

The degree of lysis observed both at R.T.D. and at 1000 x R.T.D. are entered in the laboratory records by the following symbols:

++	50 or more plaques; semiconfluent lysis; confluent lysis (with or without secondary growth)
+	20 to 50 plaques
±	less than 20 plaques

Reactions of inhibition which are encountered with the phages at 1000 x R.T.D. are recorded as:

( )	strong inhibition without visible superimposed plaques
(++), (+), (±)	strong inhibition with superimposed plaques, the relative number of plaques being indicated by + signs
in	lesser degrees of inhibition, especially a moderate thinning of growth in the area of the phage drop

Reporting of Results

All lytic reactions from 50 plaques to complete confluent lysis are regarded as "strong" reactions. Lesser degree of lysis are considered as "weak" reactions.

The results of phage typing of a strain is reported in terms of those phages which produce strong lysis of the strain, i.e., the phages which produce reactions of any degree from 50 plaques to confluent lysis. This is the "phage pattern" of the strain, sometimes referred to as the "type". The pattern usually is reported in a form such as : 52/52A/80, or 6/47/53/54/77, or 71. In some laboratories it is the practice when making a report to indicate the presence of weak reactions by placing a + sign after the pattern of significant lysis, e.g. 6/47/53/77+. In some instances it may be useful to append to the report a list of those phages which produced the weak lysis.

always done. Use example on Table 1 and 2

Individual cultures of the same strain, especially those of a set from presumably related sources, may exhibit some slight differences of pattern. When the results of typing of strains isolated in an epidemiologic study are reported it is often helpful to indicate those cultures that are considered to be the same. The criteria by which the probable identity of strains is determined are described below.

When strains are retyped at 1000 x R.T.D. the pattern also is reported in terms of those phages which produce from 50 plaques to confluent lysis. Lesser degrees of lysis and reactions of inhibition are disregarded. The report may well include a notation that the reactions were obtained with concentrated phages but not with the routine test dilution. In exceptional cases when only a pattern of inhibitory reactions occurs the pattern may be reported in terms of inhibition by the phages.

Interpretation

For the most part, the activity of a phage belonging to one of the broad phage groups is restricted to its appearance in patterns with some of the other phages of the same group. Exceptions occur, and patterns are encountered that are composed of phages in more than one group. This crossing of reactions occurs most frequently among the phages of Groups I and III.

Most of the coagulase-positive staphylococci can be separated into four principal groups which correspond to the broad subdivisions of the phages. A certain proportion, variously reported at from 1 to 10 per cent, show patterns which involve phages of Groups I and III, even at R.T.D. Exceptional strains may exhibit patterns composed of phages of several groups.

The assignment of staphylococci to broad groups is not sufficient to demonstrate distinctions between individual strains, especially for purposes of epidemiologic study. The finer distinction that is necessary for their differentiation is obtained by a comparison of the individual phage patterns which they exhibit. The patterns that are encountered in routine typing are numerous, and there is considerable overlap between patterns because essentially any phage may appear in combinations with others to form the patterns. It is therefore the usual practice to characterize each individual culture in terms of its particular phage pattern; customarily this is done by listing those phages which produce strong lysis of the culture. While the term, "type", often is used to refer to a phage pattern - e.g. "type 75/77" or "type 3B/30/55" - it should be recognized that this is only a convenient designation of the lytic reaction and has no present taxonomic significance.

The validity of phage typing as a means of identification depends closely upon the stability of the phage pattern. Detailed studies have shown that the phage pattern of a given strain is, in fact, essentially stable. However, some variation is likely to occur in the phage patterns of a set of presumably related cultures, the degree of variation between the several patterns tending to increase with the remoteness of the individual cultures from their probable common source. Thus the basic phage pattern of a strain is reproducible in replicate cultures with, at the most, only minor differences from the pattern of the parent strain. This is usually true also of cultures of the same strain isolated at the same time from different sites in one individual. In an acute epidemic of relatively brief duration, such as might occur in an obstetrical unit or on a surgical ward, or in an outbreak of food-poisoning, the several cultures of the responsible strain isolated from the patients usually show only slight variations in their phage patterns. However, when an epidemic is prolonged and when the responsible strain is transmitted successively through a series of infected patients or healthy carriers, the several isolates of the strain may tend to show greater variations from the pattern of the original parent strain. To reduce the chance of variations due to different batches of culture media or other environmental conditions, it is advisable, whenever possible, to type all cultures of a related set on the same day.

Many sets of strains present no special problems of interpretation, for identical cultures can be recognized by their identical or closely similar phage patterns, while distinct differences between the patterns serve to distinguish the unrelated cultures. The chief problems of interpretation arise among cultures, usually those of a set that are presumed to be related, which exhibit patterns that are rather similar but which nevertheless do not show complete correspondence. Often these differences are represented by one or two strong reactions which are present in certain patterns of

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the set but are absent from the others. When such differences occur in the patterns of presumably related cultures it becomes necessary to decide whether the divergence is sufficient to indicate that the cultures are different or whether the resemblance is close enough to suggest that they probably are related.

As a working guide to the interpretation of such patterns, when typing is done at R.T.D. two cultures are considered to be different when one is lysed strongly by at least two phages which produce no lysis of the other to any degree; a difference of only one strong reaction may be shown by related cultures and always should be interpreted with caution (Table 5). These criteria are based upon the variations that are known to occur. While they have proved to be useful in many laboratories, they must be regarded only as a rough guide and they are subject to modification under certain circumstances. For example, although only the strong reactions usually are considered as significant to the phage pattern, two presumably related strains may be regarded as probably identical when the pattern of one exhibits some weak reactions by phages that produce strong lysis of the other. A difference of two strong reactions occasionally can be interpreted rather liberally, but only when knowledge of the history and source of the cultures strongly suggests that they probably are related.

When cultures are retested with the more concentrated phages, e.g. at 1000 x R.T.D., the criteria mentioned above may be applied if the reactions are those of strong lysis. Often the concentrated preperations produce a number of weak reactions of less than 50 plaques or reactions of inhibition, which are not reproducible enough to be useful. It is therefore necessary to interpret conservatively the results obtained with the more concentrated phages; it is advisable to give weight only to the strong reactions of 50 plaques and to disregard all lesser degrees of reaction. Occasionally a reaction of inhibition may provide the only indication of susceptibility to the phages. In such a case, identical patterns of inhibition may serve to identify related strains; the report should indicate that the probable relationship is assumed on this basis.

Supply of Phages

At the meeting of the International Committee on Phage Typing of Staphylococci held at Stockholm in 1958 (the minutes of which have been published in the International Bulletin for Bacteriological Taxonomy 1959) it was agreed that the Staphylococcus Reference Laboratory, Public Health Laboratory Service, Colindale, London, N.W.9, England, should serve as the International Staphylococcus Reference Laboratory and should be responsible for the supply of typing phages, propagating strains and test strains to National Laboratories throughout the world. It was envisaged that in each country a laboratory carrying out phage typing for public health workers would be recognized as the National Laboratory and would be prepared to distribute material to other laboratories in that country. Representatives of the National Laboratories constitute the International Phage Typing Committee. A list of the members of the Committee is appended to this Report. The supply of materials to workers in other countries is a function of the Staphylococcus Reference Laboratory at Colindale.

In several parts of this Report we have emphasized the advantages to be gained by bulk production of phages and their distribution to laboratories undertaking phage typing as compared with the propagation of the phages in each separate laboratory. In the United Kingdom this function is undertaken by the Public Health Laboratory Service; and in the United States arrangements are made for the bulk production of phage by the Communicable Disease Center for use in a number of State Health Laboratories which serve as Regional Typing Laboratories.

Legends for figures

1. Titration of phage filtrates. In A the R.T.D. is the 4th dilution, in B it would be interpolated between the 4th and 5th dilution.

2. Determination of lytic spectrum. A. Determination of L.S.1, [a key to the strains will be provided in the final version]. B. Titration for L.S.2 on strains P.S. 47, P.S. 73 and P.S. 75. The reaction on P.S. 75 is entirely due to inhibition.

3. Routine testing of phages at R.T.D.

4. Typing plate of a strain of staphylococcus that is particularly sensitive to inhibition by 1000 x R.T.D. filtrates. All the apparently ++ reactions on this plate, except that at the top left, are due to inhibition. Several other phages have produced lesser degrees of inhibition.

International Committee on Bacteriophage Typing of Staphylococci

List of active members, November 1958

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* Added to the Committee since August 1958.

Table 1 Characteristics of the typing phages

Phage		Propagating strains		Sero-logical group of phage	Calcium require-ment	Propagation method			
Phage No.	NCTC No.	P.S.	NCTC No.			Method of choice	Optimal phage conc./ml.	Temp.	Incubation period
29	8413	29	8331	B	absolute	soft agar	1×10^6	30°	18 hr.
52	8401	52	8507	B	"	"	1×10^4	30°	18 hr.
52A	8420	52A/79	8363	B	"	"	1×10^4	37°	18 hr.
79	8290	52A/79	8363	B	"	"	1×10^4	37°	18 hr.
80	9788	80	9789	B	"	"	5×10^4	30°	18 hr.
3A	8408	3A	8319	A	partial	soft agar or broth	1×10^5 1×10^5	37° 37°	18 hr. 6 hr.
3B	8410	3B	8321	A	"	soft agar or broth	1×10^5	37°	18 hr. 6 hr.
3C	8411	3C	8327	A	"	soft agar or broth	1×10^5	37°	18 hr. 6 hr.
55	8429	55	8358	B	absolute	broth	1×10^5	37°	6 hr.
71	9316	71	9315	B	"	broth	1×10^5	37°	6 hr.
6	8403	6	8509	A	partial	soft agar or broth	1×10^5	37°	18 hr. 6 hr.
7	8404	7	8510	A	"	broth	1×10^5	37°	6 hr.
42E	8418	42E	8357	A	"	broth	1×10^5	37°	6 hr.
47	8409	47	8325	A	"	soft agar	1×10^5	37°	18 hr.
53	8406	53	8511	B	absolute	broth	1×10^5	37°	6 hr.
54	8412	54	8329	A	partial	broth	1×10^5	37°	6 hr.
75	8427	75/76	8354	A	"	broth	1×10^5	37°	6 hr.
77	8428	77	8356	F	"	broth	1×10^5	37°	6 hr.
42D	10032	42D	10033	F	"	soft agar	1×10^4	37°	18 hr.
187	9753	187	9754	L	absolute	soft agar	2×10^5	30°	18 hr.
42B	8419	42B/47C	8355	A	partial	soft agar	1×10^5	37°	18 hr.
47C	8421	42B/47C	8355	A	absolute	soft agar	1×10^5	37°	18 hr.
52B	9304	52B	9303	B	"	soft agar	1×10^5	37°	18 hr.
69	8398	69	8397	B	"	soft agar	1×10^5	37°	18 hr.
73	8430	73	8360	A	partial	broth	5×10^5	37°	18 hr.*
78	9314	78	9313	A	"	broth or soft agar	1×10^5	37°	6 hr. 18 hr.
81	9716	81	9717	A	"	broth or soft agar	1×10^5	37°	6 hr. 18 hr.
83	-	83/83A	10039	B	absolute	broth or soft agar	1×10^5	37°	6 hr. 18 hr.
83A	10040	83/83A	10039	B	"	broth or	1×10^5	37°	6 hr. 18 hr.

* Phage 73 withstands heating to 50°C. for 60 min. and this method may be used for sterilization of its filtrates.

Table 2 Phage patterns of the propagating strains of staphylococci

Basic set P.S.	N.C.T.C No.	R.T.D.	1000 R.T.D.
29	8331	29++	29cl 52O 52AO 79O 80O
52	8507	52++ 52A± 80±	52cl 52Acl 79O 80cl
52A/79	8363	52A++ 79++ 52±	52++ 52Acl 79cl 80cl
80	9789	80++	29O 52± 52A± 80cl 73+
3A	8319	3A++ 55± 71± 3C++, 3B+	3Acl 3B++ 3C++ 55++ 71++
3B	8321	3B++ 3C++ 55++ 71++	3A++ 3Bcl 3Ccl 55cl 71cl
3C	8327	3B++ 3C++ 55++ 71++	3A++ 3Bcl 3Ccl 55cl 71cl
55	8358	3B++ 3C++ 55++ 71++ 3A+	3A++ 3Bcl 3Ccl 55cl 71cl
71	9315	3C++ 55++ 71++	3Ccl 55cl 71cl
6	8509	6++ 7++ 42E± 47++ 53++ 54++ 73± 75++ 77++	6cl 7cl 42Ecl 47cl 53cl 54cl 73++ 75cl 77cl
7	8510	6++ 7++ 42E± 47++ 53++ 54++ 73± 75++ 77++	6cl 7cl 42Ecl 47cl 53cl 54cl 73++ 75cl 77cl
42E	8357	42E++	42Ecl 53++ 73O
47	8325	47++ 53± 75++ 77++ 54±	29++ 52+ 52A+ 79++ 80++ 7O 47cl 53cl 54cl 75cl 77cl
53	8511	53++ 54+ 75++ 77++	53cl 54cl 73O 75cl 77cl
54	8329	7++ 47++ 53++ 54++ 73± 75++ 77++	79+ 7cl 42E++ 47cl 53cl 54cl 73++ 75cl 77cl
73	8360	3C++ (+) 55(+) 6++ 7++ 42E± 47++ 53++ 54++ 73++ 75++ 77++	29O 52O 52AO 79++ 80O 3B++ 3C++ 55++ 71O 6cl 7cl 42Ecl 47cl 53O 54cl 73cl 75cl 77cl
75/76	8354	53++ 75++ 77++	79+ 7O 47O 53cl 54O 73O 75cl 77cl
77	8356	77++ 53++, 54±	80+ 47++ 53++ 54O 77cl
42D	10033	42D++	42Dcl
187	9754	187++	187cl
42B/47C	8355	N.T.	52++ 79± 80+ 7± 42E± 47± 53± 73++ 75± 77±
52B	9303	47± 53+ 77++	52+ 6O 7O 42E++ 47cl 53cl 54O 75++ 77cl
69	8397	N.T.	52O
78	9313	N.T.	
81	9717	80++	52± 80cl 42E± 73++
83/83A	10039	6++ 47++ 53++ 54± 77(+)	52++ 52A++ 79++ 80++ 6cl 7± 42E++ 47cl 53cl 54cl 73± 75++ 77cl

± = less than 20 plaques
\+ = 20-50 plaques
++ = more than 50 plaques
cl = confluent lysis } used at 1000 R.T.D. only
O = inhibition }

Table 3 Lytic spectrum of phage 47

LS1 - phage 47, at a concentration of 10,000 x R.T.D. gave the following reactions on the test strains:-

47cl 42C+ 54cl 73cl 750 770

LS2 When phage 47 was titrated against these strains the results were as follows:-

	Phage dilutions							
Strain	Undil.	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	Reaction coded as
47	cl	cl	cl	cl	scl	++	+	5
42C	+	±						2
54	cl	cl	cl	cl	scl	++	±	5
73	cl	cl	cl	scl	++	±		4
75	0							0
77	cl	cl	++	±				3

Table 4 Lytic spectra of the phages

Test strain	Phages																												
	29	52	52A	79	80	3A	3B	3C	55	71	6	7	42E	47	53	54	73	75	77	42D	187	42B	47C	52B	69	78	81	83	83A
29	5	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.
52	0	5	4	0	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	2	.	.	.	.	.
52A/79	.	3	5	5	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.
80	.	1	1	.	5	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	0	0	.	.	.	5	.	.
2009	3	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0	.	3	.	.	.	2
71	.	.	.	.	.	.	.	5	5	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8719	.	.	.	.	.	.	0	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
42C	2	0	0	0	0	3	3	4	0	4	.	0	3	2	3	3	.	1	0	.	.	2	.	.	.	.	3	3	.
42E	0	0	0	0	0	.	.	.	.	.	.	.	5	.	3	1	.	.	.	.	.	2	1	.	.	3	3	3	3
47	3	3	3	3	3	.	.	.	.	.	2	.	.	5	5	3	1	5	5	.	.	.	4	4	.	.	0	4	1
53	.	.	.	.	.	.	.	.	.	.	0	0	.	0	5	4	0	5	5	.	.	.	.	.	.	.	1	4	0
54	1	.	.	2	.	2	1	1	.	.	.	5	3	5	5	5	4	5	5	.	.	4	4	2	1	3	3	4	1
73	0	0	0	3	0	0	3	4	4	0	4	4	4	4	0	4	5	4	4	.	.	4	4	0	4	4	4	4	0
75	.	.	.	2	.	.	.	1	.	.	.	0	1	0	4	0	0	5	5	.	.	.	.	2	1	.	.	0	.
77	.	.	.	.	2	.	.	.	.	.	.	0	.	3	3	0	.	5	.	.	.	.	.	0	1	0	.	3	0

Table 5 Reporting and interpretation of phage patterns

Strain No.	Reactions with phages - 6	7	42E	47	53	54	75	77	8	Reported pattern	Interpretation
1	++	++	±	++	++	++	++			6/7/47/53/54/75+	one type
2	++	+		++	++	++	++			6/47/53/54/75+	
3	++	±		++	++	++	±	±		6/47/53/54+	
4	++	±		++	++	±				6/47/53+	
5	++				++			++		6/53/77	different from 1-4 and from one another
6				++	++		++	++		47/53/75/77	
7							++	++		75/77	

355-5-2

Laboratory of Hygiene,
O t t a w a.

March 4, 1960.

Mr. Sol Rosenberg,
Sylvana Chemical Company,
407 South Jefferson Street,
ORANGE, New Jersey,
U. S. A.

Dear Mr. Rosenberg:

Enclosed is a copy of the results of our comparative phage-typing tests on the set of lyophilized propagating strains received from you on February 22, 1960.

As can be seen, the typing results on the Sylvana strains when compared with those on the propagating strains in use at our National Reference Centre are, with most strains, in fairly good agreement. However some discrepancies arise with some of the strains, namely PS 70, PS 42C, PS 31A, and 8592.

Our PS 70 shows no lysis with phages 6, 47, 53, 54, 75,77, 82, and your PS 42 C is not lysed by its homologous phage 42C used at any concentration. Your PS 31A does not show lysis with its homologous phage 31A used at any concentration and furthermore is lysed by phage 52, a reaction given exclusively by strain 2009. Your strain 8592 is not lysed by phages 75 and 77 but shows lysis with phage 71, a reaction given exclusively by 8719. Strain 8719 was not included in the set received from you. Is it possible that your PS 42C, PS 31A and strain 8592 may have been incorrectly labelled, PS 31A being strain 2009 and 8592 being 8719?

As requested on your last visit, I am returning the literature on the use of lyophilized phages and also the photographs of your machine for the spotting of the phages.

.....

Thanking you, I am,

Yours sincerely,

RDC.

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories

RDC/md

Comparative Phage Typing Tests

Lytic Reactions of Laboratory of Hygiene Staphylococcus Phages on Propagating Strains from Laboratory of Hygiene and from Sylvana Chemical Co., Orange, N.J. U.S.A.

Prop. Strain No.	Phage reactions with propagating strains from	
	Lab. Hygiene	Sylvana Chemical Co.
PS 29	29++	29++
PS 52	52++, 52A+, 80(+)	52++, 52A++
PS 52A/79	52A++, 79++, 52±	52A++, 79++
PS 80	80++, 81++, 82++	80++, 81++, 82++
PS 3A	3A++, 3B+, 3C++, 55++, 71++	3A++, 3B±, 3C+, 55±, 71++
PS 3B	3B++, 3C++, 55+, 71±	3B++, 3C++, 55+, 71++
PS 3C	3C++, 55++, 71++	3C++, 55++, 71++
PS 55	3A+, 3B++, 3C++, 55++, 71++	3A±, 3B++, 3C++, 55++, 71++
PS 71	3C++, 55+, 71++	3C++, 55++, 71++
PS 6	6++, 7+, 42E±, 47++, 53++, 54++, 75++ 77++, 81++, 82±	6++, 7++, 47++, 53++, 54++ 75++, 77++, 81++, 82±
PS 7	6+, 7++, 42E+, 47++, 53+, 54++, 73±, 75++ 77++, 81++, 82±	6++, 7++, 42E±, 47++, 53++ 54++, 75++, 77++, 81++, 82±
PS 42E	42E++, 81++, 82±	7±, 42E++, 81±, 82±
PS 47	47++, 53±, 54±, 75++, 77++	47++, 75++, 77++
PS 53	53++, 54+, 75++, 77++	53++, 54++, 75++, 77++
PS 54	7+, 47++, 53++, 54++, 75++, 77++, 81±	7++, 47++, 53++, 54++, 75++, 77+
PS 73	3C(+), 55(+), 6++, 7++, 42E±, 47++, 53++, 54++, 73++, 75++, 77++, 81++, 82++, (occasionally 52(±), 52A(±), 79(+))	52A(+), 79(+), 3C(+), 55(±), 6++, 7++, 42E±, 47++, 53±, 54++, 73++, 75++, 77++, 81++, 82+
PS 75/76	75++, 77++	75++, 77++
PS 77	53++, 54±, 77++	77++
PS 42D	42D++	42D++
PS 81	80++, 81++, 82++	80++, 81++, 82++
PS 82	80++, 82++	Strain not received

	Lab. of Hygiene	Sylvana Chemical Co.
PS 187	187++	187++
PS 29A	29A++	29A++
PS 31/44	29++,52+,52A+,79+,80±,7++ 42E±,47++,53±,54++,73±,75++ 77++,81++,82+,31++,44++	29++,52+,52A++,79+,80±,7++, 42E+,47++,53+,54++,73+, 75++,77++,81++,82+,31++,44++
PS 31A	31A++	52++,31A-no lysis
PS 42C	42C++	42C - no lysis
PS 42B/47C	81++,82++,42B++,47C++	81++,82++,42B++,47C++
PS 44A	52A±,7±,44A++	7+,73±,81±,44A++
PS 47A	47A++	47A++
PS 47B	47B++	47B++
PS 51	3C++,71(++),51++	2 ampoules received: 3C++, 55±,71(++),51++
PS 70	7++,42E±,77±,81±,70++	6++,7++,42E++,47++,53++,54++, 75++,77++,81++,82±,70++
PS 83	6++,47++,53++,77(++),81++,83++	6++,47++,53++,77(++),81±,83++
PS 523	Strain not available	55++,71++
PS 39	Strain not available	3A±,3B++,3C++,55++,71++
8592	75++,77++	71++
2009	52++	52++
8719	71++	Strain not received

Phages used: 29,52,52A,79,80,3A,3B,3C,55,71,6,7,42E,47,53,54,73,75,77,42D, 81,82,187; the following additional phages were also used on their homologous propagating strains: 29A,31,44,31A,42C,42B, 47C,44A,47A,47B,51,70, and 83.
Phages 39 and 523 were not available.

++ = more than 50 plaques, including confluent lysis.

+ = 20 - 50 plaques

± = less than 20 plaques

( ) = plaques partly overgrown by resistant bacterial growth.

Prepared by: R.D. Comtois, Bacteriologist
National Staphylococcus Phage Typing Reference Centre,
Laboratory of Hygiene, Ottawa, Canada.

March 3, 1960.

355-S-2

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON · N.W.9
Cables: DEFENDER, NORPHONE, LONDON

23rd February 1960

Dear Ted,

We have recently isolated what appears to be a more virulent variant of phage 75 which gives clearer and more easily visible plaques in typing and which is easier to propagate. We have tested the new phage in parallel with the old phage 75 on a total of 2400 strains 222 of which were lysed by the old 75. All of these and no others were lysed by the new phage 75 and the degree of lysis obtained was substantially the same in all cases. We should like therefore to change over to the new variant for general issue but I would be quite glad to have some independent assessment of the phage before we do this. I am arranging to send you a small sample of the new and the old phage 75 as prepared here and I should be very glad if you could have a look at them and see whether you think there is any objection to the proposed change-over.

Kind regards and best wishes,
Yours sincerely,

Robin Williams

Happy to comply there.

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

Mr. Courtois
can I
RDC.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON
25 JY 50
W.C.

6

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Avenue, London, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000044

To open cut here

Public Health Laboratory Service

STREPTOCOCCUS & STAPHYLOCOCCUS REFERENCE LABORATORY

Central Public Health Laboratory,
Colindale Avenue,
London, N.W.9.

Telephone: COLindale 7041
Telegrams: Defender, Norphone, London

To: Dr. C.T. Bynoe
Department of National Health &
Welfare, Laboratory of Hygiene,
Ottawa, Canada.

Date 14th March 1960

In reference to your letter/request of ....., please find enclosed sera/dried cultures/dried phage preparations/fluid phage filtrates as listed below. Should any of these prove unsatisfactory, we should be glad if you could inform us as soon as possible.

Material	No., name or type	Batch	Date of preparation	Titre/R.T.D.
1 bottle	phage 75		25.2.60.	1/25T
	75V		25.2.60.	1/100T

Received March 30, 1960.

Comments

Despatched by .....

355-5-2.

CHONNAM UNIVERSITY MEDICAL SCHOOL

KWANGJU, CHOLLANAM-DO

REPUBLIC OF KOREA

February 6, 1960.

Dr. R. D. Comtois
Bacteriologist
National Staphylococcus
Phage Typing Centre
Department of National Health and Welfare
Ottawa, Ontario
Canada

Dear Dr. Comtois:

I would appreciate very much if I can get your help for my works. I have received the 20 staphylococcal bacteriophages and corresponding propagating cultures which you sent at July 2, 1958. Unfortunately, two cultures among the 20 cultures do not grow and may be die. The two cultures are F/56A and H/6415. I shall really appreciate if you will send me above two strains.

PS73 PS75

With kindest personal regards,

Sincerely yours,

Bohan Park

Bohan Park, M.D.
Assistant professor
of Bacteriology
Department of Bacteriology

RDC
Shipped Feb 11/60.

555-3-2,

Laboratory of Hygiene,
O t t a w a.

February 2, 1960.

Miss Marguerite Epp, M.Sc.,
Department of Bacteriology,
University of Saskatchewan,
SASKATOON, Sask.

Dear Miss Epp:

Enclosed is a copy of our M thod of Phage Typing of Staphylococci and also a copy of the Lytic Spectra of the typing phages of the 'basic' set, asked for in your letter of January 27, 1960.

Phage 82 is phage '52AV' Laboratory of Hygiene recently given an official number by the International Subcommittee. Phage 82 was developed at the National Centre by 'adaptation' of phage 52A to a new propagating strain. The phage is different but closely related to phages 80 and 81 by its ability to lyse the majority of the so-called type '80/81' strains. Some otherwise untypable strains are lysed specifically by phage 82.

Under separate cover we are forwarding you a complete set of lyophilized phages and homologous propagating strains.

With kind regards,

Yours sincerely,

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

Laboratory of Hygiene,
O t t a w a.

February 2, 1960.

Dr. F.W. Jelks,
Division of Laboratories,
Department of Health,
P.O. Box 3000,
CHARLOTTETOWN, P.E.I.

Dear Doctor Jelks:

This is in reference to your letter of January 27, 1960. I am sorry to hear about your difficulty in keeping your stocks of staphylococcus phages in a viable state. Usually undiluted phage preparations are quite stable on storage provided they are stored in the refrigerator when not in use. Diluted phages are usually less stable and for this reason the working phage dilutions should be checked at least once a week in order to detect any loss in titre. Failure of your refrigerator plant may account for the unexpected drop in phage titres.

The agar medium for propagation and routine typing is usually left to individual choice. At our laboratory we have been using BBL Trypticase Soy Agar for sometime now and have found it quite satisfactory. So I would suggest that you try this medium since you had trouble with "Difco Tryptic Soy Agar".

Under separate cover we are forwarding you a complete new set of phages of the 'basic' set. I hope these will reach you in good condition.

With kind regards,

Yours sincerely,

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

UNIVERSITY OF SASKATCHEWAN

DEPARTMENT OF BACTERIOLOGY — SASKATOON, CANADA

January 27, 1960.

Mr. R. Comtois,
Laboratory of Hygiene,
Dept. of National Health and Welfare,
OTTAWA, Canada.

Dear Mr. Comtois:

Would it be possible to obtain a copy of the standard methods of phage typing as performed today as well as a set of phages and their propagating strains used today? I should be very grateful.

I notice that a new (to me) phage type is appearing; namely, Phage Type 82. Where did this originate?

Yours sincerely,

M Epp.

Marguerite Epp, M.Sc.,
Bacteriology Department.

ME:mf.

RDC

355-5-2

DIVISION OF LABORATORIES

DIRECTOR: JOHN CRAIG, M. B., CH. B.

DEPARTMENT OF HEALTH
PARVA SUB INGENTI
PRINCE EDWARD ISLAND

213

January 27, 1960

Dr. R. D. Comtois
Laboratory of Hygiene
Ottawa.

Dear Dr. Comtois,

We are experiencing considerable difficulty with the replacement Staphylococcus phages sent out last year. Phages 29, 52, 80, 55, 71, 53, 187 and 82 were initially very satisfactory but then within a week of preparation the titres dipped and we were unable to propagate them. We felt that this might have been due to failure of a refrigerator plant during a week-end.

You replaced these phages for us but we have experienced great difficulty in propagating them and have now lost them all once more.

We are using Difco Tryptic Soy Agar for propagating by the freeze-thaw method and I am wondering if this medium is unsatisfactory.

Any advice you may be able to give me on this matter will be appreciated. We have not experienced such trouble previously.

Also I am afraid that I shall have to ask your indulgence in supplying us with fresh phage preparations so that we may try once again.

Frustratedly yours,

F. W. Jelks

F. W. Jelks, Ph. D.
Bacteriologist.

RDC
23 Basic set phages (21 + No 81 + 82).
shipped Feb. 2, 1960.

Laboratory of Hygiene,
O t t a w a.

January 26, 1960.

Miss Anne M. Collins,
Bacteriological Laboratory,
The Hospital for Sick Children,
555 University Avenue,
TORONTO 2, Ontario.

Dear Miss Collins:

Under separate cover we are forwarding you one vial each of concentrated phages 52, 52A, and 79 as well as agar slant cultures of their homologous propagating strains PS 52 and PS 52A/79. The phages were propagated on agar from the lyophilized state by the freezing-thawing method of Williams and Rippon (1952). Since these phages are of serological group B and are therefore more difficult to propagate you may find it easier to propagate starting from the fluid state rather than from the dried state. When propagating from the fluid state a phage dilution of about 100X the RTD is usually satisfactory. However since phage 79 forms small overgrown plaques on agar you may have to use the phage undiluted for its propagation.

As mentioned in my letter of January 18th, we have been checking the spectrum of PS 52 and PS 52A/79 and have found them to behave as they should with the typing phages, PS 52 giving lysis with phages 52, 52A, and 80, and PS 52A/79 being lysed strongly by phages 52A and 79 and to a lesser extent by phages 52 and 80. We have observed however that the two propagating strains have a tendency to give a slightly granular growth in broth, but this has also been our observation with the last lot of lyophilized propagating strains received from the International Centre at Colindale, England.

.....

Your inability in propagating these phages may be due perhaps to the fact that you are diluting the phages too much while they are being reconstituted in broth. Just enough broth to cover the surface of an agar plate should be added to the dried phage. Usually 0.5 ml is sufficient to cover a large 15 cm. plate. Also, if you are incubating at 37°C., the plates used for propagation should be examined frequently during the period of incubation and they should be removed from the incubator and left at room temperature as soon as secondary bacterial growth makes its appearance. Otherwise any lysis that occurred will be overgrown by resistant growth resulting in loss of phage through adsorption on to resistant cells.

I hope the material we are sending you will arrive in good condition.

With kind regards,

Yours sincerely,

RDC

R. D.Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

PROVINCIAL LABORATORY OF PUBLIC HEALTH
UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO. 213

January 25, 1960

Dr. R.D. Comtois,
Bacteriology Laboratories
Laboratory of Hygiene
OTTAWA, Ontario

Dear Dr. Comptois,

Please could you supply us with staphylococcus phage 75 (new set.) Also could you let us have a further sample of the test strain number 4 - ours appears to have disappeared. We are not quite ready to test the survey strains which you sent out to us and are keeping them going on nutrient agar slant.

Yours sincerely,

M. E. Williams

Mary E. Williams, M.B.Ch.B.,
Assistant Bacteriologist

MEW/mh

RDC
Phage + Strain
shipped Jan. 27/60.

355-5-2

Dr. F.S. Thatcher,
Microbiology Section,
Food and Drug Directorate

Chief, Bacteriological Laboratories,
Laboratory of Hygiene

Jan.14/60

Thanks very much for showing me a copy of the paper by Seto and Wilson on "Adapted Staphylococcus Phages". I was also interested in your comments on your visit to Madison. It sounds like you were well received and they seem to be quite interested in the staph. problem.

Kind regards.

E. T. Bynoe, Ph.D.

encl.

