

greatly increased burden thrown on respiration and circulation, more especially when the restriction is on the expiratory movement. Before a breathing tube is inserted, the patient must be sufficiently anesthetized so that the pharyngeal reflex is abolished, or else the patient will gag and cough, thereby retarding the induction or disturbing the anesthesia. In ether administration, also, the prevention of partial obstruction of the air passages is greatly neglected. Anesthesia is much easier and more smoothly maintained when the respiratory movement is free and unrestricted.

Preliminary medication in nitrous oxid administration is a very important matter. Morphine tends to allay preoperative fear, and renders the induction smoother. Gatch has shown that struggling during induction is very detrimental to the heart, and all observers agree that patients who have struggled do badly under anesthesia. Besides, morphine blocks both afferent and efferent impulses, thus preventing shock and rendering the anesthesia deeper and smoother. Nitrous oxid anesthesia is so evanescent that very often an opiate is required for the postoperative pain immediately after the anesthetic is withdrawn, if no opiate has been administered as a preliminary. It is advisable to have the opiate administered before the trauma is produced, for otherwise larger amounts will be required to relieve the pain. Most, if not all, of the trouble arising from the use of preliminary morphine has been caused from too large dosage. Larger amounts than one-sixth grain morphine, or its equivalent, should be used only in vigorous subjects, and the larger amounts should always be fortified with atropine.

The use of a local anesthetic to block off the traumatized areas is not nearly so general as its merit warrants. There is no question but that this procedure, when properly carried out, prevents shock and permits a lighter general anesthesia, and this is especially shown when nitrous oxid is administered. The removal of the gallbladder requires the deepest type of anesthesia, yet when the local anesthesia is perfect, I have not had to add any ether whatever to nitrous oxid, even in this class of work. The credit, moreover, for this achievement belongs entirely to the surgeon, for it is his technic that renders it possible to have such a light general anesthesia in procedures that ordinarily require the deepest type of general anesthesia.

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Results of a Psychologic Examination of Criminals in Massachusetts.—In Bulletin 17, issued by the Massachusetts State Board of Insanity, there is presented a tabulated report of the results obtained from the psychologic examination of 300 criminals who had been selected alphabetically from the prison records in the Massachusetts State Prison. They were examined by the "point scale" method, which has been worked out for norms to the age of 15 plus for English speaking subjects and to 14 plus for non-English speaking subjects. When persons grade up to these figures, they are considered to be outside the feeble-minded class. From the results of the examination it was ascertained that of these 300 cases, 22 per cent. were feeble-minded, 9.6 per cent. were borderline cases, and 3.3 per cent. were probably psychotic. It was shown that the highest percentage of feeble-minded persons is found among prisoners who are guilty of sex offenses, and the lowest is found among prisoners who are guilty of crimes against property, while the percentage of probably psychotic subjects is highest among those prisoners who are guilty of crimes against life.

THE TREATMENT OF DIPHTHERIA CARRIERS WITH IODIZED PHENOL

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Diphtheria carriers have always been a serious problem, and many methods to rid the unfortunate individuals of diphtheria organisms have been tried. The multiplicity of the forms of treatment advocated is proof of the unsatisfactory results obtained with any one method. Spraying the throat with cultures of *Staphylococcus pyogenes aureus* was at one time much in vogue. This proved to be too dangerous a procedure,¹ and has been abandoned generally. Wood² suggested and used a spray of *Bacillus acidi lactici* in the throat with good results. C. Hampsen Jones³ used Bolton's solution in the throat of carriers with some benefit. Hektoen and Rappaport⁴ advocate the use of kaolin in the nose and throat, and assert that the mucous membrane of these passages is almost rendered sterile by the use of this substance. Good results have been reported with the use of autogenous vaccines by some,⁵ but others have found them disappointing. The most common practice, and the one that has stood the test of time, has been the application of various chemicals, such as silver nitrate and hydrogen peroxid, to the throat and nose. But this often fails to rid the carriers of the diphtheria organisms, and the patient remains isolated for months.

The method of treatment described below has given good results in the relatively small number of cases in which we have had the opportunity of using it. It is suggested, therefore, with the hope that further experience with this method will prove it to be of real value in the treatment of diphtheria carriers.

The cases reported consist of carriers convalescent from clinical diphtheria in the infectious ward of the Charity Hospital, and some that did not have diphtheria but were persistent carriers. In some cases, other methods had been persistently tried with failure to obtain negative cultures.

