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TABLE OF CONTENTS.

Original Articles.

Industrial Insurance and the Prevention of Tuberculosis. By Frederick L. Hoffman, of Newark, N. J., Statistician of the Prudential Insurance Company of America. This paper, which was read before the British Congress on Tuberculosis, which recently convened in London, is no doubt the most complete and valuable compilation of facts that has ever been published upon this subject. It is practically a statistical exhibit illustrated by twelve charts or diagrams. The author discusses, first, the mortality from consumption in certain sections of the United States; second, the mortality from consumption by sex and age; third, the mortality from consumption by race; fourth, the medical statistics of the Prudential Insurance Company of America; fifth, the industrial mortality from principal causes; sixth, industrial mortality from consumption by sex and age; seventh, industrial mortality from consumption by race and nativity; eighth, industrial mortality from tuberculosis by occupation; concluding with a series of plates showing the relation of physical condition to life expectancy.

Pulmonary Tuberculosis as an Insurance Problem; With Especial Reference to the Value and Means of Early Diagnosis. By Chas. Lyman Greene, M.D., of St. Paul, Minn., Clinical Professor of Medicine and Physical Diagnosis in the University of Minnesota. The author states it is evident to anyone who scans the medical blank of a life insurance company that in complying with its demands, mod-

Continued on page 9.

Dysmenorrhea.

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ern diagnostic technic is drawn upon to only a limited degree, and that much might be done to make medical selection more exact and hence more equitable without adding materially to the time consumed or making any excessive or unreasonable demands upon any parties concerned in an acceptance. In discussing the early symptoms of pulmonary tuberculosis, which plays such an important part in the death rate of life insurance companies, Dr. Greene gives the following as the significant symptoms: Cough, loss of appetite, loss of weight, light weight, rapid pulse, the reaction of tuberculin, hoarseness, impaired digestion and temperature. He states that by a careful attention to family history, environment and physique, combined with an application of such modern diagnostic methods as are at once simple and scientific, it should be possible to create a class of preferred risks among whom during the first five years of insurance pulmonary tuberculosis would prove an almost negligible quantity.

Society Proceedings.
Baltimore Medical and Surgical Assoc. 27

Editorials.
Tuberculosis 31
Political Antitoxin 33
Sanitary Improvements in Cuba 35

Therapeutics.
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<td>$8.50</td>
<td>$3.50</td>
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<tr>
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THE PREVENTION OF TUBERCULOSIS.

By FREDERICK L. HOFFMAN, Newark, N. J.,
Statistician of the Prudential Insurance Company of America.

The statistical portion of this paper includes specially prepared diagrams and charts exhibiting the most important facts, first, as to the extent of tubercular diseases in the United States, second, as to the mortality experience. Thus, as to the physical condition of applicants and the importance of physical characteristics in determining a liability to tuberculosis.

It is necessary for me to explain, at the outset, that we have not in the United States a general system of mortuary registration, such as you have in England, and hence the diagrams are limited to the returns for such States and cities as could most readily furnish the necessary information for a period of thirty years.

THE MORTALITY FROM CONSUMPTION IN THE UNITED STATES.

The first diagram (No. 1, see page 9) refers to the general mortality from consumption in five Eastern States and twelve additional cities, with an aggregate population in 1899 of 18,000,000. It is shown that for the past three decades the mortality rate for consumption has constantly and very considerably declined, so much so that against an average rate of 33 per 10,000 of population in 1871, the rate at the present time is only 21. On the assumption that the rate for the area under observation applies approximately to the country as a whole, the present annual number of deaths from consumption in the United States is about 160,000, and if to this number we add the deaths from related causes, that is, from other tubercular diseases, chronic pneumonia, chronic bronchitis and laryngitis, we have about 200,000 deaths from tubercular diseases per annum in the United States at the present time. While the reduction in the death rate is a gratifying evidence of medical and sanitary progress, it is equally clear that an immense amount of

Résumé of article read before British Congress of Tuberculosis.
work remains to be done, in fact most, since the results thus far attained are in a large measure to be accounted for by the natural tendency on the part of every disease to run its course after the most favorable conditions for its earlier existence have passed away.

THE MORTALITY FROM CONSUMPTION BY SEX AND AGE.

If we now examine in detail the general fact that the mortality from consumption has decreased during the past thirty years, we find that first in the order of importance we must take account of the incidence of sex and age. The second diagram (No. 2, see page 10) of the series points out a most important, and to my mind most significant, fact, which must needs have weight in considerations of the general subject of the prevention of this disease. You will observe that in 1871 the mortality of the sexes was practically the same, and until 1885 the decline in the rate was about equal for both sexes, but for reasons which are yet to be fully explained and which cannot be discussed in this paper, a change occurred in 1885-1886 by which the rate of mortality from consumption among females decreased so much more rapidly that by 1900 the sexes contrasted in a marked manner, so much so, that while the mortality from this disease was 18 per 10,000 for women, it was 27 per 10,000 for men. Partly, no doubt, perhaps largely, this result must be attributed to the improved conditions of the industrial masses in the United States during the past fifteen years, an improvement which has unquestionably been of far more benefit, as to health and longevity to the female element of the population than to the male. The point is one which, it would seem to me, is deserving of careful consideration, since a knowledge of the forces by which the liability to consumption has been diminished so considerably among women ought certainly to be of great value in diminishing the mortality from this disease among men. The facts are more fully set forth in the next diagram (No. 3, see page 11), in which I have made a comparison of the mortality of the sexes at different age periods.

The conclusions derived from the preceding diagram are fully confirmed by this detailed study of the age and sex incidence of the disease, and as you will notice the decline in the mortality of males has been small at all ages under 60.

Among females it is clear that the factors or forces tending to reduce the mortality from consumption have operated at all ages over 20 to about the same degree; and at all the important age periods the disease is now far less common among women. It is not necessary to further discuss these facts, except to point out that the age periods among males at which consumption is still a factor of such vast importance and at which practically no decline has been effected during three decades, are the periods of life where a large number of our working population are employed in unhealthy trades, to which we may reasonably attribute a considerable portion of the still excessive mortality from tubercular diseases among males.

THE MORTALITY FROM CONSUMPTION BY RACE.

Next to sex and age as the element of most importance affecting the mortality from consumption in the United States, we must consider
race, and I have been able for a few cities to obtain the needed information in the construction of the diagram of comparative mortality of the white and colored population (No. 4, page 12). Unfortunately, the returns are very limited, and for the earlier years of the period too fragmentary to be indicative of absolute accuracy, but I may be permitted to add, that the conclusions derived from this diagram are so fully in harmony with the conclusions based on a very comprehensive investigation of the entire subject of negro mortality that I have full confidence in the results brought out by this comparison. You will observe that the death rate for both races has declined, but the difference in the rates has remained practically the same, and thus we have it that at the present time the consumption mortality rate for the white population of the cities, stated as being 23 per 10,000, contrasts with the rate for the colored population of 48 per 10,000, an excess in the negro mortality of over 100 per cent.

GENERAL CONCLUSIONS.

I have extracted the following table from a recently published report of the U. S. Department of Labor, showing the mortality from all causes and from tubercular diseases for both races in six important Southern cities.

MORTALITY OF THE WHITE AND COLORED POPULATION OF SOUTHERN CITIES.

(Rates per 1,000 of the Population, 1900.)

<table>
<thead>
<tr>
<th>City</th>
<th>All Causes White</th>
<th>All Causes Colored</th>
<th>Tubercular Diseases White</th>
<th>Tubercular Diseases Colored</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Orleans, La.</td>
<td>20.7</td>
<td>39.7</td>
<td>2.38</td>
<td>6.13</td>
</tr>
<tr>
<td>Mobile, Ala.</td>
<td>21.5</td>
<td>33.3</td>
<td>3.68</td>
<td>6.99</td>
</tr>
<tr>
<td>Charleston, S. C.</td>
<td>21.4</td>
<td>43.1</td>
<td>1.65</td>
<td>6.21</td>
</tr>
<tr>
<td>Savannah, Ga.</td>
<td>22.6</td>
<td>42.2</td>
<td>2.64</td>
<td>4.94</td>
</tr>
<tr>
<td>Richmond, Va.</td>
<td>18.1</td>
<td>32.8</td>
<td>2.05</td>
<td>3.94</td>
</tr>
<tr>
<td>Nashville, Tenn.</td>
<td>18.3</td>
<td>30.6</td>
<td>2.11</td>
<td>6.29</td>
</tr>
</tbody>
</table>

The general conclusions to be drawn from these facts may be stated as follows: Tuberculosis is at the present time the cause of about 200,000 deaths per annum in the United States. The decline which has taken place in the death rate from this cause during the past thirty years has been considerable, but it appears that the male population at ages 20 to 60 has remained almost wholly unaffected, while for the females the decline in the death rate has been considerable at all age periods. The white population is shown to be subject to the disease at a much lower rate than the colored, but for both races there has been a decline in the death rate during the three decades covered by this investigation. Hence the general conclusion and recommendation that efforts toward the prevention of tubercular diseases be especially directed to the male population at ages 20 to 60 and to the colored population at all age periods.

THE MEDICAL STATISTICS OF THE PRUDENTIAL INS. CO. OF AMERICA.

If we now examine the data furnished by our Industrial experience I may preface my remarks by the statement that a very large portion of our risks are included in the population represented by the preceding
four diagrams, and that in some States, especially New Jersey, more
than one-third of the entire population are insured under Industrial
policies with our company, while some 25 per cent, more are insured
with other Industrial companies. Hence the general problem of disease
prevention affecting the total population is co-incident with the special
problem affecting the interests of Industrial companies, and as you will
note the data which follow are in entire harmony with the facts previously
stated, even though it has been necessary to deal with deaths only.

It is impossible to furnish rates based on the exposed to risk, since
the amount of clerical work required for such an investigation would be
enormous, while the expense would be prohibitive. The method, how-
ever which I have employed has proven satisfactory and useful for other
office purposes, and hence the conclusions to be drawn from the data
may be relied upon as approximately accurate for our purpose.

Mortality from Principal Causes.

In the first chart of this series (No. 5, page 13), I have made a com-
parison of the white adult mortality from principal causes, to indicate
the all-important position which tubercular diseases assume in consid-
erations affecting mortality problems. You will note that of the mor-
tality during the years 1891-1899 tubercular diseases caused over
38,000 deaths, a larger number than the mortality from any other group
of diseases. Yet, as I have already pointed out, this statement is below
the truth, since many deaths from chronic respiratory diseases closely
allied to tuberculosis are not included in this number.

Industrial Mortality from Consumption by Sex and Age.

In the second chart (No. 6, page 14) I have shown the comparative
percentage of deaths from consumption of the mortality from all causes
at specified age periods with distinction of sex. You will note that at
the most important ages as high as forty out of every hundred deaths
are due to consumption.

Mortality from Consumption by Race and Nativity.

In the third chart (No. 7, page 15) of this series I have brought to-
gether the information in our possession with reference to the disease
liability of the colored population to consumption.

Mortality from Nationality.

The important element of nationality in its relation to the disease
liability to tuberculosis could not be dealt with in the first series of dia-
grams, but the omission is partly made good by the chart descriptive
of our own experience during the two years, 1898-1899 (No. 8, page 16).
You will observe that at the age periods of 15 to 25 the mortality of the
English in the United States is less than the percentage of deaths from
tubercular diseases for the other nationalities. This holds true until
age 45, after which the Germans experience the most favorable mor-
tality. I need hardly point out the fact, with which you are familiar,
that the lower death rate from consumption among the English is fully
PREVENTION OF TUBERCULOSIS.

balanced by an excessive mortality from chronic and acute respiratory diseases. Native Americans, you will notice, show the highest percentage at ages over 25, but there are included in this term the children of foreign born parents, among whom the Irish especially are most liable to the disease. The Irish, in our experience, show an excessive mortality at all ages under 45, and the same holds true for the Germans among our insured risks. These conclusions, I may add are fully supported by the investigations of Dr. Billings and reported in the census volumes on Vital Statistics.

The general conclusion to be drawn from these facts is that race and nationality, next to age and sex, are most important elements affecting the liability of individuals to consumption and other tuberculous diseases, and that a comprehensive investigation of the subject must be made to include the facts which I have just placed before you for your consideration.

MORTALITY FROM TUBERCULOSIS BY OCCUPATION.

In the next two charts an attempt is made to place before you certain essential facts pertaining to the special liability to tubercular diseases of men employed in various, more or less, unhealthy and dangerous employments (Nos. 9 and 10, pages 17 and 18). You will note that stoneworkers are subject to the disease to a most extraordinary degree, 43 per cent. of all the deaths being due to this cause. After stoneworkers, we find the disease most common among printers, glassworkers, brassworkers, bookkeepers and plumbers in the order named. All of these occupations must be considered employments which those most liable to the disease should not engage in. There is no more promising field for investigation and reform than industrial hygiene, and to none can the medical specialist direct his attention to better advantage and with the certain prospect of better results. (Note, for instance, the small percentage of deaths from consumption among miners, yet the rarity of this disease among men in mines has never been fully and intelligently investigated.) This point is brought out in a still more forcible manner in the chart showing the tubercular mortality by selected occupations with distinction of age. You will observe that at certain age periods the disease has caused more than one-half of the entire mortality, certainly a fact of utmost importance and significance to all who, by preventive measures would attempt to eradicate tubercular diseases among the most useful of our industrial workers. Stoneworkers, you will note, retain their special disease liability to tuberculosis at all age periods, and the same is true of glassworkers, among whom at all ages a very large share of the mortality is due to this specific and well-defined cause, demanding on the part of the medical specialist a most careful and painstaking investigation as to the true cause responsible for this most unfortunate condition affecting the life and labor of our industrial population.

It has been my privilege to make many thorough personal investigations into the subject of diseases of occupations, and on every opportunity I have recommended that this branch of medical science be more thoroughly developed. It is never an industry as a whole which is responsible for an inordinate disease occurrence, especially from certain
causes like tuberculosis, but always an industry in its parts. A few, sometimes but one minor branch of an industry will, on investigation, be shown to be the cause of the unhealthfulness of certain trades. It is the duty and the mission of specialists in industrial hygiene to trace with accuracy the causes responsible for a condition at once so deplorable and indescribably sad as, in the light of modern preventive medicine, it appears needless.

**PHYSICAL CONDITION IN ITS RELATION TO DISEASE.**

Progress in the direction of more accurate diagnosis lies in the recognition of physical facts as to the normal proportion and condition of the human body. Consumption, as the name implies, is a wasting disease, and among the first and most important, if not all-important, signs of the disease in its incipient stage, is the loss of weight, or the want of proportion, between the stature and the bulk of the body. I have briefly touched upon the essential elements of this branch of my inquiry in two charts, to which I now direct your attention (Nos. 11 and 12, pages 19 and 20). The first of these charts illustrates our Ordinary experience, for which the physical data are somewhat more accurate and available in more detail; the second chart pertains to our Industrial experience, with risks for amounts of $500 and more. In both cases the data or physical measurements were obtained by a qualified medical examiner, and they may be accepted as sufficiently accurate for the purposes to which these conclusions are applicable. First in order of importance we must consider the absolute weight of those who died from tubercular and from non-tubercular diseases. It will be observed in both investigations, based on a large number of cases, that the average weight of those who died from consumption was invariably less than the weight of those who died from other causes. The same holds true for the average degree of inspiration and expiration. It will be observed that according to our Ordinary experience the difference in inspiration or expiration between non-consumptives and consumptives was fully one inch. But, still more determining facts are brought out by an examination of the average weight relative to stature. This point has been very clearly expressed by Loomis, as quoted by Knopf, that “Weight, respiratory capacity and chest measurements have no value in establishing the possibility of the development of phthisis in themselves, but must be considered in relation to the height (and age, I should add) of the person, when they furnish important aids to diagnosis.”

**LIGHT WEIGHT AND PREDISPOSITION TO CONSUMPTION.**

Let us examine the facts set forth by these charts with special reference to these points. I have, for the sake of convenience, arranged the mortality by groups of stature, short, medium and tall, and in each case I have divided the deaths as to whether they were below or above the standard of weight. Calculating the percentage of those above and below the average standard, we find that in both the Ordinary and the Industrial risks, dying from tubercular diseases, the proportion below average standard was very largely in excess of the percentages for deaths from non-tubercular diseases. Thus you will note that of the ordinary
risks terminating by death from tubercular diseases, 73 per cent. were below standard weight, but as you will observe, this tendency to light weight increases with increasing stature, so that the percentage below standard is largest for those who were of stature 71 inches and over. This, then, in a most important fact, to be taken into consideration, namely, that of those most liable to tubercular diseases, the most pronounced characteristic will be light weight in proportion to height, but that this will be especially true for tall persons of 71 inches in height and over. Various investigations into this subject have all confirmed this conclusion, and to my mind there is none of more determining importance in physical diagnosis.

This point, I need hardly say, has been fully recognized by most of the modern writers on consumption and the medical aspects of life insurance, but thus far no company has published as fully and in detail as would be desirable its experience.

TEMPERATURE AS AN AID TO DIAGNOSIS.

I regret that I am not able to give facts from our own experience with reference to these two indeed most important aids to early diagnosis of incipient phthisis, but as to temperature I cannot do better than quote from the extremely valuable work by Seguin: "During tubercularization all the signs expected from the keenest recourse to physical diagnosis may be silent, whereas thermometry will give out positive evidences of the consumptive process," and further, that "The temperature is a more accurate indication of the amount of tuberculosis and tubercularization than either the physical signs or symptoms. By means of the thermometer we can diagnose tuberculosis long before the physical signs and symptoms are sufficient to justify such diagnosis." This view is accepted by Greene, who writes: "A slight daily rise in temperature is now universally recognized as a symptom of great importance. The rise usually occurs late in the afternoon, but it is occasionally reversed.

THE PULSE RATE AS AN AID TO EARLY DIAGNOSIS.

The pulse rate is another means of early diagnosis which, to my knowledge, has been but imperfectly developed in life insurance examinations. As Greene has pointed out, "a rapid pulse is a very constant feature in incipient tuberculosis, and should suggest the propriety of determining the temperature of the applicant," but a still more important fact is that to determine the pulse rate, note must be made whether applicant was sitting or standing and the observation must be at least the mean of three, taken for half a minute each. My investigation into this branch of my inquiry have confirmed the view of Professor Gould, that most statements as to the rate of the pulse are unreliable and useless, giving strong evidence of guesswork multiplied by four.*

I cannot very well enter into the question of physical examination proper, since I have not been able to obtain the necessary information for an intelligent report, but a careful statement of the entire subject

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will be found in a paper on “Early Recognition of Pulmonary Tuberculosis,” by S. A. Knopf, M.D., who makes also mention of the method employed by Dr. Stubbert, at the Loomis Sanitarium, where the Roentgen rays are used to apparently good advantage. Dr. Stubbert has fully reported upon some 70 cases, and I cannot but think in doubtful cases this method is likely to be of great value.

IMPORTANCE OF EARLY DIAGNOSIS IN PHTHISIS.

That insufficient attention is at present given to the great importance of light weight as a factor making for an increased liability to tubercular diseases is made evident by the fact that the mortality of life insurance companies from this disease is excessive during the early years of policy duration. When you consider that the light weight cases indicated by the charts represent light weights at entry, you will realize the possibility of a more perfect diagnosis in the future, and the opportunity for better selection by a recognition of the value of accurate anthropometry as an aid to the life insurance examiner. A large amount of work remains to be done before it will be possible to develop this idea to the highest degree of usefulness, since a proper average standard of height and weight, according to age, sex, chest expansion, etc., has yet to be deduced from the vast experience of the companies and related data furnished by the army, navy, and the colleges and associations collecting data of this kind, but I feel confident that in time the most useful aid to those who would stamp out this disease by preventive measures will come from this source of largely neglected facts.
Mortality from Consumption in the United States of America.
1871-1900.

