Original Articles.

CO-OPERATIVE WORK IN REGISTRATION METHODS AND VITAL STATISTICS.*

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The subject of vital statistics, or rather of mortality statistics, which is the only branch discussed in this paper, is perhaps more interesting to members of this Association than to any other class, inasmuch as in certain particulars they are responsible for the returns on which these statistics are based, and because such statistics furnish the means by which progress in medical science is measured.

To accurately serve this and other purposes, however, it is necessary that all statistics of this kind—national, state and local—shall be compiled under a definite system of general application, and that the data shall be collected under a similarly definite system, having direct reference to the exact statistical and other uses for which they are designed.

Many systems of collecting the data have been experimented with, but to all persons of extended practical experience it has become a settled principle that no adequate results can be secured except through compulsory laws requiring the registration of each death and the obtaining of an official burial or removal permit before the body is interred or otherwise disposed of. It may safely be said that unless this is made the fundamental requirement, the registration of deaths will be incomplete, and any statistics based on the recorded data will be defective.

Under our form of government all legal provisions on the subject must be left to the individual and independent action of the several states, or of the cities organized under state laws, and while many of the states and most of the principal cities have laws or ordinances providing for the registration of deaths, they differ widely in their requirements and results. A good many of them have been futile from their inception because the proper fundamental principles have not been observed.

The greatest utility of registration to the general public, and as still more particularly affecting the medical profession, consists in the availability of the data for tabulation and analysis of the agencies affecting health and disease. As stated by Dr. Elisha Harris: "The practical relation of well-kept and complete records of mortality to the correct estimation of sanitary experience and prevention of diseases and premature death is so important that sanitary authorities and the wise and effectual application of public health measures demand that the mortality registration shall be both complete and accurate." The statistical treatment of the data also demands that they shall be uniform, so that the tabulated results may reach their highest value for comparative and analytical purposes. They are not so now.

The great desirability of uniformity in the general provisions of law, of system, and of methods of securing and tabulating results has long been recognized by all persons who have either attempted to make original compilations of the returns from different places, or to extract comparable figures from the various statistics published, and frequent efforts have been made to bring

about a more satisfactory condition of things in this respect.

Success in this direction, however, depends on many other things beside a general sentiment in its favor. It requires a vast amount of hard, continuous and persistent work, time and money, that can be effectually supplied only by some body that has a permanent organization and a paramount interest in the general—as distinguished from the local—results, and can become the active agent of the various interests in determining proper lines of action, forms and methods; in publishing and distributing the necessary documents to all parties whose approval and co-operation are necessary, and beyond this in keeping all of the machinery up to the mark after it is put into operation.

Fortunately, this work can now be performed by the United States Census Office, which has been made a permanent bureau of the government and is charged with the preparation of an annual report on vital statistics of all states and cities that maintain a complete and satisfactory system of registration. Considerable progress has already been made in this work, and it is the purpose of this paper to explain what has been done, what is being done, and what is contemplated in this line, and the relation of the various agencies in promoting the extension of the registration system and the improvement of its dependent statistics.

The plan for extension and improvement of registration methods and results developed by the census office, as the central compilation bureau and the active agent in carrying it into effect, in co-operation with the authorized representatives of the principal organizations interested—so far as such bodies have acted in the matter—and the principal registration officials, may be stated as follows:

1. To determine the reasons for failure of so many of the laws providing for registration, and to formulate the principles on which legislation must be based to avoid failure.
2. To construct and recommend for general adoption as a standard form for reporting deaths a certificate or return, of convenient size and arrangement, that shall provide for all of the details required for legal, statistical and other purposes.
3. To outline certain correct methods of practice with respect to the examination, filing and preservation of certificates and of making returns to state officials, for the guidance of local registrars who receive the certificates and issue burial or removal permits.
4. To decide on a satisfactory system of classification of causes of death for statistical purposes and to furnish compiling officials a comprehensive statement of the details of the classification, with a working index by which the deaths reported in thousands of different terms can be uniformly compiled under the proper titles.
5. To furnish all practicing physicians a descriptive statement of the classification adopted, with an explanation of its practical application in statistical work, and a list of terms very frequently used by them in reporting causes of death concerning which more definite information is necessary to permit proper classification.
6. To advise medical colleges of the nature and scope of the movement undertaken, and to suggest a course of instruction for medical students in registration methods and statistics.
7. To make a study of the forms of statistical tables published by local authorities in annual reports, and

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Hygiene and Sanitary Science, and approved for publication by the Executive Committee: Drs. S. Fulton, Seneca Egbert and H. M. Bracken.

monthly or weekly bulletins, with the view of formulating a uniform series of tables considered desirable for this purpose.

8. To determine what forms of tables should be included in the annual reports of the census office in order to furnish the greatest practicable amount of information for general purposes.