File

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

INTRADEPARTMENTAL CORRESPONDENCE

355-5-2

TO: Dr. E.T. Bynoe,
Lab. of Hygiene.

YOUR FILE:
DATED:
OUR FILE:

FROM: Microbiology Section.

DATE: January 12, 1960.

SUBJECT:

Ted:

I was at the University of Wisconsin shortly before Christmas and amongst many points of interest brought back a rough copy of an MS by J.B. Wilson with notes by Phyllis Rountree. I thought this might be of some interest to you in the light of your recent studies with lysogenic phage. - I'm supposed to return the MS.

I enclose also a copy of my report on the visit. This may contain a few interesting points.

F.S.T.

F.S. Thatcher.

Ross:
Would you look through this. I'd like to return this to Thatcher tomorrow.
ETB

AWT

N.H. & W. 2

THE HOSPITAL FOR SICK CHILDREN
555 UNIVERSITY AVE.
TORONTO 2
TELEPHONE EM. 6-7242

January 8, 1960.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ont.

Dear Dr. Bynoe,

We have made several requests to you for new supplies of phages 52 and 79, because of our inability in progagating these. Now we have come to the conclusion that the propagating strains for these are at fault - whether we contaminated them when making stock cultures from the dried vials, or what the reason, we do not know. However the two strains do not support the multiplication of the two phages, nor do they react as they should with other phages in the spectrum. Would you be kind enough to send us the phages 52, 52A and 79 and their propagating strains? All the other phages have been propagated successfully - so this should be our last request for some time.

I appreciated Mr. Comtois' reply to my recent letter, and am finding his suggestions concerning the lysogenization of staphylococci very helpful.

Many thanks for your trouble.

Yours sincerely,

Anne M. Collins

Anne M. Collins, MSc.
Bacteriological Laboratory

Mr Comtois

RDE

AMC/jm

Concentrated phages and agar slant cultures of propagating strains shipped Jan. 26, 1960.

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON · N.W.9
Cables: DEFENDER, NORPHONE, LONDON

Ref: 208

1st January 1960

Dear Ted,

Thank you for your letter of December 16th which I received this morning after writing to you yesterday about your phage. Thank you for the information in it. I will arrange to send you the propagating strains that you need as soon as possible.

Best wishes,
Yours ever,

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

6

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Ave., London, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000058

To open cut here

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON · N.W.9
Cables: DEFENDER, NORPHONE, LONDON

Staph

30th December 1959

Dear Ted,

Many thanks for sending us your phage 83 (Blair's VA4) and its propagating strain. I wonder if you can tell me when you received these from Blair. It looks to us suspiciously as though the phage that Blair is using now under the number 83 is different from the phage that he had under the number VA4 in 1953 and what is particularly disturbing to us is that the 1953 batch which we have propagated under the impression that it was the same as the batch that Blair is now using has proved to be extremely useful here in recognizing what has evidently recently become a widespread epidemic type. Blair is coming over here next month for a few days and I look forward to having some long discussions with him on this and other points. We will keep you informed of what emerges.

Yours,

Dr. E.T. Bymoe,
Laboratory of Hygiene,
Ottawa,
Canada.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON 31 XII 59 N.W.9.

GREAT BRITAIN 6 =0/6= UNDER 4½

Dr. E.T. Bynoe,
Dept. of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Ave., London, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000060

To open cut here

355-S-2

AIR MAIL

Laboratory of Hygiene,
O t t a w a.

December 16, 1959.

Dr. R.E.O. Williams,
Director,
Staphylococcus Reference Laboratory,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9. England.

Dear Robert:

Thanks for your letter of November 27th. I agree that it is disturbing when our two laboratories cannot get the same results when we presumably are using the same phages. We have again repeated our tests with our phages received from you and again confirmed our earlier findings (just as you have confirmed yours) as you will see from the attached table. My only conclusion is that our propagating strains 29A and 47 must have changed, because our results shown in the 2nd column were obtained with your phage filtrate 80 (propagated at Colindale not here). Under the circumstances I think I had better ask you for fresh stocks of PS 29A, PS 47 and phages 52A, 73 (and possibly 80) since it is with these phages and propagating strains that we are getting '3' reaction differences.

Also in the table you will see our recent results with Blair's phage 83. There is no change here from our earlier results. We received '83' phage from Blair in March 1956. I cannot understand why he failed to type No.21 of the set of 'unknowns' recently circulated. We find this phage of practically no value in our routine typing. Of course, we do not include it in our routine set, but only when strains are untypable with the basic set. I think in the last several thousand cultures typed here, we have found it only once or twice at most.

.....

Under separate cover we are sending you a sample of '83' filtrate and its propagating strain. I hope they arrive in satisfactory condition.

Kindest regards and compliments of the Season to you and family.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2.

Laboratory of Hygiene,
O t t a w a.

December 16, 1959.

Miss Anne M. Collins, M.Sc.,
Bacteriological Laboratory,
The Hospital for Sick Children,
555 University Ave.,
TORONTO 2, Ontario.

Dear Miss Collins:

Thank you for your letter of December 10, 1959 and your interest in the paper I presented at the C.P.H.A. meeting last week in Toronto.

Your phage recovered from a lysogenic strain of phage type 81 seems to be different from those we have isolated from strains of type 80/81/82. Our lysogenic phages do not lyse P847 and furthermore show lysis on a number of other propagating strains besides P3 6,7, 31/44 (18), 42B/47C (1163), and 81.

So far we have had no difficulty with lysogenic cultures becoming unstable once they were lysogenized. However, we have had some trouble with some strains which failed to become lysogenic. The colonies from these cultures were not immune to the lysogenizing phages.

Your difficulty is probably due to the fact that only a small proportion of bacterial cells in your 'lysogenized' cultures are really lysogenic, and those that are not lysogenic would form colonies showing signs of erosion or phage action on agar. If you happen to pick one of these colonies during subculture you will end up with a culture that is non-lysogenic.

Before considering a culture as being lysogenic, as many colonies as possible should be picked, and all should be resistant to the phage used for lysogenization. This is one of

.....

the most important criteria for lysogenicity.

More work on this problem is presently in the planning stage and if we publish our results I will send you a copy of the reprint. Under separate cover we are forwarding you another dried sample of phages 52 and 79.

Below are a few references concerning lysogenicity in staphylococci which may be of help in your work.

1. Asheshov, E.H. and Rippon, J.E. Changes in typing pattern of phage-type 80 staphylococci. J.Gen.Microb. 20, 634-643, 1959.

2. Rountree, P.M. Changes in the phage-typing patterns of staphylococci following lysogenization. J.Gen.Microb. 20, 620-633, 1959.

3. Rountree, P.M. Variations in a related series of staphylococcal bacteriophages. J. Gen.Microb. 15, 266-279, 1956.

4. Gorrill, R.H. Studies on lysogeny in staphylococci. J. Gen. Microb. 17, 254-266, 1957.

5. Gorrill, R.H. and Gray, R.A. The induction of bacteriophage in staphylococci. J. Gen.Microb., 14, 167-173, 1956.

6. Lwoff, A. Lysogeny. Bact. Rev. 17, 269-337, 1953.

7. Rountree, P.M. The phenomenon of lysogenicity in staphylococci. J. Gen. Microb. 3, 153-163, 1949.

Yours sincerely,

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

THE HOSPITAL FOR SICK CHILDREN
555 UNIVERSITY AVE.
TORONTO 2
TELEPHONE EM. 6-7242

December 10, 1959.

Mr. R. D. Comtois,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ontario.

Dear Mr. Comtois:

I was very interested to hear your paper Tuesday and looked for an opportunity to speak to you and Dr. Bynoe afterwards but was unable to do so.

We are involved in some work on staphylococcal phages and your work is of considerable interest and help. If you publish your results, would you send a reprint. Also, I missed noting your references to other published reports on this. May I trouble you for the authors and publications?

When attempting to recover phage from lysogenic strains some time ago, we were successful with a few strains including one phage type 81. This phage had a host range including strains P.S. 6,7,47 and 81 and strains 18 and 1163. Does this resemble yours?

In your paper you commented that you worked with those lysogenic systems which were stable. Have you had any problem with these becoming unstable? Recently I have lysogenized certain staphylococci and after several subcultures one particular (and much needed) lysogenized strain became unstable and is no longer lysogenic. I would like to prevent this from happening again!

Recently, we have been requesting typing phages from Dr. Bynoe. Thank you for your part in supplying us with these. At the moment we are still unable to propagate phages 52 and 79 from the dried vials you have sent. Would you mind sending us more of these.

Yours truly,

Anne M. Collins

Anne M. Collins, M.Sc.

RDC
Phages shipped Dec 16, 1959.

AMC/jm

555-5-2

s.19(1)

Laboratory of Hygiene,
O t t a w a.

December 10, 1959.

Dr. Costa Wallmark,
Thorndike Memorial Labs.,
Boston City Hospital,
818 Harrison Avenue,
BOSTON 18, Mass.

Dear Doctor Wallmark:

We promised that we would include your phage KS6 into our routine typing and let you know what results we got. You might be interested in our observations on 399 cultures received routinely at this Centre. From a comparison of the lytic spectra of phages KS6, 80, 81 and 82 you will readily see that there is a close relationship between all these phages. Nevertheless they are all slightly different. Since, however, only 2 of approximately 400 strains which would otherwise have been reported untypable were typed by KS6 in concentrated suspension, we would not feel justified in maintaining it regularly in our set of phages used for routine typing. It is curious that Rountree in Australia, we in Canada and you in Sweden should have all isolated this 'type' of phage much about the same time in such widely separated countries.

With kind regards and compliments of the Season to you and [redacted]

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

555-5-2

Laboratory of Hygiene,
O t t a w a

November 26, 1959.

Dr. D.A. Barnum,
Department of Pathology
and Bacteriology,
Ontario Veterinary College,
GUELPH, Ontario.

Dear Doctor Barnum:

At the meeting of the International Committee on the Bacteriophage Typing of Staphylococci in Stockholm in August 1958, it was recommended that a basic set of 21 phages be used in routine typing. Laboratories may use any additional phages they consider useful. In Canada we include phages 81 and 82 in the basic set. The groups in which these phages have been placed by the International Committee are as follows:

Group I	Phages 29;52;52A;79;80
II	3A;3B;3C;55;71
III	6;7;42E;47;53;54;73;75;77
IV	42D
Miscellaneous	187;81;*82*

* While the International Committee recommended placing our phages 81 and 82 in the Miscellaneous Group, we feel very strongly that they should be placed in Group I and we consider them as Group I phages.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-5-2

Laboratory of Hygiene,
O t t a w a.

November 20, 1959.

Dr. Frances H. Prissick,
Director,
Department of Bacteriology,
The Montreal Children's Hospital,
2300 Tupper Street,
MONTREAL 25, Que.

Dear Doctor Prissick:

We have thousands of staphylococcal cultures in stock and if you had asked for any specific 'phage' types I am sure we could have supplied them but we have never studied them serologically. In a general way, strains of phage groups I, II and III tend to fall into Cowan's serological groups I,II, and III but this is only a "broad" tendency and the argreement is not by any means 100%. Since Cowan's original description of his serological types, Betty Hobbs also at Colindale has added another 5 or so groups. Per Oeding, at the University of Bergen, is perhaps the leading protagonist of serological typing but he uses a different method and different terminology from that used by Cowan. I believe the only (certainly the surest) way of getting the right cultures is to write directly to Sam Cowan who is Curator of the National Collection of Type Cultures, Central Public Health Laboratory, Colindale Avenue, London, N.W.9.

I would also suggest that your student get in touch with Dr. Per Oeding, from whom he might secure Oeding's "type" strains.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laborator

ETB/md

5.5.5-5-2

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

November 17, 1959.

Dr. E.T. Bynoe,
Chief,
Laboratory of Hygiene,
Ottawa, Ontario.

Dear Dr. Bynoe:

Some time ago you kindly phage typed some strains of staphylococci isolated from bovine mastitis. Included in the results were phage types unfamiliar to us and we did not know where they were to be placed in the general grouping of groups 1-4. Therefore, we would be pleased to receive a recent listing of the phage types and groups if you have a recent list showing into which group these phages have been placed.

Thanking you for your assistance.

Yours very truly,

DAB:hc

D.A. Barnum,
Department of Pathology
and Bacteriology.

THE MONTREAL CHILDREN'S HOSPITAL

formerly THE CHILDREN'S MEMORIAL HOSPITAL
2300 TUPPER STREET
MONTREAL 25, QUE.

November 17, 1959.

E.T. Bynoe, M.D.,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ontario.

Dear Doctor Bynoe,

One of the McGill post-graduate students is taking his Ph.D. in my laboratory doing work which will involve the use of the serological groups of Staphylococci as established by Cowan.

Would it be possible for you to provide us with cultures of these or, if not, let me know where they may be obtained.

We would appreciate it very much.

Yours sincerely,

Frances Prissick

Frances H. Prissick, M.D.,
Director,
Department of Bacteriology.

FHP:amg

555-S-2

Laboratory of Hygiene,
O t t a w a.

November 17, 1959.

Dr. N.A. Hinton,
Queen's University,
KINGSTON, Ontario.

Dear Norm:

We have sent off to you under separate cover the polyvalent staphylococcus phage for the experiment on the phage treatment of nasal carriers. Sterility tests and safety tests on mice completed here would indicate it is safe. Of course we do not know what reactions there are likely to be when used on humans. We expect that they should be minimal but only use will tell.

Having never used these we do not know what dosage is best. The Lincoln Research Foundation, who markets a staphylococcus phage lysate for therapy of sinus-trouble and asthmatic conditions, recommends use of a vaponefrin nebulizer with nasal tips attached by rubber tubing with a hand valve to compressed air or oxygen supply giving a pressure of 13 lbs., this being the pressure producing the finest nebulization. They state, however, that an effective hand bulb may be used in place of the oxygen or compressed air. To continue their directions "A measured dose of phage is deposited in the nebulizer, the patient inserts the nasal tips snugly into the nostrils and controls the spray by depressing the hand valve or hand bulb on inspiration, the breath is held for a few seconds then exhaled through the mouth avoiding hyperventilation. This procedure is continued until the aerosol mist is exhausted." The dosage they recommended was 1st day 0.25 ml, 3rd day 0.5 ml, 5th day 0.5 - 0.75 ml, 7th day 0.5 to 1.0 ml. Thereafter treatment is continued by giving the maximum dose tolerated once or twice weekly until the symptoms have disappeared. They state "Side effects are sometimes seen. This may be malaise, chilliness and possible fever of short duration. No aerosol treatment should be given until all symptoms of reaction have disappeared". This seems very light

.....

treatment to me and I would suggest starting with 0.5 ml. If there is no reaction, increase this to 1.0 ml and give daily treatments for 10 - 14 days.

The phage has no preservative hence a sterile technique must be used prior to withdrawing the phage from the vial. The phage must also be stored in the refrigerator. The contents of any vial that becomes cloudy should not be used.

I hope this trial will prove interesting and that nothing disastrous or unfortunate occurs. Best of luck and kindest regards.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

555-5-2

Laboratory of Hygiene
O T T A W A

November 12, 1959.

Dr. Haydee Cantoni,
Catedra de Higiene y Medicina Preventiva,
Instituto de Higiene,
Avda. Americo Ridaldoni, 3051,
Montevideo, Uruguay.

Dear Dr. Cantoni,

We have been advised by Dr. John Hastings, Assistant Professor of Public Health at the University of Toronto, that you are interested in receiving (1) Methods used in Canada for phage typing of staphylococcus, and (2) Methods for Vi typhoid phage typing.

I therefore, have pleasure in enclosing a copy of the material which is distributed to Public Health Laboratories in Canada in specific reference to the phage typing services. In regard to the Methods for Vi typhoid phage typing, I would refer you to Mr. M.J. Desranleau of the Provincial Public Health Laboratories in Montreal. As a matter of convenience, I am asking him to forward to you copies of his methods, since he serves as the National Phage Typing Center for Canada.

If we can be of any further service to you, please let me know.

Sincerely yours,

James Gibbard,
Director.

Encl.
JG/PL

355-8-2

s.19(1)

Laboratory of Hygiene,
O t t a w a.

November 10, 1959.

Miss Katherine Barthalmus,
Pennsylvania State University,
McKee Hall Box 74,
University Park, Pennsylvania.

Dear Miss Barthalmus:

[redacted]

I would strongly urge you to read the following if you have not already done so.

The series of publications by the U.S.Public Health Service - Communicable Disease Center.

1. Hospital-Acquired Staphylococcal Disease - Proceedings of the National Conference, Sept. 1958.

2. Relation of the Environment to Hospital-Acquired Staphylococcal Disease - Proceedings of the Conference Dec. 1-2, 1958.

3. Selected Materials on Staphylococcal Disease - Oct. 1958.

4. Selected Materials on Environmental Aspects of Staphylococcal Disease - Jan. 1959.

and the two reports from the U.K.

1. "The Control of Cross Infection in Hospitals" by the Cross Infection in Hospitals Committee of the Medical Research Council. M.R.C. Memorandum No.11 (1951) H.M.Stationery, London, 1959.

2. "Staphylococcal Infections in Hospitals" Report of the Sub-Committee of the Central Health Services Council, Ministry of Health. H.M. Stationery, London, 1959.

.....

To reply briefly to your specific questions.

1. Methods taken to prevent widespread distribution of Staphylococci in hospitals. Staphylococci are normally present in the noses and/or skin of roughly 50% of normal people so that the only possible way of controlling the spread of these organisms throughout the hospital is by restricting these organisms to the people who have them and preventing them from spreading them around. This means that strict attention to personal hygiene, improved methods of dust control and house cleaning, proper sterilization procedures for contaminated bed linen, blankets, mattresses, pillows, furniture, bedpans, thermometers, baths, all surgical equipment, in short everything that could spread contamination from one person or the environment to an uninfected patient, aseptic procedures in the operating theatre, efficient ventilation - the list is almost inexhaustible. There is good evidence in the literature that "improved aseptic techniques" have led to considerable reduction in the distribution of staphylococci in the hospitals at least to the reduction in numbers of staphylococci in the air, dust, and various other objects which have been tested. This does not necessarily mean that there has been an accompanying reduction in the actual incidence of hospital acquired staphylococcal disease. Some workers have shown that the introduction of "sterile blankets" or of "an efficient method of dust control in the wards" or of some other "good, aseptic procedure" has failed to affect the sepsis-rate but when one considers how many routes of spread lie open to the staphylococcus, it is not hard to understand why the control of one or two may fail to affect significantly the cross-infection rate. Nevertheless I am convinced as are many of my colleagues in this country and in the U.K. that only by attempting to improve our techniques in all parts of the hospital will be able to bring about some measure of control of the problem.

2. Measures to combat drug-resistant strains. Restriction of the use of antibiotics to those who really need it "therapeutically". Use of the proper antibiotic - that is, only use the antibiotics which have been found by laboratory tests to be effective. There is some evidence that a proper combination of antibiotics may be effective in preventing the development of resistance. Restriction of the use of the newer antibiotics for emergencies.

.....

3. The breeding places of staphylococci in the hospital are primarily the human hosts who harbour these organisms - the infected patients and the symptomless carriers. It is in man that the staphylococci grow and multiply. This is the source of the organisms. From this source the environment of the infected individual carrier and everything in it becomes contaminated in varying degrees. These contaminated objects, whether the blanket or floor dust, form the depots or reservoirs of infection in the hospital but the staphylococci do not "breed" in these.

4. Control. See 1 above.

I hope this has been some help to you.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

555-5-2

Laboratory of Hygiene,
O t t a w a.

November 10, 1959.

Mr. A.N. Brown,
The Laboratories,
Department of Veterans Affairs,
Colonel Belcher Hospital,
CALGARY, Alta.

Dear Mr. Brown:

You pose a very difficult question when you ask me to advise you as to the arrangement of a large number of phage types into a small number of "patterns". The phages are usually arranged in groups as shown in the accompanying copy of our method. While phages 81 and 82 have been classified in the Miscellaneous group by the International Committee, they are so closely related to type 80 of group 1 that I feel very strongly that they should be considered as group 1 phages. Rarely do we find strains lysed only by 80 or 81. Type 80/81 is such a common strain that on this continent it is considered the hospital 'epidemic' strain. Grouping into the groups I, (incl.81 and 82), II, III, IV and M (Miscellaneous) is the simplest way of writing up results of large numbers of typings, but it has, in fact, little epidemiologic significance. The principle which most of us in the field have accepted is that only strains which show more than one 'strong' difference in lytic pattern should be considered epidemiologically different, but this is not a 'hard and fast' rule and there are many exceptions.

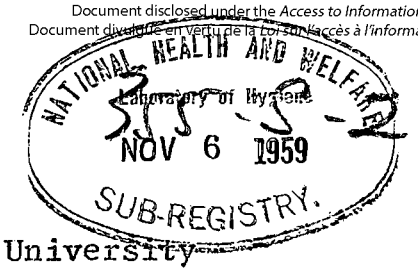
Could you not persuade D.V.A. to send you down for a day or two to Ottawa to discuss your results with us? It is so much easier to explain some of these difficulties in typing in personal discussion and conversation than by letter writing.

Best of luck and kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief, Bacteriological Laboratories.

TB/ 1



Pennsylvania State University
McKee Hall Box 74
University Park, Pennsylvania
November 5, 1959

Dr. E.F. Byone
Department of National Health and Welfare
Ottawa, Ontario
Canada

Dear Dr. Byone:

This letter is written in regard to your discussion of the paper, "The Problems of Staphylococcal Infections" by Walsh McDermott, found in Annals of the New York Academy of Sciences (August 31, 1956).

As a student in biochemistry at The Pennsylvania State University, I am investigating the problem of Staphylococcus in hospitals. After reading your discussion, I thought you would be able to give me additional information regarding the following points:

1. What methods have been taken to prevent the widespread of Staphylococcus in hospitals, and to what degree have they been successful?

2. What measures have been taken to combat drug-resistant Staphylococcus?

3. What are the common breeding places of Staphylococcus in hospitals?

4. What recommendations can be offered to reduce the prevalence of Staphylococcus in hospitals?

I shall be grateful for any information you are willing to give to me on these points and on any others you believe helpful.

Respectfully yours,
Katherine Barthalmus
Katherine Barthalmus

Laboratory of Hygiene,
O t t a w a.

November 5, 1959.

Dr. R.E.O. Williams,
Director,
Staphylococcus Reference Laboratory,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9 England.

Dear Robert:

Thanks very much for sending me the results of your tests on the 24 test cultures of our international comparative trial. I was pleased to see that we were not too far off the beam.

We repeated our tests that differed from yours but got almost the same results as previously.

Strain 1. Phage 52 - R.T.D. no lysis
10. Phage 55 - R.T.D. no lysis
13. Phage 73 - 1000 R.T.D. no lysis
14. Phage 73 - 1000 R.T.D. no lysis
15. Phage 7 - R.T.D. no lysis
Phage 42E - 1000 R.T.D. ++ lysis
18. Phage 77 - R.T.D. no lysis
Phage 77 - 1000 R.T.D. ++ lysis (earlier report)
Phage 80 - 1000 R.T.D. no lysis
Phage 42D - 1000 R.T.D. no lysis
21. Phage 83 - R.T.D. ++ lysis (as this strain was lysed by phages of the basic set at 1000 R.T.D., we did not test it in our first tests with phage 83)
22. This strain was retested with all the basic phages at 1000 RTD with the following results:

.....

52	52A	80	42E	47	75	82	54	73
++	*(++)	(-)	(-)	(-)	(-)	(++)	-	-

(++) = inhibition with plaques (-) inhibition with no plaques.

We are still waiting for the results from our provincial public health laboratories. I hope you are getting a better response from the various national centres!

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ADT/md

355-S-I

Laboratory of Hygiene,
O t t a w a .

November 4, 1959.

Dr. Norman A. Hinton,
Assoc. Prof. of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Norm:

Thanks for your letter of October 30th. I would like to get down to Kingston for a day and see if anything worthwhile has come out of your project but this is an awful time of year for me. With the Laboratory Directors' Conference only a month away there is so much planning and correspondence and so many reports to prepare that I hate to take the time off. It should be (I hope) more convenient for me after the Conference. Perhaps we can leave it until then.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

UNIVERSITY OF BERGEN

GADE'S INSTITUTE
BERGEN, NORWAY

DEPARTMENT OF PATHOLOGY
DIRECTOR: PROF. ERIK WAALER, M. D.
DEPARTMENT OF BACTERIOLOGY
DIRECTOR: PROF. TH. M. VOGELSANG, M. D.

TMV/AJ

Bergen, 4 November 1959

Dr. E.T. Bynoe
Bacteriological laboratories
Laboratory of Hygiene
Department of National Health and Welfare
Ottawa, Ont., Canada

Dear Dr. Bynoe,

As I am working with the new phage types, I should be very indebted to you for sending me some strains of 81 and 82 (52AV). At the same time I should also like to have reprints of your publications.

With kind regards,
sincerely yours,

Th.M. Vogelsang

80/81 (2)
81
81/82 (2)
80/81/82 (2)
82 (2)

Cultures shipped Nov. 19/59
RDE

DEPARTMENT OF VETERANS AFFAIRS

CANADA

IN YOUR REPLY REFER TO FILE NO.

The Laboratories,
Colonel Belcher Hospital,
CALGARY, Alberta.

3rd November, 1959.

Dr. E.T. Bynoe,
Dept. of National Health & Welfare,
Laboratory of Hygiene,
National Staphylococcus Phage Typing Centre,
Tunney's Pasture,
OTTAWA, Ontario.

Dear Dr. Bynoe,

I would like to have your advice on a few points concerning bacteriophage typing of Staphylococci. By Christmas, I hope to have completed a thesis on our experience with Staphylococcus at the Colonel Belcher Hospital. A large part of this will be based on conclusions drawn from phage typing. The information I would like to have is -

(a) An outline of, or reference to, the method of bacteriophage typing used at the Laboratory of Hygiene.

(b) An opinion or guide from you regarding the arranging of a very large number of phage patterns we have encountered, into a smaller number of groups.

In an article, "Hospital Staphylococcus" in Canadian Medical Association Journal, 15/9/57, reference is made to a personal communication from you on this point. However, there are a large number of phage types in our work not mentioned, and I would like to know into which group they should fall.

The phage typing has been valuable to us here in bringing the problem of Staphylococcus infection under control. A system of grouping would make the project somewhat simpler.

Sincerely,

A.N. Brown.

A.N. Brown.

ANB/bp.

000083

DVA 1

UNIVERSITY HOSPITAL
UNIVERSITY OF SASKATCHEWAN
SASKATOON, SASK.

ARNOLD L. SWANSON, M.D.,
EXECUTIVE DIRECTOR

November 3rd, 1959.

s.19(1)

Dr. E. T. Bynoe, Ph.D.,
Chief of Bacteriological
Laboratories,
Laboratory of Hygiene,
OTTAWA, Ontario.

Dear Dr. Bynoe:

I hope you can help me with some phage-typing of coagulase positive staphylococci, as our Professor of Paediatrics is anxious to trace any carriers of the same type following the death of a newborn with staphylococcal septicemia. The cultures I am forwarding are those of the patient, [redacted] and carriers [redacted] and [redacted] These cultures have already been to the Provincial Laboratory in Regina, but they report them as not typable, with the explaination that they use a limited number of phages for routine work. I trust you can assist us further with the epidemiology of this case.

Many thanks for your advice in the past.

Yours sincerely,

Joan O. Nicholl.

Dr. Joan O. Nicholl,
Department of Bacteriology.

JON:aep

Cultures received Nov. 9, 1959.

000084

Laboratory of Hygiene,
O t t a w a.

November 3, 1959.

Dr. J. G. Taggart,
Department of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Taggart:

Thanks for your letter of October 30th. I am sorry that I did not refer to your September 11th letter or I would have guessed that your new "1 N" series was the new class of nurses.

Have I missed something else that you wrote me about? I did not realize that you had planned to try out Hibitane (as a nasal cream?). I understood that before you tried the phage you wished to give a more extensive trial to antibiotic nasal creams. Has this idea been dropped or was the hibitane substituted for antibiotics?

I have not got any definite ideas right at the moment about the dosage of phage but I shall see if I can find anything (probably from the Lincoln Research people) about recommended dosages and let you know our ideas when we send the phage.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

October 30th 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa, Ontario.

Dear Ted,

I must apologize for not writing to you for some time about our project, but as you will understand this is a busy part of the year for us and I have been involved with a number of things. Jim Taggart will be writing to you regarding several sets of cultures which were rather ambiguously labelled, and regarding the initiation of the phage trial.

We are beginning to attempt some preliminary analyses of the data which has evolved so far in this work, and as you may understand, this is a rather complicated job both in terms of the volume of information and in terms of the infinite numbers of ways the data can be approached. I thought it would be most valuable if you could find a convenient time to come to visit us so that you may see the data first hand and the layout of the project. Any day except Friday will be convenient for us, so that if you can make a trip here we would be very pleased indeed to see you.

I will be at the Antibiotic Symposium next week, and if you are going perhaps we may have an opportunity for a talk there.

Yours sincerely,

Norman A. Hinton, M.D.
Assoc. Prof. of Bacteriology.

NAH/JZ

DEPARTMENT OF HEALTH
PARVA SUB INGENTI
PRINCE EDWARD ISLAND

October 30/59

Dr. R. D. Comtois

Laboratory of Hygiene

Ottawa.

Dear Dr. Comtois:

We have recently suffered a near-disaster with all our Staphylococcal bacteriophages.

After considerable effort we have rescued all but eight of the phages and one propagating strain.

I wonder if you could supply us with samples of the following phage in order that we might prepare fresh stocks please:- 29; 52; 80; 55; 71; 53; 187; and 82. Also the 52A/79 propagating strain.

Sorry to be a nuisance.

Yours sincerely,

F.W. Jelks

F.W. Jelks, Ph. D.
Bacteriologist.

Phages + culture
shipped Nov. 2/59.

RDC

NOV. 3/39

DEPARTMENT OF

NATIONAL HEALTH AND WELFARE

Memorandum: Mr. Gibbard.

I have attached our Methods for the Phage Typing of Staphylococci, should you wish to forward these to Dr. Cantoni. For Vi typing, phages & strains she should write directly to M. J. M. Desnoyers, Provincial Public Health Laboratories, Montreal.

Dr. Bryce: If this is of no interest to you, kindly return to Mr. Gibbard, as he has not seen it.

Paul Lewis

University of Toronto
SCHOOL OF HYGIENE
TORONTO 5, CANADA

DEPARTMENT OF PUBLIC HEALTH

October 28, 1959.

Mr. James Gibbard,
Director,
Laboratory of Hygiene,
Department of National Health and Welfare,
Ottawa, Ontario.

Dear Mr. Gibbard:

At the suggestion of Dr. M. H. Brown, Professor of Public Health and Preventive Medicine, I am writing to ask if you would be kind enough to send some information requested by a doctor at the Institute of Hygiene in Montevideo, Uruguay.

This summer I was in South America and had an opportunity to visit the Institute where they are doing a great deal of microbiological research and one of the doctors there gave me several requests for information about methods, etc. used in Canada. She would like to have the following information: (1) Methods used in Canada for phage typing of staphylococcus, and (2) Methods for Vi typhoid phage typing. If possible she would also like samples of the typhoid Vi phage typing and the stock cultures used in Canada. Her name is Dr. Haydee Cantoni, Catedra de Higiene y Medicina Preventiva, Instituto de Higiene, Avda. Américo Ricaldoni, 3051, Montevideo, Uruguay.

Thank you very much for any help that you can give Dr. Cantoni. I shall send her a copy of this letter.

Yours sincerely,

John Hastings.

John E. F. Hastings, M.D.
Assistant Professor of Public Health

jefh/lm

University of Toronto
SCHOOL OF HYGIENE
TORONTO 5, CANADA

DEPARTMENT OF PUBLIC HEALTH

October 28, 1959.

Mr. James Gibbard,
Director,
Laboratory of Hygiene,
Department of National Health and Welfare,
Ottawa, Ontario.

Dear Mr. Gibbard:

At the suggestion of Dr. M. H. Brown, Professor of Public Health and Preventive Medicine, I am writing to ask if you would be kind enough to send some information requested by a doctor at the Institute of Hygiene in Montevideo, Uruguay.

This summer I was in South America and had an opportunity to visit the Institute where they are doing a great deal of microbiological research and one of the doctors there gave me several requests for information about methods, etc. used in Canada. She would like to have the following information: (1) Methods used in Canada for phage typing of staphylococcus, and (2) Methods for Vi typhoid phage typing. If possible she would also like samples of the typhoid Vi phage typing and the stock cultures used in Canada. Her name is Dr. Haydee Cantoni, Catedra de Higiene y Medicina Preventiva, Instituto de Higiene, Avda. Américo Ricaldoni, 3051, Montevideo, Uruguay.