Plate No. 1.
Mortality from Consumption in the United States of America.

Plate No. 2.

1871-1900.
Mortality from Consumption in the United States of America.
Three States and Two Cities. 1871-1900.

Plate No. 3.
Mortality from Consumption in the United States of America.

Plate No. 4.  White and Colored Population of Six Cities.  1871-1900.
Mortality from Ten Principal Causes, White Males and Females.
Industrial Experience. 1891-1899.

Plate No. 5.
Mortality from Tuberculosis, White Males and Females.
Prudential Experience. 1891-1899.

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**White Males, Ages 15 and over:**
- Deaths from Consumption: 20,955 (6.7%)
- Deaths from Tubercular Disease: 610 (0.6%)
- Deaths from All Other Causes: 76,921 (77.8%)
- Total Mortality, 1891-1899: 96,472 (100.0%)

**White Females, Ages 15 and over:**
- Deaths from Consumption: 16,274 (17.6%)
- Deaths from Tubercular Disease: 388 (0.4%)
- Deaths from All Other Causes: 79,688 (87.0%)
- Total Mortality, 1891-1899: 92,350 (100.0%)
Mortality from Consumption by Race and Age Periods.
Industrial Experience, 1891-1899.

**Statistical Information.**

<table>
<thead>
<tr>
<th>White Males &amp; Females</th>
<th>Industrial Experience: 1891-99</th>
<th>Colored Males &amp; Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages at Death, All Causes, Consumption, at each age</td>
<td>Percent of Total</td>
<td>Ages at Death, All Causes, Consumption, at each age</td>
</tr>
<tr>
<td>1-4</td>
<td>32.427</td>
<td>256</td>
</tr>
<tr>
<td>5-14</td>
<td>22,449</td>
<td>686</td>
</tr>
<tr>
<td>15-24</td>
<td>23,179</td>
<td>8320</td>
</tr>
<tr>
<td>25-44</td>
<td>69,912</td>
<td>20417</td>
</tr>
<tr>
<td>45-64</td>
<td>69,679</td>
<td>7236</td>
</tr>
<tr>
<td>65 and over</td>
<td>36,152</td>
<td>1236</td>
</tr>
<tr>
<td>Total</td>
<td>243,798</td>
<td>38,151</td>
</tr>
</tbody>
</table>
Mortality from Tuberculosis of White Males by Nativity and Age.

Industrial Experience. 1898-1899.

Plate No. 8.
Mortality from Consumption in Specified Occupations.
Industrial Experience. 1897-1899.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Mortality from Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumbers</td>
<td>35.3%</td>
</tr>
<tr>
<td>Longshoremen</td>
<td>20.9%</td>
</tr>
<tr>
<td>Bakers</td>
<td>21.7%</td>
</tr>
<tr>
<td>Carpenters</td>
<td>46.8%</td>
</tr>
<tr>
<td>Miners</td>
<td>64.6%</td>
</tr>
<tr>
<td>Butchers</td>
<td>62.5%</td>
</tr>
<tr>
<td>Booksellers</td>
<td>57.5%</td>
</tr>
<tr>
<td>Brokers</td>
<td>22.4%</td>
</tr>
<tr>
<td>Shoemakers</td>
<td>31.0%</td>
</tr>
<tr>
<td>Watchmakers</td>
<td>38.3%</td>
</tr>
<tr>
<td>Bakers</td>
<td>33.0%</td>
</tr>
<tr>
<td>Painters</td>
<td>26.4%</td>
</tr>
<tr>
<td>Masons</td>
<td>56.2%</td>
</tr>
<tr>
<td>Sailors</td>
<td>59.6%</td>
</tr>
<tr>
<td>Merchants</td>
<td>32.3%</td>
</tr>
<tr>
<td>Blacksmiths</td>
<td>30.8%</td>
</tr>
<tr>
<td>Salesmen</td>
<td>34.7%</td>
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<tr>
<td>Haulers</td>
<td>26.7%</td>
</tr>
<tr>
<td>Policemen</td>
<td>26.8%</td>
</tr>
<tr>
<td>Tailors</td>
<td>26.7%</td>
</tr>
</tbody>
</table>

Plate No. 9.
Mortality from Consumption in Selected Occupations with Distinction of Age.

Plate No. 10.

Industrial Experience. 1897-1899.
Physical Condition in its Relation to Disease:
Ordinary Experience. Males. 1886-1899.

Plate No. 19
PULMONARY TUBERCULOSIS.

PULMONARY TUBERCULOSIS AS AN INSURANCE PROBLEM.

By CHAS. LYMAN GREENE, M.D., of St. Paul, Minn.,
Clinical Professor of Medicine and Physical Diagnosis in the University of Minnesota.

It is evident to any one who scans the medical blank of a life insurance company that in complying with its demands, modern diagnostic technic is drawn upon to only a limited degree. The chief reason for this apparent lack of progressiveness is to be found in the fact that an elaborate clinical examination would exact too great a loss of time and inflict unnecessary hardship upon both applicant and the examiner. An additional reason appears when one considers the vast territory from which insured lives are drawn and appreciates the fact that companies must necessarily rely upon the services of physicians whose training, while quite adequate for the demands of ordinary practice, has in many instances been insufficient to justify a demand for the exact and specialist methods of the most modern diagnostic procedure.

It would seem, nevertheless, that much might be done to make medical selection more exact and hence more equitable without adding materially to the time consumed or making any excessive or unreasonable demands upon any parties concerned in an acceptance. In this paper, therefore, certain suggestions will be offered which, if adopted, would in my opinion greatly strengthen the position of the examiner and materially increase the company's protection.

Life insurance medicine has become a well-defined specialty and the medical directors of our companies are constantly called upon to face problems requiring the broadest knowledge of all branches of medicine, a thorough understanding of the nature and function of life insurance and perfect familiarity with the special application of scientific medicine to the complicated and ever varying problems arising in connection with medical selection. To a very considerable degree the medical examiner bears the same burden. His responsibility is direct, and if he is conscientious he finds that his insurance work offers problems that are no less trying than obscure. Upon the honesty and intelligence of the examining physician depends the safety of the company, and his reputation is staked upon every risk.

Of all diseases, none causes greater embarrassment than tuberculosis, a disease that is at all times treacherous and in its early or "arrested" stages, obscure and misleading. This "white plague" which carries off annually 5,000,000 of the earth's inhabitants has never lacked interest for life insurance companies and their examiners, to whom every insured life represents a known money value.

An object lesson is found in the interesting and detailed report of one of the largest and most carefully conducted American companies, which represents an analysis of the 46,525 deaths which constituted the total mortality from 1843 to 1898 inclusive. Of these deaths no less than 5,585, or about 12 per cent. of the total mortality, were charged to tuberculosis, 3,307 deaths occurring in policy holders during the age period of

*American Medicine.*
20 to 45, while in the age period, 25 to 30, it represented 32 per cent. of the total mortality. No less than 594, or 18 per cent. of the former group died during the first two years of insurance, 1,769, or 53.5 per cent. the first five years, and in the latter age period (between 25 and 30 years) 10 per cent. of the deaths from tuberculosis occurred during the first year of insurance and 30 per cent during the first two years.

These facts are striking and significant, coming as they do from a company whose methods represent the modern standard so far as medical selection is concerned.

It must be borne in mind also that all companies have weeded out by rejection applicants of poor physique and badly tainted family history. It must also be remembered that a great majority of accepted lives have reached maturity, and yet again that the average duration of chronic tuberculosis in private patients is probably not less than 7 years, and that 2 per cent. would more than cover the number of cases due to acute tuberculosis. It must be admitted also that an absolutely correct knowledge of the causes of death would considerably increase the number charged to tuberculosis, for the unreliability of death-claim reports in general is well known to all insurance men. There can be but one explanation of such an extraordinary mortality among selected lives, and that is imperfect examinations.

There can be no doubt that during the last decade there has been a considerable improvement in matters of selection, and the rapid advance in the educational requirements in this country must have exercised a great influence in the direction of better medical examinations. In support of this statement may be cited the report of the same company whose statistics have just been quoted, in which the proportion of deaths from pulmonary tuberculosis to the total mortality fell from 18 per cent. in the period 1843-73, to 14 per cent. in 1874-85, and just above 10 per cent. for 1886-99, a good record considering the enormous accretion of new risks; yet even this favorable showing leaves an enormous percentage of deaths to be charged up to a disease which might in my opinion be almost entirely eliminated as a cause of death occurring during the first five years following insurance.

During the last six years of this period the total death claims paid by a single level premium company amounted to $74,522,073. During the same period all the companies reporting to the New York insurance department paid for death claims, $439,530,369. It would be no very violent assumption to consider at least 12 per cent. of these amounts as paid to the beneficiaries of victims of pulmonary tuberculosis, and it would seem probable, therefore, that in six years tuberculosis cost the one company nearly $9,000,000 and all the reporting companies nearly $50,000,000. Tuberculosis is a preventable disease and there is little doubt that its general mortality might be reduced from one-third to one-half in 20 years were sufficient interest excited and enough money freely spent to erect the sanatoriums so necessary, both as philanthropic and educational factors, and to carry on an active educational campaign among the people.

The activity of paternalistic Germany along these lines is said to have resulted in saving annually to the State 70,000 lives, representing potential wealth amounting to a sum variously estimated at from $105,-
PULMONARY TUBERCULOSIS.

000,000 to $500,000,000. If in this country the mortality might be reduced one-third, we should save to the nation annually 50,000 lives, and if our insurance companies could reduce their mortality by this figure (they might easily reduce it two-thirds), they would be able to save for their policy-holders at least 4 per cent. of their total annual death loss, which saving would have amounted in one year (1898) to over $3,000,000. Tuberculosis is also a contagious disease, and so-called heredity is but another name for the post-partum implantation of germs upon a fallow soil.

I have no hesitation in saying that aside from the general question of providing sanatoriums and maintaining an active sanitary campaign against tuberculosis—measures that seem, perhaps, too utopian to the business men of the companies—the insurers would save millions in losses from this disease by paying more attention to direct contagion and by making provision for and insisting upon better methods of examination. In this, as in some other directions, insurance practice lags far behind the scientific diagnostic attainments of the present century.

Case after case of tuberculosis has come before me with a history showing that insurance has been obtained at a time when the applicant was suffering from active symptoms of this disease, and as a result of a somewhat extended inquiry I believe that my experience is not an isolated one. More often, however, those actually affected when admitted are only in the incipient or arrested stage and live for several years, dying at a period so remote as to remove all suspicion.

The Vital Error.—As in the case of the heart lesions, so also in those of the lung, the chief source of error exists in faulty methods of preparing the patient for examination. Only 3 out of 13 of the leading companies whose medical blanks and instructions I have carefully reviewed request that proper preparation be made. In several it is distinctly suggested that opening the vest is sufficient.

Nothing could be more absurd than to expect an examiner to detect through a linen shirt the fine crepitations of incipient tuberculosis, or distinguish them from the crepitation, rubbing and creaking due to the material itself. All male applicants for life insurance should either be stripped to the waist, or so far undressed as to make every portion of the chest directly accessible to the ear or the stethoscope of the examiner. The modesty of man is not so great that this procedure should prove offensive, and the trouble involved in stripping off the linen shirt is but little more than the removal of collar and necktie, which is inevitable if any reliable examination of the apices is to be attempted. Such objections as I have encountered have had reference to the multiplicity of questions propounded, hardly ever to the physical examination. The sound applicant likes a thorough examination; the unsound man fears it.

It is a humiliating confession, but we admit that to-day many medical men are presuming to report upon the condition of an applicant's lungs when even the vest has not been removed. Such reports are valueless in the case of incipient tuberculosis and many heart lesions. Let us now inquire into the symptoms of incipient tuberculosis and see to what extent present insurance methods suffice for its detection.
EARLY SYMPTOMS OF TUBERCULOSIS.

Cough.—This symptom is usually denied and may be absent, but if present at the time of examination should at least suggest postponement and an especially careful and thorough examination.

Loss of Appetite.—This is an important symptom that the insurance blank does not specifically cover.

Loss of Weight.—Recent loss of weight is covered by the medical reports of most companies, the applicant’s statement being necessarily taken as true. In some cases such loss may be strongly suggested by a relaxed flabby skin, even though denied. Inquiry should always be made on the blank as to the best weight of the applicant.

Light Weight.—A weight below the tabular weight is of course suggestive, but it must be remembered that a 225-pound man may weigh 200 pounds and yet be in the active stage of tuberculosis, his loss of weight not being apparent. Some of the cases of phthisis florida occur in persons who, to the eye, are not only well but robust. Upon reviewing such remarkable tables as have been presented from time to time the conclusion is inevitable, that the reason why light weight in a group of applicants so largely increases the proportion of deaths due to tuberculosis is to be found in the fact that in a considerable proportion of them it represents cases of incipient or arrested tuberculous disease. Mere physique cannot account for it.

Rapid Pulse.—This is of some importance if persistently rapid and irritable, but in life insurance examinations the pulse may be temporarily accelerated without any sinister significance. Persistent rapidity demands a careful investigation in several directions.

The Reaction of Tuberculin.—This test is not practicable as a procedure for the insurance examiner, whatever may be our views as to its value in clinical work.

Hoarseness.—No applicant suffering from this symptom should be recommended as a first class, or even a good risk. The symptom must have entirely disappeared before he can be recommended.

Impaired Digestion.—This symptom is of little assistance to the examiner, and is, of course, in no wise characteristic of or confined to tuberculosis.

Temperature.—An abnormal body temperature is the best guide and clearest indication in the diagnosis of incipient tuberculosis, and why it is so generally neglected by insurance companies is inexplicable. I have employed it for the past ten years, with the result of weeding out case after case of tuberculosis that would otherwise have received insurance. Taking the temperature is easy, demands no loss of time and should be resorted to in every case as a means of additional protection against tuberculosis, and the acute infections such as typhoid and influenza. In every doubtful case an afternoon appointment should be made. One or two companies have recently adopted this simple scientific safeguard.

PHYSICAL SIGNS.

These signs are difficult to elicit under the most favorable conditions, and impossible under such conditions as are present in the average insurance examination as now conducted.
Harsh breathing, with prolonged expiration limited to one apex is suggestive, especially so if the left be the site of the sign. It must be remembered that even in normal individuals the right apex yields relatively harsh sounds.

Absence of normal breathing, unilateral or bilateral, is no less significant.

Unilateral dulness and unilateral hyperresonance are equally suggestive, and require a fixed and definite knowledge of the normal note and normal typographic variations.

Râles.—All persistent râles heard at the apex in life insurance work are important, be they sibilant, crepitant, crackling, gurgling, sucking, posttussive or what not, and those of the early process cannot be made out through the vest or starched shirt. Posttussive râles are especially interesting, and auscultation of the lung apices is never complete until the examiner has practiced the necessary maneuver.

Limitation of Lung Movement.—Litten's sign may be evoked in doubtful cases, the X-ray being as a rule unavailable for life insurance work. The former procedure would not be necessary as a routine measure, but is neither difficult nor time consuming.

Percussion.—Percussion of upper and lower lung borders in forced respiration and forced expiration is simple and instructive.

Tubercle Bacilli in the Sputum.—Any case presenting cough and sputa is not in the class of select lives, but becomes a matter of selection under sub-standard plans.

In conclusion, the following may be offered:

1. The present requirements of a majority of our insurance companies and the usual methods of insurance examiners are not sufficient to exclude persons suffering from incipient or arrested tuberculosis.

2. Improper preparation of the patient is a fertile source of error, and should be covered by specific instructions and direct inquiry, as is now done in but few instances.

3. Light weight in an applicant should lead to a careful scrutiny in every case, and suggests an afternoon appointment for temperature determination. Many accepted as sound light weights are actually cases of incipient or arrested tuberculosis.

4. Heavy weights cannot be accepted at their face value.

5. Recent loss of weight is suggestive and important. It is important that the "best" weight should be stated. No blank known to the writer contains the latter inquiry.

6. Hoarseness should arouse suspicion, and be met by postponement until recovery.

7. The determination of the body temperature is extremely important and its present neglect inexplicable.

8. The physical signs of tuberculosis are obscure and require skill and judgment, both in their detection and the weighing of their importance. The proper attitude, viz., demonstration of the normal, greatly simplifies matters. Hence:

9. A knowledge of the normal chest is all important.

10. Unilateral hyperresonance is as important as unilateral dulness, and absence of the normal breath sounds no less significant than the presence of abnormal sounds.
11. Broadly speaking, the examiner must rely more upon auscultation than percussion. No one sign available to the insurance examiner is pathognomic, and hasty conclusions are deplorable and disastrous.

12. The tuberculin reaction and demonstration of tubercle bacilli in sputum are impracticable measures, save in the case of sub-standard lives.

13. Greater stress should be laid upon the question of direct infection, and specific questions in relation to environment should be inserted in every medical blank.

A discussion of the importance of family history and faulty methods of selecting examiners has been omitted purposely. Nothing suggested in this paper need add five minutes to the time required for examination, and I most earnestly urge a more general recourse to simple, thorough and scientific methods, as tending to reduce mortality, protect sound policy holders, direct attention to early and curable cases, and relieve the insurance examiner and the life companies of the charge of antiquated and unscientific methods.

By a careful attention to family history, environment and physique, combined with an application of such modern diagnostic methods as are at once simple and scientific, it should be possible to create a class of preferred risks among whom during the first five years of insurance pulmonary tuberculosis would prove an almost negligible quantity.
Society Meetings.

Baltimore Medical and Surgical Association.

Meeting, December 9, 1901.

Dr. E. B. Fenby, Vice-President, in the Chair; Dr. Eugene Lee Crutchfield, Secretary.

Dr. R. Winslow nominated Dr. James M. Craighill for membership. Dr. J. T. Smith moved that a committee of three be appointed to draft resolutions in reference to the demise of Dr. J. E. Gibbons. Carried. Dr. J. T. Smith, Dr. Winslow and Dr. Eugene Lee Crutchfield were appointed.

Committee of Honor reported favorably on names of Drs. Pearce, Pillsbury, Beck and Grempler.

Dr. R. Winslow exhibited a case of combined anesthesia, with nitrous oxide and ether, the anesthesia taking place in two minutes.

Dr. S. B. Bond exhibited method of performing Bottini operation for the relief of prostatic obstruction. He referred to favorable results that were obtained from Dr. Horwitz's method, in Philadelphia.

Dr. R. Winslow exhibited case of esophageal stricture due to swallowing concentrated lye. External gastrostomy was performed at the Hopkins Hospital. Dr. Winslow performed external esophageotomy without much success. He performed another gastrostomy and could find no communication between stomach and esophagus.

Dr. A. A. Matthews reported case of "stab in the abdomen." There were two wounds and the case was operated on successfully, so patient will leave hospital to-morrow.

Dr. R. Winslow recalled several cases that were similar to Dr. Matthews's case, all of which recovered. Stab wounds in hollow organs are generally more favorable than gunshot wounds. Six years ago a woman was brought in who was stabbed, and Dr. Spruill operated (without draining). Recovery.

Dr. J. D. Blake.—These wounds show how near death a person can come and not die. Dr. Blake recalled a case of ruptured stomach after large dinner. Ruptured blood vessel was at first suspected. Operation. Recovery.

Dr. Joseph E. Gichner exhibited patient with thoracic (aortic) aneurism that he knows has existed for twenty-three years. Primarily due to syphilis and secondarily to hard, laborious work. The aneurism was no doubt sacculated, the sternum being eroded and at its upper edge there was a large, appreciable mass near the notch. Heart sounds were normal. No cardiac dilitation. Voice was changed from a high tenor key to a deep basso-profundo.

Dr. Joseph T. Smith recalled similar case that was put on potassium iodidi without beneficial results. Recently he saw a case with symptoms that repaired under treatment, while the size of the tumor increased. This afternoon wiring was done, but it is yet too soon to prophesy results.
Dr. Morris G. Robbins.—It is a toss-up between operation and medical treatment. Results by former are favorable.