9. To enlist the assistance and co-operation of all organizations, societies, or persons interested in the subject of registration or its results, in reaching satisfactory conclusions regarding each projected step in the proceedings, and, finally, in carrying each step into practical effect.

A beginning was made with the publication of Census Circular No. 71, containing a paper prepared by the experienced and capable registration officials and statisticians constituting the committee on demography and statistics in their sanitary relation of the American Public Health Association, which paper outlines the essential requirements of a law for the registration of deaths and prescribes a standard form of death certificate, with an explanation of the use and importance of the items of information called for.

Following this general plan, the international classification of causes of death, then coming into general use in the United States, was adopted by the census office for its annual reports, and work was at once commenced to make the extensive labor involved in classifying the returns received from all registration areas available for the benefit of local statisticians, by preparing a comprehensive index to the classification as applied in practical work.

The subject of uniformity and progressive action was presented to the consideration of the Conference of State and Provincial Boards of Health of North America, at its meeting in 1902, and that body gave its approval to the movement by the appointment of a committee to co-operate in its advancement and by the adoption of the following resolution:

RESOLUTION OF THE BOARDS OF HEALTH CONFERENCE.

Resolved, That a committee be appointed by the Conference of State and Provincial Boards of Health of North America to co-operate with the United States census office and with similar committees from the American Public Health Association, American Medical Association and from other organizations, in the promotion of the uniformity and comparability of mortality and other vital statistics and their satisfactory presentation in statistical reports and bulletins.

The "Manual of the International Classification of Causes of Death" was then printed and distributed by the census office. This explains the titles of the classification—their application is statistical work—compares the classification with that previously used, and gives an alphabetical index showing to which titles nearly 2,000,000 deaths reported at the censuses of 1890 and 1900, in thousands of different terms, were referred. This is fully cross-referenced, and the terms are rearranged in a tabular list showing exactly what terms are included under each title. Certain general rules for the disposition of cases in which two or more causes of death were jointly reported are included. Further work is in progress for deciding a satisfactory method of disposing of jointly returned causes of death adaptable for general use. This very difficult problem appears to have been solved by Dr. Cressy L. Wilbur, medical referee for the census vital statistics, in his plan of numerical rating, on which he has prepared a special paper to be presented to the consideration of this Association. So far as tested here the plan promises admirable results attainable by a simple and easy method.

The general adoption of the international classification and the use of the "Manual" referred to will insure a comparability in the various mortality statistics published that can not be secured in any other way, and the notes and memoranda expressing the opinions of all persons using the classification on the merits of the classification itself will be filed and arranged for presentation to the commission of revision, which holds its next meeting in 1910. In this way the united opinions of all American users of mortality statistics can be made most effective in securing desirable modifications in the classification. All persons who make use of the international classifications are invited to file any notes, criticisms or suggestions for this purpose that appear pertinent to them.

The work of the census office and of the committee on demography, also the "Manual" and the "Standard Certificate" referred to above, were specially endorsed and approved by the American Public Health Association at its last annual meeting (Dec. 8-12, 1902) in this city, and the committee was authorized to represent that association in further work on the same lines. As a very complimentary recognition of the work of the census office the chief statistician for vital statistics was appointed chairman of the committee for the present year. The following resolution was adopted by the association:

RESOLUTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Resolved, That the efforts of the committee on demography and statistics of this association, in conjunction with the United States census office, to secure the extension of the registration area by the enactment of suitable laws and the use of a standard form of certificate of death, as shown in Census Circular No. 71, be heartily commended and that the committee be further authorized and directed to co-operate with the census office, the United States Public Health and Marine-Hospital Service and other departments of the Federal government interested in vital statistics and with similar committees from other associations in the work of promoting the adoption of suitable registration laws and the extension of the registration area, the proper compilation and presentation of vital statistics by states and cities in weekly or monthly bulletins and annual reports, and also in further work relating to the extension and practical use of the international classification of causes of death, the disposition of jointly returned causes and all preliminary work relating to the next decennial revision.

A resolution was drafted and presented to Congress reciting the condition of registration in the United States; the necessity for registration under uniform laws; describing the movement initiated by the census office in conjunction with the American Public Health Association; expressing approval of the movement, and requesting "the favorable consideration and action of the state authorities, to the end that the United States may attain a complete and uniform system of registration." This resolution passed both houses of Congress, and was approved by the President Feb. 11, 1903. The text of the resolution is given below:

RESOLUTION BY CONGRESS.