Thank you very much for any help that you can give Dr. Cantoni. I shall send her a copy of this letter.

Yours sincerely,

John Hastings.

John E. F. Hastings, M.D.
Assistant Professor of Public Health

jefh/lm

355-8-2

Laboratory of Hygiene
O t t a w a.

October 20, 1959.

Dr. Gosta Wallmark,
Thorndike Memorial Labs.,
Boston City Hospital,
818 Harrison Avenue,
BOSTON 18, Mass.

Dear Doctor Wallmark:

We have received your K86 phage and its propagating strain and will include it in our routine typing for at least the first couple of hundred strains received to see how its activity compares with 80, 81 and 82.

From what you tell me about its predilection back in the early 1950's for the skin - furuncles, pustules, etc., - I would not be at all surprised to find that it is closely related to 80, 81 and 82 which were also the predominant types in boils and abscesses during that time in Australia and Canada.

You know the taxonomists are themselves classified into the "lumpers" and "splitters". I gather from your remarks that you are one of the "splitters", while I incline more to the "lumpers" group. In other words I am inclined to consider all these types 80, 80/81, 80/81/82 and variations to be epidemiologically similar - otherwise we are going to have such a multiplicity of epidemiologic types that our "control" people are likely to throw up their hands in disgust. Of course, with the ubiquity of the staphylococcus it is quite possible that we are, in actual fact, faced with this multiplicity of types!

.....

s.19(1)

I hope that you will be able to visit Ottawa with your family after you put in your tour of duty in the U.S. and we shall be very pleased to have you all stay with us if and when you can come here.

With best wishes and kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

OTTAWA, 14 October, 1959.

Dr. F. O. Wishart,
Secretary, Laboratory Section,
Canadian Public Health Association,
150 College Street,
Toronto 5, Ontario.

Dear Dr. Wishart:

Enclosed is a copy of the Abstract of the paper entitled, "Changes in Typing Pattern of Staphylococci Following Lysogenization With Phages Isolated From Type 80/81/82 Strains", which I intend to present at the 27th Annual Meeting of the Laboratory Section, in Toronto, December 7-8, 1959.

Yours sincerely,

R. D. Comtois,
Bacteriological Laboratory,
Laboratory of Hygiene.

Encl. Abstract.

RDC/HC

Thorndike Mem. Lab.

CITY OF BOSTON
HOSPITAL DEPARTMENT
THE BOSTON CITY HOSPITAL
818 HARRISON AVENUE, BOSTON 18, MASS.

JOHN F. CONLIN, M. D.
DIRECTOR OF HOSPITALS
AND SUPERINTENDENT

s.19(1)

Boston 1o.6.1959

Dear Dr Bynoe:

Thank you very much for your kind letter of Sept 23 and for the reprints. I should very much like to visit you before I go home. I am planning [redacted] and I hope that this will take me to Ottawa . I have [redacted] We have been lucky to find an ideal place to live in and we feel very happy to be here. [redacted] sends you her regards.

I completely agree with you concerning 80/81. I have only seldom seen 81 together with group III phages and think it is justified to put 81 in group I. Phage KS6 (bad name!) gives somewhat more often than 80 and 81 lysis in combination with gr.III phages, but it is no doubt closely related to 80 and 81. I have not used 82, is that also related to 80/81? If you want, I should be glad to include it in our set here. As to the results with 80, 81 and KS6 we have found strains from purulent lesions showing patterns 80, 80/81, 80/81/KS6, 80/KS6, 81, 81/KS6, and KS6. I believe that most of these strains are different.

Strains of gr.I seem to be more and more common as causes of infections, the majority being "type 80/81". As this type surely is not homogenous, it must be useful to have phages that makes possible a differentiation in this "type".

KS6 was isolated from a nose strain (lysogenic) in 1948 by Fisk's method. It has a long time ago been tested for serological group by Miss Rippon. As far as I can remember it is group B, but I am not quite certain. KS6 characterized the type 10 in the type scheme I used earlier. I the beginning of the

50's type 10 was demonstrated to be a common cause of among else furuncles. Most unfortunately I have lost all strains from these years. The same type in 1954 and 1955 caused outbreaks of mastitis in Sweden. One is reported by Lindau in Acta Path.microb.1957. This type lo is closely related to the 80/81. (Lindaus strains were later shown to be 52/52A/80/KS6 (81 not used0

I will send you the phage and its propagating strain separately.

With kindest regards,

Sincerely yours

G.Wallmark

RDC

355-S-2

s.19(1)

Laboratory of Hygiene,
Ottawa, Ontario.

September 23, 1959.

Dr. Gosta Wallmark,
The Thorndike Memorial Laboratory,
The Boston City Hospital,
818 Harrison Avenue,
BOSTON 18, Mass.

Dear Doctor Wallmark:

I was surprised to get your letter and to hear that you were over on this side of the Atlantic. I hope that before you go back to Stockholm you will be able to visit Ottawa. I should like very much to see you again. I have very pleasant memories of a lovely evening at your home last August. Is [redacted] with you?

At the Stockholm conference, you might remember that I said I thought it illogical to place phages 81 and 82 in the Miscellaneous group when they were so obviously related to phage 80 but Dr. Williams thought that they should be placed in the Miscellaneous group because they were so often found in the type pattern of group III strains. Nevertheless we in this country and Blair and Updyke in the U.S. consider "80/81" or "80/81/82" strains definitely Group I strains.

I was interested to learn that your KS6 phage is proving useful and we shall be happy to study it here and to include it in our routine typing if you will send it and its propagating strain to us. What is the origin of this phage and do you know its serological group?

.....

With best wishes for a happy and profitable sojourn in the U.S., and kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

Thorndike Memorial Laboratory
CITY OF BOSTON
HOSPITAL DEPARTMENT
THE BOSTON CITY HOSPITAL
818 HARRISON AVENUE, BOSTON 18, MASS.

JOHN F. CONLIN, M. D.
DIRECTOR OF HOSPITALS
AND SUPERINTENDENT

KENMORE 6-8600

Dr E.T.Bynoe
Laboratory of Hygiene
Department of National Health and Welfare
Ottawa
Canada

Boston Sept 18 1959

Dear Dr Bynoe:

Since a couple of months I am in Boston at the Thorndike Mem. Laboratory with Dr Maxwell Finland, a very pleasant experiance.

Among other things we now do phage typing of staphylococci at this hospital(with phages from dr Blair). The most common hospital strain is here, as on many other places including Sweden, of the type 80/81, strains which are also lysed by the phage KS 6 which I isolated some ten years ago. Here are, of course, also plenty of other types.

The phages 80, 81, and KS6 are evidently rather closly related. As by now phage 80 is placed in group I, it seems justified also to place 81 and KS 6 in this group .

In my experiance phage KS 6 is quite useful besides 80 and 81, and some strains are only lysed by this phage. If you are interested to test this phage I would be glad to send it to you.

I am very badly equipped with reprints of your papers on staphylococci. Therefore I shuold appriciate very much if you could be so kind to send me a copy of such papers of yours, e.g. the one in Canad. J. Microbiol. 1956, and if you could put my name on your mailing list. I plan to be here in Boston till June 1960. After that I will be back in Stockholm, State Bacteriological Laboratory, Box 764, Stockholm 1, Sweden.

With kind regards

Sincerely yours
Gosta Wallmark

80 - B
81 - A
82 - A

355-S-2

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON N.W.9
Cables: DEFENDER, NORPHONE, LONDON

17th September 1959

Ref: 208

Dear Ted,

Thank you for your letter of August 10th and the notes about your small discrepancies in the phages. Mrs. Asheshov is looking at these a bit further and we shall write to you again later.

Best wishes,
Yours,

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

Acknowledge receipt of strain 7 phage 55
55
80 RTP

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

6

Dr. E.T. Bynoe,
National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Ave., London, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000101

To open cut here

Staph

355-S-2

Laboratory of Hygiene,
Ottawa, Ontario.

September 17, 1959.

Dr. J.G. Taggart,
Department of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Taggart:

Thanks for your letter of September 11th and for letting me know the next phase of your investigation. We are quite willing to type the extra cultures which you expect to send in.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

355-5-2

Laboratory of Hygiene,
O t t a w a.

September 10, 1959.

Dr. Mary E. Williams,
Provincial Laboratory of Public Health,
University of Alberta,
EDMONTON, Alta.

Dear Doctor Williams:

This is in reference to your letter of September 3, which I read with interest. Since you did not specify the size of Petri plates used for propagation, I assume you are using those of 10 cm. diameter. In our laboratory a good yield of phage, at least 20 ml. is obtained with 15 cm. diameter plates. If large Petri plates are not available at your laboratory it is quite satisfactory for you to use more than one small plate to propagate one phage.

Please understand that our method of propagation is only a suggestion and if a good yield of phage of high titer is obtained by another method or by a modification of our method, it is quite satisfactory for you to use it. Some laboratories obtain good titers by propagation in broth and prefer that method over the agar method.

Under separate cover I am forwarding you the phage and strain requested.

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/ed

555-2-2

PROVINCIAL LABORATORY OF PUBLIC HEALTH
UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

September 3, 1959

Dr. R.D.Comptois
Laboratory of Hygiene
Dept. of Nat. Health & Welfare
45 Spencer Street
OTTAWA, Ontario

Dear Dr.Comptois,

Thank you for your letter of September 1st containing the information about the phages 71, 80, 82 and 187.

A fair number of our isolations are phage type 81 with our present basic set. We are wondering if the pattern will change to 80/81 or 80/81/82. It will be most interesting to see how strains previously typed as 52/52A/81 will turn out. We are keeping some of our strains for retesting with the new set.

We are experiencing a little difficuluty in propagating phages by the recent method which you forwarded to us.

Our previous method was as follows:- 0.5 - 1 ml nutrient broth is first added to the dried phage. Tenfold dilutions are made and the phage is titrated by growing on the appropriate propagating strain.

To propagate and increase the titre of the new phage we next flood three plates with the appropriate p.s. After drying we flood one plate with the R.T.D. obtained, one plate with one higher dilution and one plate with one lower dilution.

Next day we take the plate showing confluent plaques of lysis with a few islands of growth (3+ lysis) as showing the best dilution of phage for propagation and increasing the titre. We then flood 2 plates with the appropriate p.s. and flood with phage at the chosen dilution leaving the usual control sector free. Next day the phage is havested by freezing and thawing. It is then centrifuged and retitrated. If the R.T.D. is high enough 6 - 8 plates are flooded to obtain a large quantity (50 ml) of phage. After centrifuging and titrating, the new phage is Seitz filtered and retitrated to determine its final R.T.D.

RDC

With the new method a good R.T.D. is quickly obtained but our difficulty is the very small quantity of phage harvested. To begin with, the recommended 0.4 - 0.5 ml. of reconstituted phage is insufficient to spread the first plate adequately. Probably the very low air humidities which we experience here accounts for the rapid disappearance of the phage into the agar.

When harvesting we obtain approximately a 10 ml. yield of phage. Seitz filtering considerably reduces this amount.

Would it be satisfactory if we used our old method for propagation of the phages or perhaps we could work out some minor modifications of the new recommended method.

Please could you send us one ampoule of phage 3C (new set.), propagating strain 2009. (new set.)

Yours sincerely,

M. E. Williams.

Mary E. Williams, M.B. Ch.B.,
Assistant Bacteriologist

MEW/mh

Phage + cattle
shipped Sept 10/59.

355-S-2.

Laboratory of Hygiene,
O t t a w a.

September 1, 1959.

Dr. F.W. Jelks,
Division of Laboratories,
Department of Health,
P.O. Box 3000,
CHARLOTTETOWN, P.E.I.

Dear Doctor Jelks:

Under separate cover I am forwarding you three agar stab cultures of the three strains of staphylococci mentioned in your letter of August 28, 1959.

I cannot understand why these cultures failed to grow because lyophilized samples from the same lots gave luxuriant growth in broth after 6 hr. incubation at 37°C yesterday.

However, if you run into more difficulty please do not hesitate to let us know.

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

Laboratory of Hygiene,
O t t a w a.

September 1, 1959.

Dr. Mary E. Williams,
Provincial Laboratory of Public Health,
University of Alberta,
EDMONTON, Alta.

Dear Doctor Williams:

Your letter of August 25, 1959, to Dr. Bynoe has been referred to me. Below is the information you requested.

Phages 71, 80, and 187 are newer phages which have recently been added to the 'basic' set of typing phages. Phage 71 is a serological group B phage and belongs in lytic group 2. Staphylococci which are lysed specifically by this phage have very often been isolated from the lesions of impetigo contagiosa and have also been responsible for epidemics of pemphigus neonatorum in maternity hospitals (see Spittlehouse 1955, Lancet, 2, 378; Parker et al 1955, J.Hyg. 53, 458; Gillespie et al 1957, Brit. Med.J. 1, 1044).

Phage 80 is a serological group B phage and belongs in lytic group 1. The phage was isolated in 1955 by Dr.Rountree in Australia by 'adaptation' from phage 52A, of which it appears to be a virulent mutant. Most strains lysed by phage 81 are also susceptible to phage 80 with the pattern '80/81'. These type 80/81 strains as you probably know have been responsible for a large number of hospital infections in Australia, England, and the Americas.

Phage 187 is phage 735G of Wahl and Fouace (see Ann.Inst. Pasteur, 1954, 86, 161). It belongs to lytic group Miscellaneous and is a serological group L phage. The phage does not usually enter into patterns with phages of the other lytic groups.

.....

Phage 82 is a new 'adapted' phage which has recently been isolated in our laboratory. This is phage '52AV' which has recently been given official number 82 by the Colindale people. Phage 82 is not used in the basic set at Colindale and is not distributed to other laboratories. However, in Canada, it is useful because some strains have been lysed specifically by this new phage. The phage was 'adapted' from 52A and is closely related to both 80 and 81 because most type 80/81 strains are also susceptible to phage 82.

Strains 8719, 8592, and 2009 are not propagating strains for any of the phages. These are strains which have been recommended by the International Reference Center for use in determining the lytic spectrum of the phages. Strain 8719 differentiates phage 71 from the other group 2 phages, while 8592 is specific for phages 75 and 77; 2009 differentiates phage 52 from 52A.

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

Laboratory of Hygiene
O t t a w a

August 27, 1959.

Dr. H. Arthur Bird,
Bureau of Laboratories,
Department of Health,
SAINT JOHN, N.B.

Dear Doctor Bird:

We have forwarded to you under separate cover, the 24 strains of coagulase positive staphylococci, which we recently received from Dr. R.E.O.Williams, London, for typing. Attached is a form, prepared by Dr. Williams, for reporting your results. To quote from Dr. Williams' letter "These sheets have spaces for 10 phages additional to those of the basic set, and we should be glad if you would indicate on the sheets what, if any, additional phages you use and the reactions you obtain with them. The column headed "reported results" provides space for you to indicate what you would have reported to the sender of the strains, had these been received in a routine way.

"We suggest that for this test it might be helpful if all strains were typed both at R.T.D. and at 1000 R.T.D. If you ordinarily use 100 R.T.D. in your laboratory we should be very interested to see the results with that dilution".

Also included with the 24 cultures for typing are the new stocks of phages, their propagating strains and the other strains used for determining the lytic spectra of your

.....

phage preparations, which we recently received from the International Reference Laboratory to replace the old stocks. A copy of our methods and a table showing the lytic spectra of the phages as obtained at Colindale and by us are also enclosed.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
att.

ADDRESS OFFICIAL COMMUNICATIONS TO:
DIRECTOR
DIVISION OF LABORATORIES
828 WEST TENTH AVENUE
VANCOUVER 9, B.C.

s.19(1)

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

IN YOUR REPLY REFER TO
FILE No. 6-13-2

DEPARTMENT OF HEALTH AND WELFARE
HEALTH BRANCH
DIVISION OF LABORATORIES

August 26, 1959

Dr. E. T. Bynoe
Chief
Bacteriological Laboratories
Laboratory of Hygiene
Ottawa, Ontario

Dear Ted:

Thank you for your letter dated August 19. The new sets of phages and phage types arrived safely yesterday. Unfortunately our "phage typist," Miss Milling, [redacted]. It would therefore not be possible for us to commence propagating the new phages until mid October. It is therefore not likely that we shall complete the set before November or December.

I enclose receipt for the shipment.

I hope all goes well with you and look forward to seeing you later in the year.

With kind regards,

Yours very sincerely,

Ernest Bowmer

E. J. BOWMER
Director

EJB:sk

Encl.

352-5-2

Laboratory of Hygiene
O t t a w a.

August 26, 1959.

Dr. Norman A. Hinton,
Associate Professor of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Norm:

My sincere apologies for appearing critical of your antibiotic nasal spray trial. Taggart did not explain to me what the purpose of this trial was and I assumed that it was simply an attempt to clear up (and to keep clear for a reasonable period of time) carriers amongst the hospital staff.

As a matter of fact, following my chats with Shooter and Gillespie last fall in England and the recent report by Weinstein (N.En.J.Med. June 1959) I have been impressed by the importance of the patient, who is a nasal carrier, infecting his own surgical wound. As many, perhaps most, surgical patients are usually admitted to hospital for only a very short period before operation, a trial such as the one carried out by you is most interesting and was very worthwhile doing. Although I have not seen your analysis of the results, I gathered that they were not too favourable, which is certainly disappointing. Would a combination of systemic and topical application of antibiotics be worthwhile trying?

We shall be interested in seeing what the 'ointment' treatment can do!

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

August 25th 1959

Dr. E. T. Bynoe,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
Ottawa, Ontario.

Dear Ted,

I received your letter of August 21st and am pleased that the delay in the phage trial will not be an inconvenience.

I was surprised to note that you were so emphatically of the opinion that the antibiotic spray trial was carried out for, "entirely too short a period". There is an enormous disadvantage to carrying out experimental work with principle investigators separated by distances which preclude extensive discussions on every part of the work and I can only conclude that this disadvantage may have given rise to some misunderstandings.

I assure you that the decision to carry the treatment out for one day was not undertaken lightly as it required Dr. Taggart and myself to be present 48 straight hours in order to cover all of the girls with their staggered shift working hours.

There seemed to me to be two problems involved. Could antibiotics be used to eliminate the carrier state in a short period of time? This feature could be of interest to a surgeon or attendents who were heavy carriers, or carriers of epidemic strains and in whom it was desirable to terminate the carrier state efficiently for a limited period of time, or if it were found desirable, to terminate the carrier state in surgical patients preoperatively.

Consultation with my colleagues in otorhinolaryngology indicated that a nasal spray would be likely to be the most efficient method of insuring a complete exposure of the mucous membranes of the pharynx and nasopharynx to the effective agents, and analogy with other studies on surface decontamination seemed to indicate that a maximum effect would be produced by maintaining a massive dose level over a relatively short period of time. Thus, each girl was given five doses of the bacitracin-neomycin mixture during the 24 hour period and we definitely felt that whatever effect could be produced by a nasal spray would be observed and could be evaluated by this procedure.

Clearly the other problem involved was the control of the carrier state over more prolonged periods of time, e.g. a reduction and maintained reduction in the number of carriers in an entire hospital nursing staff. Although the nasal spray is undoubtedly the most efficient method of delivering antibiotics to the mucous membranes it possesses several disadvantages for long term control. Firstly, the concentration of drug in the mucose is probably maintained for only short periods of time, thus the spray must be repeated at fairly frequent intervals. Secondly, in order to be effective the spray must be handled by someone who can administer it properly. The amount of effort involved in using a spray with large numbers of people over long periods of time would seem to preclude its use.

Nasal cream, however, would seem admirably suited to this purpose and although any single dose is likely to be less efficient than the spray, it is possible for the cream with its more prolonged effect to be easily self-applied three times a day by the person concerned. Thus the second trial has been run for a week with the cream and the results are being evaluated. It may well turn out that a combination of the two methods may be the most suitable general procedure.

I am sorry to be so long-winded, but I did feel that you should be made aware of the reason for our choice of treatment periods in this trial. Many points of view are always possible under these circumstances, and if you feel strongly that a more prolonged nasal spray trial is desirable it may be possible to arrange it.

Kindest regards,

Norman.

Norman A. Hinton, M.D.
Assoc. Prof. of Bacteriology.

555-5-2.

PROVINCIAL LABORATORY OF PUBLIC HEALTH

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

August 25, 1959

Dr.E.T.Bynoe, Ph.D.,
Bacteriological Laboratories
Laboratory of Hygiene
OTTAWA, Ontario

Dear Dr. Bynoe,

Thank you for your letter concerning the Staphylococcus aureus phage typing survey and for the copy of your methods. I am enclosing a receipt for the various phages, strains etc. which you have sent to us to replace our basic set.

We will type the 24 trial strains of Staphylococcus aureus when we have replaced our present basic set with the new phages. This new set contains four phages which are not currently in use in this laboratory, (71, 80, 82, 187.) We would welcome any information on these four.

We note on the list of strains used for the new lytic spectrum of phages the presence of three strains which are not the propagating strains of any phages we know and wondered what is their significance. I am refering to strains 8719, 8592 and 2009.

We will let you have the results for the typing survey as soon as possible but it will be a little time before we have replaced our phages with the new set.

Yours sincerely,

Mary E Williams.

Mary E.Williams, M.B. Ch.B.,
Assistant Bacteriologist

MEW/mh

DEPARTMENT OF PUBLIC HEALTH
NOVA SCOTIA

355-S-21

DIVISION OF LABORATORIES (PUBLIC HEALTH)
PATHOLOGICAL INSTITUTE
62 UNIVERSITY AVENUE HALIFAX, N. S.

Aug 24/59.

Dear Ron:

Sorry to be so much trouble, but - this P.S. number looks like 42F, instead of 42E. Thought I'd better send it back for you to check. I'm simply thrilled with the idea of the survey - ha', but it will be awhile before you get my results. I've never been too satisfied with the titers of some of the phages, and have been meaning for the past six months to get a new set from you, but we're a bit short staffed and I've been flitting around from task to task. However, I hope this time, to have much better results. I have been trying some liquid propagation methods with better results.

I hope you are enjoying life.

Sincerely,

Pauline Evan.

355-5-2

THE GOVERNMENT OF
THE PROVINCE OF NEW BRUNSWICK

DEPARTMENT OF
HEALTH AND SOCIAL SERVICES
PROVINCIAL LABORATORIES
CASTLE STREET

TELEPHONE CX 2-2645

SAINT JOHN, N.B.

August 21st, 1959

Dr. E. T. Bynoe,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa, Canada

Dear Doctor Bynoe:

Please send us a set of strains of staphylococci for checking our procedures as outlined in your letter of August 10th, 1959.

Yours truly,

H. A. Bird, M.D.,
- Director -

M. Coulois

HAB*kr

23 'basic' phages
22 propagating strains
8 additional strains for lytic spectrum
24 Edindale cultures for survey

Shipped Aug 27, 1959.
RDC

Laboratory of Hygiene,
O t t a w a.

August 21, 1959.

Dr. N.A. Hinton,
Associate Professor of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Norm:

I received your letter of August 18th; we have so much to do that it will be no problem delaying the proposed trial of bacteriophage nasal sprays.

When Dr. Taggart was here, he mentioned that your first trial of antibiotic spray had been for only one day. I feel that this is entirely too short a period and I suggested that he should apply the antibiotic nasally for at least a week if he hoped to get any worthwhile results. I quite agree that you should run this nasal antibiotic cream trial before we attempt the phage nasal spray.

Dr. Taggart also mentioned that you had serum from all of these nurses. I think that our Dr. Al Jackson might have ideas that would interest you regarding things that might be looked for in these sera.

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

August 18th 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe,

I understand from Jim Taggart that you had discussed the inclusion of some phage work in our current trial and that arrangements were under way to produce ~~several~~ SUFFICIENT polyvalent phage for our projects.

I hope you will find it convenient to delay this part of the project very slightly. I feel strongly that in order to get a good evaluation and a good comparison we should run a trial with antibiotic cream before we get to the phage work. I suspect that this will take probably a month to perform and we will be able to use the phage immediately after that.

I hope this will not conflict with any arrangements you have made.

Best regards,

Yours sincerely,

Norman A. Hinton, M.D.
Assoc. Prof. of Bacteriology.

NAH/JZ

Provincial Laboratory

DEPARTMENT OF
HEALTH AND PUBLIC WELFARE
MANITOBA

MEDICAL COLLEGE BUILDING
BANNATYNE AVE., WINNIPEG

August 17, 1959.

Dr. E. T. Bynoe,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
45 Spencer Street,
Ottawa, Ontario.

Dear Dr. Bynoe:

Thank you for your letter of August 10th. As you know, I have very recently requested a further set of staphylococcal phages and should be very pleased to take part in the projected survey.

Yours sincerely,

L. P. Lansdown, M.D.,
Director of Laboratory Services.

LPL/h

Colindale cultures (1-24) only to be sent out - Q + PS shipped previously!

RDC

Colindale cultures 1-24 shipped Aug 20, 1959.

HPW-u-33

000120

355-3-2

DIVISION OF LABORATORIES

DIRECTOR: JOHN CRAIG, M. B., CH. B.

DEPARTMENT OF HEALTH
PARVA SUB INGENTI
PRINCE EDWARD ISLAND

P. O. BOX 3000
CHARLOTTETOWN, P. E. I.
TELEPHONE 9816

August 17, 1959

Dr. E. T. Bynoe

Laboratory of Hygiene

Ottawa, Ontario

Dear Dr. Bynoe:

Thank you for your letter of August 10th.

We would certainly be interested in taking part in the survey of phage typing and would like to receive the various strains.

Yours sincerely,

John Craig, M.B., Ch.B.
Director
Division of Laboratories.

RDC
M. Curtis

Phages & cultures
shipped Aug 20, 1959

388-5-2

Laboratory of Hygiene
O t t a w a.

August 17, 1959.

Dr. L.P. Lansdown,
Director of Laboratory Services,
Department of Health & Public Welfare,
WINNIPEG, Manitoba.

Dear Doctor Lansdown:

Under separate cover we have forwarded to you the lyophilized phages and their propagating strains and the other strains used in determining the lytic spectra of the phages, as requested in your letter of August 11th. These phages and propagating strains of the basic set are the new stocks recently received from Dr. Williams at the Colindale Laboratory.

If you are having trouble propagating these phages, I think it would be very worthwhile having one of your people visit us for a few days. We shall be very pleased to have Dr. Martin spend a couple of weeks in October or November with us.

I am also enclosing a copy of our methods and a table showing the lytic spectra of the basic set of phages.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

encl.

555-S-2

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

REGIONAL VETERINARY LABORATORY
Kemptville, Ontario

August 14th, 1959.

Dr. E. T. Bynoe,
Chief, Bact. Laboratories,
National Phage Typing Centre,
Tunney's Pasture,
OTTAWA, Ontario.

Dear Dr. Bynoe:-

The enclosed Staphylococcus was obtained in fairly large numbers in pure culture from a human urine specimen. The patient's temperature was 104 deg. F at the time the specimen was taken. I would be interested in having this organism typed, and would also like your opinion as to whether there is any significance in typing organisms recovered in this way.

Thanking you,

Sincerely,

RJJ:MHL.

R. J. Julian D.V.M.

Culture received 5952444
Aug. 17, 1959.

ADDRESS OFFICIAL COMMUNICATIONS TO:
DIRECTOR
DIVISION OF LABORATORIES
828 WEST TENTH AVENUE
VANCOUVER 9, B.C.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF HEALTH AND WELFARE
HEALTH BRANCH
DIVISION OF LABORATORIES

IN YOUR REPLY REFER TO

FILE No.....

August 13, 1959.

Dr. E.T. Bynoe
Chief
Bacteriological Services
Laboratory of Hygiene
Ottawa, Ontario

Dear Ted:

Thank you for your letter dated August 10th. I am delighted to hear that you are going to carry out this survey of staphylococcal phage typing throughout Canada and we would be very pleased to collaborate. Will you kindly send us Dr. Williams' strains and the necessary table for reporting our findings.

With kind regards,

Yours sincerely,

Ernest Bowmer

E. J. BOWMER
Director.

EJB:mlp

Phages + cultures shipped Aug 20, 1959.

M Cuchois

RDC

350-3-2

PROVINCIAL LABORATORY OF PUBLIC HEALTH
UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

August 13th, 1959.

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
Department of National Health
and Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe:

Thank you for your letter concerning the typing trial of strains of Staphylococcus aureus.

Dr. Stuart is at present on annual leave but I am quite sure that he would be pleased to take part in such a survey.

It will be most useful to know if we obtain comparable results with other laboratories in Canada.

We shall then expect to receive a set of strains from you and we will carry out phage typing using the "basic set" of phages.

Yours sincerely,

Mary E. Williams

Mary E. Williams, M.B., Ch.B.,
Assistant Bacteriologist.

MEW/jw

Phages + cultures shipped Aug 20, 1959.

RDS

DEPARTMENT OF PUBLIC HEALTH
NOVA SCOTIA

DIVISION OF LABORATORIES (PUBLIC HEALTH)
PATHOLOGICAL INSTITUTE
62 UNIVERSITY AVENUE HALIFAX, N. S.

355-8-2

August 12, 1959

Dr. E. T. Bynoe, Chief
Bacteriological Laboratory
Laboratory of Hygiene
Tunney's Pasture
Ottawa, Ontario

Re: Evaluation, Staphylococcus Phage Typing

Dear Dr. Bynoe:

I shall be glad to participate in the series, but would like very much to have a new set of phages as ours are now two years old, and the titre is not as high as we should like.

Will you be good enough to send us a new set of phages.

Yours sincerely,

Dr. D. J. Mackenzie
Director of Laboratories

DJM/SMO

Phages + cultures shipped Aug 20, 1959.

Provincial Laboratory

DEPARTMENT OF
HEALTH AND PUBLIC WELFARE
MANITOBA

MEDICAL COLLEGE BUILDING
BANNATYNE AVE., WINNIPEG

August 11, 1959.

Dr. E. T. Bynoe,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
45 Spencer Street,
Ottawa, Ontario.

Dear Dr. Bynoe:

We have been having considerable trouble producing staphylococcal phages of adequate titre. This has also been the case at the University where, as you know, Dr. Payne and Mr. Gorenstein have also been working with these phages. Various techniques have been tried but, on the whole, the results have been poor. We feel that some at least, of our propagating strains may have deteriorated and that perhaps this is the cause of our difficulty. Dr. Payne and I agree that it would seem that we should make a fresh start in this work and accordingly, we would be greatly obliged if you could forward two sets of the following staphylococcal phages and their supporting strains:

29 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ 71 ✓
21, 52, 52A, 79, 3A, 3B, 3C, 51, 55, 6, 7, 42B, 42E, 47, 187
47B, 47C, 53, 54, 73, 75, 77, 42D, 42C, 44A, 47A, 81, 80, 82.

I realize that this includes phages other than the recommended basic set. However, the University wishes to include the extra strains.

I had hoped that it might be possible to arrange to send the senior technician, who is doing most of the phage work, to your laboratory late this summer. However, this is impossible. I wonder, however, whether I might be able to have R. S. Martin, PhD, visit your laboratory, perhaps in October or November, for a period of say, two weeks, concerning your methods both in staphylococcal phage typing and the identification of enterobacteriaceae.

Yours sincerely,

L P Lansdown

L. P. Lansdown, M.D.,
Director of Laboratory Services.

LPL/h

60 typhy'ed ✓
56 typhy'ed ✓
propagating cultures
8 additional cultures
for lytic spectrum.

Regards
Les

Phages + cultures shipped Aug 14, 1959.

HPW-u-33

555-5-2

Laboratory of Hygiene,
O t t a w a.

August 11th, 1959.

Miss Anne M. Collins,
Bacteriology Laboratory,
The Hospital for Sick Children,
555 University Avenue,
TORONTO 2, Ontario.

Dear Miss Collins:

We have sent to you under separate cover, a complete new set of staphylococcus typing phages, their propagating strains and the strains recommended for testing their lytic spectra. These are the new phages and strains recently received from the International Reference Laboratory, Colindale. Strains 567 and 574 have been dropped in favour of strains 8719 and 8592.

I am also enclosing a copy of our Method of Typing and a table showing the lytic spectra of the phages. The differences in the results obtained at Colindale and here are very minor and you should not worry about a "1" or "2" reaction variation.

If you have any trouble with any of the phages or strains, let us know and we will replace them.

Yours sincerely,

E.T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
encl.

c.c. to all Directors of Laboratories

355-S-2

Laboratory of Hygiene,
O t t a w a.

August 10, 1959.

Dr. E.J. Bowmer,
Director,
Division of Laboratories,
Department of Health & Welfare,
828 West 10th Avenue,
VANCOUVER 9, B.C.

Dear Doctor Bowmer:

At the meeting of the International Staphylococcus Subcommittee in Stockholm last year it was agreed that the International Reference Laboratory at Colindale should circulate (for typing) sets of strains to all national typing laboratories at intervals of about 2 years as a check on the reliability of the reagents and procedures which were being used. We have just received from Dr. R.E.O. Williams at Colindale a set of 24 strains of staphylococci for typing and a table for reporting our results.