Dr. Joseph T. Smith.—I am impressed at the depth necessary to go before the sac is reached.

Dr. Joseph L. Hirsch exhibited different specimens of aneurism, with remarks on etiology, situation, sex, and

Dr. James M. Craighill spoke of “aneurism” from a medical standpoint. He recalled a case with atypical symptoms.

Dr. Joseph L. Hirsch.—We have no right to make positive diagnosis without physical signs.

Dr. Craighill said the case mentioned by him did not have sufficient physical signs (for diagnosis).

Dr. Morris G. Robins reported case of leukemia and grave anemias.

Dr. J. D. Blake moved that a vote of thanks be extended the Faculty of the University of Maryland. This, voted on unanimously in affirmation, concluded the evening’s discussions, after which a supper was served in the nurses’ parlor.

EUGENE LEE CRUTCHFIELD, M.D., Secretary.

Baltimore, Md., November 25, 1901.

The regular meeting of the Baltimore Medical and Surgical Association was held on the above date at the hall of the Medical and Chirurgical Faculty, 847 North Eutaw street. Dr. Charles G. Hill in the Chair and Dr. Eugene Lee Crutchfield, Secretary.

Drs. Wilbur Pierce, W. J. Pillsbury, J. H. Scarff and W. G. Beck were nominated for membership.

Dr. Joseph H. Branham reported case of amputation of leg for gangrene, following operation for popliteal aneurism. In this case, the popliteal artery had been ligated and there had been no diminution in the mass, as the exhibition of the specimen showed. The patient was forty-two years old and asked persistently that his leg be removed. There was doubt if scar would heal, also if permanently flexed joint would not follow in the case, so the amputation was performed about three inches below the tubercle of the tibia. The contents of the sac interfered with the collateral circulation and the sac was cleansed out. Another operation plus the above (following a German idea), was to clean the sac four or five days later, which would do away with so many ligations. But in this case the sac was ruptured. A circular incision was made and a drain employed. Patient showed no disagreeable systems.

COMMENT.

Dr. Chas. C. Hill said that he considered Dr. Branham’s idea as to the point of amputation high up enough to allow the use of an artificial leg.

Dr. A. J. Sauer referred to a number of splints that he received from Dr. Pritchard (deceased), and in the collection was a wooden leg, which recalled an extemporized wooden leg that Dr. Hill had at one time hurriedly made for a charity patient, the same case as an advertisement netting Dr. Hill alone from surgical fees, no less than $2,500.

Dr. C. Urban Smith read a paper on “Demonstration of Beas
Oppelar Bacillus of Gastric Carcinoma.” He said it was not confined to cases of stomach trouble, but he found it in benign affections. It is seldom found except when we have excessive lactic acid present. To the general practitioner it is of interest, from a standpoint of diagnosis. The bacillus is often found as of a baseball bat appearance, and again it is irregular and zigzag in appearance.

Dr. James E. Gibbons said the diagnosis was easy on these lines and he learned much from such comment.

Dr. Chas. G. Hill said he would like Dr. Smith to have deliberated more fully on the subject and bring out all the points regarding the early history, diagnosis, clinical aspect pathology, varied courses these cases present, and then handle them from a standpoint of treatment.

Dr. Jos. H. Branham said it was interesting to know exactly when to operate in these cases.

Dr. C. Urban Smith said that brain symptoms showed the reception of toxines. The Boas Oppelar bacillus was in this case an incident, yet, in a sense, also a factor of the trouble.

Dr. J. E. Gibbons stated that he was amused with the thought of our regular postal card reaching him on Saturday, and later to learn of a post mortem being held on Sunday, in the case where the results were to be demonstrated. The patient died a day after the card was mailed. It reminded him of the story of the Irishman who ordered from the undertaker for his wife, and when asked when did she die, replied: “She is not dead yet, but will die in the morning, for the doctor said so, and he knows what he gave her.”

Dr. Branham stated that in this case the patient was sixty-three years old and was very fat. The diagnosis of cancer was confirmed. The patient lived three weeks after the operation. There was no doubt some poison absorbed from the cancerous mass, despite the daily washings. The case showed that the cancer extended from fixation to the posterior abdominal walls over as far as the liver. In another case Dr. Branham opened the abdomen, found a cancerous mass freely movable, excess of hydrochloric acid being present, bacillus present, pylorectomy was done and the case recovered. Dr. Smith said in closing that the Boas Oppelar bacillus he felt inclined to believe a product of lactic acid, but noticed it frequently in cases of cancer of the stomach. The normal stomach should show 2-10 per cent. of lactic aid one hour after eating a test meal, consisting of a sale roll and twelve ounces of liquid. The tests, under microscopic revelation, will augment this argument. This is in value from a standpoint of diagnosis.

Dr. David Streett read a paper on “Medicinal Treatment for the Removal of Gall Stones.” He referred to morphia as a valuable agent to relieve the pain and facilitate the passage of the stone by removing muscular spasm. Also chloroform, hot baths, podophyllum, the sodium salts, olive oil and glycerine, plenty of good drinking water and alkaline waters. He described the three-day form of treatment, which was to have the patient the first day on phosphate soda, the second day on sulphate of soda and on the third on Carlsbad salt. Keep the first day’s treatment up until the patient becomes tired of it, then use the second and third, and eventually resort to the first. The bowels should be
kept freely open. After giving salts sand is frequently seen in the excre-
tions. This renders us unable to determine whether the stones were
broken in their transit, or whether they were dissolved by the phosphate
of soda.

Dr. C. Urban Smith said the etiology of gall stones is interesting
and the theory is gaining ground that it is of bacterial origin. The
bacteria gaining access into the bile produce chemical changes. There
are many cases of gall stone passed in hurried diagnosis, as indigestion,
gastralgia, etc., but all these cases should be treated medicinally before
we resort to the knife.

Dr. Jas. A. Zepp has had no experience in the use of hot baths
in hepatic colic, but did in renal colic, and thinks they should be equally
effective in hepatic cases. In his own person it has afforded him aid
in relieving renal colic.

Dr. R. Percy Smith related case treated with Dr. Streett’s idea, which
was successful. Used effervescing salts of phosphate of soda; under this
treatment the intervals between attacks were lengthened.

Dr. Geo. B. Reynolds mentioned succinate of iron in fifteen-grain
doses as a preventative of the attacks recurring.

Dr. C. H. Hill: Biliary colic is common in melancholia. It is due
to the cholesterine in the blood of these patients. Glycocholate and
taurocholate of sodium remove this. Nothing stimulates the flow
of bile, except the bile salts themselves. Glycocholate of sodium (Hyn-
son and Westcott’s), in five-grain doses, he prescribes in these cases.

Dr. E. L. Whitney said a number of these cases give no definite
history, and related a case that improved on glycocholate of soda.

Dr. Richardson spoke of the solubility of gall stones in bile salts out-
side of the body. He thinks fel bovis the only cholagogue.

Dr. Street: Many attacks are of irregular character. Pain is often
present in unlooked for regions. He has had poor results from the
commercial cholate of soda. He obtained best results from phos-
phate of soda. This probably acts by depleting the ducts. He knew
of nothing practical about the dissolving of gall stones. Does get sat-
sactory results from sweet oil.

Dr. John D. Blake nominated for membership Dr. Edward Grem-
pler. The chairman of the Executive Committee induced the members
to have others attend our meetings.

Adjournment.

EUGENE LEE CRUTCHFIELD, M.D., Secretary.

1232 East Preston Street, Baltimore, Md.
The subject of tuberculosis is always an interesting and a vital one to every physician, causing, as it does, proportionately a greater mortality than any other disease. Professional views regarding the cause of tuberculosis have undergone many changes within the past twenty-five years. Prior to the discovery of the real factor of the disease we were taught that it was an hereditary infection, but now we look upon it as we do upon other infectious diseases, and we know that in many cases it can be avoided. There are certain factors that enter into the causation of tuberculosis, and if these can be overcome, many persons who otherwise would contract the disease will escape it. The chief factor in the prevention of tuberculosis is to keep our bodily health up to a strong and resistive standard. We should avoid all things which tend in any way to impair our vitality or produce a deterioration of the tissues. One of the reasons why tuberculosis so often follows such diseases as grippe, pneumonia, typhoid fever, etc., is that the body tissues are weakened, and when the tubercle bacillus is inhaled it finds a favorable soil for its development.

Another potent factor in the cause of this disease is the weakening of the tissues by the excessive use of alcohol. It is the common experience of physicians that when an alcoholic subject contracts tuberculosis it is almost invariably fatal. Certain occupations are also conducive to the development of tuberculosis. They excite an irritation of the bronchial tissues and thereby weaken their resistive power. Tuberculosis, when taken in time, is to a certain extent a curable disease, but often the
cure is attempted when the disease has made too great an inroad. We all know that in our practice we have cured tuberculous patients, but we also know that cure rests largely with the patient himself. If he is able to take advantage of climatic change, the chances are largely in his favor, but if his circumstances do not permit of this, the possibility of recovery is much lessened.

We have often in these pages called attention to the reasons why tuberculosis is such a common disease. Tuberculous patients are never very particular as to where they expectorate; any convenient place will serve, and the sputum becoming dried and disseminated, the bacilli it contains are unconsciously inhaled. Women, with their long-trailing skirts, carry this bacillus-laden sputum, and thus we have another potent cause of infection. If patients could be educated in the value and necessity of obeying the sanitary laws bearing on this subject, it is certain that there would be far fewer cases of this malady. It is a well-known fact that tuberculous patients are more hopeful of recovery than any other class of invalids. In some respects this is beneficial; in others, it is not. We mean by this that too often the tuberculous patient is deluded into the belief, early in the course of the disease, that there is little or nothing the matter with him, and he is too ready to accept the advertised quack nostrums. Then, again, unscrupulous physicians will encourage them in that belief until the disease is far advanced, and thus it is that valuable time is lost before treatment is begun.

We now come naturally to the question, what are the best ways and means of treating tuberculosis? Our answer is that no remedy or remedies can be relied upon; nature alone can bring about the desired result. We have made a trial of many of the so-called cures, but have invariably met with failure. All that a physician can hope to do is to stimulate and build up a weakened constitution and try to restore it to its natural vigor. It is for this reason that the climatic treatment of this disease is the only one that offers any chances of success. Tubercular patients should live out of doors as much as possible; they should have the nutritious food and accustom themselves to a sufficient amount of exercise to increase appetite and stimulate digestion. Every person should rigorously carry out certain laws and rules in order to fortify themselves against this disease. They should avoid all those things which tend to depress or to devitalize the body. They should have plenty of good food, plenty of fresh air and a sufficient amount of rest. They should avoid the excessive use of tobacco and alcohol, and only strong and vigorous people should engage in those occupations which have a tendency to bring about an irritation of the bronchial mucus membrane. We should be more particular to keep our living-rooms well ventilated and to
be more careful to exclude from them tubercular-laden dust or clothing. Pulmonary gymnastics should be practiced by narrow-chested people.

If more attention were paid to some of the points which we have indicated, we are positive that the mortality from tuberculosis would be greatly lessened, and that many cases of early tuberculosis could be cured if taken in time.

POLITICAL ANTITOXIN.

Once more is seen the folly of intrusting any work of a scientific nature to municipal control. The experiment has cost eleven lives in St. Louis, and we trust it will serve as a warning to other municipal bodies. To a medical man the necessity of special training of the severest kind before undertaking any work of a bacteriological nature is fully appreciated, but to the politician any one may be a bacteriologist; to them there is no gradation among physicians, excepting possibly their ability to advertise in the daily press and keep themselves before the public as multi-specialists.

In fact, he need not even be a graduate in medicine, as is the case in more than one large city of our knowledge. These men are usually paid salaries lower than third-rate bookkeepers, and their work is done accordingly. There are even cities of respectable size that profess to have a bacteriologist who receives the royal income of $15 a month. There are of course some cities, such as New York, which have truly able men engaged at this work, but these professional employees are not certain but that at any moment their positions will be taken from them, and the very creditable organizations which they have established turned over to untrained men whose strongest claim for recognition was that they happened to have friends in the "ring." This element of uncertainty in the permanence of their position cannot but militate against the best results of the undertaking. Another unfortunate phase of most of the municipal scientific departments lies in the fact that they are almost invariably very painfully limited in equipment, lacking frequently the bare necessities of careful work. This is brought about by the fact that their chief raison d'être is pictured to the public in the moderate saving in expense of the products which they turn out. The fact that these are usually cheap in quality as well as price does not seem to be taken into consideration. This is really the dangerous element of the entire system, and should receive the serious attention of the medical profession, as from the nature of their calling it is encumbent upon them to protect the lives of the public as well as to endeavor to maintain at a high standard the scientific truths of medicine. There is something dramatically horrible in the picture of a physician coming to the bedside of a patient with a remedy which should bring back life and health, and then to find that through the criminal ignorance or still worse carelessness of someone the remedy
in which he had all confidence has been turned into a poison more virulent than the disease that he had to combat, and that he has been the direct cause of the loss of the life he strived to save. The physician is not altogether blameless in such cases, as he is expected to be familiar with the remedies he employs, and the care exercised in their preparation. Repeated examinations have revealed the fact that these animal products are never uniform in their strength, and hence cannot be relied upon for uniform results. It is a well known fact that no two animals will react to the same extent to the treatment, and that the serum of no two animals will be of a uniform strength. Many animals will not furnish a serum of suitable strength, so that it is necessary to have a large number of animals constantly under treatment to insure a future supply. When the minimum price is the one desideratum sought after, this is not done, and the serum is dispensed regardless of consequences. The result is that sometimes it may be potent; frequently it is almost worthless. Even an inert preparation, however, is, of course, preferable to one which is positively bad and infected with organisms of tetanus, as was the serum in St. Louis. This is still more pitiful, for the reason that it could have been avoided by well known means. Investigation showed that the horse used in St. Louis, instead of being kept in a clean, wholesome stable, was kept in the poor-house stable, which was alone sufficient to endanger contamination of the serum. The horses were not kept immunized to tetanus or they would not have contracted the disease, for the immunity which can be afforded to animals against tetanus is nothing less than absolutely certain.

It was also shown that since the manufacture of the serum eight of nine of the horses have died of tetanus, a fact which in itself should forever condemn that locality from being chosen for the manufacture of serum.

Again, the fact came to light that the janitor had bottled the serum after it had stood for some time in the stables. Comment upon this is almost unnecessary. The surgeon has more right to allow his janitor to open an abdomen or serous cavity in his absence than a bacteriologist to permit any one else to handle or tamper with biologic products intended for injection into human beings. We have probably no better statistics than those which have been accumulated throughout the world on the value of diphtheria antitoxin. These show beyond question that when the diphtheritic serum is properly prepared and standardized, it is absolutely harmless and one of the surest remedies ever known to man. It has taken years of patient, untiring work to establish its position before the world, and a catastrophe such as the one at hand will do more to retard the appreciation of the public than years of accurate work can do.

To them there is but one antitoxin. They can neither understand nor
appreciate the difference between a product which has been exposed to possible contamination by tuberculosis, glanders or tetanus, and one which has been conscientiously prepared and accurately standardized, as is fortunately the product of one or two of our well-known firms, who employ competent scientists, and spare no expense in equipping and maintaining a biological laboratory where reliable products are manufactured. It is the duty of the physician to inform himself of these matters and to impress them upon his patients, who, unfortunately, too frequently are left to pick up their knowledge of medical matters from advertising charlatans or politicians.

SANITARY IMPROVEMENTS IN CUBA.

General Leonard Wood, the Military Governor of Cuba, who is now here on a visit, recently gave out the following interview, which shows what efficient and energetic sanitary supervision can do, even in Cuba, which has been a pest-ridden island for centuries:

"One of the greatest achievements of the government of intervention is the very marked reduction in the mortality of the island, and especially in the city of Havana. First in importance in this connection is the almost absolute eradication of yellow fever, which formerly played so important a part in making Cuba's cities places to which capital and people feared to go. Investigations leading to the discovery of the part played by the mosquito in the transmission of yellow fever were made with Cuban funds, under the direction of the military government, on the lines indicated by it. As a result of these investigations Cuba has been practically free from yellow fever during the past year. The few cases which occurred were readily controlled, and the disease did not spread.

"A systematic vaccination of the entire people is being carried on from month to month, while a campaign against glanders, which has been very prevalent throughout the island, has been brought to a successful conclusion, the government reimbursing the owners of afflicted animals to the extent of 50 per cent. of the estimated value. This plan elicited the hearty co-operation of the people with the government, thereby making possible the results accomplished.

"The medical authorities are now devoting themselves to the control of tuberculosis, and are preparing a sanitarium near Havana for that purpose. All hospitals are fitted with wards for the treatment of tuberculosis patients, and the campaign against this disease is being carried on in a thoroughly effective manner.

"The result of our work has demonstrated that the island is a healthy and safe residence for Anglo-Saxons. They are able to work in Cuba."
A little more than a year ago the introduction of spinal anesthesia made the future of this procedure the matter of greatest interest to the surgical fraternity at any rate. We say introduction because Dr. Cornings's original communication was only brought to light in the publicity won by Biers series of cases.

During the time that has passed since Biers' paper was published a large number of cases have been reported from various sources, and it is now possible to answer tentatively at least some of the many questions that the exploitation of the procedure suggests. Has it a mortality? We are able to reply that it has. Hohn of Vienna in his reviews published in April last, reports 1708 cases with eight deaths that he thinks are to be traced to the anesthetic, or at least in which the unfortunate result could not be directly traced to other causes. This is decidedly higher than the mortality of the general anesthetic, although most of the cases of death have occurred in unfavorable cases, as, for instance the case reported by Gailau and quoted by Dr. Bloodgood in his review of this subject in Progressive Medicine for December. "The case was that of a man aged 67 years. The operation was for arterio-sclerotic gangrene of the leg—an amputation. The operation lasted 40 minutes; toward the end and after the operation there were distinct symptoms of shock, later fever and delirium, collapse, coma, death in 24 hours—all symptoms of cocaine intoxication—and apparently the cause of death." In such an unfavorable case it must be said that it is difficult to say in what degree the anesthetic is to blame and at the same time it is not surprising that any mode of intoxication, which, of course, all anesthetics are, should choose its victims from those already seriously diseased.

It was hoped the cocaine anesthesia would prove to be safer than the general anesthetics in cases where the kidneys were chronically diseased. This has unfortunately not been satisfactorily demonstrated as yet. In obstetric practice the results have been fairly good. No deaths are reported, and a painless labor without bearing down except when called for by the attendant. The uterine contractions were not diminished in force or frequency.

The unpleasant after results, as reported, are fairly constant. Nausea, vomiting, vertigo, headache of a more or less persistent character. There have been no reported cases of sepsis, nor are such cases likely to be reported. Perhaps none have occurred.

Out of less than two thousand cases then we have eight deaths, which is a very large proportion when compared with the fatalities due to ether and chloroform. One in two thousand, three hundred cases for chloroform and one in seven thousand for ether.

Taken all in all the injection of cocaine into the spinal canal cannot be called a success.
During the recent epidemic of diphtheria prevailing in Peekskill, New York, there were treated with Parke, Davis & Co.’s Antidiphtheritic Serum 205 cases, with only 2 deaths—a mortality of less than 1 per cent.

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ANGIER CHEMICAL COMPANY
BOSTON, MASSACHUSETTS
A CONTRIBUTION TO OUR KNOWLEDGE ON ANTIPYRETICS.

By L. H. WARNER, A.M., Ph.D., M.D., New York.