WHEREAS, The registration of births and deaths at the time of their occurrence furnishes official record information of much value to individuals; and

WHEREAS, The registration of deaths, with information on certain points, is essential to the progress of medical and sanitary science in preventing and restricting disease and in devising and applying remedial agencies; and

WHEREAS, All of the principal countries of the civilized world recognize the necessity for such registration and enforce the same by general laws; and

WHEREAS, Registration in the United States is now confined to a few states, as a whole, and the larger cities, under local laws and ordinances which differ widely in their requirements; and

WHEREAS, It is most important that registration should be conducted under laws that will insure a practical uniformity in the character and amount of information available from the records; and

WHEREAS, The American Public Health Association and the United States census office are now co-operating in an effort to extend the benefits of registration and to promote its efficiency by indicating the essential requirements of legislative enactments

designed to secure the proper registration of all deaths and births and the collection of accurate vital statistics, to be presented to the attention of the legislative authorities in non-registration states, with the suggestion that such legislation be adopted; now, therefore,

Resolved, By the Senate and House of Representatives of the United States of America in congress assembled, that the Senate and House of Representatives of the United States hereby expresses approval of this movement and requests the favorable consideration and action of the state authorities, to the end that the United States may attain a complete and uniform system of registration.

(Approved Feb. 11, 1903.)

Following this action, a circular (No. 100) was prepared containing the resolutions adopted by Congress and the American Public Health Association, the paper of the committee on "The Essential Requirements of a Law for the Registration of Deaths and the Collection of Vital Statistics," and a specimen form of an adequate law, drafted in accordance with the principles laid down by the committee. This circular has been sent to the governors of all states that do not now have an effective system of registration. It has also been sent to all medical societies, medical journals, registration officials, and other persons known to be interested in the subject.

The form of law presented in this circular is an improvement in many respects over any of those now in operation. The ideas governing its construction may be stated as follows:

1. The creation of a state registration service, fully authorized to carry out the purpose of the law.
2. The prohibition of burial or removal of dead bodies without a properly authorized permit, based on a complete and satisfactory certificate of death.
3. The use of a uniform certificate for obtaining the information desired as a precedent to issuing the permit.
4. The fixing of the responsibility for making the certificate and filing it with the local registrar, and the obligation to make the return complete in all of its details.
5. The fixing of responsibility on the local registrar for a critical examination of the return and for seeing that all of the information required is properly stated before accepting it.
6. The fixing of responsibility on the state registrar, or chief administrative officer under the law, for examination of all returns made by local registrars, and for immediate action in case of delinquencies, or to obtain data, corrections, etc.

These provisions are based on the theory that the purpose and intent of any such law is to secure a complete and properly executed return of every death that occurs—that the form of certificate adopted indicates what constitutes a complete and proper return—and that no return is complete and proper that does not supply the data desired for all purposes of registration as fully and circumstantially as is possible, by searching inquiry, under the conditions of the case.

Replies so far received from governors show that many of them are favorably disposed toward recommending such legislation at the next session of their legislatures, indicating a probable extension of the registration area that is most gratifying. To insure such action the medical societies, journals and physicians in each state should unite to exert their powerful influence. State and county medical societies, in particular, should adopt some concerted plan of action by which the co-operation of the legislative authorities can be secured. Probably all of the members of this Association are also members of state or local societies, and, therefore, each one can contribute materially to the success of this movement by his personal efforts.

The most perfect laws, however, do not execute themselves, and to reach, interest and instruct those persons whose duty it is to administer the laws or to make re-

ports under them, other circulars have been prepared, as follows:

No. 101, on "Practical Registration Methods," designed for the guidance of local registrars, describes the "Standard Certificate" and explains the necessity and use of the various details required concerning each death; outlines a simple system of filing and preserving the records and of making returns to state officials; gives the titles of the international classification and explains the relation of causes of death as reported to classification for statistical purposes. It also gives a long list of indefinite or unsatisfactory terms frequently used by physicians in reporting deaths, that should not be accepted in such shape, with explanatory notes showing what further information should be required in such cases. This circular will be sent to all registration officials.

No. 102, on "Relation of Physicians to Mortality Statistics," is issued for the use and benefit of physicians who have to make out certificates of death in compliance with registration laws, by acquainting them with the scope and requirements of the international classification, which has been adopted by all of the registration states and by most of the principal registration cities for the compilation of their mortality statistics. Such statistics, to be comparable, must be uniform; and to be valuable for scientific purposes they must be accurate. Their chief value is in the distribution of deaths by causes, but the cause of death must be properly stated before it can be properly classified. In this particular the entire value of the statistics depends solely on the lucidity and certainty with which the physicians supply the information.

In all statistics of deaths by causes there is much too large a proportion of unknown or indefinite items for which the physicians alone are directly responsible and which they alone can remedy.