I think it would be very interesting and useful if we could extend this typing trial to all those laboratories in Canada doing typing and we have accordingly prepared enough sub cultures of these strains to send a set to each Canadian laboratory which is interested in taking part in this survey. If interested, please let me know and I will send you the strains together with a table for reporting your results.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-1

Laboratory of Hygiene
O t t a w a.

August 10, 1959.

Dr. R.E.O. Williams,
Director,
Staphylococcus Reference Laboratory,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9.

Dear Doctor Williams:

I received your letter of July 28th and the 24 strains of staphylococci for typing. We shall be very pleased to type these according to the procedure outlined in your letter. We shall type these at R.T.D. and at R.T.D. X 1000 - our regular routine procedure. I also intend to write to our provincial public health laboratories, as suggested by you, and try and interest them in also typing these strains.

Mr. Comtois has checked the lot of phages and their propagating strains, which we received from you sometime ago. There are a few minor discrepancies between our results and those reported by you, but I suppose this is to be expected. However, you might be interested in our results and I have listed these discrepancies separately. Your Phage 55 gave no lysis with either your new P.S.55 or our old P.S.55. Our old phage 55 gave the typical reactions reported by you, so we shall continue to distribute our old phage.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

Discrepancies observed between Lab.of Hygiene results and Colindale results on lot of phages and their propagating strains received February 3, 1959.

PHAGE	PROPAGATING STRAINS	L.OF H.	COLINDALE
29	44A	-	2
52	29A	-	3
	47	-	3
52A	47	-	3
80	29A	-	3
	42B/47C	-	2
	47	-	2
3A	42D	-	1
7	29A	1	-
	42E	1	-
73	42D	-	1
	42E	2	-
	80	1	3

Cultures rec'd Aug 4, 1959

CANADA

DEPARTMENT OF VETERANS AFFAIRS

Laboratory, Lancaster Hospital,
Lancaster, New Brunswick,
July 31, 1959

IN YOUR REPLY REFER TO FILE NO.

Dr. E. T. Bynoe, chief
Bacteriological Laboratories,
Laboratory of Hygiene,
Dept. of National Health and Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe:-

Under separate cover, we have sent you some more staphylococci cultures for phage typing. These are as follows:

Staphylococcus number	Origin
594888 856	Sputum
4889 857	Infected incision, lt. hand
4890 858	Callosity, rt. foot
4891 859	Lt. shoulder folliculitis
4892 860	Sputum
4893 861	Pilonidal sinus
4894 862	Urine
4895 863	Sputum
4896 864	Infected incision, lt. hand
4897 865	Sore, index finger (left)
4898 866	Infected area, wrist
4899 867	Boil on buttock.

Mr. Verrette
ads

CANADA

DEPARTMENT OF VETERANS AFFAIRS

IN YOUR REPLY REFER TO FILE NO.

Dr. E. T. Bynoe (2)
July 31, 1959

In our last letter, we had to leave out the sensitivites for several cultures but these are now being sent to you, together with as many of those belonging to this set of cultures.

Again, many thanks for your co-operation.

Very truly yours,

Arnold Branch
per EEP.

ARNOLD BRANCH, M.D.
Chief of Service,
Laboratory Service.

AB:RM
Enc.

THE HOSPITAL FOR SICK CHILDREN
555 UNIVERSITY AVE.
TORONTO 2
TELEPHONE EM. 6-7242

July 31, 1959.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ont.

Dear Dr. Bynoe,

We are about to start on another session of large scale phage typing. If you remember we first propagated phages in 1956 and with your help got them straightened out. We still have lyophilized supplies of these original phages, which were dried in November, 1956. These have been used to date to prepare more phage stocks. However, in view of the changes in the lytic spectra, I wonder whether we would be wise to start now with completely new stocks from your Reference Laboratory. The strains of staphylococci for propagation and lytic spectrum which we received from you in 1956 were also lyophilized, so I feel these will probably still be suitable for use.

In December you very kindly sent me phages 71 and 52AV and staphylococci 29A, 71 and 52AV which had been added to the typing scheme. I wonder about the use of 52AV. Is there any advantage to using phages 80 or 81 along with this?

If you think it would be wise at this point to start propagating phages from fresh supplies, I wonder if you would be kind enough to send the phages of the basic set, except for the two I have already received. You had not obtained phage 187, and strains of staphylococci 567, 574 and 2009 from Dr. Williams when you wrote in December. Are they available now?

Thank you very much for your trouble.

Yours sincerely,

Anne M. Collins

Anne M. Collins, M.Sc.

AMC/jm

22 + S
23 phages
plus 8 additional phages
for determining lysis spectra.

PUBLIC HEALTH LABORATORY SERVICE

(Directed by the Medical Research Council for the Ministry of Health)

Telephone: COLINDALE 7041 (8 Lines)
Telegrams: DEFENDER, NORPHONE, LONDON

CENTRAL PUBLIC HEALTH LABORATORY,
COLINDALE AVENUE,
LONDON, N.W.9.

Ref: 111

28th July 1959

Dear Dr. Bynoe,

You will recall that at the meeting of the International Staphylococcus Subcommittee in Stockholm last year it was agreed that we should circulate sets of strains to all national typing laboratories at intervals of about two years. We are accordingly sending to you, under separate cover, a set of 24 strains of coagulase-positive staphylococci and we hope that you will be prepared to put them through your routine typing process and let us have the results that you obtain. In order to simplify the tabulation we have prepared some sheets on which the results may be recorded. These sheets have spaces for 10 phages additional to those of the basic set, and we should be glad if you would indicate on the sheets what, if any, additional phages you use and the reactions that you obtain with them. If they are phages not obtained from Colindale we should be grateful for a short note on their origin. The column headed "reported results" provides space for you to indicate what you would have reported to the sender of the strains, had these been received in a routine way.

We suggest that for this test it might be helpful if all strains were typed both at R.T.D. and at 1000 R.T.D. If you ordinarily use 100 R.T.D. in your laboratory we should be very interested to see the results with that dilution.

We shall analyse the results when they come into us in much the same way as was done in the 1957 test. If you have any suggestions for further analyses that you would like us to make please let me know and we will do our best to comply.

We are sending a set of these strains to each of the typing laboratories in the United Kingdom. If it is possible for you to send subcultures of the strains to other laboratories within your country and to collect the results together I think this might be of very great interest.

Yours sincerely,

R.E.O. Williams

Encl:

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

Rom please I want you to type yourself!

Laboratory Phage propagated at . . . . . Key to additional phages used:

Medium used for typing broth . . . . . Time and temperature of incubation of broth . . . . . .

" " " typing plates . . . . . " " " " " " typing plates . . . . . .

Strain No.		29	52	52A	79	80	3A	3B	3C	55	71	6	7	42E	47	53	54	187	73	75	77	42D	Additional phages 1 2 3 4 5 6 7 8 9 10	Reported results
8	R.T.D. R.T.D. x 100 if routinely used R.T.D. x 1000																							
9	R.T.D. R.T.D. x 100 R.T.D. x 1000																							
10	R.T.D. R.T.D. x 100 R.T.D. x 1000																							
11	R.T.D. R.T.D. x 100 R.T.D. x 1000																							
12	R.T.D. R.T.D. x 100 R.T.D. x 1000																							
13	R.T.D. R.T.D. x 100 R.T.D. x 1000																							
14	R.T.D. R.T.D. x 100 R.T.D. x 1000																							

Laboratory

Phage propagated at . . . . . Key to additional phages used:

Medium used for typing broth . . . . . Time and temperature of incubation of broth . . . . . .

" " " typing plates . . . . . " " " " " " typing plates . . . . . .

Strain No.		29	52	52A	79	80	3A	3B	3C	55	71	6	7	42E	47	53	54	187	73	75	77	42D	Additional phages 1 2 3 4 5 6 7 8 9 10	Reported results	
15	R.T.D. R.T.D. x 100 if routinely used R.T.D. x 1000																								
16	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
17	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
18	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
19	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
20	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
21	R.T.D. R.T.D. x 100 R.T.D. x 1000																								

Laboratory

Phage propagated at . . . . . Key to additional phages used:

Medium used for typing broth . . . . . Time and temperature of incubation of broth . . . . . .

" " " typing plates . . . . . " " " " " " typing plates . . . . . .

Strain No.		29	52	52A	79	80	3A	3B	3C	55	71	6	7	42E	47	53	54	187	73	75	77	42D	Additional phages 1 2 3 4 5 6 7 8 9 10	Reported results	
22	R.T.D. R.T.D. x 100 if routinely used R.T.D. x 1000																								
23	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
24	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
	R.T.D. R.T.D. x 100 R.T.D. x 1000																								
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355-S-2

THE UNIVERSITY OF MANITOBA

DEPARTMENT OF MICROBIOLOGY

WINNIPEG, CANADA

July 15, 1959.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
National Health & Welfare Dept.,
Tunney's Pasture,
Ottawa, Ontario.

Dear Ted:

We have run into a little trouble with 'phage types 42B; 30; 75; 80; and 52AV and the Provincial Laboratory has had the same trouble too.

If it is not too much bother would you send them to us with their propagating hosts and we shall pass them on to Dr. Landsdown.

The project is coming along well. Norm Hinton at Queens has offered to check on β toxin production from some of our strains and I am hoping to get some information along this line as well.

I plan on attending the Botanical Congress so I may see you there.

Best regards to all,

Sincerely,

Beach

T.M.B. Payne
Professor and Head

TMBP/AMS

M. Conlon

9 + cultures
shipped July 17, 1959.
DAL

355-S-2.

Laboratory of Hygiene
O t t a w a.

July 14, 1959.

Dr. James G. Taggart,
Department of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Taggart:

Thanks for your letter of July 10th. I wonder if your treatment given over one 8-hour period was really enough to do much good. It seems that most in using topical application have carried on the treatment for many days. I don't suppose you had another group of carriers that you could have treated every day for a week or even better yet, would those carriers who have had one treatment without effect be willing to undergo another trial - being treated every day for a week?

Rom Comtois and I will be here on Monday - the 20th, and shall be pleased to see you anytime you can make it.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2

Laboratory of Hygiene
O t t a w a.

July 14, 1959.

Dr. D.J. Mackenzie,
Director of Laboratories,
Department of Public Health,
Pathological Institute,
HALIFAX, N.S.

Dear Doctor Mackenzie:

Thanks very much for the report of your results of phage typing of the staphylococci from the Halifax Children's Hospital (March 2 to May 30), and from the V.G.H.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

10th July 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe,

This is in reply to your letter of June 25th. You expressed surprise at the low recovery rate (8%) of coagulase positive staphylococci in the Victory wing by the open plate method and predicted the presence in this wing of a minor staph. problem. You are quite right. There have been few and scattered staphylococcus infections in the area since the early months of 1957. Before this time the staphylococcus enjoyed a long and prosperous reign.

The antibiotic controls have been completed and our method was as follows. Each girl received over an 8 hour period 5 doses of a bacitracin-neomycin mixture dissolved in saline and administered by means of a nebulizer. The total individual dosage was, bacitracin 3100 units and neomycin 15 mg; half of this was sprayed into both nostrils and the other half into the left and right sides of the oropharynx (the areas from which swabs had been obtained). Nose and throat cultures were obtained 16 to 24 hours after the last dose and treated in the usual manner. Repeat swabs were obtained 3 or 4 days later. Today, 8 days later, swabs were again done and we shall now resume the weekly routine.

In answer to your question, yes, we have been doing sensitivity tests weekly on all coagulase positive strains including those recovered 3 days before the spraying. The results of these we shall submit as soon as possible. Please find enclosed here sensitivity patterns of the 7 coagulase positive strains obtained from hospital wound infections. Since we have recovered only 5 coagulase positive nasal strains and 10 coagulase positive oropharynx strains, you can see that the recovery rate of nasal staphylococci but not of oropharynx staphylococci is significantly reduced. In addition, the growth ~~group~~ with primary isolation was very light, Only one plate out of the 15 presenting with more than 20 ~~areas~~ colonies ~~colonized~~ (1 T 40A) - this girl is now in hospital with a gigantic boil. Slopes of these 15 strains identified by the letter 'A' are on their way to you now along with 7 coagulase positive strains recently recovered from hospital wound infections. The latter are as follows:

2448, 3300, 3485, 3644, 3780, 4125, 4252.

We shall send along the coagulase positive strains recovered 3 to 4 days after spraying as soon as possible. These slopes will be marked 'B'.

I will be in Ottawa on July 20th. Would it be convenient for you to see me any time that day? If so, we can draw up plans for the phage trial about which Dr. Hinton and I are still enthusiastic, and which we are willing to start as soon as our 54 subjects have reverted to some sort of normal pattern.

Please let us know of any more plans or of any data you wish to see, etc.

Yours sincerely,

James G. Taggart.

James G. Taggart, M.D.
Department of Bacteriology.

JGT/JZ

Hospital Wound Infections.

HOSPITAL STRAINS (PERSONNEL, ETC.)

SENSITIVITY TO ANTIBIOTICS AT LOW CONCENTRATIONS.

	P	S	TER	TET	AU	CHL	ER
2448	R	S	S	S	MS	MS	S
3300	R	R	R	R	R	MS	S
3485	R	R	R	R	R	S	R
3644	R	MS	MR	MS	MR	MS	S
3780	R	R	R	R	R	R	S
4125	R	R	R	R	R	MS	S
4252	R	S	R	MR	MR	MS	S

R = 0 (NO ZONE)
MR = 0.1 - 3.5 mm.
MS = 4.0 - 6.5 mm.
S = 7.0 mm AND OVER.

355-S-2

Laboratory of Hygiene,
O t t a w a.

June 25, 1959.

Dr. J.G. Taggart,
Department of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Taggart:

Thanks for your letter of June 18th. I was interested in hearing of your plans and progress in your staphylococcal studies. I was surprised at your low recovery of staphylococci in the Victory Wing (only 8% of exposed plates, positive). There can't be too serious a problem there!

My only comment on your plans is - I suppose you are doing or plan to do antibiotic-sensitivity testing of the strains isolated from the group of nurses who are to be treated with nasal antibiotic sprays both before and after spraying!

When you have concluded the antibiotic trials, perhaps you might be willing to try our phage!

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

PROVINCIAL LABORATORY OF PUBLIC HEALTH

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

June 18th, 1959.

Dr. Comtois,
Bacteriological Laboratories,
Laboratory of Hygiene,
Department of National Health
and Welfare,
Ottawa, Ontario

Dear Dr. Comtois:

Thank you for the shipment of phage and cultures. Could we have two vials of phage 3C as well please.

Yours truly,

MEW

M. E. Williams,
Asst. Bacteriologist.

per: Sheila Toshach, M.A.,
Asst. Bacteriologist.

ST/jw

Phage shipped June 22, 1959.

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

June 18th 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa.

Dear Dr. Bynoe,

We have finally gotten around to the task of surveying the Kingston General Hospital for the presence of staphylococci and have determined their relative incidence in various parts of the hospital. The largest wing, Victory, with four floors has been completed. The patients in this wing are of all types (surgical, medical and gynaecological, etc.)

Our method consisted of leaving open heart infusion agar plates for two hours. The plates were placed in each patient's room, and several in corridors, kitchens, utility rooms, etc. These were incubated at 37°C for 24 hours then left at room temperature for 48 hours to allow aureus pigmentation to occur. Both pigmented and non-pigmented strains were then subcultured and coagulase tested by our tube method.

Out of the 200 plates distributed (50 per floor) 16 yielded coagulase positive strains and all of these showed pigmentation of varying degrees. Of these 16, 14 derived from patient rooms, 1 from a corridor (H2 ⑤), and one from a sunroom (S1). Only 2 of the 16 plates were from the same room, 310 ② and 310 ③. Heart infusion agar slopes of these 16 strains are now on their way to your laboratory for phage typing.

We have almost completed a similar survey of the Douglas wing. This wing consists of two floors which are smaller but which also have a much higher human population density than the floors of the Victory wing. The method here was modified by the use of staphylococcal media plates (Difco 110) for distribution instead of heart infusion agar plates as previously. Of 150 plates (75 per floor) distributed, 26 have yielded coagulase positive strains all of which again showed varying degrees of pigmentation. These we shall re-test, subculture to heart infusion agar slopes and send on to you early next week. You may wish to refer to the room code for the Douglas wing which is as follows:

BDC

Patient rooms	As numbered
M.W.	Men's ward (16 beds)
W.W.	Women's ward (12 beds)
M.J.	Men's bathroom
W.J.	Women's bathroom
H.	Corridor
K.	Kitchen
S.R.	Sun room
U.R.	Utility room
D.2	Douglas 2 floor (All medical patients)
D.3	Douglas 3 floor (All surgical patients)

Another item. All nurses participating in the experiment have been back from holidays and on duty in the hospital for at least two weeks. About one week hence we shall therefore start the girls on pharyngeal and nasopharyngeal antibiotic sprays. Consequently you may soon find some changes in the number of strains sent weekly and in the phage types. Final details are not yet complete and these we shall submit to you later.

Finally, Dr. Hinton may have told you that a nose and throat specialist on the staff at the hospital has agreed to examine the noses and throats of our subjects. (Their number, by the way, has gradually dwindled to 54 faithful.)

Please let us know if there is any further information you wish, and if you have any ideas or plans for us to carry out here.

Sincerely yours,

James G Taggart

J. G. Taggart, M.D.
Department of Bacteriology.

JGT/JA

355-5-2

Laboratory of Hygiene,
O t t a w a.

June 15, 1959.

Mr. Earle K. Borman,
Chief,
Laboratory Services Section,
State Department of Health,
P.O. Box 2340,
HARTFORD, Connecticut.

Dear Earle:

I concur whole heartedly with the statement which you have prepared on "Commercial Bacteriophages for Typing Staphylococci" and the stand which you have taken in dealing with Microbiological Associates Inc. It seems to me that you have dealt quite fairly with this firm! I was interested to note that they had agreed to send a set of their phages to the National Reference Laboratories - I presume this includes our laboratory! If and when I receive this set I shall of course, let you know how we find them.

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ad

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

REGIONAL VETERINARY LABORATORY
Kemptville, Ontario

May 27, 1959.

Dr. E. T. Bynoe,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa, Ont.

Dear Dr. Bynoe:

Enclosed are mannitol salt slants of coagulase-positive staphylococci. They were all recovered from cases of mastitis in one herd.

Would it be possible for you to phage type them for us?

I wrote to and received cultures from Dr. Oeding. At the moment we are in the process of manufacturing anti-sera against them.

Thank you for your advice and help.

Sincerely,

WJB DITCHFIELD, D.V.M.

WJBD:mg
Encl.

Cultures received
May 28/59

The General Hospital

Pembroke, Ontario

May 27, 1959.

Dr.E.T.Bynoe,
Chief of Laboratory Services,
Laboratory of Hygiene,
Ottawa,Ontario.

Dear Dr.Bynoe:

Thank you for your letter of May 25,1959 advising me to send our staphylococcus strains for bacteriophage to the Ontario Public Health Laboratory.

I have to apologize for sending the eleven culture to you, but they were sent due to a misunderstanding in our Laboratory.

Thanking you, I am;

Yours sincerely,

S. T. Dobra

STB/mh

Dr.S.T.Bobra

355-5-2

c.c. Dr. L.E. Elkerton

Laboratory of Hygiene,
O t t a w a.

May 25, 1959.

Dr. S.T. Bobra,
Pathologist,
The General Hospital,
PEMBROKE, Ontario.

Dear Doctor Bobra:

I received your letter of May 20th and the eleven cultures of staphylococci for phage typing.

Our laboratory will type cultures submitted from Federal Government hospitals (D.V.A. and National Defence) and by provincial public health laboratories but cultures from other hospitals should be submitted to the public health laboratory of the province concerned. The Ontario Public Health Laboratories are set-up and prepared to type such cultures, and so I have forwarded these cultures on to them in Toronto. They will report their results to you and you should send any other cultures you want typed directly to them.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2

Laboratory of Hygiene,
O t t a w a.

May 21, 1959.

Dr. D.A. Barnum,
Mastitis Laboratory,
Department of Pathology and Bacteriology,
Ontario Veterinary College,
GUELPH, Ontario.

Dear Doctor Barnum:

I have checked on the cultures which you submitted for phage-typing on March 25th., and to which you referred in your letter of March 23. I was surprised when you told me in St.Louis that you had received no report from us as yet on these cultures. I find that we reported our results on the 53 cultures on April 15th, but sent this report to Dr. W.J.B. Ditchfield. Perhaps you will check with him and let us know whether this report was ever received.

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

The General Hospital

Pembroke, Ontario

May 20th.,1959.

Dr.E.T.Bynoe,
Chief of Laboratory Services,
Laboratory of Hygiene,
Ottawa,Ontario.

Dear Dr.Bynoe;

As we have joined in participation of the project sponsored by the National Research Council of Canada for the investigation of the incidents of hospital infections in Canada, we would be very grateful to you if you could make bacteriophage of the staphylococcus strains isolated by us in our hospital.

Hoping to hear from you and thanking you,I am;

Yours very truly,

S. T. Bobra

STB/mh

Dr.S.T.Bobra,
Pathologist.

355-5-2.

[redacted]

Laboratory of Hygiene,
O t t a w a.

May 14, 1959.

Dr. J.V. Irons,
Director of Laboratories,
State of Texas Department of Health,
AUSTIN, Texas,
U. S.A.

Dear Doctor Irons:

Your letter of May 11, 1959 has been referred to me.

Under separate cover I am forwarding the staphylococcus phages and propagating cultures requested. Enclosed is a copy of the methods used at our National Centre concerning the propagation of the phages, routine typing technique, etc.

I would be interested to know the results of your comparative tests.

Thanking you, I am,

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

State of Texas
Department of Health

HENRY A. HOLLE, M. D.
COMMISSIONER

AUSTIN

May 11, 1959

E. T. Bynoe, Ph. D., Chief
Bacteriological Laboratories
Laboratory of Hygiene
Ottawa, Canada

Dear Doctor Bynoe:

We are having difficulties with our staphylococcus phage typing. I am wondering if our phage numbers 29, 52, 52 A, 42 B, and 70 have mutated or been mislabeled. I would be pleased to have an opportunity to compare with your phages and propogating cultures bearing these numbers. We would be willing to reemburse you for the expense of preparing and shipping these materials to us.

Yours sincerely,

J. V. Irons

J. V. Irons, Sc. D.
Director of Laboratories

JVI:tw

Mr. Comtois

aw

Phages + cultures shipped May 14, 1959. RDC

355-8-2

Laboratory of Hygiene,
O t t a w a.

May 6, 1959.

Dr. H. Starkey,
Queen Mary Veteran's Hospital,
4565 Queen Mary Road,
MONTREAL, Que.

Dear Hugh:

I have looked over the lists of articles pertaining to staphylococcal types etc. and the abstracts prepared by Dr. Summerby.

The references listed would give a pretty good coverage of the subject but you are missing quite a few worthwhile ones. I looked over my cards pertaining to phage typing, types and "pathogenicity" and have listed for you a number which you might profitably add to your collection.

The abstracts are in my opinion quite complete and would be very useful for selecting articles for reading or for use, as they are, in writing a general review.

The abstracts are enclosed.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
encl.

Laboratory of Hygiene,
O t t a w a.

April 14, 1959.

Dr. W.J.B. Ditchfield,
Ontario Veterinary College,
GUELPH, Ontario.

Dear Doctor Ditchfield:

Attached is our report on the cultures of staphylococci received from you on March 17th for typing.

In answer to your questions (your letter of March 16th), I would say that the evidence to-date indicates a relationship between phage types and serological types but that this relationship is not an absolute one. Cowan in 1939 described 3 main serotypes, and phage groups I, II and II broadly correspond with Cowan's serological types I, II and III. Oeding in Norway has been studying and using a serological scheme of typing staphylococci for many years and there is an excellent recent paper on a comparison of phage-typing with serological typing in the December issue of the Journal of Hygiene 1958, 56, 445-454 by Per Oeding and R.E.O. Williams which you should read. If I was considering a serological study of 'mastitis' staphylococci I would write to Oeding and ask for reprints of his papers and for the cultures which he uses to produce his typing antisera. His address is Dr. Per Oeding, Gade Institute, Department of Bacteriological and Serology, University of Bergen, Norway.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

CENTRAL LABORATORY
TORONTO: 360 CHRISTIE STREET

REGIONAL LABORATORIES
FORT WILLIAM
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WOODSTOCK

ONTARIO

DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES

ASSOCIATED LABORATORIES
CORNWALL
KITCHENER
SARNIA
ST. CATHARINES
STRATFORD

A MOBILE

Central Laboratory,
Ontario Department Of Health,
360 Christie St.,
Toronto, Ont.

April 8, 1959.

Dr. E.T. Bynoe,
Laboratory of Hygiene,
45 Spencer St.,
Ottawa, Ont.

Dear Doctor Bynoe:

In the process of propagation for the past 4-5 years the lytic spectra of many of our staphyloccal bacteriophages appear to have been altered.

We thought perhaps it might be best if we procured a new set of 'phages and susceptible staphylococci from you.

If you have any new information or references on bacteriophage typing please advise us.

Phages + cultures shipped April 14, 1959

Sincerely yours,

.....
M. Magus,
Special Bacteriology.

MM/SP

Mr Combes
Basic set + 84 153
+ 8 cultures for lytic spectra

000159

HOLY CROSS HOSPITAL
RESEARCH FOUNDATION
1045 EAST FIRST SOUTH SALT LAKE CITY 2, UTAH

April 7, 1959

R. D. Comtois, Bacteriologist
Bacteriological Laboratories
Department of National Health and Welfare
Laboratory of Hygiene
Ottowa, Canada

Dear Doctor Comtois,

Thank you for your letter of March 20, 1959. The lyophilized samples of the page number 82 and its homologous propagating culture were received in our laboratory on April 4. We are grateful to you for the courtesy.

Our best wishes for your success.

Sincerely,

Sister M. Ann Josephine

Sister M. Ann Josephine, Ph.D.

RDC

555-5-2

Laboratory of Hygiene,
O t t a w a.

April 3, 1959.

Dr. J.C. Colbeck,
Chief of Service Pathology,
Department of Veterans Affairs,
Shaughnessy Hospital,
VANCOUVER, B.C.

Dear Chris:

When I was in England last autumn I spent a most interesting day with R.A.Shooter at Barts. It was then he told me of a study he had carried out on 161 patients undergoing "clean" surgery. Sepsis developed in 15 of these patients, and the sepsis was "staphylococcal" in 7. But in 6 of these cases of staphylococcal post operative sepsis, the phage type isolated from the septic wound was identical with that carried by the patient before undergoing surgery. Shorter considered these "autogenous" infections - only 1 could be considered as a cross-infection.

I also visited Gillespie at Bristol and he told me that he was so convinced that many patients infected their own wounds that he was running a trial in which he was treating all "carriers" preoperatively with antibiotics to prevent this self-infection and while he couldn't give me any figures, he said that he felt the results were encouraging.

I do not think that either of these studies have been published, but Williams refers to Shooter's study in his paper at the Atlanta Conference - (Page 20 - Proceedings of the Conference).

****

s.19(1)

[redacted]

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

CANADA

DEPARTMENT OF VETERANS AFFAIRS

IN YOUR REPLY REFER TO FILE NO.

s.19(1)

Shaughnessy Hospital,
Vancouver, B. C.,
March 24th, 1959.

Dr. E. T. Bynoe,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ontario.

Dear Ted:

Thank you very much for the recent phage typing results. I was interested in your remark that our findings appear to confirm those of Shooter's and Gillespie's. I am not aware that they have done anything of this type. I believe that they both showed the unity of skin phage types with nasal types but our interest has been to show that the nasal cultures did or did not correspond with the types causing later wound sepsis. The only considerable investigation similar to this so far as I know is the investigation carried out by Williams and Myles on industrial wounds of the hand. These were mine accidents and they showed that Staphylococci were present in the wounds in a number of cases when they first appeared at the dressing station.

I would be very grateful to hear of any report on the infection of clean surgical wounds in which the patient's own nose or skin appeared to have been the primary source of infection but many times in many hospitals this source of infection is probably not so important and the local epidemic strain may be spread by surgeons, etc. At the present time in the Shaughnessy Hospital the patient himself appears to be the chief source of infection.

I am looking forward very much to seeing the results of the last group of typings which we sent to you as we have otherwise completed this investigation and Rocke Robertson is very anxious to get it ready for publication before [redacted]

With kindest regards.

P.S. There have been investigations showing the importance of nasal carriers in boils &c.

Yours sincerely,

Chris

JCC/mdl

J. C. Colbeck, M.B.B.S.
Chief of Service Pathology.

000163

DVA 1

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

March 23, 1959.

Dr. E.T. Bynoe,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
Ottawa, Ontario.

Dear Dr. Bynoe:

Some time ago you indicated to me that it would be possible to phage type 50 isolates from bovine mastitis. Under separate cover we are forwarding 53 cultures. These strains have been selected from herds in Southern Ontario where there has been a history of mastitis infection involving a number of animals. From our work of a few years ago we assumed that in most cases only one phage type is associated with the disease in the herd. We have also included a few strains which we are using in our experimental work on mastitis.

We appreciate your offer to type these organisms and if it is not possible for you to do it at this time we will understand.

A copy of the list of organisms has been included with the cultures.

Yours sincerely,

D.A. Barnum

DAB:hc

D.A. Barnum
Mastitis Laboratory
DEPT. OF PATH. & BACT.

O.K. with me.
RDC
Mr. Contois

555-10-2

Laboratory of Hygiene
O T T A W A

March 19, 1959.

Dr. John E. Blair,
Bacteriologist,
Hospital for Joint Diseases,
Madison Avenue,
123rd Street,
New York 35, N.Y.,
U. S. A.

Dear Jack:

Many thanks for your most helpful letter of March 9th regarding my talk on Monday afternoon in Rochester. Dr. Ingalls phoned me yesterday giving me much the same information. I propose in my talk to discuss the role of the bacteriologist and the laboratory in studying and controlling the problem of hospital staphylococcal infections. There will undoubtedly be some overlapping in the papers and discussions but this will probably be not a serious complaint. Of course, I will emphasize phage-typing and outline its limitations.

Kindest personal regards.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/FL

555-5-5

NORTH DAKOTA AGRICULTURAL COLLEGE
AGRICULTURAL EXPERIMENT STATION
STATE COLLEGE STATION, FARGO

DEPARTMENT OF VETERINARY SCIENCE

March 18, 1959

Dr. E. T. Bynoe
National Phage-typing Centre
Ottawa, Canada

Dear Dr. Bynoe:

The "International Bulletin of Bacteriological Nomenclature and Taxonomy", Volume 7, Number 1, January 15, 1957, has a work on pages 21-36 by F. S. Thatcher, Ph.D. and W. Simon.

These gentlemen indicated that they used standard methods of phage-typing as carried out at the National Centre for their work. I would appreciate getting your current procedures of standard methods of typing.

Thank you for your consideration.

Sincerely,

(Mrs) Elizabeth P. Westergard

(Mrs.) Elizabeth P. Westergard
Department of Veterinary Science

355-5-2

HOLY CROSS HOSPITAL
RESEARCH FOUNDATION
1045 EAST FIRST SOUTH | SALT LAKE CITY 2, UTAH

March 17, 1958

Dr. R.D. Comtois
Laboratory of Hygiene
Department National Health & Welfare
Ottawa, Canada

Dear Doctor Comtois:

We have read with interest the recent report of Henry Welch in ANTIBIOTIC ANNUAL 1958-1959 entitled "Occurance, phage type, and antibiotic susceptibility of Staphylococcus in various community groups". In his acknowledgments, Dr. Welch indicated that he had obtained his Phage type 52AV from your laboratory.

Currently we are interested in evaluating wound infections, etc. due to Staphylococcus and are interested in type 52AV. Would it be possible for us to obtain a culture of phage and host cell from your collection. We shall be happy to take care of the cost of handling etc.

Thank you, Doctor Comtois, for your courtesy. Our best wishes for the success of your research.

Sincerely,
Sister M. Ann Josephine
Sister M. Ann Josephine, Ph.D.

Phage & Propagating Strain
Sent out March 20, 1959.
RDC.

3555-5-2

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

◆

REGIONAL VETERINARY LABORATORY
Kemptville, Ontario

Mar. 16, 1969.

Dr. E. T. Bynoe,
National Phage Typing Centre,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa, Ontario.

Dear Dr. Bynoe:

The enclosed slants are cultures of coagulase-positive Staphylococci on Mannitol Salt agar.

Would it be possible for you to phage type them for us? They were recovered from a herd infected quite badly with Staphylococcal mastitis.

I would like to take this opportunity to thank you very much for your lucid explanation of phage typing. Dr. Barnum at the Ontario Veterinary College has indicated that he finds only one phage type in any one herd causing mastitis. This is directly opposite to our findings.