We are not far enough advanced in physiology to know what might be the effects resulting from the contact and mingling of the elements of some chemical compound with the physiological elements, cells or structures of the living diseased organism. We know that certain drugs will allay pain, but at what vital cost such alleviation is procured, we are at a loss to explain, although we resort to chemistry, pathology, microscopy to aid our findings in clinical and physical examinations. This refers especially to the various coal-tar products, some of which become of daily need to the busy practitioner. It is sufficient to know the physiological and therapeutic action of those products, in order to obtain results from their use, or should we study the probable loss of vitality they may produce, or to what extent they may reduce the respiratory or circulatory action? No; a full understanding of the absolute present needs and the future possibilities is required, and this includes microscopical and chemical examination of the eliminations, subsequent and strict attention to diet, hydrotherapeutic means and good nursing. Thus armed we are able to select our antipyretic on scientifically correct lines, taking care to choose a remedy which is directed against the thermogenic tissues, thermogenic nerves and centers. The term thermogenic tissues, if taken in a broad sense, covers almost every tissue in the body, but I limit its interpretation as referring to the most active heat producers, the skeletal muscles and glands. The general thermogenic centers are in the spinal cord and brain, which is demonstrated by the fact that excitation of any one of these organs is followed by a pronounced thermogenesis. But we must not be led to believe that the increase of temperature alone is sufficient evidence of thermogenic disturbance. Insufficient diet tends to lower temperature while a liberal diet, especially of carbohydrates, increases the temperature. All conditions which increase metabolic activity are favorable to an increase of temperature, while rest brings about a reduction of temperature. Temperature per rectum reduces the first half hour after food is taken, to increase the next 60 to 90 minutes. Furthermore the temperature taken at different parts of the body differs; the usual observations of temperature taken in the mouth, rectum, vagina or in the axilla would give us different results in the same case. Kunkel (Zeitschrift fur Biology, 1889, vol. 25, page 69-73) states that his researches have proven that the highest temperature of external parts is obtained in the hollow of the hand (closed) ranging 34.8°, 35.1° centigrade, and Bernard finds that the liver is the warmest organ in the body. The mean temperature of the body is subjected to variations which depend upon sex, age, constitution, time of day and season, baths, diet, climate, blood supply, disease, drugs, etc. A close relationship exists between the frequency of the heart's beat and body temperature, especially in fever. An increase in temperature will increase the pulse rate, but more important than the latter is the effect produced by the amount of blood supplied to any given part of the body. A large supply of blood to the cutaneous surface increases cutaneous temperature and decreases internal temperature, and vice versa. It would require pages to enumerate the various points which may cause changes in temperature—produce thermogenesis or thermolysis.

It appears to me as irrational to administer drugs in quantitative
doses in cases of similar history and clinical findings; as, for instance, quinine is given to the adult in doses of from 5-20 grain, to the child in doses of ½ grain, while a thorough study not alone of clinical and physical lines might reveal the fact that the larger doses would be appropriate for the child. The value or danger of synthetic remedies can be foreseen if we view them from a chemical-medical standpoint, while the relation of all coal-tar antipyretics should be observed from a chemico-physiological and therapeutic standpoint. Their physiological action is aimed to retain the antipyretic effect of carabolic acid minus its caustic and poisoning properties. Car- bolic acid diminishes thermogenesis and increases thermolysis. It reduces the number of red blood corpuscles, but has no effect on the amount of hemoglobin. Most antipyretics are decomposed in the body, and the product of decomposition acts on the hemoglobin of the blood to form methemoglobin, while others lessen heat production by an influence on the nervous system, the blood pressure remains unaltered and their decomposition products do not affect the hemoglobin. When selecting our antipyretics, we must consider the hypnotic and analgesic properties they contain. Most antipyretics, sedatives and analgesics exert their effect through the general circulation, and many paralyze the central nervous system and are slowly absorbed in stomach. Physicians often disagree in a given case on any one plan of treatment, when there is no dispute, not even a doubt as to the diagnosis, for, after all is said and done, the former is largely empirical. It is right to employ any antipyretic because we know some therapeutic merit has been attributed to every one of them? or shall we stop and consider that Acetanilid Antipyrine, etc., are not without their dangers and disadvantages, knowing them to be heart depressants? It may be taken as a rule that the powers, limitations and dangers of most antipyretics are not yet understood. We have often heard of cases of Acetanilid poisoning; of Anti- pyrine poisoning, and it is of interest to know the full physio-clinical data of such cases, and if death follows to learn of the results following autopsy. An interesting case is described by Kronig (Berliner Klinische Wochenschrift, November 18, 1895). These antipyretics invariably cause an excessive elimination of phosphates in the urine, and I have observed a large number of cases where the examination of the blood before and after medication showed decided histological changes. By merest chance, I came to use Pheno-Bromate, and it proved so signally successful in that one instance that I availed myself of all subsequent opportunities to give this antipyretic a further and more extended trial. I do not believe that the inherent value of a drug is demonstrated until its therapeutic action and physiological effect has been fully exploited.

Pheno-Bromate does not depress the heart: on the contrary, it exerts a stimulating influence on this organ. It possesses no toxic properties, and does not disorganize the blood causing anemia and its use is not followed by the elimination of phosphates in the feces and urine, which is the case with most antipyretics.

It has been clearly demonstrated that in cases where excessive diminution of phosphates and decrease of red blood corpuscles followed the use of antipyretics employed during the first day’s treatment they have become normal upon Pheno-Bromate medication. Pheno-Bromate is a true thermotaxic, and it acts by restoring the normal heat-regulating powers of the nervous system. Its analgesic and hypnotic effects are decidedly more pronounced than those produced by most other antipy-
retics, and it has also valuable antispasmodic action. In painful muscular spasms after fractures of the thigh, it proves more sedative than the opiates and no depression or ill effects are noted. The administration of Pheno-Bromate adds materially to the comfort of the patient, and does not interfere with any healing process. Continuous fever deteriorates tissue and exhausts the brain (hence increased thermogenesis), and it also interferes seriously with nutrition. As antipyretics are only resorted to when some excess of thermogenesis exists, it is rational to reason that some gastric disturbances are present, and consequently the blood picture will reveal a digestive leucocytosis or a leucocytosis influenced by medication. Hence I assert in the introductory lines: A full understanding of the absolute needs and the future possibilities is required, and this includes strict attention to diet, hydrotherapeutics, nursing and the eliminations before the selection of an antipyretic is decided upon. Antipyretics are always relied upon for the treatment of migraine, which is rarely a disease in itself, but is rather a symptom accompanying some other affection. At times it is an heredity disposition. It is almost always associated with nutritive disturbances, and many features of migraine indicate gastro-intestinal disturbances, and whenever these are found, we also find resorptive processes impaired, and it is my belief that many a therapeutic agent has been condemned as inefficacious after one or more trials, while such bad results were entirely due to the fact that the dosis had not been sufficiently increased to permit a certain amount (physiological dosis) of the drug to be absorbed. Discreet diet, evacuation of bowels and continued doses of Pheno-Bromate until the Physiological action of this drug is demonstrated, are required to realize the therapeutic value of this valuable non-toxic antipyretic. I have examined the blood and urine in not less than fifty cases, where Pheno-Bromate was the only medication employed, and I have always noted the stimulating and subsequent sedative effect after ten or fifteen grains of this efficacious antipyretic. This product is a happy synthesis founded on rational therapeutic principle.

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**INDEX TO ADVERTISERS**

<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonol Chemical Co.</td>
<td>2</td>
</tr>
<tr>
<td>Angier Chemical Co.</td>
<td>20</td>
</tr>
<tr>
<td>Antikamnia Chemical Co.</td>
<td>9</td>
</tr>
<tr>
<td>Arlington Chemical Co. Cover</td>
<td>14</td>
</tr>
<tr>
<td>Auto Chemical Co.</td>
<td>28</td>
</tr>
<tr>
<td>Bermuda S. S. Co.</td>
<td>6</td>
</tr>
<tr>
<td>Bovine Co.</td>
<td>4</td>
</tr>
<tr>
<td>Breitenbach, M. J., Co.</td>
<td>34</td>
</tr>
<tr>
<td>Chesterman &amp; Streeter</td>
<td>30</td>
</tr>
<tr>
<td>Clark &amp; Roberts</td>
<td>3</td>
</tr>
<tr>
<td>Cystogen Chemical Co.</td>
<td>18</td>
</tr>
<tr>
<td>De Bary, F., &amp; Co.</td>
<td>16</td>
</tr>
<tr>
<td>Electro Medical Mfg. Co.</td>
<td>30</td>
</tr>
<tr>
<td>Etna Chemical Co.</td>
<td>4</td>
</tr>
<tr>
<td>Farbenfabriken of Elberfeld Co.</td>
<td>36</td>
</tr>
<tr>
<td>Fellows &amp; Co.</td>
<td>35</td>
</tr>
<tr>
<td>Foster, John B., &amp; Bro.</td>
<td>13</td>
</tr>
<tr>
<td>Globe Mfg. Co.</td>
<td>35</td>
</tr>
<tr>
<td>Kress &amp; Owen Co.</td>
<td>13</td>
</tr>
<tr>
<td>Immune Tablet Co.</td>
<td>10</td>
</tr>
<tr>
<td>Laughlin Mfg. Co.</td>
<td>32</td>
</tr>
<tr>
<td>Lippincott Co., J. R.</td>
<td>29</td>
</tr>
<tr>
<td>Lucon Chemical Co.</td>
<td>5, 17</td>
</tr>
<tr>
<td>Maltine Manufacturing Co.</td>
<td>5</td>
</tr>
<tr>
<td>McGuire, Stuart, M. D.</td>
<td>14</td>
</tr>
<tr>
<td>Mellin's Food Co.</td>
<td>36</td>
</tr>
<tr>
<td>Micajah &amp; Co.</td>
<td>2</td>
</tr>
<tr>
<td>N. Y. Pharmaceutical Co.</td>
<td>10</td>
</tr>
<tr>
<td>Od Chemical Co.</td>
<td>12</td>
</tr>
<tr>
<td>Palisade Mfg. Co.</td>
<td>10</td>
</tr>
<tr>
<td>Parmelee, C. R., &amp; Co.</td>
<td>38</td>
</tr>
<tr>
<td>Parke, Davis &amp; Co.</td>
<td>27</td>
</tr>
<tr>
<td>Peacock Chemical Co.</td>
<td>15</td>
</tr>
<tr>
<td>Perfection Chair Co.</td>
<td>30</td>
</tr>
<tr>
<td>Planten, H., &amp; Son.</td>
<td>12</td>
</tr>
<tr>
<td>Reed &amp; Carmick</td>
<td>19</td>
</tr>
<tr>
<td>Rio Chemical Co.</td>
<td>7</td>
</tr>
<tr>
<td>Robinson Thermal Bath Co.</td>
<td>30</td>
</tr>
<tr>
<td>Schering &amp; Glatzer</td>
<td>8</td>
</tr>
<tr>
<td>Scott &amp; Bowne</td>
<td>18</td>
</tr>
<tr>
<td>Shaw-Walker Co.</td>
<td>34</td>
</tr>
<tr>
<td>Southern Railway Co.</td>
<td>28</td>
</tr>
<tr>
<td>Sultan Drug Co.</td>
<td>15</td>
</tr>
<tr>
<td>Speer, N. J., Wine Co.</td>
<td>39</td>
</tr>
<tr>
<td>Tincture Amal Mfg. Co., Ltd.</td>
<td>11</td>
</tr>
<tr>
<td>Vass Chemical Co.</td>
<td>11</td>
</tr>
<tr>
<td>Wheeler, Dr. T. B.</td>
<td>12</td>
</tr>
<tr>
<td>Williams, P. G.</td>
<td>31</td>
</tr>
</tbody>
</table>

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The patient MUST have a new and continuous supply of all the vital elements in which the blood is deficient.

Introduce in all such cases LIVE BLOOD. All the leading and most successful practitioners to-day are using

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It is LIVE, defibrinated arterial blood.
It is preserved by cold process and sterilized.
It retains all the vital and nutritive elements.
It contains 20 per cent of coagulable albumen.
It is a fluid food, pure and simple.
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It renders cardiac stimulants unnecessary.
It is a powerful aid to all forms of medication.

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The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

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SCHERING & GLATZ, 58
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CONTENTS (Continued from Page 7).

the tongue during rest and when in motion, the extension of the tongue and the contraction of the lips. (e) The inspection of the ocular movements. In the description of a tremor, it should be mentioned whether it is rapid, moderate, or slow, or at least whether it is vibratory or oscillatory. Then, whether present or absent during passive and active rest, in motion, or the tendency to motion, whether it stops or increases through one of these circumstances, and, finally, what parts of the limbs are affected. A number of tracings are included in Prof. Salamonson's article, which illustrate the various types of tremors.

Monograph of a Stimulant, Sedative, Antispasmodic Expectorant. By Dr. M. E. Chartier, of New York city. In presenting this essay to our readers we believe that a word of explanation is in order. One of the most interesting departments in the practice of medicine is that of the study of newer remedies and it is our purpose to present from month to month a monograph covering the literature on preparations that are being ethically presented. We will endeavor to so select our material so that all of the advantages and disadvantages of the various preparations are brought concisely to the medical readers. We believe that these papers will be of interest to our readers and unhesitatingly present this the first of the series.

Glutol. By Professor C. L. Schleich, of Berlin, Germany. This is a translation, from the German, on newer methods on the treatment of wounds. It is written by a well known authority and we are sure will prove of great interest to our readers. The essayist covers clearly, distinctly, and briefly all of the newer methods, making special reference to a new antiseptic hemostatic and occlusive wound dressing.

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CANCER CASES—REPORTED TO ILLUSTRATE METHOD OF DIAGNOSIS AND TECHNIQUE OF SURGICAL TREATMENT.*

By STUART McGUIRE, M.D.,
Professor of Principles of Surgery and Clinical Surgery, University College of Medicine; Surgeon in Charge St. Luke's Hospital; Visiting Surgeon Virginia Hospital, &c., Richmond, Va.

A short time ago the writer read a paper before the Medical Society of Virginia entitled "The Past, Present and Future of Cancer." In this paper he endeavored to review the history of cancer, to call attention to the recent views of the etiology of the disease, to state the present accepted principles of its treatment, and to suggest the possible developments of the future.

This paper is intended as a sequel to the first, and consists in the report of operations recently done for cancer, the cases being selected to illustrate the symptoms upon which the diagnosis was based and the method of removal that was practiced.

As might be expected the cases chosen were successful ones, at least as far as recovery from the operation was concerned. No claim is made for cure, as sufficient time has not elapsed to render recurrence of the disease improbable or impossible.

The writer is keeping a careful record of all his operations for cancer, and hopes in a few years to be able to present a third paper giving the history of the cases. He is firmly convinced that in the past the permanent results of operations for cancer have been better than is generally supposed, and this statement would have been demonstrated if surgeons had followed up all their cases, instead of letting a certain portion of their cases follow them up. He is also convinced that in the future the results of operations for cancer will be better than is generally expected, and this prediction is based on the belief that the general practitioner will learn to diagnosticate the condition earlier, and the surgeon will adopt more radical methods for the removal of the disease.

Case I. Cancer of the Skin.—Mr. R., aged 63, gave the following

*Paper read at meeting of the Tri-State Medical Association of the Carolina and Virginia, held in Asheville, N. C., Feb. 25-27, 1902.
history: Two years before his admission to the hospital he bruised a wart on the back of his right hand and a small sore resulted. It gave little trouble but refused to heal. It soon became covered with a crust or scab, and bled whenever it was removed. It slowly but steadily increased in size. At first it was dry, but of late it had suppurated freely. On examination an ulcer 2½ inches in diameter was found. Its edges were indurated but there was no enlargement of adjacent glands. A diagnosis of epithelioma was made, based on the age and history of the patient and the appearance of the growth. Syphilis was excluded by absence of other lesions, and tuberculosis by progressive extension of the ulceration without any attempt at repair.

The hand was carefully cleaned with soap and water and treated for several days with moist antiseptic dressings. A circular incision was made around the diseased tissue through the entire thickness of the skin and the area dissected out, exposing the extensor tendons beneath it. Bleeding was stopped by torsion and pressure, and a moist dressing applied consisting of cotton soaked in a 1 to 250 solution of chloral hydrate. This dressing was changed daily, and at the end of a week all suppuration had ceased and the wound was filled with healthy granulations to the level of the skin. By a second operation the bare surface was covered with skin grafts. Thin sheets of cuticle were cut with a razor from the deltoid region of the left arm and accurately placed in position. They were retained and protected from overlying dressings by narrow strips of rubber dam. In three days the grafts assumed the pinkish color of the surrounding skin, and in ten days the wound was well and the patient discharged.

In this class of cases the advantages of excision over caustics or the cautery are obvious. With the scalpel the diseased tissue can be accurately and entirely removed. The pain is less and a clean wound is left instead of a sloughing eschar. New and healthy skin can be planted upon the surface, lessening convalescence by weeks or months and leaving smooth skin in place of an unsightly scar. Lastly, the disease is far less likely to return either in the graft or clean cut margin than in the scar, the result of a slowly cicatrizing and often infected burn.

Case II. Cancer of the Lower Lip.—Mr. C. R., aged 38, stated that ten months ago he had noticed a little ulcer on his lip which he at first thought was a “fever blister” from indigestion, and later attributed to irritation from smoking. It refused to yield to treatment, however, and had gone through the characteristic stages of induration, scab formation and ulceration. On examination an angry sore was found the size of a half dollar, with elevated edges and accompanied by induration which extended almost to the point of the chin. The sub-mental and sub-lingual glands were enlarged and hardened. A diagnosis of carcinoma was made, but as the patient gave a history of syphilitic infection a small section of the growth was removed and submitted to microscopic examination. The result being confirmatory, an operation was advised and agreed to. After a day or two of preparatory treatment, during which in addition to the usual measures the frequent use of an antiseptic mouth wash was prescribed, the patient was placed in a semi-recumbent position on the table. Owing to the size and location of the
anduration an excision of the usual V-shaped piece was not considered adequate, hence two vertical cuts were made from near each corner of the mouth to the level of the chin and their lower ends united by a transverse incision. The rectangular section of tissue thus outlined was dissected free from the underlying attachments and removed. Hemorrhage during this stage of the operation was controlled by an assistant who, with thumbs inserted in the mouth, grasped and compressed the coronary arteries. All bleeding points being tied, the sub-mental and sub-maxillary spaces were cleared of their contents. The deformity which resulted was corrected by Langenbeck's method, drainage being introduced at the most dependent part of the wound, and approximation being effected with silk worm gut and horse hair sutures. The surface was coated with collodion and a loose absorbent dressing applied. The patient was fed on liquids through a tube for several days. The disfigurement from the operation was much less than anticipated.

Case III. Cancer of the Tongue.—Mrs. B., aged 32, stated that a year or more ago a small ulcer developed on the side of her tongue which persisted and refused to heal. It gradually grew larger and ulcerated. When she entered the hospital the tongue was so infiltrated that speech was imperfect. There was constant radiating pain in the throat and face, some dribbling of saliva and a foul, offensive odor from the mouth. A section of the growth was examined by a microscopist and pronounced epithelioma.

After carefully considering the case it was decided to do Whitehead's operation and, if possible, to leave one-half of the tongue.

The patient was anesthetized and placed in a semi-recumbent position. A preliminary tracheotomy or ligation of the lingual artery was not deemed necessary. The jaws were separated with a gag, and the cheek pulled back with a retractor. The tongue was caught at its tip with volsella forceps and pulled forcibly forward. It was split from behind forward in the median line with a bistoury, care being taken to carry the incision well back of the growth. The diseased half of the tongue was then freed with scissors from its attachment to the mouth at the frenum and anterior pillar of the fauces. The sub-lingual muscles were then divided with the same instrument. Strong traction was then made, and the half of the tongue to be amputated drawn so far forward that the remainder of the operation was practically extra oral. A transverse incision was made with a knife well behind the growth at first dividing only the mucous membrane. A curved hemostatic forcep was then clamped in the groove, thus securing the main artery, and the amputation completed. The artery was then tied and torsion practiced at several points which were still bleeding, and the wound temporarily packed with gauze. In a few moments the tampon was removed and the cavity swabbed out with a solution of iodoform in ether and turgentine. The after treatment of the case consisted in a liquid diet and the use of an antiseptic mouthwash. The patient was soon able to swallow without difficulty and to speak intelligibly. Since the operation she has gained over thirty pounds in weight.

