abdominal operations performed in the world to-day are required on account of the infections and adhesions and pus collections due to gonorrhea, but I think we will all be surprised when the statement is forced on us that a great majority of them are from this cause; according to Humiston and Price, from 90 to 95 per cent.

Mann of Buffalo says that in his experience just about all of his "pus tube operations" are required on account of gonorrheal infections, and, as tubal infections arise from specific endometritis, he thinks it necessary for the complete cure of the patient to remove the uterus also. Many others hold this opinion. They see many dangers ahead for all women who possess a gonorrheal uterus, after infected appendages have been removed. Curettings and antiseptic irrigations, while they occasionally eradicate all the gonococci, generally do not, and relapses and contagions recur, greatly to the surprise and sometimes to the mortification of the patients, who believed themselves cured.

The great number of women operated on for the removal of gonorrheal appendages, pus collections, inflammatory adhesions, enlargement and displacement does not by any means represent the amount of invalidism and suffering caused by this infection.

In the above quoted statistics only the number actually "mutilated" by the surgeons are mentioned, and no account is taken of the large number of infected women who for various reasons are not subjected to operations and continue under the care of the family physician, dragging out a miserable existence of semi-invalidism, subject to painful or difficult menstruation, no longer able to walk freely, condemned to pass their days of suffering in a reclining position, and after years, it may be, of this suffering, worn out and desperate, apply to the surgeon, who, by the sacrifice of the uterus, tubes and ovaries, renders their existence possible by making them castrated women.

What disease have we to treat against which can be brought such an array of charges and about which so little is being done to prevent or eradicate it?

I know of no statistics of the mortality arising from gonorrheal infection of the female organs of generation, but we can obtain an approximate idea when we consider the great number of major surgical operations performed on its account, the number of abortions caused by it, and the untold number of conceptions prevented by the disastrous results of such infections.

There is little doubt in my mind that, at a most conservative estimate, half a million prostitutes are living in houses of ill-fame in our large cities and I am not sure a million would not be nearer correct; writers on this subject generally estimate as many women living lives of easy virtue outside as inside of the disreputable houses. In our country alone we have, then, a million and a half, if not twice that number, who have or are liable to have gonorrhea any day, with all the possible consequences above referred to.

The effects of the introduction of gonorrhea into married life have already been spoken of.

It is estimated that from 40,000 to 50,000 prostitutes die annually, and that their places are immediately filled by new recruits. While much of this mortality may be due to the results of dissipation and natural causes, at least 30 per cent of this mortality is due to the direct effects of gonorrhea.

It is estimated that 110,000 deaths occur annually from tuberculosis in our country, 107,000 from pneu-

monia and 43,000 from typhoid fever. While there are no statistical reports of investigations of the mortality due to the infections and ravages of gonorrhea on the female generative organs. I have little doubt, if it can be ascertained, that the race suicide arising, directly and indirectly, from this disease would equal the mortality of any of the three diseases mentioned, and I am not sure that it would not exceed them all combined; if we take into consideration the depopulation caused by the one-child sterility, and also the absolute sterility produced by gonorrheal inflammation of the uterus and its appendages.

It is customary to include the death of the child when comparing the maternal mortality of craniotomy with that of cesarean section. Thus, if 75 or 25 per cent. of maternal deaths occurred after craniotomy, the mortality of the operation would be stated as 175 or 125 per cent., as the case might be. So, in speaking of the mortality of the effects of gonorrhea on the female generative organs, one might on the same principle include that indefinite multitude of children which would have been born but for the inhibitory effects of the gonococcus on the female conceptional capacity.

As the subdivision of this subject assigned to me only includes the effects of gonorrhea on the female organs of generation, I am admonished that I can not include in my paper a discussion of the indefinite persistency of this infection in its latent or chronic stages, of its power of recurrence after apparent cure, of our responsibility in authorizing matrimony, and the possible remedy for all the troubles following on the trail of this, the greatest plague of our century.