In all cases reported here, iodized phenol (acidum carbolicum iodatum) of the National Formulary was used. It contains 60 per cent. phenol (carbolic acid), 20 per cent. iodine crystals and 20 per cent. glycerin. In pharyngeal cases, the tonsils, uvula and posterior wall of the pharynx were swabbed every forty-eight hours until negative cultures were obtained. In nasal cases, the entire anterior part of the nasal cavity was swabbed with iodized phenol every forty-eight hours. Care was taken not to allow the preparation to run over the face or drop into the larynx. Cultures were always made a few minutes before the local application. In this way, forty-eight hours elapsed after each application of iodized phenol before another culture was made.

Seventeen cases were treated. Negative cultures were obtained after one application of iodized phenol

1. Davis, Clara M.: Tonsillitis Following Use of *Staphylococcus* Spray, *THE JOURNAL A. M. A.*, Aug. 9, 1913, p. 393. Rolleston, J. D.: *Brit. Jour. Chil. Dis.*, 1913, x, 298.

2. Wood, H. B.: Lactic Acid *Bacillus* Spray for Diphtheria, *THE JOURNAL A. M. A.*, Aug. 9, 1913, p. 392.

3. Jones, C. Hampsen, quoted by Rührhah: *Progr. Med.*, March, 1914, p. 165.

4. Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Throat and Nose, *THE JOURNAL A. M. A.*, June 12, 1915, p. 1985.

5. Hewlett and Nankivell: *Lancet*, London, 1912, clxxxiii, 143. Weil: *New Orleans Med. and Surg. Jour.*, November, 1914.

in six cases (35 per cent.); after the second application in five cases (29 per cent.); after the third application in two cases (12 per cent.); after the fifth application in one case (6 per cent.), and after the sixth application in two cases (12 per cent.). One case (nasal) was under treatment for twenty-one days and required nine applications before negative cultures were obtained. With the exception of this case, none of the other sixteen were under treatment longer than eleven days.

Fifteen of the cases were followed after leaving the hospital, and negative cultures obtained in all. No treatment had been used since the discharge of the patients from the hospital, and all of them had been out from one to three weeks when these cultures were made.

No bad results have been noticed from the use of this rather strong preparation in the nose and throat. The application is painful for half a minute or less until the anesthetic action of the phenol takes effect. There is a thin escharotic membrane formed at the site of application which remains for about twenty-four hours. This disappears entirely within forty-eight hours after swabbing, leaving the throat red for a few days. After the redness disappears, the throat returns to normal. This was true in the thirteen patients whose throats were examined from one to three weeks after leaving the hospital. The throat, in each case, was found to be as normal in appearance as before the treatment was begun.

The manner in which this preparation acts in ridding the throat of diphtheria organisms so promptly, we do not know. It has been proved by Albert⁶ that the bacteria in carriers are harbored in the crypts of the tonsils and are not on the surface of the mucous membrane of the nasopharynx. Kretschmer⁷ cured carriers by squeezing the crypts of the tonsils. The phenol in the preparation undoubtedly destroys the outer layers of the epithelium. It probably does not reach the organisms in the crypts, but it may permit the more thorough penetration of the iodine. In this way the iodine may reach and destroy the harbored organisms with more certainty than it does when applied alone.

In the cases reported below, the patients were admitted to the infectious service of Charity Hospital during the year 1915.

REPORT OF CASES

CASE 1.—R. W. (B 5960), colored girl, aged 14; admitted, November 18, with pharyngeal diphtheria; clear, November 22. Positive cultures, November 29 and December 1 and 3. Swabbed with iodized phenol, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 2.—S. W. (B 5703), colored girl, aged 8; admitted, November 14, with pharyngeal diphtheria; clear, November 19. Positive cultures, November 29 and December 1 and 3. Swabbed with iodized phenol, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 3.—H. S. (B 5983), white boy, aged 11; admitted, November 19, with pharyngeal diphtheria; clear, November 21. Positive cultures, November 29 and December 1, 3 and 5. Swabbed with iodized phenol, December 5. Negative cultures, December 7 and 9. Discharged, December 10. December 27, negative culture; tonsillitis.

CASE 4.—E. P. (B 7336), colored woman, aged 23; admitted, December 19, as carrier, gave repeated positive cultures

for three weeks previous to admittance. Positive culture, December 21. Swabbed with iodized phenol, December 21 and 23. Negative cultures, December 23 and 25. Discharged, December 26. Wrong address and could not follow.

CASE 5.—N. H. (B 6924), white girl, aged 6, admitted, December 9, as carrier, gave positive nasal cultures, December 9 and 11. Anterior nares swabbed with iodized phenol, December 13 and 15. Negative cultures, December 15 and 17. Discharged, December 18. Not followed.