Case IV.—Cancer of the Stomach.—Mr. W., aged 44, gave the following history. Eighteen months before his admission to the hos-
pital he began to suffer from indigestion and slowly to lose flesh and strength. Three months ago he discovered a small, hard, freely movable lump in the upper part of his abdomen, which had been variously diagnosed by different doctors as an aortic aneurism, a movable kidney and a "growth in the bowels." His tongue was coated, his breath foul and his bowels distended with gas. Food taken into the stomach would remain undigested for hours and then be vomited. His weight had been reduced from 160 to 112 pounds. There had never been pain, hematemesis or cachexia. An examination of the stomach contents showed an entire absence of hydrochloric acid, the presence of lactic acid and Oppler-Boas bacilli. His urine contained large quantities of indican.

A diagnosis of carcinoma of the pylorus was made. The patient was fully acquainted with the nature of his trouble, and an operation advised as a desperate but only chance for relief. To this he consented.

Preparatory treatment was instituted for a few days, and consisted in the restriction of the diet to predigested nitrogenous food, the regular and systematic lavage of the stomach and the administration of small and repeated doses of calomel to empty the bowels and produce relative intestinal antisepsis.

A five-inch median incision was made, and the pyloric end of the stomach and the duodenum delivered through the wound. Adhesions were slight, and the mesenteric and post-peritoneal glands not enlarged. The malignant growth could be accurately outlined, and was found to begin in the pyloric valve and extend some three and a half to four inches in the walls of the stomach. An elastic constrictor, in the shape of a catheter, was tied around the duodenum two inches below the mass, and another around the stomach about its middle to control hemorrhage, and the omental attachments between these two provision ligatures tied in sections and divided. The diseased portion of the stomach was then excised, care being taken to cut through apparently healthy tissue at least one inch from the neoplasm. The divided end of the stomach was united from above downward with three rows of silk sutures, until only an opening was left at the inferior angle equal in size to the lumen of the cut end of the duodenum. An anastomosis was then effected between the two by means of a Murphy button. The elastic constrictors were removed, and as no bleeding followed, the toilet of the peritoneum was made and the abdominal incision closed without drainage. The patient re-acted well, and made an uninterrupted convalescence. For the first three days he was fed with nutritive enemas, and his thirst relieved by high rectal injections of saline solution. On the fourth day he was given buttermilk by mouth. His bowels were kept open from the first by mercurials and salines. The button was passed on the eleventh day, and solid food was permitted shortly afterwards. His tongue cleaned, his appetite became good, and he gained nineteen pounds in weight in the five weeks he remained in the hospital.

Case V. Cancer of the Liver.—Mrs. C., aged 60, had been a victim to indigestion and flatulency for years. She had also suffered with vague epigastric pain which had recently become more violent and paroxysmal. It began in the region of the gall-bladder and radiated to the back and right shoulder. Three months before her admission to
the hospital she developed jaundice, which had slowly deepened and persisted without intermission.

When examined, she was found greatly emaciated and decidedly septic. There was constant vomiting and diarrhea, but though the discharges were greenish in color, chemical tests proved they contained no bile. The abdominal muscles over the liver were so rigid that little accurate information could be ascertained by palpation. That a tumor of some sort was present was demonstrated by the force of aortic impulse transmitted to the surface of the body.

The patient's symptoms were evidently due to obstruction of the common duct, but a differential diagnosis between gall-stones and cancer could not be made. Despite the discouraging outlook, it was determined to open the abdomen and attempt to remove the obstruction to the duct if it was due to the impaction of a stone, or to provide another avenue for the escape of bile if it was due to a malignant growth.

A vertical incision was made parallel to the external border of the right rectus muscle, beginning at the costal cartilage and extending downwards three and a half or four inches. Hemorrhage was profuse, as is always the case in jaundice. When the peritoneal cavity was entered, a tangled mass of adhesions was found. These were broken up sufficiently to expose the under surface of the liver. No calculi could be felt in the gall-bladder or bile ducts. The viscus was opened and efforts made to pass a probe through the ducts, but failed. It was decided that the obstruction was due to cancer and was irremediable.

As the natural channel for the bile could not be restored it was determined to establish a new route by forming an artificial opening between the gall-bladder and duodenum, and this was accomplished by making an anastomosis with a small Murphy button. Gauze drainage was inserted and the abdominal wound closed. The patient re-acted well; bile appeared in the stools on the third day and the button was passed on the fifteenth day. During the period the button was in position, the diet was limited to liquids, but purgatives were given when indicated without hesitation. Convalescence was rapid, the jaundice disappeared, the patient gained strength and flesh, and was discharged from the hospital at the end of the fifth week.

Case VI.—Mrs. S., aged 32, had suffered with rectal trouble for over two years. She complained of sensations of weight and heaviness in the pelvis, constant desire to go to stool, but inability to empty the bowel, great pain in the rectum and frequent discharges of pus, blood and mucous from the anus. Enemata caused agony, and the bowels could only be moved by large doses of drastic purgatives.

A rectal examination showed the existence of a dense stricture three inches from the anus, and bi-manual palpation disclosed a large boggy mass immediately above it. Under cocaine anesthesia a small piece of tissue was cut from the lumen of the stricture and a microscopic examination confirmed the fear that the disease was malignant.

The trouble had advanced too far to be dealt with by Whitehead's method, and the patient was too weak to be subjected to Kraske's operation, hence it was determined to do a left inguinal colostomy for temporary relief. A two and a half incision was made on the left side
of the abdomen similar in direction and location to that usually employed on the right side for appendicitis. The cut edges of the parietal peritoneum were caught with artery forceps, pulled up and stitched to the cutaneous incision with a continuous silk suture. A loop of the sigmoid flexure of the colon was brought through the wound and its upper end gently pulled on until no more could be withdrawn, the lower end of the bowel being returned to the cavity as fast as the upper was exposed. This procedure located a point in the colon where an artificial opening could be established without danger of subsequent prolapse.

In order to fix the knuckle of gut securely in the wound a glass rod, the size and length of an ordinary pencil, was passed beneath it through its mesentery and allowed to rest on the skin at right angles to the line of the incision. This not only suspended the colon, but made a sharp bend in its lumen, which turned the current of fecal matter to the artificial anus and prevented it from entering the lower segment of the bowel.

The surface of the abdominal incision, which, by the suturing previously described had been covered by peritoneum, was now brought in close apposition with the bowel by one or two through and through silk worm gut sutures at both angles. The exposed bowel was protected by strips of rubber dam, and the usual dressings applied. Three days later the bowel was opened by cutting away its anterior wall with scissors. No anesthetic was used, pain was slight and bleeding easily controlled.

There was the immediate escape of flatus and fluid feces, and the discharge continued profusely for several days, showing the amount of retention that existed. The patient at once commenced to improve, and in two weeks was up in a rolling chair. At first she was greatly annoyed by her inability to control the feces, but her bowels soon became regular and she learned to know the hour when to expect their discharge. She has gained fifteen pounds in weight, and is now able to go to market and attend to her household duties.

Case VII. Cancer of the Breast.—Mrs. T., aged 48, mother of several children, came to the hospital on account of a small but slowly growing tumor which she had accidentally discovered in the upper and outer quadrant of the breast. It had never given pain and for that reason was not believed to be malignant. An examination showed the affected breast slightly smaller and less pendulous than the opposite one. The nipple was not retracted, but the skin was dimpled at several points over the growth. The mass was the size of a small hen egg, not tender to pressure, firm in consistency, apparently not adherent to underlying structures, and freely movable in all directions even when the pectoral muscle was rendered rigid by extreme abduction of the arm. Careful palpation of the axillary space failed to demonstrate enlargement of the lymphatic glands of that region. Despite the absence of many of the symptoms generally supposed to be necessary for the diagnosis of cancer an immediate operation was urged. It was deemed that the presence of a growing tumor in the breast of a woman over forty was sufficient to justify the removal of the organ. Delay until the diagnosis was clear would probably mean procrastination until the case was hope-
less. The operation being agreed to, the axilla was carefully shaved and the patient prepared in the usual way. The woman was anesthetized, placed on the operating table, the arm abducted and held at the wrist by an assistant who manipulated it during the operation in a way to facilitate the work.

An elliptical incision, with the nipple as the center, was made through the skin—one end being at the sternum and the other at the juncture of the anterior axillary fold with the chest wall. The lower segment was made first in order that it might not be obscured by blood which would have been the case had the order been reversed. A straight incision, some three inches long, was then made from the outer angle along the lower border of the pectoralis major muscle to expose the axillary space. The skin was then dissected back and the incision deepened until the fascia of the underlying muscle was exposed. The fascia was then clut through, the line of incision being parallel but external to that of the skin. This made the elliptical incision through the fascia much larger than the elliptical incision through the skin.

The mass thus outlined was grasped with volsella forceps at the sternal end and rapidly freed from its attachment to the anterior chest wall, the fascia being removed with the breast. Bleeding was controlled with hemostates. When the axillary end was reached, it was found that the glands of the axilla were enlarged and evidently infected. Rapid, blunt dissection was made to expose the axillary vessels, and these being located, the space was cleared of fat and glands, the procedure being facilitated by traction on the detached breast with which they were still connected. The artery forceps were removed one by one and such points as bled were caught again and tied with fine silk.

A small rubber drain was inserted at the axillary end of the wound the edges of the incision brought together by interrupted silk worm gut sutures placed about two inches apart, and neat apposition of the skin secured by a continuous button-hole suture of silk. A voluminous aseptic absorbent dressing was applied, and the arm of the affected side confined with bandages to the chest wall. The drain was removed in forty-eight hours, the stitches taken out on the ninth day, and the patient was able to leave the bed at the end of two weeks.

Case VIII. Cancer of the Cervix.—Mrs. P., aged 48, mother of two children, had ceased to menstruate over a year ago. For the past six months she had been troubled with leucorrhea, and occasionally the discharge had been tinged with blood. The odor at times was offensive. Three months ago she had lost considerable blood, but had attributed it to re-establishment of menstrual function. She suffered no pain, but the bleeding continuing at irregular intervals, she consulted her physician, who advised her to go to a surgeon. On admission to the hospital the cervix was found lacerated and the lips everted. On the exposed posterior wall of the canal and extending backwards to the vaginal junction was seen an erosion. It was friable, vascular, and bled when sponged with a bit of cotton. It had elevated indurated margins and the whole cervix felt hard and inelastic. There was no pelvic deposit or rigidity of the broad ligaments, and the uterus was freely movable. A small fragment of tissue was removed from the growth
and on microscopic examination was found to be carcinomatous. An operation of vaginal hysterectomy was advised and accepted.

The pubes and vulva were shaved, the vagina frequently irrigated with antiseptic solutions, and other preparatory measures instituted. The patient was placed on the table in the lithotomy position. The vagina was widely opened with Sim's speculum and lateral retractors. The cervix was caught with tenaculum forceps, drawn down, and its interior thoroughly cauterized with a Paquelin cautery. The cavity of the uterus was lightly packed with a gauze strip, and the cervical opening closed by sewing the anterior and posterior lips together with three heavy silk sutures, the ends being left long to act as tractors. After re-sterilizing the vagina the cervix was pulled forward and a transverse incision made with scissors in the posterior vaginal fornix and Douglas' cul-de-sac opened. The cervix was then dragged backwards and a transverse incision made across the anterior fornix. The bladder was carefully separated from the anterior face of the cervix and the utero-vesical fold of the peritoneum opened. The mucosa intervening between the ends of the anterior and posterior incision was then divided, care being taken not to injure the uterine artery. With a finger introduced into the peritoneal cavity through the posterior incision as a guide, the lower portion of the broad ligaments, including the uterine arteries on each side, were clamped with the forceps and divided. The uterus was pulled still lower down, the finger hooked over the top of one of the broad ligaments and the upper part of the ligament with the ovarian artery clamped and divided. The fundus of the uterus was then delivered into the vagina and a fourth forceps applied to the other ovarian artery. The last attachment that held the uterus in the pelvis was then severed and the organ extracted. The opening left in the vault of the vagina was narrowed by several silk sutures and a small gauze drain introduced. The forceps were left in place for forty-eight hours. The drainage was removed at the end of the third day. The patient was shortly allowed to assume a semi-recumbent position in bed and made an uneventful recovery.

Case IX. Cancer of the Uterus.—Mrs. D., aged 45, gave a history of bleeding and purulent discharge from the womb for several months, with constantly increasing loss of flesh and weight. Vaginal examination showed a large swollen cervix, free from ulceration. Bi-manual examination proved the uterus to be about the size of a child's head and the seat of fibro-myomatous growths. It was at first thought that the condition was due to simple degenerative change, but dilatation of the os and inspection of the endometrium disclosed a suspicious growth above the internal ring. A piece of tissue removed with a curette and examined under the microscope showed it to be carcinoma. As the uterus was too big to be removed by the vaginal route it was decided to take it out through a supra-pubic incision. The organ was first curetted and its cavity irrigated with a 50 per cent. solution of peroxide of hydrogen, followed by a flushing with a 1:4000 solution of bi-chloride of mercury. The uterus was then packed with gauze and the cervix tightly sewed up. The abdomen was then opened. The ovarian arteries were tied on both sides, the broad ligament divided down to the juncture of
the body of the uterus with the cervix, and then the uterine arteries ligated. A transverse circular incision was made through the peritoneum at the point of its reflection from the uterus to the bladder in front and the rectum behind. The uterus was pulled up, and the peritoneal cuff pushed down, until the vagina was reached—which was determined by palpation and percussion. A small opening was made into it in front and it was ligated in sections to prevent bleeding, and cut around the cervix, thus freeing the uterus. A gauze strip was inserted into the vagina from above and loosely packed in the bottom of the pelvis, and the abdominal incision closed. The drainage was removed at the end of the third day, the patient made an uneventful convalescence, and when last heard from was doing well.

Case X. Cancer of the Penis.—Mr. S., aged 51, stated that a year or more ago a small ulcer developed on his foreskin, which was irritable, bled at slight provocation, became indurated and slowly spread, involving all adjacent structures. When examined, the end of the penis was found about the size and shape of a door-knob, having lost all natural outlines and having been transformed into a cauliflower-like mass.

The growth was red, with patches of gray slough over it, and with deep clefts between its warty protrusions. The inguinal glands were perceptibly enlarged. The opening of the meatus was discovered with difficulty. There was no pain, but there was a horribly offensive odor. The patient was in good general health and gave no history of venereal disease. His wife was living and free from uterine trouble. The diagnosis of cancer was so plain that a microscopic examination of tissue was deemed unnecessary and an immediate operation advised. After shaving the pubes, and other suitable preparatory treatment, the patient was anesthetized and placed on the table. The skin at the base of the penis was transfixed by two steel pins and an elastic constrictor wound tightly around the organ behind them. A broad rectangular cutaneous flap was cut from the dorsum of the organ, and a straight incision made through the skin on its under surface. The corpora cavernosa were then amputated close to the pubic bones. The corpus spongiosum, containing the urethra, was cut some half inch longer. The urethra was then dissected out of it. After ligation of the main arteries of the part the constrictor was removed and bleeding at minor points arrested. The pins were then withdrawn. The cutaneous flap now hung over the end of the stump like an apron. An opening was made in its center and the divided end of the urethra drawn through it. The canal was split to prevent subsequent contraction and the two halves sutured. The edges of the flap were then fastened at two or three points, close approximation being avoided to give necessary drainage. After the completion of this part of the operation attention was next directed to the inguinal glands. Both groins were laid open by a free incision over Poupart's ligament; the skin turned up and down, and the fat and glands of each side removed in one connected piece. Urine was drawn with a catheter for several days. Union occurred by first intention and the patient was discharged with perfect control over micturition.
TREMORS, CONSIDERED FROM THE STANDPOINT OF LIFE EXPECTANCY.*

By PROF. J. K. A. WERTHEIM SALAMONSON, Berlin, Germany.

Before beginning this study, we must obtain an idea of the various tremors that are met with, of the mance of recognizing them, of demonstrating them and diagnosing them; we will then see the conclusions that may be drawn from them by the practitioner or the medical examiner.

For the classification of tremors, I prefer to cling to the known divisions accepted by the great clinical observers. They have been subdivided according to their cause, to the disease and to their mode of appearing. I consider, for the time being, this last classification as best adapted for our purpose.

From the first we may distinguish two wide classes of tremors, according to whether they appear during repose or during motion, or a tendency to motion. Repose also presents two different states, the active according to whether the repose is the result of a contraction, or of a muscular relaxation. The patient lying in bed is in a position of repose, as well as the one who is standing, and holds, for instance, his hands stretched out before him; neither is moving. But in the second position important muscular groups are under a considerable state of tension. This is what we call active repose, in opposition to passive repose, of which the reclining, or sitting position, with the limbs relaxed, give us an example.

While tremor during passive repose is relatively rare, and presents its most classic form in paralysis agitans, tremor during active repose, i.e., with outstretched hands and fingers, is the form most frequently seen.

Tremor through movement, or tendency to movement, is usually designated under the name of intentional tremor, and again belongs to the less frequent causes, although its significance is no less important than that of the other forms. The typical form of it is the tremor of multiple sclerosis.

The division I have just established is not an absolute one. We only know too well that all these forms may change into any of the others. Thus we know forms of transition from the tremor of repose to the tonic tremor, or the intentional tremor. There are tremors that show themselves as well during active as during passive repose. The form of transition from tonic tremor to intentional tremor, also exists. We may cite as a type of these forms of transition the tremors of some cases of paralysis agitans, who tremble, not only during passive rest, but also in movement. Most patients with this affection have also some tremor during active repose, but to a lesser degree. There exists a form of tremor during the state of repose, which increases on motion, described by Rendu, as the remittent intentional type; this type has been observed in hysterical patients.

In the case of some tremors we are not entirely agreed as to the type former which they should be classed. Thus it is commonly rec-

*Read before second International Congress Physicians, Amsterdam, Holland.
ognized that alcoholic tremor is slight during repose. But as no distinction has been made between active and passive repose, opinions are divided; some assert that the tremor diminishes in repose, while others (Lefiliatre) contend that it disappears completely. Basing myself upon my own experience, I will dare to go further, and to say that all toxic tremors cease entirely during repose, including alcoholic tremor. They appear markedly under active repose, and are still somewhat further increased during intentional movements. They, therefore, approach the tremor of multiple sclerosis without being entirely identical with it.

We therefore see that a classification based upon the form and mode of appearance can never be entirely just. But it will be no better if we limit ourselves to an element of the form, such as the rhythm or the frequency. Yet a classification has been based upon this element by no less an observer than Charcot himself, and not without reason. Every medical man knows that a pathological symptom may always present more or less considerable individual differences; that it may even become entirely modified under the influence of certain circumstances. Yet this does not prevent us, from the didactic standpoint, from settling upon a determined type, while knowing and stating that only a schema is in question. Charcot always understood the value of a schema better than anyone, and while possessing the talent of individualizing, he never neglected to refer to the schematic type. In the classification of tremors, good results have also been obtained through schematic descriptions.

Charcot divided tremors into the slow and the rapid, according to the rapidity or frequency of the simple oscillations. Forms presenting more than 7 oscillations per second belonged to the rapid type, while those presenting less were classed among the slow.

The type of rapid tremor is found in Basedow’s disease; we also find it at the beginning of paralytic dementia.

We must add to it physiological tremor, which possesses 7 or 8 tremors per second. In shaking the fist one may obtain this tremor, besides, nearly all toxic tremors, from alcoholic to mercurial and lead poisoning, all show this rate of speed.