PURULENT CONJUNCTIVITIS AND BLINDNESS.*

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No greater subject could be found for the pencil of the artist than the tragedy of the young mother who, just out of child-bed, brings into one of our city clinics her first-born infant, already blind for life through ophthalmia neonatorum, to find out what can be done for the eyes that "were so bright when it was born." The mere surface facts are dark enough without the black background which the physician also sees, the hideous cause of the affliction and the physical suffering and wreck that are impending in her own life. Because I have looked on this picture and have been compelled to crush the young mother with but a fraction of the terrible truth, I am glad to join in any effort to render less frequent the repetitions of this tragedy.

Not all purulent conjunctivitis of the newborn is caused by the gonococcus. Guerola¹ reported a series of 25 cases, in all of which he found the gonococcus, although sometimes associated with other bacteria. But most students of the subject have had quite a different experience. Alt² found the gonococcus in but 9 out of 14 cases. Groenouw,³ in 100 cases of ophthalmia of the newborn, found the gonococcus in 41. He also found the pneumococcus, the white and the yellow staphylococcus, the colon bacillus, and occasionally other

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. *Annales d'Ophth.*, November, 1900.

2. *Amer. Jour. of Ophth.*, April, 1901.

3. *Graefes Archiv f. Ophth.*, vol. III, No. 1.

bacteria. Standish, in a series of 92 cases reported to the Section on Ophthalmology, found the gonococcus present in but 64. It is certain that many cases of ophthalmia neonatorum are not caused by the gonococcus. One is not justified in assuming from the presence of purulent ophthalmia in the infant a gonococcus infection.

But, on the other hand, nearly all the cases of such ophthalmia which cause blindness are due to this organism. Groenouw thinks that failure to discover the gonococcus by one careful examination justifies a positive favorable prognosis. Standish mentions only one case of corneal ulceration in purulent conjunctivitis not due to the gonococcus. Many bacteria can cause conjunctival inflammation in the newborn, but the danger of blindness is chiefly or wholly from this one.

The frequency with which it causes blindness can not be very closely estimated; but it is the most common cause of life-long blindness, even in this country. Various statistics seem to indicate that in continental Europe fully 30 per cent. of all cases found in schools and asylums for the blind have been brought there from the effects of this disease. No adequate statistics are available for this country, but it is here very much less frequent. Such statistics as I was able to gather a few years ago⁴ seem to indicate that the proportion blind from this cause in America is probably half as great as in Europe—from 15 to 18 per cent.

But the true significance of these figures only appears when we bear in mind that blindness from this cause is almost entirely preventable. In the first place, ophthalmia neonatorum may be prevented. In the report above referred to I obtained from the records of the largest lying-in hospitals in Philadelphia statistics regarding 4,956 deliveries. Among these children there occurred 10 cases of ophthalmia neonatorum, and but one eye was permanently damaged. Of the above cases, only 802 were subjected to prophylactic treatment directed to the eye, other than careful cleansing. The technic employed in the cleansing of the birth canal by the different obstetricians, under whose care the deliveries took place, was not identical throughout the series. But it was good in all cases.

Clean midwifery will greatly diminish the number of cases of blindness from ophthalmia neonatorum; still, this alone will not entirely prevent it. Special prophylactic local measures are required to disinfect the eyes in which infective material may have found lodgment. These measures should be resorted to whenever it has been found by microscopic investigation, or whenever there is much reason to suspect that the vagina harbors the gonococcus. The oldest, best-established procedure is the so-called Credé method. This is to let a single drop, or two, of a 2 per cent. solution of silver nitrate fall from a glass rod on the cornea, while the lids are held well apart, and to let this solution run thence into all parts of the conjunctival sac without any additional manipulation of the lids. Rubbing of the lids at the time probably increases the resulting irritation without adding to the efficiency of the method. Great care should be exercised not to injure the cornea.

The efficiency of the Credé method is indicated by the statistics of Leopold,⁵ who reports 2,146 deliveries, with but 3 cases of purulent conjunctivitis, although by microscopic evidence 98 and by clinical evidence 200 of the women had gonorrhea. The disadvantages of the Credé method are that it causes irritation and even a

sharp attack of inflammation in some eyes that would otherwise escape any inflammatory symptoms; in very rare cases it is followed by conjunctival hemorrhages which have even been fatal. It is probable that such hemorrhage only occurs in peculiarly predisposed individuals, but there seems to be nothing by which such a predisposition can be previously recognized.