CASE 6.—M. W. (B 2535), white girl, aged 3, admitted, August 19, with nasal diphtheria, gave a positive nasal culture on day of admittance. Antitoxin, August 21. Negative cultures, August 29 and 31. Sent home. Readmitted, September 13, with a nasal discharge. Positive nasal and negative throat. Antitoxin (10,000 units), September 18. Nose swabbed with silver nitrate (25, 50 and 75 per cent.) until October 22. Autogenous vaccine in increasing doses from October 22 to December 12. Positive cultures obtained every second day from October 1 to December 1, in spite of the vaccine and local treatment of the nose. Nose swabbed with iodized phenol, December 1 and 3. Negative cultures, December 3 and 5. Nasal discharge greatly decreased in forty-eight hours after first application of iodized phenol; stopped altogether after three days. Discharged, December 13, with no discharge from nose but some erosion. Up to the time of iodized phenol applications, the discharge had been profuse and bloody. December 27, negative nasal culture and no nasal discharge.

CASE 7.—L. C. (B 5449), white boy, aged 4; admitted, November 9, with pharyngeal diphtheria; clear, November 13. Positive cultures, November 18, 23, 27 and 29 and December 1. Swabbed with iodized phenol, December 1 and 3. Positive culture, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 8.—R. W. (B. 5947), colored man, aged 19; admitted November 11, with pharyngeal diphtheria; clear, November 21. Positive cultures, November 29 and December 1. Swabbed, December 1 and 3, with iodized phenol. Positive culture, December 3. Negative, December 5 and 7. Discharged, December 8. December 27, negative culture and throat normal.

CASE 9.—J. W. (B 5702), colored boy, aged 10; admitted, November 11, with pharyngeal diphtheria; clear, November 18. Negative culture, November 25. Positive, November 27 and 29. Negative, December 1. Swabbed, December 1 and 3, with iodized phenol. Positive, December 3. Negative cultures, December 5 and 7. Discharged, December 8. December 26, negative culture and throat normal.

CASE 10.—M. B., female nurse on duty in infectious ward. No clinical diphtheria but tonsillitis. Positive culture, December 6. Negative, December 12. Positive, December 15. Swabbed, December 15 and 17. Culture positive, December 17. Negative, December 19 and 21. Released, December 22. January 8, negative culture. Throat showed old adhesions and bad tonsils. These were present before application of iodized phenol.

CASE 11.—M. C. (B 6825), white girl, aged 12; admitted, December 7, with pharyngeal diphtheria; clear, December 10. Positive cultures, December 17 and 19. Swabbed with iodized phenol, December 19, 21 and 23. Positive, December 21. Negative, December 23 and 25. Discharged, December 26. January 4, negative culture, and tonsils somewhat congested from attack of tonsillitis.

CASE 12.—S. M. (B 5667), colored woman, aged 22; admitted, November 13, with pharyngeal diphtheria; clear, November 19. Positive culture, November 24 and 27 and December 1. Swabbed with silver nitrate every forty-eight hours until November 29. Swabbed with iodized phenol, December 1, 3, 7 and 9. Positive cultures, December 3, 5 and 7. Negative, December 9 and 11. Discharged, December 12. December 27, negative culture; tonsils enlarged and patient had follicular tonsillitis.

CASE 13.—M. M. (B 6932), white boy, aged 4, admitted, December 9, as carrier, gave previous positive cultures. Positive nose and throat, December 11. Throat swabbed,

6. Albert, Henry: The Treatment of Diphtheria Carriers, *THE JOURNAL A. M. A.*, Sept. 27, 1913, p. 1027.

7. Kretschmer: Zur Bekämpfung der Bacillenpersistenz bei Diphtheriere-konvaleszenten, *Med. Klin.*, 1911, vii, No. 3.

December 15, 19 and 21, and negative cultures, December 21 and 23. Nose swabbed, December 15, 19 and 23, and cultures negative, December 23 and 25. Discharged, December 26. January 9, throat and nasal cultures negative; nose and throat normal.

CASE 14.—A. D. (B 6209), white boy, aged 5, admitted, November 23, with laryngeal diphtheria; intubated; tracheotomized, November 27; wound closed, December 18. Positive throat cultures, December 11, 13, 15, 17 and 19. Swabbed, December 19, 21, 23, 25, 27, 29 and 31. Positive culture, December 21, 23, 25, 27 and 29. Negative, December 31 and January 2. Discharged, January 3. January 12, negative culture, and throat normal except somewhat congested.

CASE 15.—H. M. (B 5624), white boy, aged 14; admitted, November 12, with pharyngeal diphtheria; clear, November 14. Positive cultures, November 22, 24, 27 and 29 and December 1 and 3. Swabbed with iodized phenol, December 1, 3, 7, 9, 11 and 13. Positive, December 3, 5, 7, 9 and 11. Negative, December 13 and 15. Discharged, December 16. December 27, negative culture; throat clear and normal in appearance.