It is probable that the defect in this particular is largely due to the fact that there has heretofore been no general and comprehensive plan to direct the attention of all physicians to the use of their certificates for statistical purposes, and to exhibit the necessities and requirements in this respect by explaining the classification used, and by specifying wherein certain returns are incomplete, indefinite, or unsatisfactory. This circular is designed to furnish such information. It will be sent to every physician in the country, and it is confidently expected that they will appreciate the importance of the matter—the purpose for which the circular is issued—and will manifest their appreciation by making their certificates conform to the suggestions noted, as far as possible.

It should be considered that the classification, in itself, is but a selection and arrangement of titles only, under which deaths reported in thousands of different ways must be compiled, and that the assignment of any death to the proper title requires a definite statement of the course of disease or the sequence of causes resulting in the death.

Following the detailed list and explanation of the titles is a list of indefinite and unsatisfactory terms very frequently used by physicians, with similar explanatory notes. The terms in this list can not be properly classified as given, and should never be used without further explanation.

It is not to be expected that an entirely definite and accurate statement of the cause of death can be made in

every case. There will undoubtedly be cases in which the exact cause can not be ascertained and others in which an accurate diagnosis is impossible, but an observance of the suggestions made in this circular will very largely reduce the number of cases that must necessarily be classed as unknown or ill defined.

What has been said above relates wholly to the statement of the cause of death, which is always furnished by the physician. But while this is the most important item, a complete return of any death requires a statement of other personal and statistical particulars concerning the death, and the blank certificate or return used for reporting deaths should be regarded as simply a specification, in convenient form, of the legal requirements in the case, all of which are intended to be observed.

The relation to and influence on the mortality from different diseases, of age, sex, color, conjugal condition, nativity, parent nativity and occupation, are of the utmost importance, and the preparation of uniform statistics for all registration states and cities requires that these items, and others necessary for record, shall be given just as fully and as accurately as the cause of death.

The making out of a certificate of death should not be considered a perfunctory matter. A complete and accurate certificate is required of physicians as a legal obligation, under the law—as a moral obligation to their clients for the protection of the rights and interests of those dependent on them—and as a professional obligation, to further the advancement of medical science. In the last respect it should be regarded as one of the highest duties of physicians, as scientific, professional observers, to record their experience in individual cases in accordance with some definite and general system so that the whole result of such professional observations may be properly classified, tabulated, analyzed and made to contribute in the greatest possible degree to the sum of knowledge essential to material progress in medical and sanitary science and public hygiene. In this respect registration is only an intermediary process—a means of adapting a mass of observed facts to systematic treatment and their reduction to numerical standards for analysis and comparison. There can be no doubt that if physicians will take this view of the subject, and act accordingly, they can make the statistics derived from their returns much more accurate and valuable.

Circular No. 103, on "Medical Education in Vital Statistics," gives a synopsis of the circulars previously described; explains the movement for the extension and improvement of registration data and statistics on uniform lines, and suggests to medical colleges and schools the desirability of initiating a course of instruction for students on registration methods and vital statistics. This circular has been sent to all medical colleges and schools.

All of the circulars and the "Manual," referred to above, relate to different phases of the same general plan. By means of them it is sought to convey to all persons interested a comprehensive knowledge of the details of the plan and of their relation to the same, in accordance with the ideas and opinions of the experienced registration officials and statisticians who have joined in the movement. The census office has cheerfully assumed the labor and expense of preparing, printing and distributing these documents and of the correspondence incidental thereto, so as to enable all those interested to

get together and to co-operate effectively in the movement for uniformity and accuracy.

The sole object of these circulars is to promote uniformity in laws, forms and methods, for mutual advantage, and to do so in accordance with the opinions expressed by authorized experts. The form of law given in Circular 100 is designed, primarily, to apply to states which do not now have effective laws on the subject, and the other circulars have been framed to assist in carrying out laws constructed on the lines indicated. Some of the provisions of law specified and of the suggestions made as to forms and methods might be adopted to advantage in all of the states and cities now classed as "registration," and it is hoped that whenever changes in existing laws, methods or forms become necessary or convenient they will all see the advantage of uniformity, and will adopt measures in harmony with those described.

The circulars on "Practical Registration Methods" and "Relation of Physicians to Mortality Statistics" are in many respects applicable, whatever the provisions of existing laws, forms of certificates, or methods of practice may be, but they will not be sent to any local registrars or physicians in registration states or cities until such action is approved by the local registration officials. So far as heard from, such officials have given their hearty approval and consent, and have expressed the opinion that the circulars will prove of great value in securing more complete and accurate returns.

The preceding statements describe the movement for the extension and improvement of the registration system and for increasing the value of the recorded data, principally with reference to their use for statistical purposes—representing the ultimate stage of mortality registration as here considered.

In the practical work of compiling and presenting such statistics there is also room for improvement in order to make them more complete, more accurate, and more thoroughly comparable. This is recognized and provided for in the general plan, as stated in the first part of this paper.