Could you find time to comment on the relationship between phage types and their antigens? How would one begin investigating the serology of mastitis producing Staphylococci?

Thank you for your interest and help.

Sincerely,

W.J.B. Ditchfield,
Asst. Reg. Veterinarian.

WJBD/lmc

Cultures received March 17, 1969.

000168

LH106

1. 5-91701
2. 1702
3. 1703
5- 1704
6. 1705
7. 1706
25 1707
26 1708
27 1709
29 1710
30 1711
31 1712
33 1713
34 1714
37 1715
41 1716
43 1717
45 1718
46 1719
47 1720
48 1721

355-D-2

Laboratory of Hygiene
O T T A W A

March 13, 1959.

Dr. Eugene D. Rosenblum,
Assistant Professor,
The University of Texas,
Southwestern Medical School,
5323 Harry Hines Boulevard,
Dallas 19, Texas,
U. S. A.

Dear Dr. Rosenblum:

I was interested in the work you are doing on staphylococcal lysogeny and look forward to seeing the results of your investigation when it is completed.

As requested in your letter of March 9th, we have forwarded to you, under separate cover, lyophilized specimens of the phages and propagating strains which you were interested in studying.

I hope they arrive in good condition and are all viable. If you have any trouble recovering any of these from the dried state, let me know and we will send you other specimens.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/PL

[redacted]

file - 355-2-2

STAPH. PYOGENES CULTURES FOR PHAGE TYPING - OTTAWA 13/3/59

59165 3	[redacted]	3/2/59	Rt. nostril swab
1654		24/2/59	Rt. nostril swab
1655	1781	Johnson	Rt. nostril swab
1656	1748	Johnson	Swab - penrose site
1657	1765	Johnson	Swab - penrose site

Cultures received March 16, 1959. RDC.
Shaughnessy Hospital,
Vancouver, BC.
Dr J.C. Allbeck.

DIVISION OF LABORATORIES

DIRECTOR: JOHN CRAIG, M. B., CH. B.

DEPARTMENT OF HEALTH
PARVA SUB INGENTI
PRINCE EDWARD ISLAND

P. O. BOX 3000
CHARLOTTETOWN, P. E. I.
TELEPHONE 9816

March 12, 1959

Dr. E.T. Bynoe

Laboratory of Hygiene

Ottawa, Ont.

Dear Dr. Bynoe:

Thank you for your letter of March 10.

We would appreciate receiving a small amount of bacteriophages 52;3B and 70 together with cultures of the propagating strains.

Kind regards.

F.W. Jelks

Yours sincerely,

F.W. Jelks, Ph.D.

Requisition filled March 16, 1959.

RDC

GB

~~50-1-1-1~~

Staph.

355-1-2

Laboratory of Hygiene,
O t t a w a.

March 10th, 1959.

Dr. F.W. Jelks,
Division of Laboratories,
Department of Health,
P.O. Box 3000,
CHARLOTTETOWN, P.E.I.

Dear Doctor Jelks:

I received your letter of March 5th and we will be sending on to you shortly the Salmonella and streptococcal antisera which you requested.

We have only just received the new set of routine staphylococcal typing phages and their propagating strains from Dr.Williams, Colindale. These must all be propagated, the lytic spectra of the phages checked and then both phages and cultures lyophilized. This involves considerable work and with all the other work that we have to do it is going to take us some time before we can distribute the new stocks to all typing laboratories in the country. If you are dissatisfied with any of your present phages or propagating strains I suggest you let me know which they are and we will replace them with stocks known to give acceptable reactions, until such time as we can distribute a complete new set of phages and strains.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

THE UNIVERSITY OF TEXAS
SOUTHWESTERN MEDICAL SCHOOL
5323 HARRY HINES BOULEVARD
DALLAS 19, TEXAS

DEPARTMENT OF MICROBIOLOGY

March 9, 1959

Dr. E. T. Bynoe
Bacteriology Laboratories
Laboratory of Hygiene
Department of Health and Welfare
Ottawa, Canada

Dear Dr. Bynoe:

We have recently been working on lysogenic relationships among the staphylococci and have some encouraging results which we hope to present this May at the S.A.B. meetings. We have reached a point, however, where additional typing phages would be of considerable value. At the present we have Dr. Blair's basic set of 25, plus 187 and 971, and the LH strains of 52, 42B and 44A. We would like the additional phage for two purposes. First, we would like to confirm and determine the group relationships by studying the lysogenicity of the propagating strains. This has already been of some value with respect to 42B, 81 and 187. Second, in the study of a series of nontypable strains we have isolated a number of phages that show some promise as typing phages. We would like to compare these to known typing phages which we do not possess, in order to avoid duplication.

We have written to CDC in Georgia without success, and to Dr. Blair who suggested that you might be able to provide us with some of the strains. We would like the following phages and their propagating strains (taken from the list used at Colindale):

31	47A	57	75B
31B	47B	58	76
42C	47C	69	78
42F	51	71	80
44	52B	75A	

I hope this request is not excessive and I would be grateful for any of the phages and propagating strains of the above list that you could send us.

Sincerely yours,

Eugene D. Rosenblum

EDR:mw

Eugene D. Rosenblum, Ph.D.
Assistant Professor

Phages + prop. cultures listed above (except phage 5B) shipped March 13, 1959.

RDC

355-D-2

Laboratory of Hygiene,
O t t a w a.

March 6th, 1959.

Dr. S.I. Hnatko,
Bacteriologist,
Misericordia Hospital,
EDMONTON, Alberta.

Dear Doctor Hnatko:

Under separate cover we are forwarding to you the 23 routine typing staphylococcal phages and their propagating strains, as requested in your letter of February 26th. We have also included an additional 8 strains needed for determination of the lytic spectrum.

Attached is the copy of our method of typing, which you may find helpful. If you run into trouble or find that any of the stocks which we send you do not behave as they should, please let us know.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

[illegible]
att.

CANADA

DEPARTMENT OF VETERANS AFFAIRS

IN YOUR REPLY REFER TO FILE NO.

March 6, 1959
Laboratory, Lancaster Hospital,
Lancaster, New Brunswick, Canada.

Dr. E. T. Bynoe, chief
Bacteriological Laboratories,
Laboratory of Hygiene,
Dept. National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe:-

Under separate cover, we have sent you some more staphylococci cultures for phage typing. These are as follows, including number and source:

Staphylococcus Number	Origin
59 1463 753	Incision, abdomen
1464 754	Infected throat
1465 755	Cyst behind rt. ear
1466 756	Sinusitis, nose
1467 757	Ulcer on hand
1468 758	Incision, abdomin
1469 759	Sputum
1470 760	Infected throat

Cultures received March 9, 1959

The results of antibiotic sensitivity tests done to date are outlined on the attached.

Assuring you that we appreciate your continued co-operation.

Very truly yours,

Arnold Branch

ARNOLD BRANCH, M.D.

000176

AB:RM

DVA 1

s.19(1)

DIVISION OF LABORATORIES

DIRECTOR: JOHN CRAIG, M. B., CH. B.

DEPARTMENT OF HEALTH
PARVA SUB INGENTI
PRINCE EDWARD ISLAND

P. O. BOX 3000
CHARLOTTETOWN, P. E. I.
TELEPHONE 9816

555-S-2

March 5, 1959

Dr. E. T. Bynoe

Laboratory of Hygiene

Ottawa

Dear Dr. Bynoe:

Mr Conlon

I understand from Dr. Craig that new Staphylococcal phages and propogating strains are to be distributed to interested laboratories in the near future. Could you let me know when these materials will be available please. I am dissatisfied with the performance of one or two of our present phage suspensions, and rather than ask for replacements I thought we might await the arrival of the new material.

We would be pleased to receive the following antisera.

Mrs Allard S.D. i

2 bottles-- [redacted] Group A streptococci.
2 bottles-- [redacted] Group B streptococci.
2 bottles-- [redacted] Group C streptococci.
2 bottles-- [redacted] Group G streptococci.

Dr Yurack Jy i

1 set--Polyvalent Salmonella O antisera.
1 set--Salmonella Grouping antisera.

Kind regards,

Yours sincerely,

F.W. Jelks.

F.W. Jelks, Ph.D

355-8-2

Tunney's Pasture,
Ottawa, Ontario,
March 5th, 1959.

Dr. S.I. Hnatko,
Chairman,
Infections Control Committee,
Misericordia Hospital,
Edmonton, Alberta.

Dear Dr. Hnatko,

Re: phage - typing of Staphylococci

Your letter of Feb. 26th requesting staphylococcal phages and their propagating strains arrived on my desk in error.

I have forwarded your letter to Dr. E.T. Bynoe of the Laboratory of Hygiene who superintends the National Phage Typing Centre within that organization.

Dr. Bynoe will doubtless contact you direct.

Yours very truly,

F.S.T.

F.S. Thatcher,
Microbiology Section.

FST/eh

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

INTRADEPARTMENTAL CORRESPONDENCE

TO: Dr. E.T. Bynoe,
Lab. of Hygiene

OUR FILE NO.

REF. YOUR FILE NO.
DATED

FROM: Food and Drug Directorate,
Ottawa

DATE: March 5th, 1959.

SUBJECT:

I enclose a letter from Dr. S.I. Hnatko, of Misericordia Hospital, Edmonton, which would be more properly of interest to you, together with a copy of my acknowledgement.

F.S. Thatcher,
Microbiology Section.

Enc.
FST/eh

355-5-2

Laboratory of Hygiene,
O t t a w a.

March 5th, 1959.

Dr. D.J. Mackenzie,
Director of Laboratories,
Department of Public Health,
Pathological Institute,
HALIFAX, N.S.

Dear Doctor Mackenzie:

Thanks very much for the report of your staphylococcal phage typing results for the period January 10 to February 23, 1959.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

555-5-2

AIR MAIL

Laboratory of Hygiene,
O t t a w a.

March 5th, 1959.

Dr. John E. Blair,
Bacteriologist,
Hospital for Joint Diseases,
Madison Avenue and 123rd Street,
NEW YORK 35, N.Y.

Dear Jack:

I received a letter yesterday from Dr.Mabel Ingalls inviting me to give a talk on the Bacteriology of the Staphylococcus at Rochester, N.Y. on March 23 to the Columbia University Institute on "The Staphylococcus and Hospital Infections".

I understand that you will be giving a similar talk to the Institute on the same subject in New York the week before and further that I owe you the honour of the invitation. I have accepted the invitation but have asked for more information. I do not know who the other speakers are and what phases of the problem they propose to cover. Perhaps you can help! What aspects of the bacteriology of staphylococcus do you propose to discuss? The problem of staphylococcal infections is such a big one that I am not at all sure just what is expected of me.

I shall certainly appreciate any guidance you can give me in preparing my talk.

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratorie

ETB/md

355-S-2

Laboratory of Hygiene,
O t t a w a.

March 5th, 1959.

Dr. W.J.P.Ditchfield,
Regional Veterinary Laboratory,
KEMPTVILLE, Ontario.

Dear Doctor Ditchfield:

The phages routinely used for typing staphylococci have been broadly classified into the following five groups:

Group	Phages
1	29, 52, 52A, 79, 80
II	3A, 3B, 3C, 55, 71
III	6, 7, 42E, 47, 53, 54, 73, 75, 77
IV	42D
Miscellaneous	187, 81, 82

This grouping, however, has little significance epidemiologically. All it really means is that the phages of group 1, say, are more commonly found in association causing lysis of a particular strain than phages of group 1 and group 2 together or phages of group 1 and group 3 together. Similarly, phages of group 2 are more commonly found together in the lytic pattern of a strain than phages of groups 2 and 1 or of groups 2 and 3, and so on. There is one marked exception to this rule and that is the association of phage 80 with phages 81 and 82. The common epidemic strain in our hospitals today is a strain of type '80/81/82'. However, in any collection of strains received for typing there are usually a number with a 'mixed' pattern of lysis, such as the "77/42D" (Groups II and IV) or '52/52A/77/42D' (Groups I, III & IV) strains reported in the collection which you recently submitted. I might mention that this strain 77/42D would appear to be a 'bovine' strain as we have rarely came across such a type

.....

in all the hundreds of strains from humans that we have typed.

I doubt that vaccination with one particular phage type will give much protection against staphylococci of different types. However, where it is shown that there is an epidemic of infections due to one particular phage type, vaccination against that 'epidemic' strain may have some merit.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2

AIR MAIL

Laboratory of Hygiene,
O t t a w a.

March 4th, 1959.

Dr. Mabel S. Ingalls,
Program Director,
Public Health,
Columbia University,
600 West 168th Street,
NEW YORK 32, N.Y.
U. S. A.

Dear Doctor Ingalls:

I received your letter of March 2nd and am pleased to accept your invitation to give a talk on the "Bacteriology of the Staphylococcus" to your Institute on "The Staphylococcus and Hospital Infections". I would, however, like some further information from you on this talk.

I gathered from your letter that the audience would be largely health officers, supervisory nurses and various hospital personnel and therefore my remarks should be more a matter of interpreting bacteriological observations than of discussing bacteriological methods and procedures. I presume a discussion of the role of the bacteriologist in controlling hospital cross infections would also be appropriate. In preparing my talk it would be most helpful to know what subjects were being covered by the other speakers as it would be very easy for me to discuss epidemiological and environmental sanitation problems which had been or were to be discussed by other speakers. I also would like to know how long I shall be expected to speak.

.....

As there is not too much time, I hope you will let me know at your earliest convenience what is expected of me.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

s.19(1)

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

◆

REGIONAL VETERINARY LABORATORY
Kemptville, Ontario

Mar. 2, 1959.

Dr. E. T. Bynoe,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa, Ontario.

Dear Dr. Bynoe:

Thank you very much for the report on the first samples sent to you for phage typing.

[redacted] Perhaps you could answer the following questions for me. What are the broad phage groups, and what pattern do they each consist of?

Vaccination for Staphylococcal mastitis is widespread now. If each cow is affected with Staphs. showing different phage patterns in each animal, how effective would an autogenous vaccine (made from only one Staph. recovered from one quarter) be?

Thank you; I hope that I am not putting you and your staff to too much trouble.

Sincerely,

W.J.B. Ditchfield, D.V.M.,
Asst. Reg. Veterinarian.

WJBD/lmc

555-2-2

Misericordia Hospital

Edmonton, Alberta

February 26th, 1959

The Director,
Department National Health & Welfare,
Bacteriological Laboratories,
Tunney's Pasture,
Ottawa, Ontario.

Dear Sir,

We are very interested in the problem of Infections Control in Hospitals, and especially Staphylococcal infections.

We would be very grateful to receive from you Staphylococcal Phages and their propagating strains so that we may use the Phages in following up Staphylococcal infections in our Hospital.

Yours truly,

SIH/shs

S.I. Hnatko M.D.
Bacteriologist,
Chairman
Infections Control Committee.

555-5-2

Laboratory of Hygiene,
O t t a w a.

February 25, 1959.

Dr. Peter Warner,
Bacteriologist,
The Winnipeg General Hospital,
700 Bannatyne Avenue,
WINNIPEG 3, Manitoba.

Dear Doctor Warner:

My apologies for taking so long to reply to your letter of February 6th, but I was waiting to get the mimeographed copies of our recommended procedure for phage-typing of the Staphylococci from our duplicating section. These arrived yesterday and I am enclosing a copy of our procedure and the lytic spectra of the routine phages on the test strains (as obtained at the International Centre, Colindale and at the National Centre here).

Should you desire to start phage typing in your laboratory, we shall be very happy to send you lyophilized stock strains of the 23 recommended typing phages, their propagating strains and the additional cultures suggested for determining the lytic spectra of your phages.

With kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
encl.

555-5-2

Laboratory of Hygiene,
O t t a w a.

February 19, 1959.

Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9, England.

Dear Robert:

Thanks very much for your letters of February 2 and 11 and all the dried phages and their propagating strains which arrived safely. We have noted your comments and as time permits we will start testing our old phages and strains. Should we run into any trouble we will let you know.

I noticed in the January 24th issue of the B.M.J., some rather harsh criticism of the Report of your staphylococcal committee on Staphylococcal Infections in Hospitals. I have not seen this report yet but I am afraid its the old story all over again - the truth hurts, particularly when it costs money.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-2

Laboratory of Hygiene,
O t t a w a.

February 19, 1959.

Mr. Burt Gorenstein,
Microbiology Department,
The University of Manitoba,
WINNIPEG, Manitoba.

Dear Mr. Gorenstein:

With reference to your letter of February 14th, we have not used Difco Tryptose agar for propagation of our phages, so cannot express an opinion on its suitability. We have, however, had excellent results with BBL Trypticase Soy agar, and suggest that you switch to this medium. C.D.C. also has had excellent results with this medium. Williams now uses broth for propagation and considers it superior to agar (Ref. "Bacteriophage Typing of Enteric Pathogens and Staphylococci and its use in Epidemiology", E.S.Anderson and R.E.O.Williams, J.Clin.Path.1956 9 94). We have not tried broth, since we have always had good results with agar. With the low titres that you are getting it might be worth your while trying the broth method.

Mr.Comtois is sending on to you under separate cover, phages 71 and 187 and their propagating strains as requested. Phage 187 is a difficult phage to propagate and only very low titres are obtained by the ordinary agar propagation methods. Williams suggests the use of a semi-solid agar (0.75% agar) for propagation and instead of freezing to collect phage, a little broth is added to the soft agar plate and the whole mass centrifuged and thin filtered. We have not tried this method yet but intend to shortly.

****

Grouping of '81', '82' strains is somewhat indefinite. Type 80 phage has been placed by the International Committee in Group '1'; Types '81' and '82' in the Miscellaneous Group. But there is such close similarity between the three phages that most strains lysed by one or more of these phages will ordinarily be placed in Group 1. Most '80' strains are lysed by phages 80, 81 and 82, and with only '80' phage in the basic set all 80/81, 80/81/82 or 80/82 strains would be classified as Group 1. In Canada, where 81 and 82 phages are regularly used, we would suggest that only those strains lysed by 81 and/or 82 and not by 80 be placed in the Miscellaneous Group and all other strains lysed by 80 - be placed in Group 1. This is a purely arbitrary system of classification and the International Committee did not believe that 'group' classification had anything significant to add to epidemiology.

With kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

[illegible]/md

THE UNIVERSITY OF MANITOBA

DEPARTMENT OF MICROBIOLOGY

WINNIPEG, CANADA

February 14, 1959.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
45 Spencer Street,
Ottawa, Ontario.

Dear Sir:

I wish to thank you for the prompt reply to my letter of January 22nd, 1959. The information contained has been invaluable in clearing up a few weak spots in our procedure

One of the main difficulties that we have encountered is that concerned with the propogation of the phages, and the production of high-titer phage. As yet we have found it impossible to obtain titers in the order of 10^4 or higher. However, Dr. Payne and Dr. Lansdown feel that a titer of 1/5000 is sufficiently high to proceed with phage-typing of Staph.aureus isolates.

We are using Tryptose Agar as a propogating medium. This medium contains 20 gms tryptose (DIFCO) 5 gms. NaCl per liter of distilled water, which is then adjusted to a pH of 7.2 with NaOH. Your advice regarding the use of this medium or a medium that you have found satisfactory would be welcomed. Dr. Payne has also suggested that we try propogating the phages in broth culture. We would value any comment t at you might propose regarding this method.

In order to complete our basic set of phages that you recommended, we are lacking nos. 71 and 187. We would appreciate if you would supply us with these phages and their propogating strains.

There seems to be some discrepancy in the grouping of the Staphlococcus phages. The scheme suggested by the International Committee 1958 places 81/82 in the Miscellaneous group. However, Dr. Lansdowne presented me with a copy of the classification also recommended by the International Committee 1958.

. . . . continued . . . .

This shows 81, and 82 placed in Group I. Is this slight deviation allowable on the basis of frequency of occurance in conjunction with other phages of this group, or is this simply an error ?

I am enclosing the signed receipt for the phages that you sent.

Thank you for your advice and kind regards.

Yours very truly,

Burt Gorenstein

Burt Gorenstein,
Microbiology Department.

BG:bdh
Enc.

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

February 12th 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe,

Because of an oversight on my part I neglected to send you strains from groups 10, 12 and 13 after they had beem retested for coagulase activity. This error was not uncovered until now but I shall send them along today. I realize this will cause considerable inconvenience for you and your staff, and for this I am doubly sorry.

The major problems arising from the project (mainly coagulase testing) are now pretty well ironed out, and we are engaged at present in a primary compilation of data. When we have completed this initial analysis Dr. Hinton and I would like to pay you a visit in order to answer any questions you may have, gather information from you regarding phage typing (and possible employment in the experiment of phage lysing) and to discuss any further outstanding points concerning the work. We shall write to you a little later about a convenient time.

Again I offer my apologies for the burden I am imposing on your laboratory.

Sincerely,

James G. Taggart.

J. G. Taggart, M.D.
Department of Bacteriology.

JGT/JZ

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON N.W.9
Cables: DEFENDER, NORPHONE, LONDON

11th February 1959

Dear Ted,

We sent you recently the basic set of typing phages, propagating strains and testing strains. Three new testing strains were included - 2009, 8719 and 8592 (c.f. ISTC 58/7). The characteristics of these 3 strains are as follows:-

1) 2009 (NCTC 10019)

LS2 reactions - phage 29 3 : phage 52 5 : phages 52A and 80 0.

2) 8719 (NCTC 10017) (replaces strain 567 referred to in ISTC 58/7)

LS2 reactions - phage 3B 0 : phage 71 4.

3) 8592 (NCTC 10018) (replaces strain 574 referred to in ISTC 58/7)

LS2 reactions - phages 7, 47, 54 0 : phage 75 5 ; phage 77 4.

On some of the despatch notes sent with the parcels, phage 73 was listed by mistake as NCTC 8403. This should read 8430; NCTC 8403 refers to phage 6. We should be glad to send you additional ampoules of these two phages if our mistake has caused you to propagate them on the wrong strains.

Yours sincerely,

Robin Nicholas

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

Mr. Comtois

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON 12 II 59 N.W.9.

GREAT BRITAIN POSTAGE PAID =0/6= NB FR 454

6

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Avenue, London, N.W.9.

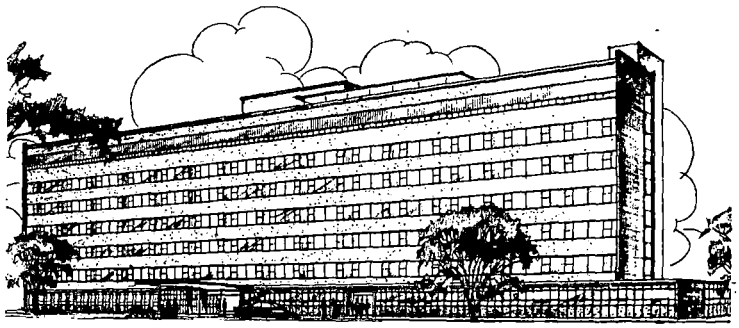
AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000196

To open cut here



THE WINNIPEG GENERAL HOSPITAL

700 BANNATYNE AVENUE,
WINNIPEG 3, MANITOBA
TELEPHONE SP4-6511

February 6, 1959.

Dr. E. T. Bynoe,
Bacteriology Laboratory Services,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ontario.

Dear Doctor Bynoe:

At the C.P.H.A. meeting in December, 1958, you were kind enough to say that if I wrote, you would send me information concerning phage typing.

I would be extremely grateful if you could do this.

Yours sincerely,

Peter Warner.

Peter Warner, M.D., Ph.D.,
Bacteriologist.

PW/kc

Gel methods.

355-5-2.

Laboratory of Hygiene,
O t t a w a.

February 5, 1959.

Dr. Ezra P. Casman,
Bacteriological Branch,
Division of Microbiology,
Bureau of Biological and
Physical Sciences,
Department of Health, Education and Welfare,
Food and Drug Administration,
WASHINGTON 25, D.C.

Dear Doctor Casman:

Dr. Thatcher of the Food and Drug Directorate has referred your request for cultures of authentic food-poisoning origin to me.

Unfortunately only two such cultures could be found among our collection of staphylococcus cultures.

Under separate cover, I am forwarding the two cultures to you. Culture #583589 was isolated from pastry and #581931 from a sample of roast turkey.

Yours sincerely,

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/md

Laboratory of Hygiene,
O t t a w a.

February 4, 1959.

Dr. L.P. Le Gresley,
Pathologist,
Director of Laboratories,
Hopital Maisonneuve,
5415 Boulevard de L'Assomption,
MONTREAL 36, Que.

Dear Doctor Le Gresley:

Attached is a copy of the Method of Typing used at the National Reference Centre for the Bacteriophage Typing of Staphylococci. With very minor modifications this is the Method recommended by the International Committee on Staphylococcus Typing.

Under separate cover we have sent to you the 23 phages recommended for routine use and their propagating strains. I hope these arrive in satisfactory condition.

Yours sincerely,

E.T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
att.

355-S-2

Laboratory of Hygiene,
Ottawa, Ontario.

February 4, 1959.

Mr. Burt Gorenstein,
Microbiology Department,
The University of Manitoba,
WINNIPEG, Manitoba.

Dear Mr. Gorenstein:

In reference to your letter of January 22nd, I am attaching a copy of the Method of typing used by the National Reference Centre here at the Laboratory of Hygiene. With very minor modifications this is the method recommended by the International Committee on Staphylococcus Typing.

I believe our method explains the grading of lytic reactions for determination of the lytic spectrum of a phage. The designation '5' refers to the highest dilution of phage giving at least 50 plaques with its homologous strain. As a specific example, 3A phage undiluted is spotted against all the test strains. This phage shows lysis with strains PS3A, PS3B, PS3C. Ten fold dilutions of phage 3A are now prepared in broth to 10^{-10} and a drop of each dilution is now spotted on PS3A, PS3B and PS3C. On PS3A 50 or more plaques are obtained at a dilution of 10^{-8} (less than 50 plaques on dil. 10^{-9}). This 10^{-8} dilution is considered a '5' reaction (maximum titre). On PS3B, 50 or more plaques are obtained on dilution of 10^{-6} (maximum titre). This is given a designation of '4'. On PS3C, the highest dilution giving 50 plaques is 10^{-4}. The figure here would be 1/1000th of the maximum titre and would therefore be recorded as '3'.

At the recent meeting of the International Committee in Stockholm, it was agreed that '21' basic phages would be, in general, all that were needed to do an adequate job of typing.

.....

Because of our interest in Canada in our types '81' and '82' (old 52AV) we recommend~~ed~~ including these phages in the routine set. I would suggest that you stick to using these 23 phages and only if you find too many untypable strains, will it be necessary to use additional phages.

Under separate cover we are sending to you the 6 phages requested.

Best of luck and with kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
att.

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

INTRADEPARTMENTAL CORRESPONDENCE

TO: Dr. E.F. Bynoe,
Lab. of Hygiene, Ottawa

YOUR FILE:
DATED:
OUR FILE:

FROM: Food and Drug Directorate, Ottawa

DATE: February 3, 1959

SUBJECT:

The attached copy of a letter from Dr. Casman concerning the possibility of the existence of two distinct types of staphylococcal enterotoxin I thought would be of interest to you.

We have very few cultures of authentic food-poisoning origin available. We have not made a practice of maintaining such a collection. Dr. Casman has worked for years on serological methods for detection of enterotoxin and I know he would be most grateful if you should feel able to forward him some of the cultures that you have on hand.

F.S. Thatcher

F.S. Thatcher,
Head,
Microbiology Section

Mr Casman's
RDA.
Cultures sent out
Feb. 5, 1959.

000202

N.H. & W. 2

COPY

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
FOOD AND DRUG ADMINISTRATION
WASHINGTON 25, D.C.

January 27, 1959

Dr. F.S. Thatcher,
Microbiology Section,
Food and Drug Directorate,
Department of National Health
and Welfare,
Ottawa, Canada

Dear Dr. Thatcher:

We have encountered an interesting distribution of two types of staphylococcal enterotoxin in which one type appears to be definitely associated with strains having a "food-poisoning" origin.

We would like to check this association by examining additional strains having such an origin and would appreciate very much your sending us any that you may have.

Sincerely yours,

Ezra P. Casman
Bacteriological Branch
Division of Microbiology
Bureau of Biological and Physical
Sciences

PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON · N.W.9
Cables: DEFENDER, NORPHONE, LONDON

Ref: 208d

2nd February 1959

Dear Ted,

Thank you for your letter of January 13th; I am very glad to hear that your phages agree so well with the reactions that we had found here and I do not think that any of the discrepancies that you mention are sufficiently serious to give concern. We have in any case already sent to you a complete new set of dried phages and their propagating strains so that you will be able to test your phages if you wish.

Included in the parcel were the three new strains that we are proposing for use in determining the lytic spectrum of the phages.

We find that phage 187 is best propagated in a soft agar layer on agar plates. I am sure you know the technique but if you want any further details of it we can let you have them. With this method we have obtained R.T.D. titres between 1:1,000 and 1:10,000.

With best wishes,
Yours sincerely,

R E O. Williams
Director, Staphylococcus Reference Centre

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa,
Canada.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON 12 II 59 N.W.9.

GREAT BRITAIN POSTAGE PAID 6d =0/6= NB 3R 454

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
CANADA.

First fold here

Second fold here

Sender's name and address: Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Avenue, London, N.W.9.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000205

To open cut here

355-5-2

Laboratory of Hygiene,
O t t a w a.

February 2, 1959.

Dr. D.J. Mackenzie,
Director of Laboratories,
Department of Public Health,
Pathological Institute,
62 University Avenue,
HALIFAX, N.S.

Dear D.J:

To answer the specific questions in your letter of January 29th, Staphylococcus phage '42B' is a well recognized phage of Group III, but is not included in the basic set of typing phages recommended by the International Committee, simply because most strains lysed by this phage are also lysed by other phages. In other words, it adds very little to the differentiation of strains, which can be accomplished without its use. Our phage '81' was actually adapted from phage '42B'. Type VA4 is a phage discovered by Blair many years ago and one which he has found useful. The International Committee very recently gave it an official designation '83'. We have not found it useful in Canada. The cultures orginally described by Shaffer and Associates as 52/42B/80/81 etc., as responsible for most of the nursery outbreaks of recent years in the U.S., were shown by us, and by Blair and by Williams to be really type 80/81. Reactions obtained with 52 and 42B were due to the fact that the U.S. phages 52 and 42B had changed and were no longer typical.

The other "fellow traveller" with '80/81' is our newer phage 82 (old 52AV). Many, if not most, of the 80/81 strains are 80/81/82. We tried to get the International Committee to use '82' in the basic set in place of 80 and 81, but the Europeans and Australians had worked mostly with 80 and were naturally loath to drop it. As a result '80' was adopted in

the basic set, and 81 and 82 were recognized as useful 'additional' phages.

I am glad you have been able to screen the cultures for typing. This I think is most necessary as otherwise you could very quickly be swamped.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

355-S-2

Dr. Bynoe:
In accord with our recent telephone conversation, I have suggested it might be inappropriate for Dr. Ditchfield to write you direct about future phage typing requests.
F.S.T.

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

REGIONAL VETERINARY LABORATORY
Kemptville, Ontario

January 30th, 1959.

Dr. F.S. Thatcher, F.S.T.
Microbiology Section,
Dept. of National Health & Welfare,
Tunnet's Pasture,
Ottawa, Ontario.

Dear Dr. Thatcher:

Enclosed are 15 mannitol salt agar slants with coagulase-positive Staph. on them. They are from 44 micrococcus colonies recovered from 11 cows in a herd.

If you are not too busy could you phage type them for us? I do not want to impose unduly upon your Division, so please inform me if you find these samples an imposition.

Thank you.

Kindest Personal regards,

W.J.B. Ditchfield,
Asst. Reg. Veterinarian.

WJBD/hmc

Received February 4/1959

(over)

No.	Lab of Hygiene No
2	590637
6	0638
8	0639
9	0640
10	0641
12	0642
15 (yellow)(a)	0643
15 (b)	0644
16	645
17	646
18	647
22	648
24	649
25	650
26	651
28	652
29	653
30	654
35	655
39	~~656~~ 663
41(a)	656
41(b)	657
43	658
44	659
50	660
59	661
101	662

355-S-2

Laboratory of Hygiene,
O t t a w a.

January 30th, 1959.

Dr. Nicholas D. Duffett,
Director,
Public Health Laboratories,
32 Municipal Courts Bldg.,
ST.LOUIS 3, Missouri.

Dear Nick:

I used the material, which I presented to the International Committee on Staphylococcus Typing at its meeting in Stockholm in August, as the basis of my talk at the C.P.H.A. Laboratory Section meeting in Montreal. This I supplemented with the decisions on typing which this Committee reached.