On account of these disadvantages it would be an important gain if one of the less irritant silver salts could be substituted for the nitrate. The prospect of being able to do this is very promising. Numerous observers have experimented with these organic silver salts, and their reported experience seems almost uniformly favorable. Such trials should be continued, and the results observed and carefully reported; but until we have had more experience with these salts they can not be regarded with the same confidence as the 2 per cent. solution of silver nitrate.

Even when, because of the neglect or inefficiency of prophylactic measures, purulent conjunctivitis occurs, careful treatment commenced before the cornea has become visibly involved will almost invariably prevent blindness. Not invariably, for a few cases have been reported, as those by Randall,⁶ Würdemann⁷ and Hubbell,⁸ which went on to blindness in spite of the most careful and efficient treatment. In these cases, however, some constitutional factor entered and made the corneal disease progressive in spite of the cure of the conjunctivitis. In nearly all cases early, efficient treatment will save good vision. On this account the laity and the medical profession should be thoroughly educated on the subject; and the laws adopted in some states providing for compulsory notification in all cases of inflammation about the eyes in infants are to be commended.

The treatment required to prevent blindness is the frequent cleansing of the eye without injury to the cornea. The washing away of the discharge may be required every hour, or even more frequently; any sterile, non-irritant solution, such as boric acid, physiologic salt solution, weak potassium permanganate or organic silver salt solutions, may be employed.

Especial care may be required to keep clean the corneal margin where the fold of swollen conjunctiva overhangs it. This is the point at which corneal infection is most likely to occur. Cleansing must be accomplished wholly by currents of fluid, not by coarser mechanical means, and it may be supplemented by applications to the everted lids of stronger solutions of silver salts, such as silver nitrate, 4 or 5 per cent., applied not more frequently than once a day, and often at longer intervals. Protargol or argyrol, from 20 to 30 per cent., may be applied from two to six times a day; but faith must not be placed in these applications to the neglect of the frequent thorough cleansing.

For purulent conjunctivitis in the adult the most important prophylactic measure is education. More careful treatment of the disease when it has arisen may somewhat diminish the cases of blindness caused by it, but only a more general appreciation of the real dangers of gonorrhea can greatly influence the number of eyes lost by this disease. It should not be forgotten that besides wives and children, others may suffer from the disease innocently acquired. I have seen two nurses entirely blind in both eyes from this cause.

4. Trans. Amer. Ophth. Soc., 1898.

5. Berliner klin. Woch., Aug. 18, 1902.

6. Trans. Section on Ophth., A. M. A., 1903, p. 303.

7. Annals of Ophth., January, 1896.

8. Trans. Amer. Ophth. Soc., 1903.

As to legislation to prevent blindness from purulent conjunctivitis, two points seem worthy of attention:

First. Social conditions that favor or oppose the spread of gonorrhea are more important than any measures aimed directly at purulent conjunctivitis.

Second. Gonorrhea is a malignant contagious disease, and should be publicly recognized and dealt with as such in all its clinical manifestations.

BIRTHRATE AND DECREASE IN POPULATION AS AFFECTED BY SYPHILIS AND GONORRHEA.*

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In discussing the relation of venereal diseases to the state, there is but little to be said regarding the menace these diseases constitute to the social and financial stability of the state, or regarding their effect on the future of the race, that has not already been said. The medical profession, the most familiar with this scourge which threatens all our avenues of prosperity, has yet to be aroused to the importance which the subject demands.