This subject was discussed at the last meeting of the Conference of State and Provincial Boards of Health of North America, and was covered in the resolution then adopted (q. v.), and will be taken up by the committees of the various associations which join in the movement for uniformity.

The general adoption of the "International Classification of Causes of Death" and the use of the "Manual" insures a much greater degree of accuracy and comparability in the statistics of deaths by causes, but there are other important factors the relation of which to the cause of death and to each other should be shown in a more uniform manner than at present. The action of the committee will, therefore, be directed toward formulating a series of uniform tables to be recommended for use in all annual reports and monthly or weekly bulletins published by registration state or city offices. To assist the committee in this direction the census office is now collecting and arranging all forms of statistical tables published in the local reports or bulletins.

It is the desire of the census office that its annual reports relating to mortality statistics in registration areas shall supply the greatest possible amount of information desired by all persons who make any practical use of the data. In order to develop ideas and opinions on this subject a series of tentative tables has been prepared,

showing what forms have been selected as a basis for consideration. These will be sent to all of the principal registration officials who compile statistics, committees of representative bodies, etc., and suggestions will be invited concerning changes or additions necessary to adapt them to the widest uses. Within the limitations imposed by the character of the data available, time and space in publication, the effort will be made to supply what is wanted.

The first annual report is now being compiled. It will, necessarily, form the model which subsequent annual reports will follow until the next census is taken in 1910, in which year also the international classification will be revised. This makes it particularly desirable that the ideas of officials and statisticians as to the contents of these reports be communicated promptly.

One observation which has a bearing on this matter and which also shows how improved methods in the census office have been of advantage to users of these statistics, may be permitted here; the census reports are generally distributed through the members of Congress, in the same way as other public documents, and heretofore senators and representatives have been notified that certain reports had been placed to their credit, leaving the public and persons interested to find out that the reports had been issued and to make application therefor to their member of Congress. Under this system many persons interested in particular reports did not discover that they had been published until it was too late to make use of them, and many other persons received copies of reports in which they had no particular interest.

When the "Twelfth Census Report on Vital Statistics" was published (July, 1902) it was determined to remedy this condition as far as possible, and as soon as the volumes were available for distribution a circular letter was prepared and sent to all registration officials, members of scientific societies and persons known to be interested, notifying them of the fact and advising them how the reports could be secured. This made it certain that all such persons would promptly receive the report—if they wanted it. And the demand has been such that a third edition is now being printed.

In the circular letter referred to, announcing the publication of the report, criticism and suggestions were invited, and this statement was included: "Under the permanent census organization, annual reports will be made for registration areas, and I will be particularly obliged for practical suggestions as to forms of tables, etc., that you think should be included in order to make the statistics of the greatest value to all concerned."

Many complimentary acknowledgments were received, but no "practical suggestions as to forms of tables" for the annual reports have yet come to hand.

As a general thing, statisticians compiling such reports are anxious to give the public what it wants, when it is possible for them to ascertain what is wanted.

If the movement described in this paper meets with the approval of the Association, it is hoped that a committee will be appointed to act in co-operation with the committees of other bodies. Its assistance will be most valuable and most welcome.

DISCUSSION.

DR. SENECA EGBERT, Philadelphia—I think the duties of all men in my profession have been increased since the beginning of this work of which Mr. King so interestingly speaks. We ought to do all we can to further this work of

registration and to increase the registration area. The great difficulty is going to be in the rural districts. We have a large number of our cities fairly well registered, in comparison with our rural districts. If I am not mistaken, only 14 per cent. of our rural population have anything like well-kept statistics; and that is mainly in the New England states. As to other cities, a much larger proportion have fairly good registration, although the methods of collecting and recording statistics have not been at all uniform; and, as we see to-day, the labor devolving on the Census Bureau has been materially increased by this irregularity and lack of uniformity in registration. Now, the Census Bureau is sending to every physician in the country information about the international classification, and they are also urging our various registering officers to adopt the necessary forms and data, so that eventually there shall be no difficulty at all in securing accurate returns. In Philadelphia we average from 400 to 450 deaths a week and, with a properly instructed clerical force, we should have no difficulty at all in getting proper returns, according to the forms agreed on, as to practically every death. For years, every month that I was at all dilatory in the matter, I have had a man come to my office to obtain my birth reports for the preceding month. Now, this could be done just as easily with regard to the reports of deaths. If such an employee were to call on physicians with the proper blanks and explain the importance of the matter it would not be very long before we would be getting an almost perfect return of deaths in the city. But this can not be done so readily in the country, and it will be more difficult to obtain the data than in the cities. I do not think the average physician to-day is impressed with the importance of this matter as he should be. In regard to my own instructions to students, I have not properly appreciated it, but hope to do better hereafter. Nor do I think that the sending out of a letter or circular to every physician of which we have been told to-day is going to be sufficient. I think it is going to be a matter for the state municipal and governmental authorities to take up and drill into the profession at large, until we all come to a thorough appreciation of it; and I think few things will help to educate a thinking man as to the importance of this matter so much as the data given in the last Census Reports. It was a revelation to me to see how progressive science has cut down our death rate in the last decade. It gives me more hope in my personal work than I ever had before. I think it would be a good thing if some of the most striking parts of these data could be condensed and sent to every professional man in the country, along with these circulars of information and forms, to impress on him the value of the work being done, and how much greater that value would be if he did his share. The physicians of Philadelphia were recently notified not to use the old-fashioned death certificates, and were requested to make our reports according to the new forms, which call for the same data as the standard certificate of death, though not exactly like it in detail. That was within the last three months, I think. Our municipality has practically adopted the suggestion of Mr. King.