By the way, I have spotted a most embarrassing error in the announcement of the Kimble Award which I sent to you and to some 20 odd journals for publication. I referred to the 1959 Award as the Sixth Award, when it should have been the Eighth. I had to write to all the journals asking them to correct (if possible) this error.

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief, Bacteriological Laboratories.
Chairman, Kimble Award Nominating Committee.

ETB/md

DEPARTMENT OF PUBLIC HEALTH
NOVA SCOTIA

DIVISION OF LABORATORIES (PUBLIC HEALTH)
PATHOLOGICAL INSTITUTE
62 UNIVERSITY AVENUE HALIFAX, N. S.

January 29, 1959

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa,
Ont.

Dear Doctor Bynoe:

In reading a paper published by Blair and Carr on hospital acquired Staphylococcic infections in JANA last March 8th, I came across phage designations with which I am not familiar and am wondering if they are known under another alias. These are chiefly numbers 42B and VA4. Are there any other fellow travellers in phage "type" 80/81 ?

We are doing a smaller number of typing now than in the past and confining our typed strains to those which are involved in an outbreak or have some epidemiological significance.

With kind regards,

Yours truly,

Dr. D. J. Mackenzie,
Director of Laboratories.

DJM:W

J. EARL SMITH, M.D.
HEALTH COMMISSIONER

DEPARTMENT OF PUBLIC WELFARE

DIVISION OF HEALTH

ST. LOUIS 3, MISSOURI

ADDRESS ALL COMMUNICATIONS
TO THE DIVISION OF HEALTH
Public Health Laboratories
32 Municipal Courts Bldg.

January 27, 1959

Dr. E. T. Bynoe
Chief, Bacteriological Laboratories
Laboratory of Hygiene
Dept. of National Health and Welfare
Ottawa, Ontario, Canada

Dear Ted:

I would appreciate it if you would send me a copy or abstract of the material you presented at the Christmas Meeting of the Laboratory Section under the title, "Bacteriophage Typing and the Types of Staphylococcus aureus in Canada in 1957".

Sincerely,

Nick

Nicholas D. Duffett, Ph.D.
Director
Public Health Laboratories

NDD:lt

355-S-2

Laboratory of Hygiene,
O t t a w a.

January 27, 1959.

Miss E. Gregory,
Queen Mary Veterans' Hospital,
4565 Queen Mary Road,
MONTREAL, Que.

Dear Miss Gregory:

We have re-examined our suggested classifications of the strains reported to you on December 8th. We think you are perfectly right. Strains 588611 and 588612 should be placed together but we do not know whether they should go with pattern 7/47/53/54/73/77 or with pattern "47/53/75/77(6)". Both strains 588611 and 588612 show weak lytic reactions with phage 53 but no reaction with phages 6, 7 or 75. It would probably be better to place 58607, 58608, 588611 and 588612 all in group "47/53/75/76/77(6)". It is all very confusing!

Kind regards,

Yours sincerely,

E. T. Bynoe, Ph.D.
Chief,
Bacteriological Laboratories.

ETB/md

THE UNIVERSITY OF MANITOBA

DEPARTMENT OF MICROBIOLOGY

WINNIPEG, CANADA

Jan. 22, 1959.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
45 Spencer Street,
Ottawa, Ontario.

Dear Sir:

I am very grateful for the keen interest that you have shown regarding our work on "Phage Typing of Staph. aureus Isolated from Bovine Sources."

The phages that I am using were made available through the kindness of Dr. Lansdowne of the Provincial Laboratory. The list of phages that are being used for routine phage typing at the Provincial Lab includes: 3A/52A/81/47A/47B/47C/7/75/29/44/42B/971/6/51/3B/44A/53/54/W/. I have been fortunate in receiving a sample of each of these phages.

I am very interested in determing how the phages on hand compare with those being used at Colindale, and at your Lab of Hygiene. However, I feel that I would require more information regarding the exact technique that is employed by you in obtaining your lytic spectrum. Your method of interpretation of lysis, particularly that used in arriving at intermediate designations, 4, 3, 2, is not clear to me. I believe that a value of 5 assigned to a reaction between a phage and a particular propogating strain indicates absolute clear lysis. Whether the values 4, 3, 2, are obtained by arbitrary downward grading from the maximum clear lysis or whether you actually made various dilutions of the strong phage and compared that with the degree of lysis originally obtained is the point in question.

Dr. Payne also informed me that you would furnish me with the propogating strains and the phages that we do not have. I would be very grateful if you could send me propogating strains, and phages No. 3C/42D/80/79/52AV/42E. The addition

. . . . continued . . . .

Dr. Bynoe,

of these will then boost the complement to 25 phages, which it appears to me should be sufficient number to proceed in the typing of Staph. isolated from suspected mastitic cattle.

As soon as you send me this information I will proceed to compile a lytic spectrum of the phages that we obtained from the Provinical Lab and will mail you a copy immediately upon its completion.

Yours very truly,

Burt Gorenstein.

Burt Gorenstein,
Microbiology Dept.

BG:bdh

355-8-2

Laboratory of Hygiene,
O t t a w a.

January 13, 1959.

Dr. R.E.O. Williams,
Director,
Staphylococcus Reference Laboratory,
Central Public Health Laboratory,
Colindale Ave.,
LONDON, N.W.9, England.

Dear Robert:

Thanks very much for the copy of the Minutes of the Meeting in Stockholm, of the International Committee on the Phage Typing of Staphylococci and your report on the lytic spectra of the basic set of typing phages. The lytic spectra of our phages on our propagating strains agree remarkably well with those reported by you. The only possibly major discrepancies are:

	Phages													
P.S.	55		71		80		47		52		52A		53	
	Col.	Ott.	Col.	Ott.	Col.	Ott.	Col.	Ott.	Col.	Ott.	Col.	Ott.	Col.	Ott.
3A	4	1	3	0										
29A					3	0	0	2						
47									3	0	3	0	5	2

From the other results it would appear that our phages are probably quite typical, but perhaps we should replace the three propagating strains, 3A, 29A and 47. If not too much trouble, we would appreciate fresh stocks of these three strains.

I have noted your comments on the proposed new strains 567, 574 and 2009 and would like to get these or their replacements whenever they are available.

Thanks for phage 187 and its propagating strain. They arrived safely and are both viable but we have been able so far to get only very low titred phage (10^2). I believe this is not unexpected with this phage.

.....

Thanks also for the anti-phage grouping sera which Mrs.Asheshov so kindly sent us. We have not used these yet but noticed that serological group L serum was contaminated with a gram + diplococcus. We propose to keep these frozen until the need arises to use them for determining the serological group of any new or adapted phage.

I suppose that by now you have recovered from the effects of the Christmas season festivities. I hope you all had a wonderful time.

Kindest regards to you and [redacted] and with best wishes for a very happy 1959.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

[redacted]

355-5-2

HOSPITAL FOR JOINT DISEASES

MADISON AVENUE

ONE HUNDRED AND TWENTY THIRD STREET

NEW YORK 35, N.Y.

December 23, 1958

Dr. E. T. Bynoe
Laboratory of Hygiene
National Department of
Health and Welfare
Ottawa, Ontario, Canada

Dear Ted:

For some reason we have lost our phage 52AV (82) and I should like to make up a new preparation for study. If I can impose on your good nature, I shall appreciate it a lot if you can have a vial of this phage sent to us.

With thanks, and good wishes for the holiday season,

Sincerely yours,

John E. Blair, Ph.D.

JEB/h

Phage 82 and 52 82 shipped Dec 30, 1958.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

December 22, 1958

Communicable Disease Center
Bureau of State Services
50 Seventh Street, N. E.
Atlanta 23, Georgia

Refer to:

E. T. Bynoe, Ph.D.
Chief, Bacteriological Laboratories
Laboratory of Hygiene
Department of National Health
and Welfare
Ottawa, Ontario, Canada

Dear Dr. Bynoe:

I appreciate greatly your flattering comments concerning the Communicable Disease Center's efforts in combatting the staphylococcal disease problem. Of course, our endeavors are only a portion of the considerable activity that is going on. We are extremely gratified at the interest shown around the country as evidenced by the many requests we have had for literature on the subject.

I'm sorry that our supply of the official Proceedings of the National Conference is virtually exhausted, but we have printed two excerpts from the document which we can supply in limited quantity. I am enclosing samples of each of these: (1) "Recommendations of the National Conference", and (2) "Recommended Procedures for Laboratory Investigation."

Meanwhile, we understand that E. R. Squibb and Sons has printed and made available to many hospitals, universities and other interested institutions and individuals the complete Proceedings of the Conference, as a public service. You and your colleagues may be able to obtain additional copies from that company.

Thanks again for your kind remarks, and best wishes for a happy holiday season.

Sincerely yours,

Robert J. Anderson
Assistant Surgeon General
Chief, Communicable Disease
Center

Enclosures

THE HOSPITAL FOR SICK CHILDREN

555 UNIVERSITY AVE.
TORONTO 2
TELEPHONE EM. 6-7242

December 18, 1958.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ont.

Dear Dr. Bynoe:

I was very much interested to hear your paper at the Montreal meeting, and of the changes which have been suggested in relation to phage typing. Dr. Roy has already received from you the lytic spectrum chart, and I wonder if you would be kind enough to send the propagating strains 567, 574, 2009 and for 29A to complete our set.

We would also like to have phages 52AV, 187 and 71 and their propagating strains so that we may propagate them for use in phage typing.

Thank you for sending these, and may I thank you again for your kindness in providing us with so much streptococcal antiserum during the past year. My best wishes for Christmas and the New Year.

Yours sincerely,

Anne M. Collins

Anne M. Collins, M.Sc.
Research Assistant.

AMC/jm

355-S-2

Laboratory of Hygiene,
Ottawa, Ontario.
December 10, 1958.

Dr. Robert J. Anderson,
Assistant Surgeon General,
Chief, Communicable Disease Center,
80 Seventh Street, N. E.,
ATLANTA 23, Georgia,
U. S. A.

Dear Doctor Anderson:

Thanks very much for your letter of December 1st and for keeping me informed on what is happening in the U. S. regarding the control of Staphylococcal infections. My only comment is one of amazement and of congratulations on the astounding industry of your C.D.C. and of the interest that has been stimulated across the country in the problem as a result of the National Conference in Atlanta.

The Proceedings of the Conference and the Brochure of Selected Materials on Staphylococcal Disease have drawn nothing but the most favourable comment from several of my medical confreres in Ottawa, to whom I have shown them. They all wanted to know if they could get copies.

Much of the trouble in our hospitals, I am convinced, is due to ignorance on the part not only of the nursing and housekeeping staffs but also of the medical and surgical staffs. Hence "education" becomes the logical starting point for an attack on the problem. The brochures, audiovisual aids, training programs, etc; which you are promoting should be of inestimable value.

The next problem is "Research" - why is one person a persistent carrier and another a non-carrier, why are some individuals more susceptible to infections than others, why do some strains spread and produce epidemics and others not? These are but a few of the questions that need answering before control measures can be logically and properly worked out.

s.19(1)

Our own Canadian committee is greatly interested in your approach to the problem and its successfulness, and I shall greatly appreciate being kept on your mailing list for any further 'progress' reports.

With best regards & best wishes for a very Merry Christmas to you and [redacted]

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

JAMcK:do'c

355-S-2

Laboratory of Hygiene

O T T A W A

December 9, 1958.

Dr. James G. Taggart,
Dept. of Bacteriology,
Queen's University,
Kingston, Ontario.

Dear Dr. Taggart:

We were very interested in the results which you obtained with the different coagulase tests on the 12 doubtful coagulase-positive strains. We repeated our original tests, together with the modifications suggested in our talk and got the following results: (see table)

Fresh citrated rabbit serum was used throughout. The tests in the two broths and with the agar slopes were carried out with both undiluted plasma and with plasma diluted 1:10. As you can see, we confirmed by these tests our earlier results. We are at a complete loss to explain the discrepancies obtained between the two laboratories. We had Dr. Greenberg of our Biologics Control Section test these organisms for coagulase activity by the method used in his section and he got exactly the same results as we did. However, a curious phenomenon has been observed. A number of cultures of staphylococci, giving coagulase negative reactions on primary isolation, have been found to rapidly develop activity when passaged through medium containing serum or plasma. Just what this means, I am not sure, but it fails to explain the difference obtained in our two laboratories.

In the meantime, the lot of cultures received on November 7th again show an excessive number of coagulase-negative (in our hands), untypable strains. I hope we can soon solve some of these problems!

With best regards,

Yours sincerely,

ETB/PL

E.T. Bynoe, Ph.D.,
Chief, Bacteriological Laborat

L. of H. No.	Kingston No.	10% Plasma Broth		Trypticase Soy Broth		Sugar-Free Broth		Nutrient Agar Slopes		Slide Test	Mannitol
		4hrs	18hrs	4hrs	18hrs	4hrs	18hrs	4hrs	18hrs		
588387	28N5W	-	-	-	-	-	-	-	-	-	-
588388	28N5Y	-	-	-	-	-	-	-	-	-	-
588389	30N5W	-	-	-	-	-	-	-	-	-	-
588390	30N5Y	+	+	+	+	+	+	+	+	+	+
588391	34T5W	-	-	-	-	-	-	-	-	-	-
588392	36T5W	-	-	-	-	-	-	-	-	-	-
588393	37T5W	-	-	-	-	-	-	-	-	-	-
588394	41N5	-	-	-	-	-	-	-	-	-	-
588395	50T5W	-	-	-	-	-	-	-	-	-	-
588396	61N5Y	-	-	-	-	-	-	-	-	-	-
588397	61N5W	-	-	-	-	-	-	-	-	-	-
588398	64T5W	-	-	-	-	-	-	-	-	-	-
Control +	T.81	+	+	+	+	+	+	+	+	+	+
Control neg.	P.S.73	-	-	-	-	-	-	-	-	-	-

355-5-2

Dr. E. T. Byrne, Ph.D.,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Ottawa.

Dept. of Bacteriology,
McGill University,
Kingston, Ont.,
1 Dec 58.

Dear Dr. Byrne;

You will remember that when I visited your laboratory we discussed the various methods of coagulase testing the staphylococci. We have tested the 12 questionable strains of group V in the following ways;

A/ Slide test: (1) using human plasma
(2) using fresh rabbit plasma.

B/ Tube test: (1) 10% human plasma
(2) 10% fresh rabbit plasma.

For this test we employed the procedure suggested by you.

C/ Since we had no BBL. Trypticase Soy Broth on hand we carried out the 3rd test using:

(1) 20% human plasma in ~~cats~~ Heart Infusion broth.

(2) 20% fresh rabbit plasma in Heart Infusion broth,

and employing the same procedure as in B.

You will see our results in the following Table.

#	A (SLIDE)		B (TUBE)				C (MODIFIED TUBE)			
			4 HRS		24 HRS		4 HRS		24 HRS.	
	HUMAN	RABBIT	HUMAN	RABBIT	HUMAN	RABBIT	HUMAN	RABBIT	HUMAN	RABBIT
28 N 5 (Y)	+	+	+	+	+	+	+	+	+	+
28 N 5 (W)	+	+	+	+	+	+	+	+	+	+
30 N 5 (Y)	+	+	+	+	+	+	+	+	+	+
30 N 5 (W)	+	+	−	−	−	−	+	+	+	+
41 N 5	−	−	−	−	−	−	−	−	−	−
61 N 5 (Y)	−	−	−	?	−	+	+	+	+	+
61 N 5 (W)	−	−	−	?	−	−	−	−	−	−
34 T 5 (W)	+	+	−	−	−	−	+	+	+	+
36 T 5 (W)	+	+	−	−	−	−	−	−	+	+
37 T 5 (W)	+	+	−	−	−	−	−	−	−	−
50 T 5 (W)	+	+	−	+	−	+	−	−	−	−
64 T 5 (W)	+	+	−	+	−	+	+	+	+	+

From this, you can see that there is a great lack of consistancy, with the usual false positive results from the slide test.

We used the same method for strains from group II, and have concluded that by far the best method is the modified tube (c). We shall send these along to you this week. We shall also recheck group 10 strains using c, method before sending them on.

Incidently, with c, method we found no difference between human and rabbit plasma (standardized).

We welcome any further suggestions you may have concerning coagulase testing, or any other phase of the experiment.

We are very much interested in your idea of determining the effect of polyvalent phage on staph carriers. We shall discuss this further and let you know of our plans.

Sincerely yours,

James D. Taggart M.D.

000226

PUBLIC HEALTH LABORATORY SERVICE

(Directed by the Medical Research Council for the Ministry of Health)

Telephone: COLINDALE 7041 (8 Lines)
Telegrams: DEFENDER, NORPHONE, LONDON.

CENTRAL PUBLIC HEALTH LABORATORY
COLINDALE AVENUE
LONDON, N.W.9

25th November 1958

Dear Dr. Bynoe,

We are sending you under separate cover one bottle of each of the following antisera: A, B_1, B_2, F and L.

Information regarding their production and testing is enclosed herewith. The sera have been tested recently and give the following reactions:

Antiserum A : Titre against SGA phages 1/1000.
Cross reacts with the SGB phage 29 at a dilution of 1/100; no cross-reactions with the SGF phage 42D.

Antiserum B_1 : Titre against SGB phages 1/5000.
No cross-reactions with the SGA phage 3A or the SGF phage 42D.

Antiserum B_2 : Titre against SGB phages 1/1000.
No cross-reactions against the SGA phage 3A or the SGF phage 42D.

Antiserum F : Titre against SGF phages 1/1000.
Cross-reacts with the SGA phage 3A at a dilution of 1/100 and the SGB phage 29 at a dilution of 1/10.

Antiserum L : Titre against SGL phage 187, 1/10,000.
No cross-reactions with the SGA phage 3A, the SGB phage 29 or the SGF phage 42D.

Yours sincerely,

Edward Ashley

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.

Material received

Phage

X 2

A

Q211A(8287)

Q66(8289).

Culture

PS66(8288)(G)

PS X 2 (C)

Antisera

Group A

Group B_1

Group B_2

Group F

Group L.

Antiserum Production

The method used to produce and test anti-phage serum at Colindale in the past is as follows:

Anti-phage sera have been prepared in rabbits by the intravenous injection of phage-filtrates. High titred filtrates are required, but it has been found that the usual stocks, prepared on Hartley agar plates, are frequently lethal for the rabbits. Recourse has therefore been made to phages propagated in glucose-peptone water or in nutrient broth diluted with saline. With some of the phages great difficulty has been experienced in the propagation of a suitable high-titred stock. Injections increasing from 0.1 ml. to 1.5 ml. have been made at five-day intervals, with a bleeding about fourteen days after the last injection, but frequently longer courses with smaller doses have been necessary because the rabbits have lost weight.

The phage neutralization tests are based on the methods of Burnet (1933a) and Rountree (1949b). The phage is diluted so that a 0.02 ml. drop from the phage/antiserum mixture will contain between 100 and 200 phage particles. 0.2 ml. volumes of the phage dilution are mixed with equal volumes of the serum dilutions and incubated at 37°C. for four hours. 0.02 ml. drops from each tube are then spotted on the test staphylococci. Controls of phage with broth and normal serum are employed. The titre of the serum is taken as that dilution which neutralizes 80% of the phage.

Phages used to produce the various group antisera were as follows:

Group A - 3A, 6, 206 ✓
" B_1 - 52, 29, 31 ✓
* " B_2 - 42D (old) ✓
" C - X_2
" D - K
" F - 61, 62, 42D ✓
" G - 66
" H - 211A
" J - RG
" K - EW (RG), AG (RG)
" L - 187 ✓

* Phage 42C could probably be substituted for phage 42D since 42D is no longer a group B phage.

These methods are taken from the thesis by Joan E. Rippon (Ph.D. London 1954).

PREPARATION OF

ANTIPHAGE RABBIT SERA.

Serological group	Phage used	NCTC No.	Propagating strain	NCTC No.
A	3A	8408	PS 3A	8319
	6	8403	PS 6	8509
	206	-	?	-
B_1	52	8401	PS 52	8507
	29	8413	PS29	8331
	31	8402	PS 31/44	8508
*				
B_2	42D (old)	8414	PS 42D	8341
C	X_2 (sheep)	-	PSxX_2	-
D	K	-	?	-
	A	-	PS 31/44	8508
F	61	-	?	-
	62	-	?	-
	42D (new variant)	8414	PS 42D	8341
G	66	8289	W166	8288
H	211A	8287	PS 31/44	8508
J	RG (Receptif Gratia)	-	?	-
K	EW(RG), AG(RG)	-	?	-
L	187 (735G - Wahl & Fouace)	9753	PS 187	9754

* Phage 42C could be substituted for phage 42D since 42D is no longer a group B phage.

ANTIPHAGE SERA RECEIVED FROM

COLINDALE NOVEMBER 1958

Antiserum A: phage 206. Titre against SGA phages 1/1000. Cross reacts with the SGB phage 29 at a dilution of 1/100; no cross-reactions with the SGF phage 42D.

Antiserum B_1: phage 29. Titre against SGB phages 1/5000. No cross-reactions with the SGA phage 3A or the SGF phage 42D.

Antiserum B_2: phage 42D. Titre against SGB phages 1/1000. No cross-reactions against the SGA phage 3A or the SGF phage 42D.

Antiserum F: phage 42D. Titre against SGF phages 1/1000. Cross-reacts with the SGA phage 3A at a dilution of 1/100 and the SGB phage 29 at a dilution of 1/10.

Antiserum L: phage 187. Titre against SGL phage 187 1/10,000. No cross-reactions with the SGA phage 3A , the SGB phage 29 or the SGF phage 42D.

PHAGES AND CULTURES FOR ANTIPHAGE SERA

RECEIVED FROM COLINDALE NOVEMBER 1958.

Phages	Cultures
A	PS X_2
X_2	PS 66 (8288)
211A (8287)	
66 (8289)	

Determination of Serological Group of Phage KS6

1. Method

Antisera A, B1, and F were diluted in broth ten-fold up to 10^{-5}. 0.5 ml volumes of each dilution were mixed with equal volumes of phage diluted so that a drop from the phage/antiserum mixture contains between 100 to 200 phage particles. The mixtures were incubated in a water-bath at 37° C for 4 hours. One drop from each tube was then spotted on agar seeded with the test staphylococci. Controls of phage with broth and normal rabbit serum were also included. Each antiserum was tested with phages 80, 81, 42D, and KS6. The titre of the antiserum was taken as that dilution which neutralized 80% of the phage.

2. Titration of phage to get a readable no. of plaques.

Phage No.

	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}
80	CL	CL	269	84	39	23	8	5	-	-
81	CL	CL	CL	CL	CL	>300	216	18	6	4
42D	CL	CL	>200	214	29	21	2	-	-	-
KS6	CL	CL	CL	CL	CL	>200	204	38	-	-

Phage dilution used: 80 = 10^{-3}
81 = 10^{-6}
42D = 10^{-3}
KS6 = 10^{-6}

3. Phage Neutralization Tests

Antiserum	Phage no.	Dilution of antiserum					Controls		Titre of antiserum
		10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	Phage + broth	Phage + normal serum	
A	80	-	22	48	81	93	110	112	10^{-2}
	81	-	-	-	126	132	138	134	10^{-3}
	42D	122	114	128	131	114	116	121	-
	KS6	-	-	-	-	56	178	167	10^{-4}
B_1	80	-	-	-	-	61	121	119	10^{-4}
	81	128	131	138	124	139	141	135	-
	42D	129	136	119	113	111	125	114	-
	KS6	171	162	154	168	158	174	166	-
F	80	57	61	68	65	108	110	115	-
	81	-	-	118	122	132	142	133	10^{-2}
	42D	-	-	-	-	8	110	114	10^{-5}
	KS6	-	-	69	94	166	174	164	10^{-2}

NOTE: The above results show that phage KS6 is group A serologically.

R. D. Comtois

June, 1960

Determination of Serological Group of Phage KS6

1. Method

Antisera A, B1, and F were diluted in broth ten-fold up to 10^{-5}. 0.5 ml volumes of each dilution were mixed with equal volumes of phage diluted so that a drop from the phage/antiserum mixture contained between 100 to 200 phage particles. The mixtures were incubated in a water-bath at 37° C for 4 hours. One drop from each tube was then spotted on agar seeded with the test staphylococci. Controls of phage with broth and normal rabbit serum were also included. Each antiserum was tested with phages 80, 81, 42D, and KS6. The titre of the antiserum was taken as that dilution which neutralized 80% of the phage.

2. Titration of phage to get a readable no. of plaques.

Phage No.

	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}
80	CL	CL	269	84	39	23	8	5	-	-
81	CL	CL	CL	CL	CL	>300	216	18	6	4
42D	CL	CL	>200	214	29	21	2	-	-	-
KS6	CL	CL	CL	CL	CL	>200	204	38	-	-

Phage dilution used: 80 = 10^{-3}
81 = 10^{-6}
42D = 10^{-3}
KS6 = 10^{-6}

3. Phage Neutralization Tests

Antiserum	Phage no.	Dilution of antiserum					Controls		Titre of antiserum
		10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	Phage + broth	Phage + normal serum	
A	80	-	22	48	81	93	110	112	10^{-2}
	81	-	-	-	126	132	138	134	10^{-3}
	42D	122	114	128	131	114	116	121	-
	KS6	-	-	-	-	56	178	167	10^{-4}
B_1	80	-	-	-	-	61	121	119	10^{-4}
	81	128	131	138	124	139	141	135	-
	42D	129	136	119	113	111	125	114	-
	KS6	171	162	154	168	158	174	166	-
F	80	57	61	68	65	108	110	115	-
	81	-	-	118	122	132	142	133	10^{-2}
	42D	-	-	-	-	8	110	114	10^{-5}
	KS6	-	-	69	94	166	174	164	10^{-2}

NOTE: The above results show that phage KS6 is group A serologically.

R. D. Comtois

June, 1960

355-8-2

Laboratory of Hygiene
O t t a w a

November 18, 1958.

Dr. D. A. Barnum,
Ontario Veterinary College,
Mastitis Laboratory,
Guelph, Ontario.

Dear Dr. Barnum:

Attached is our report on the cultures of staphylococci received from you on October 31st. Unfortunatelynone of these strains are typable with any of our typing phages.

Regarding your inquiry (October 24th) about the typing of strains from Mastitis, if you will send us the 50 isolates which you have, we will attempt to type them for you. It may take us a little time to get the report out to you for we are receiving a large number of cultures for typing, but we will do our best.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

Encl.
ETB/PL

Stapled 355-S-2

UNITED BRISTOL HOSPITALS

Department of Pathology,
BRISTOL ROYAL HOSPITAL,
ROYAL INFIRMARY BRANCH,
BRISTOL, 2.
Telephone 2-2041.

WAG/OL.

17th November 1958

Dear Dr. Bynoe,

Thank you for your letter of 15th October, and for kindly sending me the reprints of Dr. Farquharson's and Dr. Roy's papers. I had read Dr. Farquharson's after you told me of it, but not Dr. Roy's. I am very glad to have both reprints.

I enclose a reprint of our 'urological' paper, which came out recently, as I thought you might like to see it. We are still pursuing this work, with a few further refinements, and think that we have reduced the post-operative infection rate to about 10%. But the latest reduction is not statistically significant yet, and I don't suppose it will be for a long time.

With many thanks to you for remembering my request, and best wishes,

Yours sincerely,

W. A. Gillespie

(W.A.Gillespie), M.D.

Dr. E. T. Bynoe, Ph.D.,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
Ottawa, Canada

Laboratory of Hygiene,
Ottawa, Ontario,

November 7, 1958.

Dr. Norman A. Hinton,
Associate Professor of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Hinton:

We shall be very happy to see Dr. Taggart anytime on November 21st. Perhaps it would be better if he could visit us in the morning - anytime after 9:00 a.m. - because we set up our typing tests in the morning, and he might like to see this.

I like the idea of following up the carriers when they return to their families. Wentworth and a few others have done this - with patients following discharge from hospital, but I am sure this could stand repeating.

Perhaps we can get together for a chat at the C.P.H.A. laboratory section meeting in Montreal. Of course, I'll be glad to see you anytime!

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

PROVINCIAL LABORATORY OF PUBLIC HEALTH

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. ST[redacted]ART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

November 6, 1958

Dr. R.D. Comptois,
Laboratory of Hygiene
Dept. of National Health and Welfare
45 Spencer Street
OTTAWA, Ontario

Dear Dr. Comptois,

Please could you let us have two ampoules of the Staphylococcus aureus propagating strain F 56A.

The two ampoules of this strain which we received on October 2nd of this year have failed to grow.

Perhaps the tubes have been damaged while our freeze-dried stock was being checked.

With many thanks.

Yours sincerely
M.E. Williams

Mary E. Williams, M.B. ChB.
Assistant Bacteriologist.

Requisition filled Nov 10/58. DDC

MEW/mh

s.19(1)

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

November 5th 1958

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Department of National Health & Welfare,
Ottawa.

Dear Dr. Bynoe,

The reports on phage typing of the strains of staphylococci that I have been sending to you have been reaching us and I think will give rise to a good many useful observations.

Dr. Taggart, who is working on this project here, will be in Ottawa on November 21st and I was wondering if there would be a convenient time during that day for him to meet with you and to see the phage typing laboratory. He is prepared to come to the Laboratory of Hygiene any time that day at your convenience.

I hope we will be able to arrange a meeting ourselves in the near future in order to discuss the best way of proceeding with this project. I hope around Christmas time to be able to obtain cultures from [redacted]

I don't think we will be able to get to the immunization of this programme until after Christmas, and I would like to discuss this part of the project with you.

Yours sincerely,

Norman A. Hinton

Norman A. Hinton, M.D.
Assoc. Prof. of Bacteriology.

NAH/JZ

Ayerst, McKenna & Harrison
LIMITED
Biological and Pharmaceutical Chemists

P.O. BOX 6115
MONTREAL, CANADA

File No. 355-S-2

Dr. E.T. Bynoe,
Laboratory of Hygiene,
Ottawa, Ont.

October 30th, 1958.

Dear Mr. Bynoe,

At present, we are investigating the possibility of incorporating Hibitane in various preparations to be used in hospitals, etc.

If possible, we would like to obtain cultures of Staphylococcus pyogenes, phage type 80 and/or other phage types which have been found to be prevalent in nasal carriers within the hospital population.

Thank you for your kind attention.

Sincerely yours,

AYERST, McKENNA & HARRISON LIMITED.

H. A. Baker.
Harold A. Baker, Ph.D.
Research Dept.

80/81 - 587506 ✓
52 AV(82) - 587170
52/52A/80 - 587537

HAB/ml

Requested in filled Nov. 2, 1958.
RDC

555-5-2

Laboratory of Hygiene,
Ottawa, Ontario,

October 28, 1958.

Mr. H.P. Curley,
Research Department,
Hospital Bureau of Standards
and Supplies Inc.,
60 West 55th Street,
NEW YORK 19, N.Y.,
U. S. A.

Dear Mr. Curley:

I noted your letter of September 8th requesting published information on phage types of staphylococci from the hospital environment, particularly in relation to cleaning, laundry methods, sterilization, etc.

I regret that I have no specific information to give you. We have been typing at our National Reference Centre large numbers of cultures, many from mattresses, bed Tables, baths before and after cleaning, and the like but these are all cultures which have been sent to us from others who have been carrying out investigations in their hospitals. We know little about the cultures or the epidemiology other than that they came from a certain source. We have published nothing on this aspect of the staphylococcus problem.

Dr. J.C.Colbeck, Pathologist, The Shaughnessy Veterans Hospital, Vancouver, B.C., has been doing considerable work along these lines for some time and might be able to give you some help.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

Westminster Hosp
London, Ont

MICROCOCCUS PYOGENES FOR BACTERIOPHAGE TYPING

OCTOBER 27th.1958.

588263	CULTURE NO. 4870 ✓	STAPH. ISOLATED FROM SPUTUM CULTURE — MU 2
8264	CULTURE NO. 4899 ✓	STAPH. ISOLATED FROM BOIL CULTURE — J LOWER
8265	CULTURE NO. 4898 ✓	STAPH. ISOLATED FROM BOIL CULTURE — J LOWER
8266	CULTURE NO. 4908 ✓	STAPH. ISOLATED FROM RIGHT HAND CULTURE — L.S.H.
8267	CULTURE NO. 4959 ✓	STAPH. ISOLATED FROM STUMP CULTURE — B UPPER
8268	CULTURE NO. 5027 ✓	STAPH. ISOLATED FROM BLOOD CULTURE — J LOWER
8269	CULTURE NO. 5050 ✓	STAPH. ISOLATED FROM BOIL CULTURE — STAFF
8270	CULTURE NO. 5079 ✓	STAPH. ISOLATED FROM BOIL CULTURE — J LOWER
8271	CULTURE NO. 5119 ✓	STAPH. ISOLATED FROM BOIL CULTURE — J LOWER
8272	CULTURE NO. 5125 ✓	STAPH. ISOLATED FROM FOOT CULTURE — B UPPER
8273	CULTURE NO. 5165 ✓	STAPH. ISOLATED FROM THIGH CULTURE — C WARD

Rec'd Nov 14/58

ONTARIO VETERINARY COLLEGE
GUELPH, CANADA
UNDER THE DEPARTMENT OF AGRICULTURE OF THE PROVINCE
OF ONTARIO AND
AFFILIATED WITH THE UNIVERSITY OF TORONTO

October 24, 1958.