We are accustomed, and rightly, to point to the great progress which with giant strides has been carrying us forward in seeking out and in preventing many of the pestilential diseases that annually decimated our population; with a justifiable pride we have asked the world to see the suffering assuaged and the lives preserved by modern methods of surgery. The laity has joined us in smiting the great white plague until we have reduced the mortality nearly one-half in the last two decades. Yet this pestilence—a greater menace to the human family, treading with stealthy step at midnight, and with prurient mean seeking to cover with the habilitation of modesty its hideous crimes of destruction of social order, and of the life of all classes of citizens, born and unborn—cries out with holy horror that the mysteries which have for ages stood in the shadow of this chaste and virtuous goddess of modesty, shall never be exposed to the light of scientific truth.

Because of the indifferent attitude of a profession, whose attention is absorbed by so many avenues of investigation, by which it is pressing forward its philanthropic missions, we are without any statistics of the actual number of cases existing at any one time, of the mortality resulting therefrom, or of the crippling of industries by the loss of time incurred by reason of the disabilities caused by these diseases, to say nothing of the social disorganization it produces.

To arouse the profession to the importance attached to this subject, and to the responsibility resting on it, as well as to devise the wisest methods of treating the subject in all its relations to the individual, the profession, the public and the state, it was recommended last year that a national meeting (call it a congress or what you please) be held, in which an effort should be made to solve the whole matter. It must be plain that a section meeting of this Association, even if the section had no other subject before it, has not the time to do this work; some of the section members have other interests in the Association to serve, subjects to discuss in other sections; hence it is impossible that they

should give the time to the consideration of a subject involving such various propositions, ethical, social, professional, financial, philanthropic and legal.

To fix the attention on this subject and to secure the consideration of the individual members of the profession, we believe that a personal appeal should be made. It is probable that this could best be done through the various state boards of health. A circular letter with a leaflet for the physician to hand to his patient, with brief instructions and precautions to be observed to avoid communicating disease to others, might prove an educational force sufficient to set in motion a revolution in the profession regarding this question that would do much good. Accompanying this letter might be a few questions, the answers to be sent to their respective boards, by means of which the number of cases and other facts could be secured, which would be of great value in further attempts to stay the ravages of this plague. These questions should avoid anything that would possibly lead to the identification of the patient or which would in any way compromise the physician's relation to his patient.

The menace of these diseases to the public health and to the welfare of the nation has received the attention of the State and Provincial Boards of North America. At their annual meeting in 1903 the subject was presented setting forth the extent of the prevalence of these diseases and of the resulting destruction to health, life, social order and ultimately the stability of their respective governments. After an appreciative discussion, the following resolution presented by Dr. C. O. Probst was adopted:

Be It Resolved, That a committee of three be appointed by the president to prepare a leaflet that would be acceptable to physicians to give to their patients, setting forth the precautions to be taken by one suffering from a venereal disease to prevent its communication to others, and to make such other suggestions as it may deem proper, such instructions when adopted by this conference to be recommended to state and provincial boards of health for dissemination among the medical profession, and said committee shall report at the next meeting.

The president appointed as such committee Drs. Henry D. Holton, E. W. Cooper and Charles O. Probst. This committee reported at the meeting held in Washington, D. C. They recommended that the following letter be sent to every physician in the respective states, territories and provinces represented in the conference:

Dear Doctor:—The enclosed leaflet is issued in the interest of the prevention of venereal diseases. It is for you to give to each patient who consults you suffering from either gonorrhea or syphilis. It has been prepared so as to be concise and is in language to be understood by every one. This, we hope, will cause it to be read by those to whom it is handed. It will introduce the subject of prevention, thus enabling you to give your patient further information of the extent of this scourge.

It is estimated that 80 per cent. of all deaths from pelvic diseases in women are due to gonorrhea. Twenty per cent. of all blindness is due to gonorrheal infection of the newborn. Fifty per cent. of all involuntarily childless marriages are caused by gonorrhea of the female organs of generation, of which 45 per cent. are due to marital infection by men. In this country it is impossible to quote statistics, as they never have been gathered. The committee of fifteen estimated that there were annually 200,000 cases in New York city alone. In Prussia, where they have more reliable data, it has been stated that typhoid fever represents a yearly loss of 8,000,000 marks (\$1,920,000), while the increased expenses and decreased income caused by venereal diseases amounts to 90,000,000 marks (\$21,600,000) annually—an amount which ex-

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