DR. CRESSY L. WILBUR, Lansing, Mich.—Did Philadelphia do anything with reference to international classification?

DR. EGBERT—I understand that the city will soon endeavor to adopt the international classification of causes of death.

DR. C. L. WILBUR—Philadelphia is probably the oldest city in the country to use the alphabetical system, and I was in hopes that it would join with Boston, Washington and other cities in using the international classification. We are using the standard blank in Michigan. It is adopted by law, I think, in Vermont, and it is used in Indiana, New York and Colorado. I like it better than our old form. As to the country districts, I think in Michigan we have reports from the township clerks of every township in the state. Some of them in the upper peninsula do not average five inhabitants to the square mile; nevertheless, they all report either that no deaths have occurred, or give the names of those who died, sending in the detailed certificates. We never have a

district delinquent for more than two consecutive months. If they do not make reports promptly we get after them; and they all take pains—as far as they are able (some of them, of course, not being educated men medically)—to send in the returns in correct form. If any items of special importance are omitted we mark a red cross at the place and then send a duplicate certificate, with a cross at the corresponding place, to the registrar, with a circular letter explaining the uses of the information specially desired, pointing out the items omitted, and asking him to see the undertaker, or whoever had charge of the body, get the data that was omitted, and send it on with the next report. We also call his attention to the fact that he should not accept an imperfect report or certificate, and that if he does not supply the missing items, or give good reasons why they can not be secured, deduction will be made from his compensation as provided by law; that is, 25 cents for each certificate. We also write the physicians when necessary. When one sends in a return of death from, say heart failure, or cancer, without specifying the part of the body, we write him a personal letter telling him why we need the information, and that his return is incomplete. We are also going to take the pamphlet that the Census Bureau distributes, print a short list of the most unsatisfactory returns, mark them with an index finger, and send them to all these physicians; so that they will always have their attention more or less directed to the fact. The registrars will also be instructed to refuse to accept (as they have done in a number of cases) grossly unsatisfactory returns such as "heart failure." Unfortunately, our registrars are changed often. If we could only keep them in office for longer terms we could accomplish better results. This pamphlet I regard as one of the most important actions ever taken for the improvement of registration. We send it out to all our physicians, with a circular commending it to them. We also sent a circular to all our registrars, with a special pamphlet of that sort. I believe that by referring the physicians from time to time to this pamphlet, and with the co-operation of the registrars, we will work out great improvement in the accuracy of our statistics. It seems difficult for some of them to comprehend what ought to be said and what ought not to; and sometimes they leave out the main thing.

DR. EGBERT—Dr. Wilbur has shown the essence of the whole matter. There is a head in his state that follows up every man in the state. Unfortunately, however, our registrars are too apt to be changed about for political reasons. For many years I had considerable intercourse with reference to this matter with our former registrar, who was heartily interested in this subject. He went into it almost as Dr. Wilbur has gone into it here, because it was of much real importance to him; and he was always pleased to enter into the details of the subject and give any one whatever information he could. But he was deposed by a change in the political administration, and the city lost a valuable servant. As for Philadelphia, we have recently had a bill passed providing for a Department of Public Health and Charities, to be in charge of a physician who will appreciate the importance of the work. I would like to ask Dr. Wilbur to give us roughly the cost of maintaining the system in his state.

DR. WILBUR—The compensation is 25 cents per certificate of death, which is paid by the county, and is the only fee connected with the system. We exempt from that payment cities of 10,000 inhabitants and over, where the salary of the clerk is supposed to compensate him for the service. We have no birth certificates, though we have had a bill reported by the committee on state affairs of the legislature that provides for the registration of births. It was reported unanimously by the committee, but I do not know how much further it will go. It provides for a certificate of birth similar to that used in New York. There will be a fee of 15 cents to the registrar and 25 cents to the physician, making a total of 40 cents. This may be thought a little high by the legislature; but if they cut it down too much I fear that we shall not obtain satisfactory results. If we pass this law

we may not get all the births, but I think we shall register about 95 per cent. of them.