Dr. E.T. Bynoe,
Chief,
Bacteriological Laboratories,
Laboratory of Hygiene,
Ottawa, Canada.

Dear Dr. Bynoe:

A number of months ago you kindly consented to type some strains of Staphylococci from dogs. We isolated a number of strains during the summer but found that many of them were coagulase negative using human and rabbit plasma. Most of the strains were positive when dog plasma was used. These organisms displayed beta haemolysis and weak alpha. I hesitated in sending them all to you as I feel those negative by the coagulase test using rabbit plasma would not phage type. Under separate cover I am sending eight strains which were found to be coagulase positive (rabbit). The laboratory numbers together with the source and location of the dog are attached.

During the past few months we have selected fifty strains of haemolytic Staphylococcus aureus which were isolated from cases of bovine mastitis. These strains were isolated from separate herds. Samples of milk were submitted from individual quarters, so in our opinion each isolate represents an established case of staphylococcal mastitis. Due to the concern about staphylococci in cheese and their possible relationship to gastro-enteritis in man we feel that strains from recent cases should be typed. We would appreciate if these strains could be phage typed.

Yours truly,

D.A. Barnum
Mastitis Laboratory

DAB:hc

Mr. Conlon
RJC

Recd Oct 31/58
Lab of Hygiene

Lab. No.	Location	Source
587831 500	Toronto	Ear swab
7832 512	London	Pus swab from body
7833 583	Oakville	Skin scraping
7834 766	Owen Sound	Skin scraping
7835 853	Burlington	Skin scraping
7836 886	Hespeler	Eczema around ear
7837 973	Ottawa	Skin
7838 985	Toronto	Hair and skin

Hospital Bureau of Standards and Supplies
INCORPORATED

60 West 55th Street, New York 19, N. Y.

WILLIAM A. GATELY, Executive Director

October 23, 1958

Dr. E. T. Bynoe
Laboratory of Hygiene
Department of National Health and Welfare
Ottawa, Ontario, Canada

Dear Dr. Bynoe:

In response to our letter of September 8th (copy attached for your convenience), Dr. Tennant was kind enough to write us that you were away but that our inquiry would have your attention when you returned.

We hope that you can furnish the data about which we asked, and shall be most grateful for your assistance.

Very truly yours,

H. P. Curley
Research Department

HPC:LT

Amsterdam, October 17th 1958.

355-S-2

Dr E. T. Bynoe,
Chief Bact. Laboratories, Dept. of National Health,
OTTAWA.

Dear Dr Bynoe,

Thank you so much for sending us the phage 52 A V and its propagating strain. It survived the trip and we will use it with our set of typing phages. As soon as we will have enough data to have an opinion on its value I will inform you.

I have enjoyed the Stockholm meeting very much and I hope to keep contact in the future.

Thanking you again for your help, with kind regards,

very sincerely yours,

(Dr A. Charlotte Ruys)

AEROGRAMME
LUCHTPOSTBLAD

30 C
NEDERLAND

Dr E. T. Bynoe,

Chief Bacteriological Laboratories,

Department of National Health
and Welfare,

Laboratory of Hygiene,

O t t a w a CANADA

PAR AVION / PER LUCHTPOST

EXPÉDITEUR / AFZENDER

Dr A.Ch.Ruys, Lab. voor de Gezondheidsleer,
Mauritskade 57, Amsterdam-O. The Netherlands

NIETS INSLUITEN!
INDIEN ZULKS TOCH GESCHIEDT, DAN WORDT DEZE BRIEF PER BOOT / TREIN VERZONDEN

OUVRIR ICI / HIER OPENEN

000248

Central Enteric Reference Laboratory and Bureau,
PUBLIC HEALTH LABORATORY SERVICE
(Directed by the Medical Research Council for the Ministry of Health)
CENTRAL PUBLIC HEALTH LABORATORY · COLINDALE AVENUE · LONDON N.W.9
Cables: DEFENDER, NORPHONE, LONDON

355-5-2.

13th October, 1958.

Dear Dr. Comtois,

Thank you for your letter of the 24th September concerning the report on staphylococcal phage typing, and for the very useful memorandum on this subject circulated at Stockholm.

Yours sincerely,

E. S. Anderson.
Director.

Dr. R. D. Comtois,
Bacteriological Laboratories,
Department of National Health
& Welfare,
Ottawa.

BY AIR MAIL
PAR AVION
AIR LETTER
AEROGRAMME

LONDON 13 X 58 N.W.9.

GREAT BRITAIN POST PAID =0/6= NB

6

Dr. R. D. Comtois,
Bacteriological Laboratories,
Department of National Health and Welfare,
OTTAWA,
Canada.

First fold here

Second fold here

Sender's name and address: Dr. E. S. Anderson,
Central Enteric Reference
Laboratory and Bureau,
Colindale Avenue, London, N.W.

AN AIR LETTER SHOULD NOT CONTAIN ANY ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED OR SENT BY ORDINARY MAIL.

THE 'APSLEY' AIR LETTER

Form approved by Postmaster General No.—71995/IY

000250

555-S-2

Dr Bynoe Typed? Yes

Laboratory of Hygiene,
O t t a w a.

October 7, 1958.

Dr. T. E. Roy,
Bacteriologist,
The Hospital for Sick Children,
555 University Avenue,
TORONTO 2, Ontario.

Dear Ted:

Many thanks for the reprints of your paper on the nasal carriage of staphylococcus pyogenes. It was Gillespie at Bristol and Frisby at Oxford who asked me if I could secure reprints for them.

I enjoyed the meeting in Ottawa last week, even though I was afraid that nothing really positive would come out of it. I was so glad that Bradley & Robertson stressed the urgency and need of some kind of a manual for the help and guidance of hospital administrators who are willing but in serious doubt as to what they should be doing about the problem. I would have preferred to have seen the appointment of an editorial sub-committee whose job it would have been to outline the form and chapter headings of such a manual and to allocate the writing of these chapters to specific members of the committee. I am afraid the whole thing at the present is a little too nebulous and indefinite. Perhaps I am over pessimistic.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.
Chief,
Bacteriological Laboratories.

ETB/md

Laboratory of Hygiene,
O t t a w a.

October 7, 1958.

Mr. Earle K. Bowman,
Chief, Laboratory Services Section,
Connecticut Department of Health,
P.O. Box 2340,
HARTFORD 1, Conn.,
U. S. A.

Dear Earle:

Thanks for your two communications of September 30th and October 3rd. To your first question, I do not think it is necessary to say anything more about the situation in Canada. I believe most here that are interested know what the facts are. On page 6, Section 10 (Sept.26th memo), some exception might be taken to your statement "The actual technique for staphylococcal phage typing will be that outlined by the International Sub-Committee". The question of a standardized procedure was discussed at the Sub-Committee meeting in Stockholm but I do not recollect any decision being reached that the Committee would recommend a standard procedure. Most of us are following the methods described by Williams & Rippon (1952) but with minor modifications of our own. The consensus was, I believe, that it was more important that we all use standard phages, and to that end Williams is committed to sending all national centres a complete set of phages and propagating strains every two years. You might check this point with Jack and Elaine. If I am right, my suggestion is that you change the paragraph to read: "10. Method of Phage Typing - When the C.D.C. begins its reference service to regional laboratories, a recommended procedure will be made available."

In the last sentence of this report, you refer to Staphylococcus aureus or Staphylococcus pyogenes. Bergey's latest edition recognizes the one pathogenic species Staphylococcus aureus. As this is the Bible of so many bacteriologists, we might perhaps be advised to go along with Bergey, and refer only to Staphylococcus aureus and omit the reference to Staphylococcus pyogenes.

With reference to your October 3rd letter, I cannot think of any special items that should be discussed at your meeting. You seem to have covered all the important points. I agree with your view that the Sub-Committee has now fulfilled its obligations and purpose and I do not see any good need for its continuation. Should such a need again occur, another Sub-Committee could always be re-appointed.

I am sorry that I will not be able to attend the meetings in St.Louis this year, but I do wish you a pleasant and profitable time. Our director will be there and I might persuade him to attend your phage committee meeting in my place.

With kindest personal regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

THE HOSPITAL FOR SICK CHILDREN
555 UNIVERSITY AVE.
TORONTO 2
TELEPHONE EM. 6-7242

October 6, 1958.

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa, Ontario.

Dear Ted,

I enclose 4 reprints - I forget how many you wanted.

The summary on page 8 and the figure on page 3 will give you our exact figures. There were 16% who always yielded positive cultures. There were in addition 43% who were intermittents. We are inclined to regard both of these, or 59%, as true carriers. There are some difficulties in classifying all of these as constant carriers on a strict definition of terms, though we feel that many intermittents are almost constant carriers. This is one of the reasons why in general terms we use the 30-40% figure for true almost constant carriers.

The 6% figure you had on your sheets were those who always yielded negative cultures. There were too 35% who were occasional and trivial carriers. We believe that the proportion 35% to 6% is likely to vary greatly depending on how dirty the hospital environment is and when the culture is taken in relation to exposure to this environment. It is quite possible that single swab surveys from a dirty environment may show 100% carriers.

Thanks for the late evening at your home.

Sincerely,

Ted.

T. E. Roy, M.D.
Bacteriologist.

TER/jm
Encl. 4

ADDRESS OFFICIAL COMMUNICATIONS TO:
DIRECTOR
DIVISION OF LABORATORIES
628 WEST TENTH AVENUE
VANCOUVER 9, B.C.

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF HEALTH AND WELFARE
HEALTH BRANCH
DIVISION OF LABORATORIES

October 3, 1958

Dr. E. T. Bynoe
Chief, Bacteriological Laboratories
Laboratory of Hygiene
Ottawa, Ontario

Dear Ted:

Thank you very much indeed for your letter dated Sept. 25th. I was very pleased to hear that our lytic patterns corresponded so closely with those of your Laboratory and the findings of Dr. Williams. Thank you for sending us the three fresh phages and propagating strains. We have handed to Miss Johnson the additional 79 Phage and its propagating strain.

I look forward to receiving from you a completed table of the lytic spectra when you have had an opportunity of testing new strains from Colindale, and I am interested to note that phage 70 has been dropped from the basic set and that phage 52 AV has now been named phage 82.

You seem to have had a most interesting time in Europe, and I do look forward to hearing all about it at the next meeting of the T.A.C. Incidentally, no date has yet been suggested but I assume it will be on the Thursday and Friday preceding the Montreal meeting of the Laboratory Section of the C.P.H.A.

With very kind regards,

Yours sincerely,

Ernest Bowmer

E. J. BOWMER
Director

EJB:sk

PUBLIC HEALTH LABORATORY SERVICE

(Directed by the Medical Research Council for the Ministry of Health)

Telephone: COLINDALE 7041 (8 Lines)
Telegrams: DEFENDER, NORPHONE, LONDON

CENTRAL PUBLIC HEALTH LABORATORY
COLINDALE AVENUE
LONDON, N.W.9

Ref: 208

1st October 1958

Dear Mr. Comtois,

Thank you for your letter of September 10th. The memorandum that we circulated at Stockholm was really planned for discussion at that Committee Meeting but the Committee was so exhausted by the time we got to that item that it went by without any discussion. We are however planning to issue strains such as those proposed in the memorandum to all typing laboratories as soon as possible. They are not yet however ready because one of the strains has proved on further examination to be rather unstable and we are looking for a better culture with which to replace it. We will send all three cultures to you as soon as they are ready.

Yours sincerely,

R.E.O. Williams

R.D. Comtois, Esq.,
Laboratory of Hygiene,
Dept. of National Health & Welfare,
Ottawa,
Canada.

555-5-I

828 W. 10th Ave.
Public Health Lab.
Van. B.C.

Bacteriologist
Staphylococcus phage typing department
Laboratory of Hygiene

Dear Dr. Comtois:

Here are two more cultures from our study on which I would appreciate a confirmation of our phage typing results - They are resistant to most antibiotics including penicillin and are now phage-typing for us - It is very important for our study that we make sure of this.

Thank you for the extensive work you did on our doubtful [illegible] strains.

In our set of phages and strains just received by us you have included 52AV. I am not too familiar with the workings of this phage as I don't recall it being in common use in Colindale in 55-56 when I was there. Am I correct in placing it in Serological Group III and associating it with 42B/81 pattern (or Vancouver's V/81 pattern)?

Sincerely:

M. H. Kropinak
(Mrs.)
Staph phage typing dept.

Cultures received Sept 22nd, 1958.

000257

~~354-10-6~~

355-S-2

Laboratory of Hygiene,
O t t a w a.

September 29, 1958.

Dr. Merlin L. Cooper,
Department of Pediatrics,
The Children's Hospital Research
Foundation,
Elland Ave. and Bethesda,
CINCINNATI 29, Ohio.

Dear Doctor Cooper:

I was very interested in the views expressed in your letter of September 24th and your proposed plan for phage typing of staphylococci.

To answer the first question in your letter, I would have to say that type "80/81/82" is certainly the most common type found causing trouble in our hospitals at this time, but many other types are also troublesome. At a recent meeting in Atlanta, a small committee consisting of Dr.Updyke, Dr. R.E.O. Williams, Dr.John Blair, Mr.Earle Borman and myself felt it necessary to emphasize the point that particular attention should not be paid to any one phage type unless it had been clearly demonstrated that that one type was involved in the particular outbreak being investigated. We ought to consider all the recognized 'phage types' of staphylococci pathogenic and of potentially being able to start an outbreak.

I think your proposed plan has dangers - You may very likely overlook the very strain that is the most dangerous in your hospital.

The International Committee has recommended a basic set of 21 phages to be used routinely and I would advise using this set for any typhing scheme that you wish to establish.

/

.....

In the event that you have an outbreak in your hospital and you are able to demonstrate that this is due to one special type, why then, of course, you could use a screening procedure to pick out this one type in carriers, other patients and the environment, but until you actually have an outbreak in which one type of staphylococcus is involved, you would be well advised to stick to the 'basic set' of phages for your typing.

With experience and a record of what is happening in your hospital over a sufficiently long period of time you may be able to make modifications to suit the particular conditions.

At the present time I am afraid that we do not know how to use phage typing intelligently enough to "prevent" outbreaks; the concensus of our group (the Committee referred to above) was that phage typing in the average hospital should be restricted to the study of 'outbreaks' of infection or special research projects.

I wish I could be more helpful, particularly to those like yourself, who are genuinely interested in the epidemiology of these infections in their hospitals. The trouble is that we do not know enough about staphylococcus disease - what strains are virulent? Why some spread rapidly and others don't?

I shall be most interested in hearing of your observations.

With kindest personal regards,

Yours sincerely,

E. T. Bynoe, Ph.D.
Chief,
Bacteriological Laboratories.

ETB/md

s.19(1)

MICROCOCCUS PYOGENES FOR BACTERIOPHAGE TYPING

SEPTEMBER 25th.1958.

555-S-2

58 7092 CULTURE NO. 4163 — MU 2
STAPH. ISOLATED FROM SPUTUM CULTURE

7093 CULTURE NO. 4456 — GU OPC.
STAPH. ISOLATED FROM PROSTATIC CULTURE

7094 CULTURE NO. 4488 — L.S.H.
STAPH. ISOLATED FROM THROAT CULTURE

7095 CULTURE NO. 4514 — C WARD
STAPH. ISOLATED FROM EAR CULTURE

7096 CULTURE NO. 4527 — SU 3
STAPH. ISOLATED FROM EYE CULTURE

7097 CULTURE NO. 4529 — SU 3
STAPH. ISOLATED FROM ISHIO RECTAL ABSCESS

7098 CULTURE NO. 4535 — MORGUE
STAPH. ISOLATED FROM LUNG CULTURE

7099 CULTURE NO. 4555 — OPC
STAPH. ISOLATED FROM BOIL CULTURE

7100 CULTURE NO. 4558 — J LOWER
STAPH. ISOLATED FROM BOIL CULTURE

7101 CULTURE NO. 4570 — SU 2
STAPH. ISOLATED FROM ABSCESS CULTURE

7102 CULTURE NO. 4577 — MU 2
STAPH. ISOLATED FROM SPUTUM CULTURE

7103 CULTURE NO. 4619 — J LOWER
STAPH. ISOLATED FROM BOIL CULTURE

7104 CULTURE NO. 4623 — O.P.C.
STAPH. ISOLATED FROM BOIL CULTURE

7105 CULTURE NO. 4643 — SU 3
STAPH. ISOLATED FROM ABSCESS CULTURE

Dept. of Bacteriology
Westminster Hospital
London, Ont.

Culture received Oct. 7, 1958.

355-5-2

Laboratory of Hygiene,
O t t a w a.

September 25, 1958.

Dr. E.J. Bowmer,
Director,
Division of Laboratories,
Department of Health & Welfare,
828 West 10th Avenue,
VANCOUVER 9, B.C.

Dear Ernest:

Mr. Comtois and I have compared the results obtained in your two Vancouver Laboratories on the lytic spectra of your typing phages with our results and with those reported by the Colindale Laboratories. We are impressed with the excellent agreement between the laboratories. I am sure Dr. Williams would think we have nothing to worry about if we get results such as those reported by you.

However, we have noted small differences in phages 79, 77 and 81. Phage 79 in our laboratories and at Colindale shows strong lysis (3) with PS.47. Phage 77 at Laboratory of Hygiene and Colindale show strong lysis (4) with PS 6, PS 7, PS 47 and PS 53. (Johnson's phage would appear typical). Similarly phage 81 at Laboratory of Hygiene and Colindale laboratories give strong lysis with PS 6, PS 7, PS 54 and PS 42E. (Again Johnson's phage appears satisfactory).

Accordingly we are sending you under separate cover fresh phages 79, 77 and 81 with their respective propagating strains. Perhaps you would let Miss Johnson have the extra 79 phage and its propagating strain which we have enclosed.

.....

As a result of our International Meeting, new strains are being suggested for testing of the lytic spectra. We are awaiting these strains from Colindale. When we get them and have ourselves checked them, we will send you a completed table of the lytic spectra (according to Colindale and Laboratory of Hygiene.

Kindest regards.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md

355-S-1

Laboratory of Hygiene,
O t t a w a.

September 25, 1958.

Prof. A. Charlotte Ruys,
Laboratory of Hygiene,
University of Amsterdam,
Mauritshade 57,
AMSTERDAM (O), Holland.

Dear Dr. Ruys:

It was a pleasure meeting you again in Stockholm and chatting, all too briefly, with you on our mutual problems.

Under separate cover we have forwarded to you lyophilized preparations of our 52 AV (now 82) phage and its propagating strain, as you requested. Should either of these prove non-viable, please let me know and we will send you fresh strains.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

354

THE CHILDREN'S HOSPITAL RESEARCH FOUNDATION
ELLAND AVE. AND BETHESDA
CINCINNATI 29, OHIO

DEPARTMENT OF PEDIATRICS
COLLEGE OF MEDICINE
UNIVERSITY OF CINCINNATI

September 24, 1958

Dr. Evan T. Bynoe
Laboratory of Hygiene
Department of National Health & Welfare
45 Spencer Street
Ottawa
Ontario, Canada

Dear Doctor Bynoe:

Would you please send me a list of the phage types of Staphylococcus aureus which you now consider of epidemic importance in your locality? I have recently obtained a set of Staphylococcus phages and their propagating cultures from Dr. Blair and my plans are to make available to our Diagnostic Bacteriology Laboratory here at the Children's Hospital the phages specific for phage types of Staphylococci which we consider important at this time.

In this way, when the Bacteriology Laboratory sets up their antibiotic sensitivity tests with freshly isolated strains of Staphylococcus aureus, they can also apply the Staphylococcus phages and the next morning it will be possible for them to make a preliminary report indicating that the strains of Staphylococci are or are not of these particular phage types.

In this way, a preliminary report on the phage typing can be obtained quickly and I think such may be of value. These cultures of Staphylococci will then be sent to the Cincinnati Staphylococcus Laboratory, our local bacteriophage typing laboratory, for their study. I hope this idea of mine works satisfactorily and proves of assistance in obtaining early information regarding the phage types of our Staphylococci.

With best personal regards, I remain

Yours sincerely,

Merlin

Merlin L. Cooper, M. D.

MLC/mcm

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

INTRADEPARTMENTAL CORRESPONDENCE

TO: Dr. E.T. Bynoe,
Laboratory of Hygiene.

YOUR FILE:
DATED:
OUR FILE:

FROM: Microbiology Section.

DATE: Sept. 24, 1958.

SUBJECT: Re: Staph in Cheese

Dear Ted:

I have just returned from a prolonged trip to read your observations of September 8, on our draft of the proposed paper on "Staphylococci in cheese".

I am grateful for your suggestions and am glad to adopt the modifications you suggest.

During my recent trip I have visited Veterinary colleges and mastitis labs of Ontario and Quebec and have talked with several practicising veterinarians as well as Senior officials of provincial agriculture.

Universal agreement seems to prevail: Staph are much more common as a cause of mastitis than they were a few years ago; not many strains are antibiotic-resistant; eradication is difficult.

F.S. Thatcher.

000265

N.H. & W. 2

PROVINCIAL LABORATORY OF PUBLIC HEALTH
UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA

R. D. STUART, M.D., D.Sc., F.R.F.P.S.G., D.P.H.
PROVINCIAL BACTERIOLOGIST
DIRECTOR

D. SHUTE, M.D., D.T.M.
DIRECTOR, SOUTHERN BRANCH
CALGARY, ALBERTA

FILE NO.

September 24, 1958

355-5-2.

Dr. E.T. Bynoe
Laboratory of Hygiene
Dept. of National Health and Welfare
45 Spencer Street
OTTAWA, Ontario

Dear Dr. Bynoe,

Please could you let us have the following freeze dried phages and propagating strains.

Propagating Strains

PS 3B - 211	Two ampoules
PS 73 - F56A	Two ampoules
PS 53 - R48/3292	One ampoule
PS 47A - 761	One ampoule
PS 42B/47C - 1163	One ampoule

Phages

73	One ampoule
42D	One ampoule
29A	One ampoule
? - 31A	One ampoule — Why, I wonder?

Shipped Sept 26, 1958
RDS

With many thanks,

Yours sincerely,

Mary E. Williams.
Mary E. Williams.

MEW/mh

M/r Canlois

File no. 355-S-2.

Laboratory of Hygiene,
O t t a w a.

September 24, 1958.

Dr. E.S. Anderson,
Central Enteric Reference
Laboratory and Bureau,
Central Public Health Laboratory,
Colindale Avenue,
LONDON, N.W.9, England.

Dear Dr.Anderson:

Thank you for your request of our paper entitled "Lytic reactions of three closely related staphylococcal bacteriophages 80, 81 and '52AV'", which was presented at the annual meeting of the Society of American Bacteriologists in Chicago last April. Except for the abstract which appeared in Bact. Proc., this paper has not been submitted for publication.

A summary has however been circulated among members of the International Sub-Committee on Bacteriophage Typing of Staphylococci at the International Congress in Stockholm this summer. A copy of this memorandum is enclosed.

For your information Phage '52AV' is a new phage obtained by adaptation of the classical 52A phage to a new propagating strain. It has since been recognized by the International Sub-Committee with official number 82.

Thanking you,

Yours very truly,

RDC

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RCD/md

355-5-2

s.19(1)

QUEEN MARY VETERANS HOSPITAL
4565 Queen Mary Road
Montreal, P.Q.

23 Sept. 1958.

Dr. E.T. Bynoe
Lab. of Hygiene
Dept. National Health & Welfare
OTTAWA, Ontario.

Dear Dr. Bynoe,

We are forwarding a collection of Staphylococcus cultures for "Phage typing".

LAB.NO	NAME	WARD	DATE	SPECIMEN	P	T	C	E	O	N
6007		5B	4-9-58	Sputum	R	R	MR	MR	MR	S
6212		5B	13-9-58	Incision	R	R	S	S	S	S
6228		4B	13-9-58	Stool	R	R	MR	MR	MR	S
6306		4B	17-9-58	Incision	R	R	S	MR	MR	S
6239		4C	15-9-58	Sputum	R	R	MR	R	MR	S
6303		4C	16-9-58	Boil	R	R	S	MR	MR	S
6300		4C	16-9-58	Incision	R	R	MR	S	S	S
5385		4D	4-8-58	Boil	R	R	S	MR	MR	S
6149		3B	10-9-58	Skin inf.	R	MR	MR	R	R	MR
6372		3B	19-9-58	Uvula	R	R	MR	S	S	S
6311		3C	17-9-58	Sputum	R	R	MR	MR	MR	S
6191		2D	12-9-58	Back inc.	S	S	S	S	S	S
6026		N/S	4-9-58	Inf.finger-R	R	MR	S	S	S	
6387		Staff	19-9-58	Boil	R	R	S	MR	MR	S

There seemed to be very few hospital infections during the summer, but things picked up in the last couple of weeks, rather scattered over the hospital.

6191 - [redacted] - although very sensitive seems quite definetely to be a Post-op infection.

6387 - [redacted]
6026 -
6303 -

D.H. Starkey, M.D.
Chief of Laboratory Services.

355-2-21

ADDRESS OFFICIAL COMMUNICATIONS TO:
DIRECTOR
[redacted]SION OF LABORATORIES
[redacted] WEST TENTH AVENUE
VANCOUVER 9, B.C.

IN YOUR REPLY REFER TO

FILE No.....

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF HEALTH AND WELFARE
HEALTH BRANCH
DIVISION OF LABORATORIES

s.19(1)

September 23, 1958

Dr. E. T. Bynoe, Chief
Bacteriological Services
Laboratory of Hygiene
Ottawa, Ontario

Dear Ted:

I am very grateful to Mr. Comtois for his interesting report on the four strains of staphylococci which we referred to you. It is reassuring to find that our laboratory results are not grossly different from yours. Mrs. Kropinak, who does our phage-typing, has two further staphylococcal cultures which she would like checked from [redacted] We have isolated over 12 strains which are untypable and penicillin-resistant in the past three months from [redacted]. We are sending you two of the strains and would be grateful to know your findings.

Mrs. Kropinak working in our laboratories and Miss Johnson working with Dr. Cockcroft, have now completed the lytic spectrum on the two basic sets of phages which you issued to us some time ago and I enclose their results. I would very much appreciate any comments you wish to make on these findings.

I shall be very interested to receive a copy of the lytic spectrum of basic phages as determined by the International Center and also your results on analyzing these.

I shall be delighted to hear of your trip to Europe and the meetings of the Salmonella and Staphylococcal groups. I imagine you must have met several of my old friends.

With very best wishes,

Yours sincerely,

Ernest Bowmer

E. J. BOWMER
Director

RDC

EJB:sk
Encl.

A C E N T U R Y T O C E L E B R A T E

355-S-2

Laboratory of Hygiene,
O t t a w a.

September 23, 1958.

Dr. Norman A. Hinton,
Assoc. Prof. of Bacteriology,
Queen's University,
KINGSTON, Ontario.

Dear Doctor Hinton:

I am sorry to have taken so long to reply to your letter of September 9th but I have been away for the last couple of weeks (this time in the U.S., where I attended a National Conference on Hospital-Acquired Staphylococcal Infections).

Our director, Mr.Gibbard, is quite agreeable to our collaboration in your proposed investigation, so we shall be happy to do the phage typing of the staphylococci for you. I presume you will do the initial isolation and coagulase testing of strains. Coagulase-positive strains only should be sent as coagulase-negative strains are untypable with our routine typing phages.

I think your investigation might produce some very interesting observations and I am particularly interested in your proposed study of the effect of vaccines (perhaps with and without toxoid) on the carrier state and on the infection rate. The immunological aspects of staphylococcal disease have been neglected and should now be re-investigated.

Mr. Gibbard has suggested that we might be interested in collaborating on other aspects of the problem with you as both Dr.Jackson and Dr.Greenberg are doing work here on the staphylococcus. He hopes to have a chat with you sometime when he is in Kingston.

••••••••••

Could you give us any idea of what numbers of staphylococci you will likely be sending us weekly?

Kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/ed

CANADA

DEPARTMENT OF VETERANS AFFAIRS

IN YOUR REPLY REFER TO FILE NO.

Sept. 16, 1958
Laboratory, Lancaster Hospital,
Lancaster, N. B., Canada.

Dr. E. T. Bynoe, chief
Bacteriological Laboratories,
Laboratory of Hygiene,
Dept. National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe:-

Under separate cover, we have sent you some more staphylococci cultures for phage typing. These are as follows, including number and source:

Staphylococcus Number		Origin
586566	655	Ear
586567	656	Toe
..6568	657	Buttocks
6569	658	Nose
6570	659	Lesions left hand; palm and ring finger.
6571	660	Nose
6572	661	Neck

The results of antibiotic sensitivity tests done to date are outlined on the attached.

Very truly yours,

Arnold Branch per ECP

ARNOLD BRANCH, M.D.
Chief of Service, Laboratory Service.

Mr. Comtois
ADJ

AB:RM
Enc.

Culture receive Sept. 18 1958

DVA 1

000272

555-5-2

Laboratory of Hygiene,
O t t a w a.

September 10, 1958.

Dr. Hugh P. Curley,
Research Department,
Hospital Bureau of Standards
and Supplies, Inc.,
60 West 55th Street,
NEW YORK 19, N.Y.
U, S. A.

Dear Dr.Curley:

Your letter of September 8 to Dr. E.T. Bynoe has been received at this Laboratory.

At present Dr. Bynoe is attending a conference on hospital infections at Atlanta, and will not be back in the Laboratory until September 19. I will bring your letter to his attention at that time.

Since Dr. Bynoe is responsible for the activities of our National Phage Typing Reference Center, and has been particularly active in this field, it is quite possible that he may be able to supply you with the requested information.

Very truly yours,

A. D. Tennant, Ph.D.,
Bacteriologist,
Bacteriological Laboratories.

ADT/ad

Laboratory of Hygiene,
O t t a w a.

September 10, 1958.

Dr. R.E.O. Williams,
Central Public Health Laboratory,
Colindale Ave.,
LONDON, N.W.9, England.

Dear Dr. Williams:

Dr. Bynoe has just referred your circular ISTC 58/7 to me.

Would you please forward me a dried sample of cultures No.567, 574, and 2009, which, according to this circular, are to be used for testing the lytic spectrum of basic set phages.

Yours sincerely,

RDC

R. D. Comtois,
Bacteriologist,
National Staphylococcus Phage
Typing Reference Centre.

RDC/md

Re Staph

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

September 9th 1958

Dr. E. T. Bynoe,
Laboratory of Hygiene,
Tunney's Pasture,
Ottawa.

Dear Dr. Bynoe,

I wish to thank you for the most interesting discussion we had when I was in Ottawa, and for your consideration in taking the time during your holidays (and wedding preparations) to meet and talk to me.

As you know, we are in the midst of launching an investigation involving the new group of student nurses who have just arrived at the Kingston General Hospital. We propose to take cultures from nose, throat and faeces from all these girls weekly and to determine:

1. The effect of residence in hospital on the carrier rate and type and antibiotic sensitivity of the strains carried in the three different sites.

2. The relationship between staphylococcal phage type, antibiotic sensitivity and the duration of time for which any given strain is carried.

3. The relationship between nasal and faecal carriage of various types. It is our impression that intestinal carriers tend to retain a given type for a longer period of time than do upper respiratory tract carriers, i.e. if an epidemic phage type or antibiotic resistant strain is once established in the intestinal tract, such a carrier is more likely to be a more persistant excretor than a nasal or pharyngeal carrier.

4. The relationship between type or organism, duration of the carrier state and the development or incidence of infections in this group of nurses.

5. Once this group of nurses have become stabilized in their hospital environment it is proposed to immunize a test group with staphylococcal toxoid, to determine anti alpha toxin titres and to determine the relationship between antitoxic immunity, the carrier state, the type of organism carried and the incidence of staphylococcal infection.

noted ads

6. It is further proposed after a suitable trial period to prepare suitable staphylococcal vaccines and to determine the effect of antibacterial immunity on the carrier state and the incidence of infection.

You realize that one of the most important technical aspects of this project will involve the phage typing of the strains isolated. Although we are quite prepared to carry out this aspect of the work here, it occurred to me that you might be interested in taking part in this project, and rather than have a very significant proportion of the time of my staff (which is of course limited) involved in phage typing on top of the very considerable amount of work already being expended in this project, we could have the advantage of your expert knowledge of this field.

Excellent cooperation has been obtained from the Nursing School at the General Hospital and I envisage a long term project developing here into which any number of modifications may be introduced. You must have some personal views on how this test group can best be utilized and the circumstances here may allow you the opportunity of applying them.