Slow tremor is that of paralytic agitans. Rigorously speaking, senile trembling and that of multiple sclerosis, must be added to them.

Usually, however, there exists a marked difference between the tremor of Basedow’s disease and paralytic dementia, and that of physiological or toxic tremor, and also certain cerebral tremors, such as the post-hemiplegic. While the first two tremors show an oscillatory duration usually passing 8 to the second, and sometimes passing 11, we rarely find among the other forms figures passing 8 or below 7 per second; they remain with a remarkable regularity within those limits and reach below it only when the amplitude is exceptionally great. I have never observed in such cases less than 6.3 per second. Hence, it might be desirable to again divide this group in two: the group of very rapid tremors, to which belong only Basedow’s disease and paralytic dementia, and the group of moderate tremors, comprising, among others, all the toxic tremors.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Wolfden</th>
<th>Peterson</th>
<th>Carron</th>
<th>Dew</th>
<th>Cozens</th>
<th>Great Wh.</th>
<th>Johnn.</th>
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<tbody>
<tr>
<td>Bassedow's disease</td>
<td>8.7-12</td>
<td>7.4-2</td>
<td>10-12</td>
<td>8.5-112</td>
<td>8.5-6.8</td>
<td>5.6-6.8</td>
<td>7-10</td>
</tr>
<tr>
<td>Neurasthenia</td>
<td>8.9-10</td>
<td>8.1-12</td>
<td>10-12</td>
<td>8.5-112</td>
<td>8.5-6.8</td>
<td>5.6-6.8</td>
<td>7-10</td>
</tr>
<tr>
<td>Paralytic dementias</td>
<td>8.9-10</td>
<td>8.1-12</td>
<td>10-12</td>
<td>8.5-112</td>
<td>8.5-6.8</td>
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<td>7-10</td>
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<tr>
<td>Delirium tremens</td>
<td>8.9-10</td>
<td>8.1-12</td>
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<td>8.5-112</td>
<td>8.5-6.8</td>
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<td>7-10</td>
</tr>
<tr>
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<td>8.9-10</td>
<td>8.1-12</td>
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<td>8.5-112</td>
<td>8.5-6.8</td>
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<td>7-10</td>
</tr>
<tr>
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<td>8.9-10</td>
<td>8.1-12</td>
<td>10-12</td>
<td>8.5-112</td>
<td>8.5-6.8</td>
<td>5.6-6.8</td>
<td>7-10</td>
</tr>
<tr>
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<td>8.9-10</td>
<td>8.1-12</td>
<td>10-12</td>
<td>8.5-112</td>
<td>8.5-6.8</td>
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<tr>
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<td>8.5-6.8</td>
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<td>7-10</td>
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<td>8.5-112</td>
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TREMORS—SALAMONSON.

Since Charcot's observations, which are to be found scattered among his writings, many publications have been issued by other observers concerning the oscillatory duration of tremors. The experiments give rather dissimilar results, as is shown in the following table:

All tremors are regular, that is to say, the oscillatory duration of each isolated vibration is constant. In affirming this truth, I am simply stating a fact. We thus exclude, by that very definition, all tremulous movements in which the time separating two states of successive equilibrium is not constant. When we observe a rhythmical movement, in appearance, but whose simple oscillations are not isochronous, we can no longer speak of a tremor. I may mention a few movements of this sort that have sometimes been designated as tremors, and so described in some manuals, and which might be called pseudo-tremors.

In the first place, the tremor of progressive spinal atrophy and that of amyotrophic lateral sclerosis. As is well known, these two affections are distinguished by the appearance of fibrillary and fascicular contractions. While these contractions give no effect of locomotion in the large muscles of the trunk or the scapular belt, they may occasion a real displacement in the small muscles that move the smaller extremities. This applies particularly to the fingers, in so far as they are moved by the interossei and the thenar and hypothenar muscles. In these little muscles it is a fact that fibrillary contractions often appear with sufficient force to give rise to an irregular tremor of the fingers. I have even seen apparent trembling of the hands under the influence of fascicular contractions of the muscles of the forearm. This movement can surely not be called a tremor, although the external resemblance may be very great.

We find another pseudo-tremor, also in the fingers, but rarely in the hands, in certain cases of tabes dorsalis. This pseudo-tremor is a phenomenon of static ataxia, and perhaps, also, a consequence of the abnormal reflex innervation of the little muscles of the hand. These tremors are observed either as a tabetic athetosis, or a pseudo-tremor, properly so-called.

Finally, ordinary athetosis may give a transition form as well in posthemiplegic athetosis, as in the chronic athetosis of adults.

The differential diagnosis between tremor and pseudo-tremor may offer great difficulties in all these clinical groups—to such an extent that a graphic tracing may alone be able to enlighten us.

We must consider regularity as a sine qua non of tremor. But I must remark that very small differences in the oscillatory duration of a determined tremor may present themselves and be admitted. A few years ago I called attention to the significance of the mechanical relations in the study of tremors, which obey the laws of the pendulum. This explains the fact that small variations may occur in the oscillatory duration when the amplitude varies. I once found that in excursions of 10 degrees these variations may reach 2 per cent. That is a little more than theory would indicate, but I think that a satisfactory mechanical explanation may be given for it; but this is not the place to enter into it.

From the standpoint of the practical application we may say that tremors are regular.
The same is not true of the equality or inequality of the tremor. The latter concerns the length of the oscillations, and therefore, their amplitude. It is certain that there exist equal tremors, but the greater number of tremors are more or less unequal. Small variations of the amplitude are the rule, although considerable variations are fairly frequent. I am evidently not referring to the variations which occur at various times in the day, according to the state of well-being of the individual, but of those shown during seconds or parts of seconds.

These variations sometimes present a certain regularity, in such a way that what might be called a new rhythm is observed; a rhythmical increase or diminution of the amplitude. Such rhythmical changes were first observed by Fernet; I have given an explanation of these peculiar tremors as phenomena of interference, and I have called them interferent or allorhythmic tremors. They appear in all diseases giving rise to tremors, and owe their origin to the fact that more than one group of muscles contracts in a rhythmical manner and produce movements of the same limb. Hence follows that these allorhythmic tremors are in no way pathognomonic, and do not characterize a determined disease. They are best observed in paralysis agitans, in which they may be seen directly without the help of instruments, as distinguished from other affections, such as Basedow’s disease, metallic, or alcoholic intoxications, in which they can only be made out accurately by means of graphic tracings.

In a previous work, in which I described allorhythmic tremor, I insisted upon the significance of certain mechanical relations in the genesis of rhythmical movements. This movement has generally a sinusoidal course, i.e., similar to that of a pendulum, or to the vibrations of a metronomic rod. This shows that we must not, in general, consider rhythm as being an exclusive consequence of the central innervation.

As a matter of fact we know that in induced tetanus, notwithstanding the continuity indicated by the graphic tracing, it is not a continuous process. This may be shown in various ways. The simplest proof is furnished by the graphic tracing of induced tetanus, of maximum force. In such a tracing we plainly see ascents and descents, indicating the variations in the degree of contraction. But in general this rhythmical innervation may be seen without any apparatus in this physiological tremor. One might object that tetanus in the maximum degree might necessitate a discontinued innervation, but that ordinary voluntary muscular contraction—a tetanus of less force—is on the contrary entirely continuous, and agrees with the graphic tracing. But Loven has demonstrated in a peremptory fashion that this is not the case. He found, in tracing the current of action which accompanies each muscular contraction, that these contractions do not always correspond with the impulsion, if the excitator has acted in a mediate way upon the directly motor neuron. Every muscular contraction, following a natural impulsion upon this primary neuron, coming either from a secondary motor neuron, or from a sensitive neuron, presents an intermittent current of action, even when the muscular contraction appears to be continuous. Thus the tetanus of strychnine poisoning, as well as induced tetanus, always furnish interrupted currents of action. This proves that
TREMORS—SALAMONSON.

voluntary muscular contraction is the result of a non-continuous excitation. Loven also determined the rapidity of this innervation rhythm and found 12 to 13 per second.

Horsley and Schafer excited the fibers of the pyramidal tracts in the neighborhood of the internal capsule by an induction current of a frequency of 50 per second. In tracing the tetanic contractions of the excited muscles they obtained a curve with about 10-12 undulations per second. Therefore, there was a transformation of the excitations in the anterior horns of the cord, which lowered the rhythm to 10-12. Later experiments gave Schafer a particular rhythm varying between 8 and 13. D. Griffiths even found oscillations from 15 to 18 per second. In Germany (v. Kries) lower figures were found (7-8); while Richet obtained 10-11 per second.

The results I have obtained by the auscultation of the muscular tone give results quite in harmony with these data.

Reviewing these figures, we immediately find that medium and rapid tremors may bear relations to the rhythm of physiological tremors. It then easily follows that all moderate and rapid tremors owe their production to an exaggeration of the physiological tremors.

For slow tremors the same thing cannot be asserted a priori. In the first place they differ from moderate and rapid tremors in that their frequency is below that of the physiological rhythm. But there also exists another point of divergence. While moderate and rapid tremors appear nearly exclusively during active repose, and are, therefore, intentional tremors in the widest sense, we find among slow movements, besides the classical intentional tremors of multiple sclerosis, also the typical disturbance of repose of paralysis agitans. As in this affection the tremor is precisely strongest when all voluntary innervation is lacking, but ceases entirely during sleep, we must in the first place conclude that another factor is in play. We know now that such is the case. There exists in nearly all cases of paralysis agitans a fairly strong muscular rigidity, that is to say, a certain exaggeration of the tonus. This is a manifestation of innervation of the primary motor neuron. This muscular rigidity is correlated, in action, with the tremor in such a way that the cases with considerably rigidity present little tremor, of a rather rapid type, while slower, and usually persistent tremors are accompanied by a moderate rigidity; we may therefore safely admit that the point of divergence indicated is but an apparent one. Even in paralysis agitans there exists some innervation coming from the superior motor neurons. This innervation probably takes place in the patients without their knowledge and will. We have a continuous central innervation, so that I would really feel like speaking of an unconscious intentional tremor, were the terms not contradictory.

In all these cases, we may say that abnormal innervation is one of the factors of the tremor, while doubtless, it is not the only one. I have mentioned above the mechanical relations. By this I mean: 1, the dimensions of the portion of the limb that is vibrating, by which are determined the mass and the center of gravity, as well as the moment of inertia and the static moment; 2, the intensity of the contractions under the influence of elementary impulses, giving the determination
of the time which the vibrating body takes to run its course. These two points determine the oscillatory duration proper of the part of the body under consideration.

The laws of physics teach us that an object capable of vibrating when its equilibrium is disturbed, only vibrates strongly when the impulses are given to it in a rhythmical way, and moreover, in a rhythm corresponding with that of the body. Only when the proper vibrations are much interfered with can the phenomena of multiple resonance appear, the vibrating body then reacting under the influence of impulses of a period differing from its own.

There is certainly no doubt that the limbs of man, considered as vibrating bodies, are only susceptible to vibrations that are considerably interfered with. This is the only reason wherewith to explain the fact that they can vibrate with such different speeds.

This does not prevent the oscillatory speed proper from constantly exerting its influence. By artificially changing the mechanical relations, as by loading the extremities, we may sometimes obtain manifest changes in the rhythm.

All the limbs do not tremble with the same speed in the same patient. We often find noticeable differences which are explained partly by the differences of innervation, and partly depend upon the mechanical relations. It follows that the speed of the motion must increase as the limb becomes smaller. The arm vibrates more slowly than the forearm, and the latter more slowly than the hand. A leg usually trembles more slowly than an arm. But the period reached by the disease has a great importance. Think of paralysis agitans, in which the rapidity of the movements, as I have shown, diminishes according to the strength of the limb. There is here no fixed rule either. Yet it is easily observed that the most rapid tremors are observed in the hands. Basedow's disease, paralytic dementia and neurasthenia, which are characterized by such rapid movements, show first in the hands the most precocious and visible manifestations of this symptom. In severe cases of Basedow's disease, presenting tremors of the head and all the arm, we generally find lower figures for the frequency per second; it usually reaches 8, while the oscillations of the fingers in slight cases have often given me 12 per second.

Tremors are nearly always first observed in the hands. There it presents a distinct obstacle to delicate manipulations. In other diseases, however, it first appears in other parts. Hence, we must not limit ourselves to the hands in our search. Thus in paralysis agitans it often begins in the lower limbs. The same is true of sclerosis en plaques, and of secondary lateral sclerosis, as well as of certain cerebral affections. We must not forget here the possibility of "spontaneous clonus of the foot," a peculiar affection of the lower limb appearing in certain patients, with an exaggerated reflex, as soon as they lean forward in a sitting position, with the weight of the lower limbs resting upon the extended toes. Although this is not a real tremor, but a phenomenon of an entirely different origin, it is often considered as a trémor, and in any case, we must recognize that it has a serious significance.

Tremor of the head, whether rotary (negation) or oscillatory (affirmation), besides being present in neurasthenia and as an isolated symp-
TREMORS: SALAMONSON.

53

tom, also in cerebellar affections, in Friederich’s ataxia and in multiple sclerosis, I have also seen it in paralysis agitans and as an early symptom of Basedow’s disease.

Tremor of the lips and of the tongue has a very important diagnostic significance, for it is often seen as a phenomenon of the beginning of paralytic dementia. He who presents this symptom to the medical examiner can never be at once accepted by a company, even if every other symptom of dementia is lacking. At any rate the acceptance must be postponed.

A significance nearly as serious is to be attributed to nystagmus, a tremor of the ocular globes, owing to the diagnosis of sclerosis or plaques, and in all cases in which there is nystagmus, every manner of necessary precaution must be taken before the candidate is accepted.

Tremor is generally an easy symptom to make out; inspection is usually sufficient for the diagnosis. We may even, by a very attentive examination, recognize many precise details of the tremor, without having recourse to automatic tracings. This is a delicate experimental method, belonging rather to laboratories and large clinics. There is, however, a very simple method accessible to all of obtaining a tracing of the trembling of the hands; let the applicant trace upon a piece of paper a vertical line and a horizontal line. A soft and sharp-pointed pen must be used in a long pen holder, which must be held, not at the end, but in the middle. The elbow must rest on nothing; the paper must, therefore, be place on the edge of the table.

If the line is very slowly and regularly traced, so that we may count five seconds, for instance, for the entire line, we may then obtain a tracing of the tremor nearly as precise as with the accurate instruments of the laboratory. The lateral deviations of the line, as well as its thickness, are to be observed.

Ordinary handwriting is also an excellent means of observing the presence of tremor. I desire, however, to show that its importance has been exaggerated. The mere inspection of a tremor is usually insufficient in order to make a diagnosis in a given case, and hence its graphic representation seen alone would be equally unsatisfactory. The difficulty is still further increased when handwriting is used, as the many peculiarities presented by handwriting may entirely conceal the irregularities due to the symptoms of tremor.

Handwriting permits us in the first place to see whether, by delicate movements, tremors of the fingers or of the hands are produced. We may also recognize whether the tremor is marked or not. But here we must stop, or else we will fall into idle speculations. However great to the sight may be the difference between the tremor of multiple sclerosis and that of alcoholism or paralysis agitans, the influence they exert upon handwriting is similar. or at any rate, differs so little, that years of precise and accurate study would be needed to throw a little light upon the subject. I think most text books are not very exact in regard to this. The descriptions they give of each kind of handwriting are not very exact, and the indications that might be drawn from them might give rise to faulty conclusions.

I recognize that handwriting has a great value as a diagnostic signi
of the existence of tremor. I also believe that paralytic dementia gives
to handwriting a peculiar character, but it seems to me that in the
present state of science, it would be dangerous to draw from it anything
more than general conclusions.

Progressive paralysis also has a tremor which at first resembles
that of Basedow's disease, that is to say, a rapid, vibratory tremor of the
hands, as soon as they are extended. (Fig. 10.) In cases of long dura-
tion the tremor diminishes from 11 to 7 or 8 per second. The move-
ment becomes at the same time a more oscillatory one, but the am-
plitude rarely increases. That which especially characterizes this tremor
is its precocious appearance on the lips while the patient speaks or
makes slight movements with the lips, or on the tongue when it is ex-
tended.

Tabes dorsalis shows a tremor of the hands presenting the same
peculiarities as that of progressive paralysis. But ordinarily the rapid
initial period is lacking, so that I have generally met with coarser, but
not any more extensive tremor, of about 7 or 8 oscillations per second.
In some cases we see, in causing the patient to stretch out his hands,
tremulous movements of the fingers of a very slight frequency. This
is not a tremor, but a phenomenon of static ataxia. It is the pheno-
menon known by the name of tabetic athetosis, also called pseudo-tremor.

In paralysis agitans the tremor forms a capital phenomenon, which
generally dominates the whole picture. (Fig. 14-16.)

The tremor exists during complete repose and generally disappears
or diminishes during motion. But when motion is continued for some
time the tremor appears again. The handwriting is therefore ill-formed,
although the first words may be well written. Patients can seldom
sew, while they may indulge in other occupations, such as knitting, even
in very advanced cases. The tremor increases under the influence of
emotions and slight indispositions. In going to bed the patient notices
that the tremor increases. Then it diminishes, and entirely disappears
during sleep. In the morning, upon rising, the patients do not tremble,
but the tremor reappears as soon as they have moved a little.

The amplitude of the movement is very regular, unless there exists
a manifest allorythmia. The duration of the simple oscillations, which
are generally of great amplitude, is very considerable, so that from 3
to 6 oscillations per second are observed. In those cases in which the
tremor has not existed a long time, the oscillations are usually from 5
to 6 per second at least, while in older cases the oscillations are less in
number. When there is allorythmia (Fig. 16), then the time separating
two successive maximal periods is from a second to a second and a half.
As a matter of fact, there is no disease that presents such regular oscil-
lations as this one.

The duration of the oscillations ordinarily differs from one limb to
another without there being for this any settled rule. Yet it seems
that there is here a certain relation with the course of the disease.
Thus, we see the tremor begin in one limb, then comes the second, third
and finally the last. Sometimes the tremor begins nearly simultaneously
in the whole half of the body. In these advanced cases the head also
trembles, although this may be counted as one of the usual symptoms.
In some very rare cases the tremor of the head is the very first phe-
TREMORS: SALAMONSON.

nomenon. Very often there is tremor of the lower jaw, and especially of the lips, or of the labial commissure; these last tremors are remarkably slow.

The tremor of the hand offers a peculiarity, in that the thumb and the rest of the hand move independently of each other. The tremor of the thumb in opposition gives rise to the movement of counting coin or of rolling pills. The movement of the hand is generally a simple tremor of flexion and extension, often complicated with pronation and supination. In the elbow we meet with a flexion-tremor which, in intense cases, may be accompanied by an abduction tremor in the shoulder-joint.

In the foot there is a mixed tremor; flexion-extension and adduction-abduction. The result is that the foot accomplishes peculiar circular or figure-eight movements. The same thing is seen in the hand, but this is done under the influence of the movement of flexion and extension of the hand in half-supination, and of the movement of flexion of the fore-arm. The leg often participates in the movement by a movement of flexion and extension in the knee-joint, and rarely, also in the hip.

The tremor of multiple sclerosis (Fig. 12-13), offers a complete opposition to the preceding one. In repose the patient does not tremble; when he sits down we observe an irregular swinging of the head, which may occur very early. Running renders this swinging more evident. When the patient desires to use his hands, the whole arm begins to tremble, or rather to oscillate. If, for instance, he wishes to carry a glass to his lips, this tremor begins at once and progressively increases so that he finally spills the contents in every direction. The amplitude of the oscillations increases considerably (Fig. 12), and in a very short time. It seems to me also that the duration of each oscillation increases. As a matter of fact, the oscillation, outside of its progressive character, is quite regular, about 5 or 6 per second, and we can easily see that the first oscillations around the central position are small, but that every succeeding oscillation becomes greater than the preceding one, until the patient is obliged to rest his hands, because it has become impossible for him to execute the intended movement. In trying to take hold of something these oscillations of the arm may be such that the object is violently knocked over, before the patient has been able to grasp it. As a general rule the vibrations of the arm are the most violent, the legs presenting this phenomenon to a lesser degree. The head is usually strongly agitated. The eyes also present oscillations—nystagmus—while the voice incurs a peculiar alteration, whereby the words are scanned.