DR. J. N. HURTY, Indianapolis—In the collection of mortality statistics in Indiana we follow pretty closely the system in use in Michigan; and we pursue the same method of keeping each individual certificate that Dr. Wilbur has described. After three years of this work we have no difficulty now in getting the number of deaths, ages, sexes, etc. The great trouble is to learn the correct cause of death. We have thought a great deal of how this is to be remedied. In many instances the physicians are not well enough educated to know what the cause of death is; and in other instances, despite their education, they do not know. So we thought for a while that it would be better for them to write in the word "unknown" when they did not know. We subsequently changed that opinion, however, when we began to get in numbers of certificates showing that nobody knew what the cause of death was, making the confusion worse than it was before. We have had many examples of that character. A state senator died. The cause of his death was declared to have been grip, and the immediate cause hemorrhage. That was the report of a practicing physician who was also a member of the legislature; but we subsequently found, on examining the corpse and taking the testimony of the doctor himself and of the embalmer who prepared the remains, that it was black smallpox, beyond question. Now, when we have such gross errors what are we going to do? We know we are getting the number of deaths, with locations, ages, sexes, etc., but we realize that our returns are woefully deficient as to the causes of death. We see no way out of the dilemma except through the better education of physicians. The teachers of hygiene, as Dr. Egbert has said, must dwell more particularly than before on this matter. They must pound it in and let the oncoming generation know how very important it is to be able to state definitely and exactly the chief and the immediate causes of the deaths that occur in their future practice. Now, when we receive a certificate that is not full and complete we do as Dr. Wilbur related. We do not send the original back, because we would have trouble in recovering it, but we send a duplicate printed in different ink; and we never let up until the physician or officer sends us an answer. We have complete control over our officers, because they can be discharged at any time for not performing their duty. They are on salary, and receive no fees whatever for collecting statistics. Out of our 675 reporting stations, we do not have an average of 12 that fail us each month. We get after them when they are delinquent, and eventually get a report from them before the month is half over. They must report by the fifth of each month, whether they have any deaths in their districts or not. I want to say something about Mr. King's sample law, which I read with some care. It is a most admirable law as a whole. I note he provides penalties for the interment of the dead without a permit, etc. The penalty is a fine of from \$5 to \$50 on the undertaker or other person who may bury the remains. I do not think that clause is going to make the returns even approximately perfect. A widow's child may die away out in the country. The neighbors come in and lay the body out, some one makes a coffin out of a pine box, and the child is buried without a permit. In such a case you could never enforce the penalty in any justice of the peace's court in the country. In the Indiana law we have a clause that usually brings a report. It provides that in the event of a burial without a permit the coroner must disinter the remains, hold an inquest, secure all possible data, enter the same on the blanks of the board of health, and report the result to the health officer having jurisdiction. There is also a fine of \$10 to \$100 on any undertaker or other person burying a body without a permit. That can readily be enforced against the undertaker, but not so in the instance I related; though the other clause can be and is enforced. We have had trouble in only a few instances, so severe is the penalty. Let it be done in one county, and the other counties within a radius of five will hear of it and learn the lesson. Then, the coroner is after a fee, and is

likewise in a position where he can plead that he must disinter, that he has no help for it under the law. They get the body out of the ground, summon the physicians who failed to make the report, summon all parties concerned; and after one experience that community never has any more burials without permits. However, as I have said, it is the cause of death that we have trouble with, and I am satisfied we will have that trouble for many years to come.

DR. J. S. FULTON, Baltimore—Many sanitarians dread the difficulties of rural registration. That fear seems to me somewhat exaggerated. What is wanting is a due appreciation on the part of cities and close communities of their dependence, for their own sanitary safety, on the sanitation of rural districts. In Pennsylvania probably 75 per cent. of the entire population are living under registration laws, more or less effective. It is municipal registration, however, leaving the rural districts wholly out of the mortality account. There is an ancient registration law still on the statute books of that state, but useless for want of a burial permit provision. Now, suppose the cities of Pennsylvania should realize that they owe their bad eminence in typhoid mortality to the rural districts. Suppose that Pittsburg and Allegheny, for instance, the worst typhoid cities in their latitude in 1900, should have a strong suspicion that their sources of infection lie in the perennial typhoid of the unregistered adjacent rural districts, could the villagers and rustics possibly defeat a bill which proposed to compel every part of the state to render monthly a full account of its mortality? This consideration would prevail, I fancy, even in Philadelphia, a city which is notorious in its class, but which is in typhoid mortality far exceeded by a dozen lesser cities in the same state. When the cities discover that they draw on the country districts for their supplies of typhoid and intestinal disorders as regularly as for their supplies of food and drink, the demand for registration of mortality in rural districts will be irresistible. Nor do I believe that rural communities object seriously to registration. In Michigan the registration law is not mandatory in areas of less population than 15 per square mile, but such areas are registered nevertheless, and are registered because they desire it. If all the registration data now regularly collected in such states as Pennsylvania and New York were assembled and properly displayed, I believe that 75 per cent. of the population would be found included, and that the advantages of registration would appeal effectively to a majority of the remaining 25 per cent. Such instances as have been cited by Dr. Hurty will inevitably arise. They have no numerical importance. They are easily met by administrative tact, and they need have no influence on the reliability of mortality returns in general. Another point about rural registration is that it is a very good check on municipal registration. Municipal registration is subject to many abuses that would be controlled if it were necessary to record every death somewhere, either where it occurred or at the true residence of the person who has died.