If you are able to see your way clear to carry out the phage typing I will feel privileged indeed to be associated with you in this work.

Yours sincerely,

Norman A. Hinton

Norman A. Hinton, M.D.
Assoc. Prof. of Bacteriology.

RDC

NAH/JZ

Hospital Bureau of Standards and Supplies
INCORPORATED

~~247 Park Avenue, New York 17, N. Y.~~

WILLIAM A. GATELY, Executive Director

60 West 55th Street
New York 19, N. Y.
September 8, 1958

Laboratory of Hygiene
Department of National Health and Welfare
Ottawa, Canada

Attention: E. T. Bynoe, M. D.

Dear Dr. Bynoe:

From an article entitled "Control of Staphylococcal Infections in Hospitals," by Hugh Starkey, M. D., which appeared in THE CANADIAN MEDICAL ASSOCIATION JOURNAL in 1956, we understand that you are investigating phage typing of this type of cross-infection, with particular emphasis on control of cleaning, laundry methods, and sterilization of special equipment.

Inasmuch as we are in the process of collating material from all sources for a report on preventive housekeeping measures to help control the "staph" problem, we would appreciate any written material you can supply us on this phase of cross infection prevention. This report will be distributed to our 270 member hospitals throughout the eastern half of the United States.

Thank you for your help.

Very truly yours,

Hugh P. Curley
Research Department

HPC:LT

awJ

555-5-2

MICROCOCCUS PYOGENES FOR BACTERIOPHAGE TYPING

SEPTEMBER 2nd.1958.

586523	CULTURE NO. 4085	L.S.H.
	STAPH. ISOLATED FROM BOIL CULTURE	
6524	CULTURE NO. 4088	SU 2
	STAPH. ISOLATED FROM LEG CULTURE	
6525	CULTURE NO. 4105	D 3/4
	STAPH. ISOLATED FROM CULTURE	
6526	CULTURE NO. 4107	STAFF
	STAPH. ISOLATED FROM CULTURE IF BOIL	
6527	CULTURE NO. 4123	MORGUE
	STAPH. ISOLATED FROM LUNG CULTURE	
6528	CULTURE NO. 4125	D 3/4
	STAPH. ISOLATED FROM BOIL CULTURE	
6529	CULTURE NO. 4160	O.P.C.
	STAPH. ISOLATED FROM BOIL CULTURE	
6530	CULTURE NO. 4167	C WARD
	STAPH. ISOLATED FROM BLISTER CULTURE	
6531	CULTURE NO. 4176	MORGUE
	STAPH. ISOLATED FROM LUNG CULTURE AT POST MORTEM	
6532	CULTURE NO. 4186	D 3/4
	STAPH. ISOLATED FROM AXILLA CULTURE	
6533	CULTURE NO. 4227	B UPPER
	STAPH. ISOLATED FROM SPUTUM CULTURE	
6534	CULTURE NO. 4242	STAFF
	STAPH. ISOLATED FROM BOIL CULTURE	
6535	CULTURE NO. 4258	J LOWER
	STAPH. ISOLATED FROM BOIL CULTURE	
6536	CULTURE NO. 4268	O.P.C.
	STAPH. ISOLATED FROM BOIL CULTURE	
6537	CULTURE NO. 4285	B LOWER
	STAPH. ISOLATED FROM BOIL CULTURE	
6538	CULTURE NO. 4286	B LOWER
	STAPH. ISOLATED FROM BOIL CULTURE	

Culture Received Sept. 15 1958
From Dept. of Bacteriology
Westminster Hospital
London, ONT.

355-5-2

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

LABORATORY OF HYGIENE

NATIONAL STAPHYLOCOCCUS PHAGE TYPING REFERENCE CENTRE

TUNNEY'S PASTURE, OTTAWA.

REPORT ON PHAGE TYPE IDENTIFICATION

Name of Sender: Dr. Arnold Branch,
Address of Sender: Lancaster Hospital,
Lancaster, N. B.
Comments:

Lab. Hyg. Ref. No.: 586008-586028
Date Received: Aug. 14, 1958
Date Reported: Aug.29, 1958

STRAIN		Sender's Ref. No.	Lab. of Hyg. No.	PHAGE PATTERN	Phage Dilution
Patient's Name	Source				
-	Left hand	628	586008	50/51/55	
-	Forearm	629	" 6009	52A/80 +	10 RTD.
-	Rt. Ear	630	" 6010	70	
-	Nose	631	"6011	3C/51	10 RTD.
-	Toe	632	"6012	52AV/80	
-	Lt. ear	633	"6013	52A/80	100 RTD.
-	Rt. eye	634	"6014	6/7/47/53/54/75/76 +	
-	Sputum	635	"6015	52AV	
-	Leg ulcer	636	"6016	Not typable	
-	Sputum	637	"6017	42C/42E/75/81	100 RTD.
-	Urine	638	"6018	3A	
-	Toe	639	"6019	52AV/80	
-	Leg	640	"6020	Not typable	
-	Throat	641	"6021	3A+	100 RTD.
-	Finger	642	"6022	81 +	
-	Buttock	643	"6023	52A	10,000RTD.
-	Urine	644	"6024	Not typable	
-	Back	645	"6025	52/52A)80+	
-	Sputum	646	"6026	3B/3C/55	
-	Lt. forearm	647	"6027	29/44A+	1000 RTD.
-	Rt. elbow	648	"6028	52AV/80	

COMMENTS:

Signed: R.D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

P5721

CANADA

DEPARTMENT OF VETERANS AFFAIRS

IN YOUR REPLY REFER TO FILE NO.

August 28, 1958
Laboratory,
Lancaster Hospital,
Lancaster, New Brunswick.

Dr. E. T. Bynoe, chief
Bacteriological Laboratories,
Laboratory of Hygiene,
Dept. National Health & Welfare,
Ottawa, Ontario.

Dear Dr. Bynoe:-

Under separate cover, we have sent you some more Staphylococci cultures for phage typing. These are as follows, including number and source:

Staphylococcus Number		Origin
586265	649	Nose
6266	650	Nose
6267	651	Nose
6268	652	Sputum
6269	653	Nose
6270	654	Ear

The results of antibiotic sensitivity tests done to date are outlined on the attached.

Very truly yours,

Arnold Branch

ARNOLD BRANCH, M.D.
Chief of Service,
Laboratory Service.

Cultures rec'd Sept 2, 1958.

AB:RM
Enc.

DVA 1

PUBLIC HEALTH LABORATORY SERVICE

(Directed by the Medical Research Council for the Ministry of Health)

S.12

Telephone: COLINDALE 7041 (8 Lines)
Telegrams: DEFENDER, NORPHONE, LONDON.

CENTRAL PUBLIC HEALTH LABORATORY
COLINDALE AVENUE
LONDON, N.W.9

s.19(1)

26th August 1958

Dear Bynoe,

I hope that you had a good journey back to Ottawa and that went off satisfactorily.

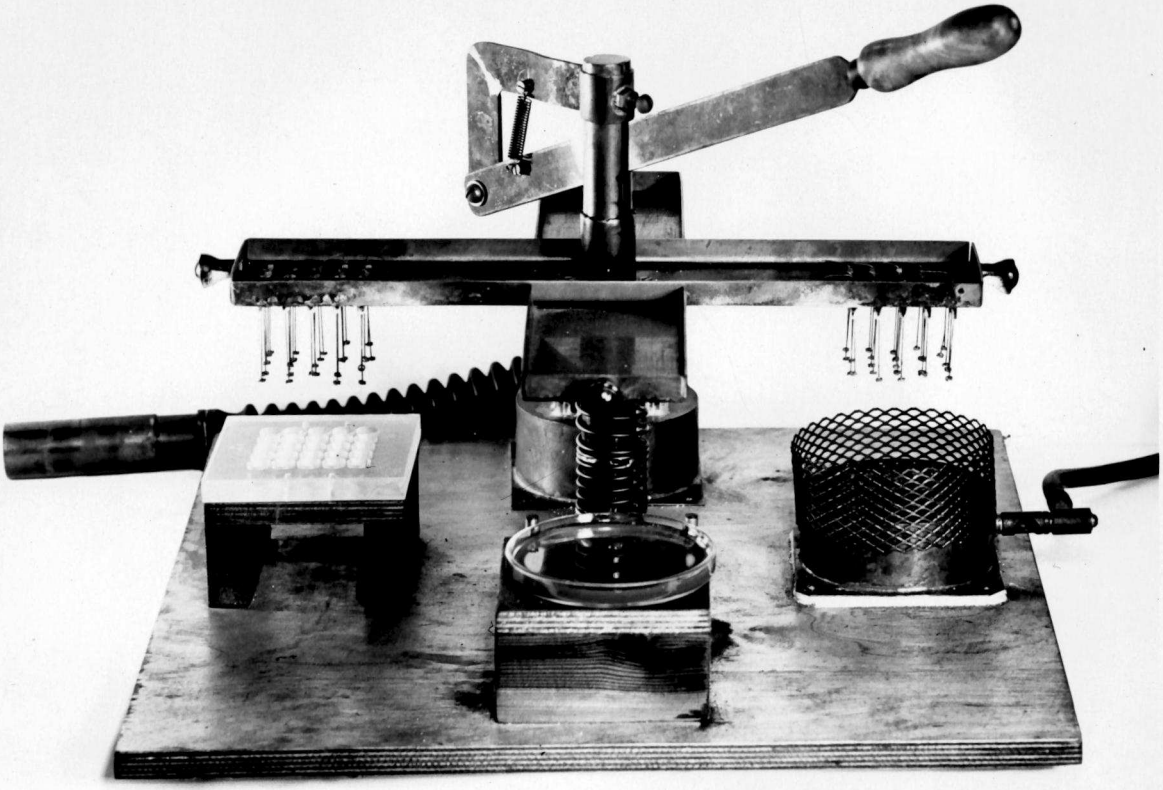
I enclose a set of photographs of our phage typing machine; they are not very good photographs I am afraid but I think they will serve to remind you of the essential features in its construction. I shall get Lidwell to write a note for publication on this as soon as possible.

Since we last talked I have had an invitation to a meeting on staphylococcus infections at Atlanta in September; I wonder if you are involved in this too, it would be nice to see you again if you are.

Kindest regards,
Yours sincerely,

R.E.O. Williams

Dr. E.T. Bynoe,
Department of National Health & Welfare,
Laboratory of Hygiene,
Ottawa,
Canada.



355-5-2

Laboratory of Hygiene,
O t t a w a.

August 21, 1958.

Dr. E. J. Bowmer,
Director,
Division of Laboratories,
Department of Health and Welfare,
828 West Tenth Avenue,
VANCOUVER, B.C.

Dear Dr. Bowmer:

Further to my letter of August 18, I am sending under separate cover our standard set of staphylococcus phages (22) plus propagating strains.

We would be glad to run comparative tests with the phages which have been giving you trouble, and I would therefore suggest that you send these to us.

Yours sincerely,

A. D. Tennant, Ph.D.,
Bacteriologist,
Bacteriological Laboratories.

ADT/ad

PHAGE	PROPAGATING STRAIN
29	Ps 29 (33)
80	PS 80 (-)
52	PS 52 (144)
52A	PS 52A/79 (925)
79	PS 52A/79 (925)
3A	PS 3A (284)
3B	PS 3B (211)
3C	PS 3C (1339)
55	PS 55 (H/31508)
6	PS 6 (3)
7	PS 7 (4)
47	PS 47 (36)
53	PS 53 (R48/3292)
54	PS 54 (R 48/3303)
70	PS 70 (H/42)
73	PS 73 (F/56A)
75	PS 75 (H/6415)
77	PS 77 (H/84)
42E	PS 42E (1670)
42D	PS 42D (1363)
81	Ps 81 (66459)
"52AV"	PS 52AV (552280)

s.15(1) - s - 2

s.19(1)

Laboratory of Hygiene,
O t t a w a,

August 18, 1958.

Dr. E. J. Bowmer,
Director,
Division of Laboratories,
Department of Health and Welfare,
828 West Tenth Avenue,
VANCOUVER, B.C.

Dear Dr. Bowmer:

Your letter of August 15 to Dr. E.T. Bynoe has been received at this laboratory.

Dr. Bynoe will not be back in the laboratory until early September. Unfortunately, Mr. Comtois of our Phage Typing Center, is also [redacted] and will not be back until August 25. I will refer your letter to Mr. Comtois immediately on his return, and I will make sure that the cultures you are sending receive immediate attention.

Yours sincerely,

ADT

A. D. Tennant, Ph.D.,
Bacteriologist,
Bacteriological Laboratories.

ADT/md

ADDRESS OFFICIAL COMMUNICATIONS TO:
DIRECTOR
[redacted]ISION OF LABORATORIES
828 WEST TENTH AVENUE
VANCOUVER 9, B.C.

IN YOUR REPLY REFER TO

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF HEALTH AND WELFARE
HEALTH BRANCH
DIVISION OF LABORATORIES

August 15, 1958

Dr. E. T. Bynoe, Chief
Bacteriological Services
Laboratory of Hygiene
Ottawa, Ontario

Dear Ted:

As I may have told you, we are carrying out a study of the spread of staphylococcal infection in the community in collaboration with the Health Centre for Children of the Vancouver General Hospital. This is in a sense a continuation of the study which the Health Centre carried out on in-patients suffering from staphylococcal infections.

The two laboratories involved in this investigation are firstly the B. C. Medical Research Laboratory with Dr. Cockcroft and Miss Johnson and secondly, ourselves with Mrs. Kropinak carrying out our phage-typing. You will remember some four years ago providing Dr. Cockcroft with a complete set of phages (Set 1), and some two years ago supplying me with a complete set of phages (Set 2). The problem which has now arisen is that Dr. Cockcroft's phages and our phages are not showing the same lytic patterns. This means that phage-typing undertaken in his laboratory sometimes shows discrepancies when compared with our findings. Furthermore, we do not seem to have available a copy of the detailed lytic spectrum of all phages issued by you and would very much appreciate three copies.

One of our problems is with phage 29. Phage 29 of Set 1 lyses a wide group of strains whereas phage 29 of Set 2 lyses a less wide group but still more strains than would be expected. We have four cultures which are lysed by phage 29 of Set 1 but not consistently by phage 29 of Set 2. I will send these to you under separate cover and would be very grateful if you would check them for me. I list at the bottom of this letter the details of the origin of these four cultures.

We are carrying out a complete lytic pattern using both Sets 1 and 2 of the phages issued to us by you and will send you our findings as soon as they are available.

Your help in this matter would be very much appreciated as we are having serious difficulties in co-ordinating the results of the two laboratories.

Mr. Comeau's
and I

s.19(1)

I do hope that you have enjoyed your [redacted] and look forward to hearing all your news.in due course.

With very kind regards,

Yours sincerely,

Ernest Bowmer.

E. J. BOWMER
Director

EJB:sk

Culture	Results With Phage 29 of Set 1	of Set 2
[redacted]	29	untypable
	29	29 (conc. only)
	29	29
	29	negative

s.19(1)

Public Health Labs:
Vancouver, B.C.
Aug 15/58.

Received August 25 1958

Labs. of Hygiene:
Ottawa:

Dear Dr. Bynoe:

Here are the four cultures for phagetyping mentioned in Dr Bowman's letter to you.

Our results obtained from each are as follows:-

CASE IN QUESTION – [redacted]

		SET I – (Miss Johnson's of B.C. M.R.I. Results)	SET II (My Results at Pub. H. Lab)
Earlier Culture:- (While [redacted] in Hosp and under antibiotic treatment)	May 5/58	29	29
#15 586180 (Treatment ceased)	May 14/58	29	Untypable.

— For 6 more weeks in follow up — same results as #15

#108 586181	June 27/58	29	29+ (in cone)
#155 586182	July 15/58	29	29
#27 586183 [redacted]	June 18/58	29	Untypable.

— and 9 more weekly cultures taken from [redacted] all giving same results as #27.

Thank you –
Sincerely,
Kay Kropiniak

Cultures rec'd Aug 25, 1958. RDC

1653-2

CHONNAM UNIVERSITY MEDICAL SCHOOL

KWANG JU, CHONNAM
KOREA

August 14, 1958

Dr. R. D. Comtois
Department of National Health and Welfare
Laboratory of Hygiene
Ottawa
Canada

Dear Dr. Comtois:

I appreciate very much for your kind sending of 22 Staphylococcal bacteriophages and corresponding propagating cultures. I have received them on the 14th of August, 1958.

I also wish to thank you for your letter instructed about the phages and cultures.

With kindest personal regards,

Sincerely yours,

Bohan Park

Bohan Park, M.D.
Department of Bacteriology

RDC

355-5-2

Laboratory of Hygiene,
O t t a w a.

July 25th, 1958.

Dr. H. Arthur Bird,
Director,
Bureau of Laboratories,
Department of Health,
SAINT JOHN, N.B.

Dear Dr. Bird:

A report has been received from Dr. R. A. Chapman of the Food and Drug Directorate regarding a culture of Staph. aureus (your number 4897) submitted by Dr. E.T. Bynoe for enterotoxin studies. A copy of this report is attached. The culture was found to be capable of producing enterotoxin as indicated by the cat test.

Yours sincerely,

A. D. Tennant, Ph.D.
Bacteriological Laboratories.

ADT/ed

DEPARTMENT OF NATIONAL HEALTH AND WELFARE

INTRADEPARTMENTAL CORRESPONDENCE

TO: Laboratory of Hygiene,
Attn: Dr. T.E. Bynoe.

YOUR FILE:
DATED:
OUR FILE: 555-2-3

FROM: Food and Drug Directorate, Ottawa.

DATE: 23-7-58.

SUBJECT: Re: Staphylococcus aureus culture - Provincial Laboratory Saint John, N.B.

Our Microbiology Section has examined the culture of staphylococcus aureus, number 4897 submitted by the Provincial Laboratory in Saint John, N.B.

This culture was found to be capable of producing enterotoxin as indicated by the cat test.

R. A. Chapman

R.A. Chapman
Assistant Director,
Scientific Services.

Mr Courtois
and

N.H. & W. 2

000291

C O P Y

555-5-2

Laboratory of Hygiene,
Attn: Dr. T. E. Bynoe

Food and Drug Directorate, Ottawa 23-7-58

Re: Staphylococcus aureus culture - Provincial Laboratory
Saint John, N.B.

Our Microbiology Section has examined the culture of staphylococcus aureus, number 4897 submitted by the Provincial Laboratory in Saint John, N.B.

This culture was found to be capable of producing enterotoxin as indicated by the cat test.

R. A. Chapman
Assistant Director,
Scientific Services.

Fred!
I'm afraid this is your job!
Ted

s.19(1)

LABORATORY OF HYGIENE
Salmonella Typing Centre
45 Spencer Street, Ottawa

Attention!
Dr. T.E. Byroe

CULTURE FOR IDENTIFICATION

PROV. LABORATORY

Sender SAINT JOHN — N.B. File No.

Culture isolated from COCO-NUT PIE Date of isolation May 15/58

Name of patient [redacted] No. 4897

Address of patient [redacted]

History... [redacted]

Biochemical tests H. staphylococcus aureus coagulase + Phage Pattern 6/7/42E/47/53/54/70/75/81

Other findings of interest Please conduct toxogenic studies on this organism Thx

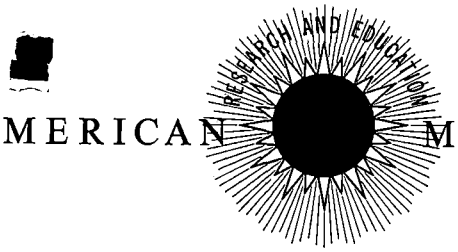
Mailing date 10/8/58

Positive for enterotoxin

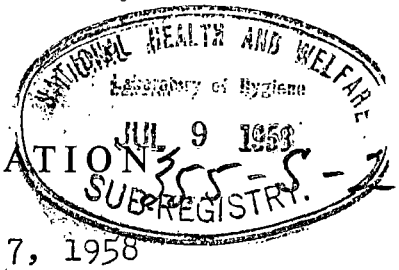
HAB
T

VT26
852

awt.



AMERICAN MEAT INSTITUTE FOUNDATION



July 7, 1958

Dr. E. T. Bynoe, Chief
Bacteriological Laboratories
Laboratory of Hygiene
Dept. of National Health and Welfare
Ottawa, Canada

Dear Dr. Bynoe:

We have received the Staphylococcus cultures that were sent to us in accord with your letter of June 25. The cultures appear to be in excellent condition and we wish to express our deep appreciation to you for providing these cultures for our research project. If any interesting results evolve from our studies, we will be happy to inform you of them.

Very truly yours,

James B. Evans

James B. Evans, Chief
Division of Bacteriology

JBE:dp

939 East 57th Street, Chicago 37, Illinois • at the University of Chicago • BUtterfield 8-6668

355-S-2

Laboratory of Hygiene

O t t a w a

July 2, 1958.

Dr. Bohan Park,
Chonnam University College of Medicine,
Kwangju, Cholla-Namdo,
Republic of Korea.

Dear Dr. Park:

Dr. Bynoe has referred your letter of June 24, 1958 to me.

Under separate cover I am forwarding you dried samples of 20 staphylococcal bacteriophages and corresponding propagating cultures recommended for typing by the International Subcommittee on Bacteriophage Typing of Staphylococci, together with 2 additional phages (81 and 52AV) which have recently been isolated at our laboratory. The phages and propagating cultures are listed on the attached sheet.

The phages were propagated and harvested by the "freezing and thawing" method of Williams and Rippon as outlined in the Jour. Hyg., September 1952, 50 (3): 320-353, and freeze-dried in concentrated form.

For propagation, each phage should be reconstituted in 0.4 - 0.5 ml. of broth and spread on to a solid medium seeded with a broth culture of the corresponding propagating cultures. The propagating cultures should be reconstituted in broth and transferred to agar.

Hoping this material will be helpful to you, I am,

Yours very truly,

RDC

R. D. Comtois,
Bacteriologist,
National Staphylococcus Phage
Typing Centre.

RDC/PL
Encl.

PHAGE	PROPAGATING CULTURE
29	33
52	144
52A	925
79	925
80	PS80
3A	284
3B	211
3C	1339
55	H/31508
6	3
7	4
47	36
53	R48/3292
54	R48/R3303
70	H/42
73	F/56A
75	H/6415
77	H/84
42E	1670
42D	1363
81	66459
52AV	552280

555-5-2

Laboratory of Hygiene
O t t a w a.

June 25th, 1958.

Dr. James B. Evans,
Chief, Division of Bacteriology,
American Meat Institute Foundation,
939 E. 57th Street,
Chicago 37, Ill.

Dear Dr. Evans:

Under separate cover we are sending you a number of staphylococcal cultures as requested in your letter of June 13th. Our laboratory is concerned primarily with phage typing and we do not have the time or staff to carry out antibiotic sensitivity tests on the staphylococci which we receive for typing. A couple of our hospitals, however, submit the results of their sensitivity tests with the cultures and we have gone over these and selected a number representing different phage types and different antibiotic sensitivities (as reported by the hospitals). We cannot vouch for the accuracy of the sensitivity tests but the two hospitals, from which the cultures were selected, do very reliable laboratory work.

We have also included a number of coagulase-negative, mannitol-negative stains which might be Staphylococcus epidermidis, but these are the only two characters for which we have tested. These strains were all untypable with our 32 typing phages and were isolated from some infections process in which they might have played an etiologic role.

I hope these cultures arrive in good condition and are satisfactory for your purposes.

Yours sincerely,

E. T. Bynoe, Ph.D.,
Chief,
Bacteriological Laboratories.

ETB/md
encl.

List of cultures sent to Dr. J.B.Evans

(Antibiotic sensitivity pattern - as reported by the hospital submitting the culture to the Lab. of Hygiene)

	P C T E N S O		Source
Phage Group I	**Type 52/52A/80**		
No. 584449	R S R S S - -		Nose
583184	S S S - - - -		Urine
	Type 29		
No. 574513	MR MR MR - - - -		Eye
575275	S S S - - - -		Finger
575765	S S S - - - -		Boil
Phage Group II	**Type 3A**		
571022	R R R - - - -		Antrum
582258	MR S S - - S -		Surgical wound
584452	S S S S S - -		Sputum
Phage Group III	**Type 47/75/76/77+**		
566548	R S R R - R -		Faeces
575302	R MR R MR - - S		Infected incision
582052	S S S S - S -		Ostiomyelitis
	Type 6/47/53/54		
571015	R MR R - - -	(6/7/47/54+)	Infected incision
574916	MR S S - - -	(6/47/53)	Infected incision
582063	S S S S - S	(6/47/53)	Ulcer
	Type 6/42B/42E/47/47C/53/75/76/77/81		
560114	R S R S - S -		Infected incision
565775	S S S S - S -		Sputum
	Type 53/54/77		
573234	R MR R R - -	MR	Sputum
571009	S S S - - - -		Abdominal wound
Phage Group IV	**Type 42D**		
572454	S S S - - - -		Finger

.....2

	P	C	T	E	N	S	O	Source
Common hospital epidemic types (1) 80/81/52AV								
No. 560117	R	MR	R	MR	-	MR	-	Carbuncle
553291	R	MR	R	MR	-	MR	-	Infected hand
553283	R	MR	R	MR	-	MR	-	Infected pedicle
582794	R	S	S	S	S	-	S	Infected wound
584214	R	-	-	-	-	-	-	
560326	R	S	S	S	-	S	-	Post-op.pneumonia
(2) 52AV								
562701	R	MR	R	R	-	R	-	Cellulitis
573233	R	S	R	S	-	-	S	Infected wound
582793	S	S	S	S	S	-	S	Infected wound
582790	S	S	R	S	S	-	S	Sputum
Coagulose-Negative Untypable Strains								
574263	S	S	S					Head
574265	MR	MR	R					Sputum
574511	MR	S	MR					Burn
574512	MR	MR	MR					Eye
574517	S	S	S					Ear
574520	S	S	R					Abdomen
574719	S	MR	S					Urine
574728	MR	R	R					Stump

* P - Penicillin, C - Chloramphenicol, T - Terracycline, E - Erythromycin, N - Novobiocin, S - Streptomycin, O - Oleandomycin.

AMERICAN MEAT INSTITUTE FOUNDATION

RESEARCH AND EDUCATION

June 13, 1958

Dr. Evan T. Bynoe
Laboratory of Hygiene
Department of National
Health and Welfare
45 Spencer Street
Ottawa, Ontario
CANADA

Dear Dr. Bynoe:

We are conducting some studies on the comparative physiology and metabolism of the staphylococci and would like to obtain some cultures from your collection. We are particularly interested in obtaining some Staphylococcus aureus strains that are resistant to a wide variety of antibiotics and representing several different phage types that are of particular public health significance. We would also like to obtain representatives of the same phage types that are sensitive to most antibiotics. The third group of cultures that we are interested in obtaining are strains that you would consider typical of Staphylococcus epidermidis.

We realize that this is a rather extensive request, but, as you know, only a few laboratories have a collection of cultures with this type of information. Thanking you in advance, we remain.

Very truly yours,

James B. Evans

James B. Evans, Chief
Division of Bacteriology

JBE:vp

939 East 57th Street, Chicago 37, Illinois • at the University of Chicago • BUtterfield 8-6668

555-S-2

AIR MAIL

Laboratory of Hygiene,
O T T A W A

June 10th, 1958.

Dr. R.E.O. Williams,
Public Health Laboratory Service,
Central Public Health Laboratory,
Colindale Avenue,
LONDON N.W.9, England.

Dear Dr. Williams:

Thanks for your letter of June 5th. Of course, I have no objection to your including the results of your laboratory on our phage '52 AV', with our results. Results from different countries or areas within countries are most important in assessing the true significance of 'types'.

Fred Thatcher mentioned the meeting of the staphylococcus 'experts' at Colindale on July 22nd and I think it an excellent idea and a wonderful opportunity for visitors like Thatcher and me to meet these people. Thanks for the invitation to attend such a meeting. Barring accidents, I shall be there.

With kindest regards,

Yours sincerely,

E. T. Bynoe, Ph.D,
Chief,
Bacteriological Laboratories.

ETB/md

355-5-2

Laboratory of Hygiene,
OTTAWA.

June 10th, 1958.

Dr. George F. Forster,
Assistant Deputy Director,
State of Illinois,
Department of Public Health,
Division of Laboratories,
1800 West Fillmore Street,
CHICAGO 12, Ill.

Dear Dr. Forster:

Dr. Bynoe has referred your letter of June 4th to me for reply.

We have been lyophilizing our stocks of bacteriophages and propagating cultures for the past five years using the Edwards Centrifugal Freeze Dryer. One milliter (ml) ampoules each containing about 0.3 - 0.4 ml quantities of undiluted phage prepared by the freezing-thawing method of Williams and Rippon (J.Hyg.Vol.50, No.3. pg.320, Sept.1952) are used. As the need for propagation of a phage arises, a fresh ampoule is opened and the dried material is resuspended in broth to its approximate original volume.

The phage in the ampoules we have had occasion to open has been found to be just as viable as it was prior to lyophilization. So the keeping quality of the lyophilized material seems to last indefinitely provided the ampoules are stored at room temperature away from direct sunlight.

If a centrifugal Freeze Dryer is not available in your laboratory, I would suggest the use of a desiccator containing a moisture-absorbing material such as drierite which has been dried in a sterilizing oven at 150°C for about 4 hours before use. The ampoules are filled with the undiluted phage and the material is then rapidly frozen in a bath containing solid carbon dioxide. The ampoules are then immediately placed in the desiccator over a layer of drierite and the chamber is then evacuated with a high-vacuum pump. At the end of the lyophilization process, which usually lasts about 7-8 hours, the ampoules are then removed and sealed under vacuum with a Prest-O-Lite air-acetylene welding torch.

.....

Dr. George F. Forster

I hope this information on our lyophilization procedure is sufficient to get you started on your project. If not, please do not hesitate to write us again.

Yours sincerely,

R. D. Comtois,
Bacteriologist,
Bacteriological Laboratories.

RDC/ad

355-5-2

Province of Saskatchewan

DEPARTMENT OF PUBLIC HEALTH

DIVISION OF LABORATORIES

REFER TO FILE

Regina, Saskatchewan.
June 9, 1958.

Dr. E. T. Bynoe,
Chief, Bacteriological Laboratories,
Laboratory of Hygiene,
OTTAWA, Ontario.

Dear Doctor Bynoe:

For some time, I have been rather uneasy about our staphylococcal 'phage typing results and I would be very grateful if you would kindly undertake to 'phage type 21 Staph. aureus strains selected from ones isolated by this laboratory over a period of time.

I am forwarding the 21 strains herewith and on a separate enclosed sheet, I have listed some of the details, including the 'phage types as determined by this laboratory, so that they can be compared with your findings.

There is no great urgency attached to this request, so please deal with it in your own good time, but I shall be very interested to see the final comparisons of the 'phage typings. I should add that the 'phage typing technique used by this laboratory is the one employing glycerolated media. Reference:- J. M. Desranleau et al. Canad. J. Public Health, 1955, 46, 67.

Yours sincerely,

F. A. Holden.

F. A. Holden, M.B., Dip.Bact.,
Medical Bacteriologist.

FAH:dp
Enc.

ONTARIO AGRICULTURAL COLLEGE

J. D. MACLACHLAN, B.A., A.M., PH.D.
PRESIDENT

DEPARTMENT
OF
BACTERIOLOGY

GUELPH, CANADA

June 5, 1958.

Dr. E.T. Bynoe,
Chief, Bacteriological Lab.
Dept. National Health & Welfare,
Laboratory of Hygiene,
Ottawa, Ont.

Dear Dr. Bynoe:-

We have recently received the 33 cultures of S. aureus which you so kindly sent to us. Thank you for your trouble in this respect. Your interest is much appreciated.

Yours sincerely,

D.C. Jordan, Ph.D.
Assistant Prof. of Bacteriology

dcj/b

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STATE OF ILLINOIS
WILLIAM G. STRATTON, Governor
DEPARTMENT OF PUBLIC HEALTH
DIVISION OF LABORATORIES
1800 WEST FILLMORE STREET
CHICAGO 12

June 4, 1958

Dr. E. T. Bynoe, Chief
Bacteriology Laboratory Service
Laboratory of Hygiene
Dept. of National Health and Welfare
Ottawa, Ontario, Canada

Dear Doctor Bynoe:

We are considering the lyophilizing of staphylococcus bacteriophages for convenience of storing and shipping but are not familiar with any published experience in this application of the lyophile procedure. Dr. John Blair has informed me that you are lyophilizing staphylococcus phages for preservation. We would appreciate any information you can give us as to the keeping qualities of the lyophilized material and also any suggestions that you may have regarding small equipment for lyophilization.

Thanking you for your courtesy, I am

Very truly yours,

George F. Forster

GFF;gf

Assistant Deputy Director
Division of Laboratories