The special characteristics of the intentional tremor of this disease remind one strongly of the motor troubles of tabes; in ataxia; opinions have been advanced favoring the identity of the two affections, and the intentional tremor has been termed an ataxic tremor. It is certain that a pronounced intentional tremor presents points of similarity with ataxia. If we follow for a number of years the phenomena presented by a patient with multiple sclerosis, we sometimes see a typical ataxia issuing from this intentional tremor, so that later on nothing more of
this intentional tremor is seen, and there only remains a marked ataxia. But inversely we never see the ataxia of tabes preceded by an intentional tremor of the kind seen in multiple sclerosis; here the processus begins with slight ataxia and ends in a more marked ataxia.

Focal lesions of the cerebral and cerebellar hemispheres are generally accompanied by a tremor (Fig. 18), shown especially during motion, but which may also exist in repose. The tremor is more regular than in multiple sclerosis. The rhythm is usually of 4-6 per second, and only in cerebellar tremors do we have higher figures, 8 per second. This latter variety of tremor is called by Luciani the astatic tremor, and presents many relations with the tremor of fatigue, already described, from which no external sign distinguishes it. On the contrary, the tremor of cerebral affections is a little slower and very oscillating. Children suffering from focal lesions sometimes present an extremely slow tremor, resembling that of paralysis agitans.

Among toxic tremors, that due to tobacco poisoning occupies a rather special position, in that it is rather rapid. Ordinarily the count is 8 or 9 per second; the tremor is rather vibratory, and is shown when the patient stretches out his hands; it greatly resembles the tremor of Basedow's disease.

Metallic tremors (Fig. 2-3), derived from chronic lead, mercury, arsenic and silver (very rare) poisoning, often have a frequency of 8 per second. They are very regular, sometimes arrhythmic, and are especially seen in the outstretched hands. They must frequently be considered as remittent intentional tremors; that is to say, they are always present, but increase on motion. They are consequently serious obstacles to the accomplishment of delicate work, writing, etc.

Alcoholic tremor (Fig. 1) greatly resembles the metallic tremors, but is more irregular. It is seen not only in the hands, but also in the face, the head and the extended tongue. The legs also sometimes tremble when the patient is standing, thus moving his body. As patients of this sort are quite restless and continuously moving, the tremor is often seen in a very striking manner. We must note that the use of alcohol lessens temporarily the tremor, so that alcoholics who could not write a letter while fasting, again acquire a steady hand after a few glasses of alcoholic beverages. The tremor also forms an important symptom of acute delirium tremens, the state of hallucinatory delirium that is so well known among chronic alcoholics.

Senile tremor resembles a good deal that of paralysis agitans, and it is very doubtful whether we can, as yet, separate them. In all cases in which the diagnosis of senile tremor is made, we generally find one or more symptoms of paralysis agitans. Bearing in mind the modern ideas in regard to this affliction, we cannot even separate it from senile tremor.

Essential tremor (Fig. 17), consists in a tremor found in perfectly healthy people. This phenomenon, which may exist during the whole life, but which often appears only after puberty, seems to be hereditary in some families. Descendants from alcoholics and from those suffering from lead poisoning also sometimes present essential tremor. In all the cases the trouble tends to grow worse. Children sometimes present a very intense tremor, which disappears after puberty. All
these essential tremors have the characteristics of an intentional tremor, appearing in the fingers and hands while in motion, and disappearing during repose. From other standpoints they differ from the tremor of multiple sclerosis, which has an entirely peculiar character, but rather resemble the toxic tremors.

In hysteria (Fig. 7-9), we may meet with every form of tremor described above. Most frequently we find a tremor similar to the toxic form. Sometimes we see an intentional tremor, as in sclerosis en plaques; a rapid tremor, as in Basedow's disease, or a slow motion, as in paralysis agitans. In rare cases there is an extremely slow tremor of about 3 oscillations per second.

In my report, incomplete though it must be, I have sought to show that tremor is an important phenomenon, having a great pathognomonic significance. At the same time I have indicated some means of characterizing the various tremors and of distinguishing them from one another.

I believe I may be permitted to end with the following conclusions, which need no further explanation:

1. A direct question as to the presence of a tremor should be included in every examination blank.
2. The search for the existence of tremor should include at least:
   a. The inspection of the outstretched fingers and hands.
   b. The inspection of a few straight lines drawn by the applicant.
   c. Some trials of the applicant's handwriting.
   d. The inspection of the lips and of the tongue, as well during rest as when in motion, the extension of the tongue and the contraction of the lips.
   e. The inspection of ocular movements.
3. In the description of a tremor, it should be mentioned whether it is rapid, moderate or slow, or at least whether it is vibratory or oscillatory. Then, whether present or absent during passive and active rest, in motion, or the tendency to motion, whether it stops or increases through one of these circumstances, and, finally, what parts of the limbs are affected.

EXPLANATION OF THE FIGURES.

The 18 tracings which follow have been obtained by means of the apparatuses I described and illustrated in the Tijdschrift voor Geneeskunde, 1894, Part I, page 235, and in the Deutsche Zeitschrift fur Nervenheilkunde, Bd. X, 1896, pages 243-272.

The time curve indicates in every figure, excepting Fig. 6, tenths of seconds. Fig. 6 gives half-seconds. The time is indicated in all the figures by the lower line, except in Fig. 2, where it is the middle line.

Fig. 1. Alcoholic tremor; frequency, 8.7 per second. Manifest allorhythmia.
Fig. 2. Lead tremor; frequency, 7.2 per second.
Fig. 3. Mercenrial tremor; frequency, 7.6 per second. Manifest allorhythmia.
Fig. 4. Basedow's disease; frequency, 8.8 per second. A very intense movement of great amplitude. Allorhythmia hardly indicated.
Fig. 5. Basedow's disease. Slight tremor of great frequency, 12.5
oscillations per second. At the beginning and in the middle may be seen some oscillations of less frequency, about 5.8 per second, which are probably to be interpreted as hysterical tremors.

Fig. 6. Basedow's disease with hysteria. The upper line represents the true Basedow's tremor, with a frequency of 10.4 per second. It was an abduction and adduction tremor of the middle finger. The middle line gives the tremor of flexion and extension of the same finger, but with a frequency of only 4 per second. Yet at various points in this tracing may be seen the true Basedow tremor, with its high frequency. The symptomatic tracing of hysteria is here added to that of Basedow's disease.

Fig. 7. Very slow hysterical tremor; frequency, 3.8 per second.
Fig. 8. Moderate hysterical tremor; 8 per second.
Fig. 9. Rapid hysterical tremor; 10.1 per second. The upper and middle tracings, made simultaneously, give the movements of abduction and adduction, of flexion and extension, of the hand. The tremor persists during passive repose, as shown in the first half of the tracing. In the second half of the tracing passive rest was replaced by active repose, which immediately increases the tremor. After 4 seconds the hand and arm were again caused to rest upon something, and at once the tremor is modified.

Fig. 10. Paralytic dementia. Rapid tremor, 11.2 per second.
Fig. 11. Neurasthenia. Rapid tremor, 9.8 per second. The upper line shows rotation of the hand, the lower line movements of flexion. The maxima and minima do not accord, so that there exists an allorhythmic tremor of space. (See my article.)
Fig. 12. Tremor of multiple sclerosis, 4 per second. The tracing shows that the tremor exists only during active repose and motion. The hand resting upon the table does not tremble. At the point 1 the hand is slowly uplifted, this movement lasts until 2. From 2 to 3 the hand is kept still, and the tremor occurs at once with a rapidly progressive amplitude. At the point 3 the hand is lowered and at 4 it touches the table.

Fig. 13. Belongs to another case of multiple sclerosis, and shows that here the tremor (of 5 per second) appears as well during active repose as during motion, also that the oscillations are greater during the tendency to motion than during active repose, as shown by the single very high oscillation at the start and by the terminal lowering of the upper curve. This figure also gives a fresh demonstration of the fact that active rest gives a less tremor than does motion, since the lateral tremor (represented by the second line), is only produced during active repose, and does not show the high beginning and the terminal oscillations which characterize the first line (flexion-extension).

Fig. 14 to 16. Taken from patients all suffering from paralysis agitans.

Fig. 14 has 4.8 oscillations; Fig. 15 has 6.8, and Fig. 16 has 7.8. This last one shows very apparent allorhythmia, in strong opposition to Fig. 15, which gives a purely sinusoidal curve.
Fig. 17. Essential tremor; 8.8 per second.
Fig. 18. Post-hemiplegic tremor; 3.9 per second.
Fig. 13.

Fig. 14.

Fig. 15.

Fig. 16.

Fig. 17.

Fig. 18.
MONOGRAPH OF A STIMULANT, SEDATIVE, ANTISPASMODIC EXPECTORANT.

By M. E. CHARTIER, A.M., M.D., etc., etc.
N. Y. City.

There is hardly a practising physician who has not a favorite cough mixture which he prescribes "as long as it cures." Besides, every private or public hospital, infirmary or sanitarium has its own standard cough mixture which is ordered as a matter of fact, regardless of ambient conditions. I could mention also the numerous new formulas which are to be found from time to time in the medical journals. As far as I am concerned I must confess that for years I have tried many preparations recommended by the highest medical authorities, and the result has been far from being entirely satisfactory. Until recently I have been partial to some extent to the various preparations of codeine, particularly when dealing with phthisis pulmonalis, pneumonia, bronchitis, whooping cough and asthma. Codeine, however, is far from being altogether satisfactory, as it has a tendency to increase the dyspnea, while in some instances it depresses the heart in an alarming way. In fact, codeine is nothing more or less than a soporific expectorant, the therapeutical indications of which are quite limited.

To the majority of cases when an expectorant is wanted, it is necessary that it should act at the same time as an antispasmodic as well as a sedative. The qualifications which are possessed by heroin are amplified to a marked degree when heroin is combined with terpin hydrate. My attention was called to this fact by a clinical report made by Dr. Wm. F. Keins, Physician to Women and Children Hospital, Newark, N. J. In this report, Dr. Keins, referring to terp-heroin, gives this opinion based upon the results from his hospital and private practice:

"Summarizing, I find that terp-heroin has these advantages: Instead of interfering with the secretion of the respiratory system it assists. It stimulates respiration and prevents stagnation of the secretions. It does not interfere with the action of the heart.

"It is not constipating.

"It does not produce disturbance of the stomach.

"It is not only palliative but curative.

"It is pleasant to the taste, even to children.

"It is an elegant preparation.

"There is no danger of acquiring the drug habit.

"It is my opinion that it is a most reliable adjunct in the treatment of all diseases of which cough is a disturbing symptom, and especially la grippe. . . . I believe it will thereafter constitute a much valued aid in relieving cough, and be a part of the daily armamentarium of all who have given it a thorough test."

This opinion of Dr. Keins is based on extended experience, and in this respect it may prove interesting to state a few cases reported by him:

Case 1.—Mr. H., aged 38 years, came into my office November 25. He was very weak, distinctly cyanosed, and his cough was so trouble-
some that, with great difficulty, he gave me a history of his disease. Ten days previously he had been taken with severe pains in the head, back and limbs, followed by a cough which was so bad that he had not slept for a week. He had lost fifteen pounds; pulse 124 per minute; temperature 101; harsh breathing, dry and moist rales over his entire right lung. He was put on strychnine sulphate gr. 1-30 and terp-heroin f5i every 3 hours. The next morning he said he had slept well, the first sleep he had had for a week. Temperature was 99.5 deg. F.; respiration easy, and pulse 70; had a slight attack of coughing that morning when he awoke. His spells of coughing in the morning gradually grew less, his pulse better, cyanosis disappeared, and by the fifth day his cough had entirely disappeared; pulse 70, and convalescence was fully established. The lungs cleared up without any further trouble. He was so much pleased with the relief that he received from the terp-heroin that he always speaks of it when he sees me. During his illness his daughter was taken with the same disease. She was immediately put on terp-heroin, and her cough, which it first was severe, was at once controlled and gave no further trouble.

Cases 2-3.—Nov. 8, 1901, Mr. and Mrs. H., came into my office, giving a history of la grippe for which they had been treated by another physician, but which had left them both with a harassing cough. They both coughed so violently while in my office, that the family in the same house remarked about it to me after they had gone. I put Mrs. H. on a cough mixture containing codeine and to Mr. H. I gave a sample bottle of terp-heroin. I saw them the following day and Mr. H. was much improved, while Mrs. H. had received little or no benefit. I ordered Mrs. H. to also take terp-heroin f5i every 3 hours. The following day both were very much better, and three days later their coughs had disappeared entirely. To their son who was coughing severely they gave the same remedy with a similar result.

Case 4.—Mrs. L., age 65, was taken, on January 11, 1902, with violent pain in the head, back and limbs, and with marked evidence of inflammation of the respiratory tract. Pulse was rapid and weak. The systematic depression was profound, showing intense intoxication. Free action of the bowels and other secretions was secured by the use of calomel. Quinine and strychnine were exhibited to support the system and heart. Terp-heroin was given in doses of f5i every 3 hours for the cough, and as a respiratory stimulant. The cough was completely controlled, respiration much improved, expectoration was free. In a few days convalescence was established and an uncomplicated recovery the result.

Verifying the experience of Dr. Keins and showing a still wider range of usefulness for this preparation we quote from an article published in the Medical Examiner-Practitioner by Dr. Louis LeRoy, Nashville, Tenn., Professor of Pathology of the Vanderbilt University, and State Bacteriologist. Dr. LeRoy is a well known authority, and what he says on this subject will be, we think, of exceptional interest to our readers. We quote as follows: At the more severe stage of whooping cough small doses of terp-heroin will be found to relieve the frequency and intensity of the spasms without deranging the digestion.
or nauseation of the patient to the extent that ipecac will. In tuberculosis in which there is a troublesome, irritating cough, it will be found of benefit, relieving the additional source of irritation which the severe coughing produces. In this way it becomes desirable as a synergist to the action of creosote, the dose of which seems capable of being increased to a greater extent than when uncombined. In attacks of the pulmonary type of grippe not only will the cough be found to be modified, but the headache frequently so troublesome will be greatly modified.

The antispasmodic action of terp-heroin was well manifested in one case which came under the writer's care in which the patient was afflicted with a very troublesome attack of hiccoughs. A two drachm dose was administered at once followed by three one drachm doses at intervals of half an hour when slight nausea was produced, and the hiccoughs entirely stopped and did not return. In acute tonsilitis it will relieve much of the pain and discomfort while the usual local treatment is being instituted.

As an analgesic a pleasing combination will be found by combining drachm doses with the desired dose of any of the coal tar antipyretics.

In line with the observations made by Drs. Keins and LeRoy I may mention the clinical observations of Dr. Paul Fitzgerald, attending physician to Baby's Hospital, Newark, N. J. Dr. Fitzgerald, after stating that he had cured with terp-heroin many cases of influenza, makes a special mention of the marked success he had in the treatment of all kinds of coughs in children.

"Terp-heroin," he says, "has a sedative as well as a loosening effect. When children waken in the night with that hard cough that seems to come from the depths of the lungs terp-heroin quiets them, relieves first and then cures the cough by lessening the paroxysms. In evidence I quote following cases among many others:

Case 1.—Baby, one year. Severe influenza, cough marked, harsh and dry at night. Terp-heroin given in 25-drop doses every 3 hours. Relief first night from the harassing cough. Codeine has been used in solution with spts. frumenti, but has had no effect. Terp-heroin accomplished what the other had failed to do.

Case 2.—Child, 3 years. Capillary bronchitis. Terp-heroin administered in 40 minim doses every 3 hours. The relief was marked, secretion was re-established and the case went to speedy recovery.

Case 3.—Young man, 25 years. Severe coughing with attack of la grippe. Cough stopped entirely in three days by use of terp-heroin.

Case 4.—Young lady, 18 years. Pneumonia. Terp-heroin given to ease cough. Secretions promptly re-established and patient rendered easier because of loosening of mucus. This young lady made a fine recovery, and strange to relate has no consecutive, persistent cough as is so often the case.

Terp-heroin, it may be said, has been extensively used with success in the treatment of bronchitis in its various forms. Dr. Olney Banning, of Boston, Mass., obtained very satisfactory results in a case of bronchitis of three years' standing; the patient being seventy years old. Similarly, Dr. John Young Love, of Elizabeth, New Jersey, has also successfully used in the treatment of chronic bronchitis terp-heroin,
which he considers to be "the best cough remedy in the medical world to-day."

Dr. Phillip Ricord, of Newark, N. J., reports that he has tried terp-heroin on himself with the result that "his cough was cured as well as the cough of many of his patients" to whom he administered the same treatment.

Dr. W. E. Baldwin, of Newark, New Jersey, who has had a wide experience with the various preparations of heroin, thinks that terp-heroin is far superior to other similar preparations. He reports this case:

Agnes B., age 6 years; for the past 3 years has each fall had a very severe attack of suffocative bronchitis. Her last attack was exceptionally severe. Respiration, 75 per minute; pulse, 180 per minute. Patient was put on terp-heroin, 30 minims every 2 hours. In six hours symptoms began to abate, and in 24 hours pulse and respirations were almost normal. Succeeding cough yielded readily to a continued use of terp-heroin.

Dr. Harry P. Schlansky, Physician in Charge, Beth Israel Hospital, New York city, may be quoted without comment.

"I have used terp-heroin," he says, "in about twenty-five cases in my private and dispensing practice, and from its use I have obtained excellent results.

The following are a few cases, briefly related:

Case 1.—Mrs. G. K., has tuberculosis, coughs and expectorates profusely; it bothered a great deal; prescribed terp-heroin 5ii q. 3 h. and the patient told me it has relieved her a great deal of the distressing cough; have advised her to continue use of the preparation.

Case 2.—C. L., male, chronic bronchitis; cough and pain; prescribed terp-heroin 5i q. 2 h. and it decreased cough and pain.

Case 3.—Mrs. A. C., bronchitis; cough, with pain; prescribed terp-heroin 5i q. 2 h. and it relieved her of the cough. (Patient claimed it worked wonderfully.)

Case 4.—Mrs. B. M., asthma; coughed a great deal and was kept awake on that account mostly all night; prescribed terp-heroin 5ii q. 2 h. and results were excellent.

Case 5.—T. C., child, age 2 years; bronchitis; prescribed terp-heroin, 15 drops q. 3 h. and results were excellent.

Case 6.—H. F.; tuberculosis; gave terp-heroin for cough 5ii q. 2 h. and it decreased the excessive cough.

"I could," concludes Dr. Schlansky, "write out many more cases in which I have used this preparation, but the few cited will serve to show the excellent results obtained."

Drs. Lewis H. Brown, of New York city, and E. Clair Derickson, of Bedford, Michigan, have also obtained remarkable results with terp-heroin in the treatment of influenza, laryngitis and whooping cough.

From personal experience I may add that I have found terp-heroin almost invaluable for the prevention and cure of hay fever. As a rule the patients expect the attack several days in advance. The following treatment, if administered in time, will invariably prevent the attack: Terp-heroin, one teaspoonful every 3 hours in connection with quininc
hydroferrocyanate 1-30 grain. Where the hay fever already affects the patient, the same treatment is indicated; but in addition, recourse should be had to a nasal douche of Glyco-Thymoline. In a few days the cure is obtained almost to a certainty; at least, this is my experience.