DR. CRESSY L. WILBUR—The question of density of population is most important in drafting the registration law of a state. If you do not have a sufficient supply of local registrars, so people can easily get to the local office, there will be an explosion. In some parts of Illinois, especially the southwestern part, which is sparsely settled, the present law, which was passed in 1890, has proved very obnoxious to the people. The law provides for only six registrars in the counties, in addition to the county clerk. This has proved to be the cause of so much trouble that there are now two or three bills pending to repeal the law for the whole state. The average population to the registrar should not be much more than 500, and the distance should not be over six miles, so that the people can easily get permits; and in that way we will have no violations of the law. I presume this will have to be taken into consideration in Pennsylvania, of which some parts are sparsely settled. It can be done in sparsely settled as well as in well-settled communities.

DR. H. M. BRACKEN, Minneapolis—We have found in Minnesota that it is not much harder to get statistics from the

rural districts than from the small urban communities. We have registrars for each township, and many of them make good returns. Minnesota, unfortunately, is not classed with the registration states, although we have laws meant to be complete and thorough. Last winter we asked for a law requiring a burial permit in all cases of death, but the committee on public health was composed of men from the country, and they objected, using the same argument that Dr. Hurty mentioned, with reference to neighbors helping to bury the dead, without the usual formula of undertaker.

THE LIMITATIONS IN THE USE OF ACONITE AND VERATRUM VIRIDE.*

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Too much has been written on the possibilities or probabilities of the therapeutic value of drugs and not enough regarding the limitations of their use. It is only within a comparatively short time that physicians have relied on their knowledge of the pharmacodynamics, rather than on tradition based on empiricism, to guide them in their use of drugs. Like the rest of mankind, physicians are prone to follow the calf paths of tradition; and the works on therapeutics are full of references to the success of remedies used by individuals of repute, regardless of the known physiologic action of the drugs in question.

A few years ago I was much impressed by a remark of our eminent therapist, Dr. John V. Shoemaker, when he said that he had written so much on the therapeutic value of drugs and had taken so much for granted on hearsay evidence that he felt it a duty he owed the profession to write a book on the limitations of the use of drugs.

The size of our pharmacopeia and of our text-books on materia medica and therapeutics seems to be proof that we know too little about a great many drugs and not enough about a few. I quote from a recognized authority regarding the uses of aconite:

Dr. Murchison regards aconite as a remedy of great value for reducing the pulse and temperature in fever, and especially in the pyrexia resulting from inflammation. . . .

Dr. Bomford bears witness to the value of aconite in the remittent fevers of India. . . .

Dr. W. Dobie details four cases of pneumonia in which aconite, in small, frequently repeated doses, apparently cut short the attack. . . .

In puerperal fever, Dr. Playfair (Vol. II, p. 328) regards aconite in minute doses as a most valuable remedy. . . .

In tonsillitis, acute sore throat and in acute catarrh of children, Dr. Ringer strongly recommends the tincture. . . .

In acute rheumatism, aconite at one time was held in high esteem. . . . In rheumatic pains occurring in gouty subjects, Professor Graves has found it very serviceable. The same remark applies to lumbago. . . .

In neuralgia, aconite is a remedy of great value, but its use appears to be restricted mainly to those cases in which all signs of active disease are absent or have been subdued by other means. . . .

In sciatica, Dr. Fuller concludes that it proves a valuable and efficient remedy in many obstinate forms of the disease. . . .

Toothache is sometimes speedily cured by rubbing the gums with a few drops of the tincture. . . .

In tetanus the use of aconite in large and repeated doses was first proposed by Mr. De Morgan, who relates several cases illustrative of its efficacy. . . .

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Materia Medica, Pharmacy and Therapeutics, and approved for publication by the Executive Committee: Drs. S. Solis-Cohen, George F. Butler and N. S. Davis, Jr.