CASE 16.—M. G. (B 6849), white girl, aged 8; admitted, December 12, with pharyngeal diphtheria; clear, December 10. Positive cultures, December 17 and 19. Swabbed with iodized phenol, December 19, 21, 23, 25, 27, 29 and 31. Positive, December 21, 23, 25, 27 and 29. Negative, December 31 and January 2. Discharged, January 3. January 9, negative culture and throat normal.

CASE 17.—P. A. (B 5469), white girl, aged 2½ years; admitted, November 9, with nasal diphtheria; nasal cultures positive, November 27 and 29 and December 1. Swabbed with iodized phenol, December 1, 3, 5, 7, 11, 13, 15, 19, 21 and 23. Positive cultures, December 3, 5, 7, 9, 11, 13, 17, 19 and 21. Negative, December 23 and 25. Nasal discharge almost stopped, December 25. January 4, negative culture; discharge still present.

Charity Hospital.

THE FOLLOW UP SYSTEM OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK

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In the spring of 1914 a committee was appointed by Professor Brewer to plan and establish a system for following the end-results for all cases treated by the surgical staff of the hospital. While, previously, individual surgeons had taken pains carefully to look up groups of cases in which they had a particular interest and therefore gave disproportionate attention during and after the hospital stay, nevertheless, the end-results in the great body of routine cases had been neglected.

With the advice and aid of Prof. Adrian V. S. Lambert, a system was devised and put in operation in August, 1914. It is my purpose to describe it and give a report of the first year's work. The system is the outgrowth of one used on a small scale in looking up special classes of cases, enlarged to fit the needs of the entire surgical service. It divides itself into three lines of endeavor:

1. To persuade the patient to return. On discharge from the hospital, he is given a card on which is written a definite date and hour for examination. If he does not appear, he is immediately sent a letter making a definite appointment, a week later. Should he again fail, he is taken up by a social service worker who persuades him to return, or, failing this, obtains as complete information about him as possible.

2. To gain and record the proper notes. In the record room of this hospital the case records are bound in volumes of fifty records each and numbered chronologically according to date of discharge. These volumes are too bulky to be handed about the hospital; therefore the following plan has been followed: When the house surgeon completes the case record, he makes an abstract of it which contains all its essential points. This is copied and sent with a scratch card to the examining surgeon, who thus has the main data of the case and a definite card on which to make his notes. These notes are typed on a sheet of paper which, when the case is closed, is pasted into the bound volume. With the advent of the unit history system, the patient's unit record will be sent complete to the examining room and the notes inscribed directly, with the consequent elimination of the foregoing steps.

3. To maintain the interest of the attending surgeons, they are notified by mail of the various appointments for the next examining day with patients whom they have treated in the wards.

The forms and letters used to carry out the system comprise:

A. The regular hospital bedside or name card.

B. A card given to the patient asking him to return. On one side is printed:

Name _____ No. _____

We are asking you to return to see us for a few minutes in order that we may carefully watch the result of your treatment in the hospital. By so doing we may give you advice about yourself and learn something which will aid us in treating other patients.

If you will call at the hospital at the time written on the other side of this card you will be directed to the Doctor whom you are to see.

On the other side is printed:

Please come to the hospital and bring this card with you
[Date]

If you change your address send your new address to
The Presbyterian Hospital
70th Street and Madison Avenue
New York City

C. A letter to be sent to the patient if he fails to return in response to the request on the card:

We asked you to come to the hospital on _____ and have not yet heard from you. As we explained in the last notice, we wish to find out your present condition.

The treatment in the hospital gives different results in different individuals. It is therefore extremely important that we should know your present condition in order that we may be able to give you correct advice and at the same time complete our record of your case.

If you will call at the hospital _____ you will be directed to the doctor with whom you are to consult.

Very truly yours, _____

D. An 8 by 15 sheet so folded as to make a 5 by 8 folder. On the 5 by 8 face is copied the house surgeon's abstract. On the reverse side of the 8 by 10 portion are typed the notes made by the examining surgeon. While the case is still being followed, the whole folder is filed numerically. When the case is finally closed, the 8 by 10 portion is torn off and pasted in the bound volume, while the 5 by 8 abstract retains its place in the file. On the 5 by 8 face is printed:

Name _____	History No. _____
Address _____	O. P. D. No. _____
Permanent Address of Friend _____	Admitted _____
Address of Family Physician _____	Discharged _____
Diagnosis _____	Operator _____
Treatment _____	Date of operation _____

IMPORTANT POINTS OF RECORD

History:
Operation { Procedure:
 { Pathology:
Course:
Condition on Discharge:

At the top of the 8 by 10 portion is printed:

Name _____ History No. _____