In bronchial asthma of a mechanical nature as well as in cardiac asthma I have found also that terp-heroin acts with wonderful energy and brings prompt relief. In cardiac asthma, however, it may be advisable to administer 1-100 gr. datusine. In bronchial asthma of a mechanical nature I seldom resort to datusine, but instead give hyoschamine gr. 1-100 and sulph. of strychnine gr. 1-50 with every teaspoonful of terp-heroin. After the paroxysm terp-heroin alone is indicated.

In conclusion I would like to state that I am quite partial to the administration of terp-heroin in preference to other preparations of heroin, not only because the results obtained are prompt and satisfactory, but also because it constitutes a perfect pharmaceutical preparation in the true sense of the word. The dosage is accurate (terpin hydrate grs. 2, and heroin gr. 1-24 to the drachm), and the vehicle (I'sumnus Terotina and glycerine C. P.) is eminently palatable. In other words the motto "Tinto, Cito et Jucunde" readily applies to terp-heroin.

GLUTOL.*

By Professor C. L. SCHLEICH, Berlin, Germany.

FORMAL GELATIN AS AN ASEPTIC HEMOSTATIC AND OCCLUSIVE WOUND DRESSING.

Placed upon the market under the name of Glutol the granular formalin-gelatin fulfills, in Schleich's opinion, all the requirements of a dressing to effect a natural healing of wounds. [Such are the formation of a plasma-like intermediary substance for the provisional organic union of the edges of the lesion, the nutrition of the cells from the vascular supply of wounded area, and the promotion of agglutination of the separated surfaces.—Note by the Schering Chemical Factory.] In the sutured edges of a wound that is designed to heal by primary intention, Glutol rapidly solidifies the exuded serum into a solid plastic crust. It shares with ordinary gelatin the property of being a most excellent hemostatic, and promotes rapid natural healing by the firm union of the divided tissues. In addition to this it effects a continuous and automatic local disinfection. As Schleich has elsewhere stated, cell activity and the action of the ferment produced thereby cause the production of a continuous stream of formaldehyde from the otherwise insoluble and non-antiseptic combination of formaldehyde gas and gelatin.

AUTOMATIC DISINFECTION.

In the year 1893 Gegner and Hauser demonstrated that formaldehyde changed animal gelatinous substances into a substance that was insoluble in warm water; and Schleich found that the living cells of the

animal body would again effect its solution. Schleich also showed that the action of pepsin for twenty-four hours dissolves this formalin-gelatin; and Weyland found the same to be the case with the pancreatic ferment. On the basis of these observations Schleich began the employment of the indifferent powder resulting from the action of formalin upon gelatin in the treatment of wounds, with the idea of preventing primary infection and of hindering the progress of suppuration in cases where infection had already occurred; and the remarkable results that he attained have been confirmed by subsequent observers.

Schleich thus established a new principle that of cellular antisepsis, in the treatment of wounds. All former preparations were bodies that were of themselves antiseptic, or that separated an antiseptic principle when brought in contact with wound secretions or the alkaline blood serum. In either case large amounts of the agent were suddenly put in contact with the wounded areas; with the result either of molecular death, or the formation of insoluble and indifferent albuminous combinations. In any case there could be no question of a continuous antiseptic action. Glutol, on the other hand, is not affected by the alkaline fluids; and the cellular activity of the wounded surfaces effects the continuous production of a minimal, so to say microscopic amount of the antiseptic formaldehyde, proportionate to the activity of the reparative process.

Clasen has asserted that the antiseptic activity of Glutol is due to the accidental presence of small and indeterminate amounts of paraform in the preparation. Schleich has demonstrated this to be incorrect by a careful series of experiments, in which he showed by the sulphurous acid fuchsin test that no trace of formaldehyde was present in it. It was present, however, after the Glutol had been digested and dissolved by twenty-four hours' treatment with a pepsin-hydrochloric acid mixture. He showed conclusively that Glutol is a pure chemical combination of gelatin and formaldehyde insoluble in either acids or alkaline, but soluble with the formation of formaldehyde under the influence of pepsin. He also demonstrated beyond peradventure that pus cells effect a similar transformation.

Many other chemical combinations of condensations of organic substances with formaldehyde can of course be prepared; but direct experimentation only can decide whether separation of the antiseptic agent from them is effected by the life activity of the cells, or whether the alkaline secretions of the wound alone suffices. In the latter case the preparation presents no advantages over the older antisepsics. In conjunction with Gottstein, Schleich tried a large number of these combinations; thus as long ago as 1896, they used a combination of amylum with formaldehyde. They demonstrated that all these preparations were much less effective than Glutol. So far as we know it is gelatin alone that leads to that specific change under the influence of formaldehyde that leads to the production of a substance that is soluble only through cell activity and ferments. Amyloform, for instance, is soluble in both alkalies and acids, and formaldehyde is immediately given off in large amounts when it is placed in contact with wound secretions; it gives the reaction immediately with the

*See paper read by Gottstein before the Hufeland Society of Berlin, and published in *Therapeutische Monatshefte*, February, 1897.
fuchsin-sulphurous acid test. It is antiseptic, of course; but it differs in no way in its action from any other agents of the kind that have been long in use.

Experimentation also showed the continuous though minimal separation of formaldehyde for a long time after the wound has been occluded with the Glutol dressing. There can be no question that this gradual production of the antiseptic gas and its presence either free or dissolved in the wound under the dressing, must exercise at least an inhibitive influence upon bacterial development in the depths of the lesion.

The conditions are somewhat different in lesions that are not healing by primary intention; for contact with healthy tissue cells is necessary for the solution of the Glutol and the production of the antiseptic gas. Necrotic material, fibrinous exudations, and foreign matter of all kinds prevent this. Nevertheless, even in these cases Glutol limits and stops the suppurative process wherever healthy tissues have been incised. Its efficacy is demonstrated by the fact that since its employment was begun in the year 1894, not a single suppurative process progressed. Many practitioners have had abundant opportunities to observe Schleich's methods; and more especially Drs. Wittowski, Symes, and Schwersenski are ready to testify publicly to its efficacy in these cases.

THE ARTIFICIAL NUTRIENT MEDIUM PROCESS FOR EXCESSIVE CELL PROLIFERATION AND REMOVAL OF BACTERIA.

The excessive production of cellular material varies in amount with the quality of micro-organisms that are present, and is apparently a protective process on the part of the tissues, supplying the bacteria with a nutrient medium, and preventing their invasion of the tissue cells themselves. The law of motion in the direction of least resistance must apply to the micro-organisms as to all other living bodies, and of two sources of nourishment they will take that which is most readily accessible. Where there is dearth of exuded tissue fluids and cellular elements, they attack the imperfectly vitalized new tissue itself. In the course of his experimentation with Glutol, Schleich has had occasion to conclude with ever increasing certainty, that the gelatin placed in the wound acts as a nutrient material that attracts the bacteria, and thus sustains and completes the natural process of the sacrifice of albuminous material upon the surface of the wound. It affords a source of nutrition more accessible than the cellular fluids, and containing no living resistant elements, and therefore preferred by the bacteria; for every living organism prefers to eat rather than to be eaten. The author believes that this new therapeutic idea may be found very valuable in the future, not only in the treatment of wounds, but also in the specific granulation tumors such as tuberculosis, syphilis, etc.

GLUTOL AND SERUM POWDER; FIBRINOLYSIS, CHEMOTAXIS AND TISSUE PRODUCTION.

The idea of selective nutrition has already been proven to be of especial usefulness in the suppurative process. It is only necessary to add serum powder to the Glutol to produce natural conditions favorable to the purulent process even in cases where large amounts of necrotic material prevent the direct contact of the tissues with the formaldehyde compound. In this manner a still more intense selective nutrition is attained;
and besides this, the ferments of the blood serum effect that separation of the formaldehyde which the tissue cells under these conditions only imperfectly cause. The author reports that the employment of the serum powder in conjunction with Glutol is decidedly more effective in promoting the extrusion of necrotic shreds and fibrinous exudations than the pure Glutol or other dressings; and he employs it regularly in all suppurative and unclean wounds in the following proportions:

R Pulvis Serosus (Schleich)
Glutol (Schleich) a. a. p. e.

Particulars as to the preparation of the Pulvis Serosus are given later (p. 72). The theoretical considerations that led Schleich to the employment of the serum powder in infected wounds are simple. The fibrinous exudations are due to the deficiency of the fibrinolytic ferment in the tissues and their fluids. The mere addition of normal beef serum suffices to partly restore its normal physiological properties to the pathological, hydremic fluid, deficient in cells and ferments. Such wounds clean up under these circumstances precisely as they do when we apply pepsin and hydrochloric acid for the digestion and fibrinolysis of the exudates and bacteria. In dozens of infected wounds Schleich has seen the exudations melt away and healthy granulations appear under the Glutol-pepsin-hydrochloric acid treatment. Trypsin and ptyalin, which are also solvents of certain constituents of the pathological exudation, give similar results.

If now the addition of sterile blood serum to the Glutol effects the same solution of pathological fibrinous exudates, it may be assumed that normal blood serum contains a fibrinolytic ferment; which also explains the activity of the Glutol on fresh, non-contaminated wounded surfaces. It also explains the fact that Glutol is entirely inefficacious in specific wound processes, such as those of lues and tuberculosis, where, as Weigert has shown, the fibrinolytic ferment is deficient. The exudations consequent to the deficiency in the ferment prevent the intimate contact of the gelatin and the cells that is necessary for the separation of the formaldehyde; and the specific, hydremic wound secretions do not of themselves decompose the Glutol, which therefore acts only as an indifferent powder. This very want of action under these circumstances is a strong proof of the correctness of Schleich's views as to the mode of action of the Glutol. It is active with a promptitude that is often really wonderful where healthy cell material comes into intimate contact with it, or where the employment of a fibrinolytic ferment (serum powder or pepsin) removes the fibrinous exudations from the free surface of the wound. For the specific tubercular or gummatous exudation no such solvent has yet been found. The internal employment of the iodide of potash will effect it to a certain extent, even in non-specific exudations; for the drug acts upon many varieties of leucocytic aggregations.

There can be no question at all that a chief condition for the regular healing of a wound is the employment of a homogeneous dressing; substances like albumin serum, globulin, nuclein, peptone, etc., are most suitable because they are physiologically most closely related to the plasma and the fibrin that are the natural intermediaries of the wounded surfaces, and therefore cause a minimum of cellular irritation. On the other hand, all the ordinary dressings, from iodoform and antiseptic solutions to sterilized water, are direct cellular poisons, which hinder the reparative and
regenerative functions of the divided tissues, and lessen their powers of resistance to the bacterial invasion. A direct imitation and completion of the natural conditions is the most effective means of promoting repair. Exact and detailed observation of the process of wound healing shows very clearly that the rational treatment consists in the removal of all obstacles to the natural development of the reparative process. The real artificers of the new tissues are the milliards of cells; and they must be disturbed as little as possible in their quiet activity.

**FLUID FORMALIN GELATIN; HINTS ON THE GLUTOL TREATMENT.**

The grated formalin-gelatin or Glutol cannot be dissolved again; hence the material is unsuited to the treatment of fistula and fistulous passages. For several months past Schleich had very encouraging results with Glutol prepared in the following manner:

The nutritive gelatin described on page 25 of Schleich's Monograph is sterilized, rendered fluid in a warm water bath, poured into a small vessel, two or three drops of Schering's Formalin added, and then thoroughly stirred up with a sterile spatula. The thick fluid is then injected by means of a large caliber syringe into the cavities and sinuses to be treated. Schleich notes that his last five non-operative cases of complete or incomplete anal fistula all closed spontaneously after six to ten of these injections, done at intervals of three days. The treatment causes slight but very bearable burning, of which the patient should be forewarned.

Whilst he draws no definite conclusions from so small a number of cases, the author believes that the destruction of the bacteria that are present to as large an extent as is possible, and the introduction of a plasma-like, coagulable material into the fistula, puts the badly vascularized, sclerotic lining of the canal in the best possible condition for repair. He also cured a case of deep, funnel-shaped mal perforans with necrosis of the third metatarsal bone in a tubetic with injections of the fluid formalin gelatin; a result that he had not thought possible without operative interference. The necrotic bone was extruded without any marked suppuration; and the wound healed in four and one-half weeks under injections at intervals of three days without any inflammatory reaction in the neighboring tissues. Nor was there ever any inflammatory reaction in the other cases in which he employed the injection.

In suppurating wounds, of course, the Glutol dressing must be frequently renewed; the formation of a permanent scab occurring less frequently than in aseptic wounds, and being undesirable on account of the liability to the retention of secretions in the wound. The frequent renewal of the dressing is repaid by the shortening of the time required for healing; a result that is always attainable if the Glutol is correctly employed. Schleich employs the Glutol treatment in every case after coaptation of the divided surfaces. He powders it rather thickly over the surface of sutured wounds, where it absorbs the exuded blood, and soon forms a fine scab, closing the lesion and the stitch punctures, and guarantees dryness. In open lesions the pure Glutol is pressed well into all the cavities and sinuosities, and a gauze tampon spread over it.

Schleich calls special attention to the clouded, apparently exudate-covered surfaces that are often seen when the dressing is first changed, and warns against its wrong interpretation. It is caused only by the dissolved Glutol. It looks grayish, sometimes fibrin-like; or it may by the dis-
GLUTOL: SCHLEICH.

valuable; it is gradually absorbed; and then appears, often growing directly through it, remarkably handsome vascularized granulations of normal tone and consistence. More especially when necrotic tissue is present and there is no purely suppurative eliminative process, the Glutol exudate may have a dirty, unhealthy appearance that is quite alarming to the surgeon. But the entire absence of irritation at the margins of the lesion, and of any inflammatory infiltration, the softness and freshness of the skin flaps, and the want of tenderness in the wound demonstrate conclusively that it is the artificial Glutol covering that forms the apparent exudate. And the constant experience that this covering is quickly absorbed by the rapidly growing granulations soon leads us to look with equanimity upon it. It is the one not entirely satisfactory point in the treatment, and it has no weight at all in comparison with the certainty of an undisturbed and normal healing of the wound.

Neither has the abundant purely watery secretion that sometimes appears, more especially in suppurative processes, any importance at all. On the contrary, the transformation of the suppurative secretion into a purely serous one that almost constantly occurs after the free application of the Glutol seems to be an argument for the correctness of Schleich’s interpretation of its action. The bacterial irritation of the wound diminishes when the formaldehyde production begins, and the nutrient material poured out by the tissue cells is no longer used by the bacteria; the ferment containing serum is quite sufficient to effect the liquefaction of the gelatin.

THE SERUM STREAM AND WASHING OUT OF THE BACTERIA.

If Glutol were nothing but a markedly hygroscopic powder (and it possesses this property to an eminent degree), the vigorous exosmosis that it effects would be directly valuable in removing bacteria from the tissues. This drainage is a mechanical method of elimination rather than a chemical destruction, and is eminently rational from a bacteriological point of view. Schleich has had an abundant evidence of the efficient antibacterial action of osmosis of this kind. (See his “Painless Operations,” p. 179.)

It is only in the beginning of the wound healing process, however, that this serum flow is valuable; later on the chemotactic, leucocytes stimulating action of the artificial serum powder is much more rational. The physiological irritation and vascular dilatation effected by the latter certainly helps the process of repair. Schleich therefore employs a mixture of equal parts of Glutol and the serum powder after the first twenty-four hours in suppurating wounds.

The surprisingly favorable effects of Glutol as a dressing for wounds have been testified to by many observers both in human and in veterinary surgery, and the recognition that this action is entirely different from that of all other dressings is universal. That it will effect a cure of fresh, non-disinfected wounds such as cuts, tears, contusions, etc., by aseptic occlusion without any further trouble, is shown by Schleich’s two hundred and thirty cases of injury, which all healed formally without any further antiseptic measures. This could not be accidental when occurring in so large a number of cases and without any exception. It must have been due to the steady separation of formaldehyde from the dressing.

Thus we can calmly leave our fresh wounds to the automatic disinfection effected by the living cell, and regulate to a natural process that
which all our art is still incapable of doing. With Glutol the tissues disinfect themselves; and after the disinfection it gives the surviving microorganisms a sufficiency of free nutrient material, instead of compelling them to seek it intercellularly.

It is of course of vital importance that the preparation of gelatin employed be a perfect one; which perhaps was not always the case before the Schering Factory commenced the preparation of the article. It must in the first place really contain combined formaldehyde; and in the second place it must be in itself sterile. Both these conditions are best conserved by adding a few drops of Formalin-Schering to the container in which it is preserved from time to time.

For it must never be forgotten that Glutol of itself is no antiseptic, and that, once contaminated, the bacteria will flourish quietly amongst its grains. It must be carefully kept, and contact with non-sterilized objects be strictly avoided. A few drops of Formalin-Schering readily keep it permanently sterile.

A non-observance of these precautions may readily lead to a want of results on one day from a preparation that was perfect yesterday; as was reported to the author. The cause was always an admixture of bacteria with the dressing material. The bacteria in the Glutol may themselves lead to the development of the formaldehyde; and thus the active principle may be absent even before the dressing comes in contact with the tissue cells. A proof of this is the fact that badly contaminated Glutol can be dissolved after a time in hot water; whereas never the case with material freshly obtained from the factory. The danger may be entirely avoided by preserving the Glutol in a stoppered glass vessel with a few drops of formalin.

**PREPARATION OF THE GLUTOL SERUM POWDER.**

(Pulvis seros. c. Glutol).

The serum powder is made as follows:

Ox-blood serum from the abattoir, fresh and amber colored, is mixed with 500 grams (17/4 ounces) of finely powdered zinc oxide, poured out on a glass plate and dried. It is then removed with the spatula, and finely powdered, and sterilized in a porcelain dish in a thermostat at 75° C. (167° F.) for twelve hours. This is then employed according to the following formula:

R. Zinc serum powder ................. 150 grams (5 ounces).

Alcohol in which 0.1 gram (1/2 grains) each of ol. melissæ and eosin has been previously dissolved ................ 150 grams (5 ounces).

Macerate for thirty-six hours, collect upon filter and dry.

Speaking of the treatment of catarrhal affections by soluble homogenous remedies, Schleich says that Glutol has an excellent effect in some of the crustaceous affections of the nasal mucosa. I make the patient sniff it up. Days later it can still be seen as a gelatinous coat upon the membrane. Its desiccating action causes a decided improvement in the disease condition. It was interesting to note that in a case of asthma a thorough tamponade of the nose with Glutol always cut short the attacks. For true ozena iodoform-pepton has, I think, a very good effect.
Book Reviews.

Nervous and Mental Diseases. By Archibald Church, M.D., Professor of Nervous and Mental Diseases and Head of Neurological Department, Northwestern University Medical School; and Frederick Peterson, M.D., Chief of Clinic, Department of Nervous and Mental Diseases, and Clinical Lecturer on Psychiatry, College of Physicians and Surgeons, New York. Third edition, revised and enlarged. W. B. Saunders & Co., Philadelphia and London, 1901; handsome octavo volume of 870 pages, with 322 illustrations; cloth $5.00 net.


This is a book written for the student. Its treatment of the subject is clear, concise and not too full. In the past editions it has been a favorite among general practitioners as well as the students for which it was primarily intended, and will no doubt maintain its position. The subject of lacerations of perineum and cervix are especially well covered, and the illustrations in these sections are clear and numerous. Altogether the book may be said to be a well illustrated epitome of American gynecology.

In the New York Medical Record of December 21, Dr. G. M. Edebohls contributes an article entitled “The Cure of Chronic Bright’s Disease by Operation.” Dr. Edebohls first describes the manner in which he worked himself up to this at some length. Briefly, he operated upon a number of patients for floating kidney. These patients also had chronic nephritis. After the operation for floating kidney the evidences of chronic nephritis disappeared.

In January, 1898, he did his first nephroprexy for chronic nephritis. Since that time a number of operations have been performed by him with the idea of curing chronic nephritis. He publishes a series of cases which he says he thinks show that chronic nephritis is curable by operation.

The advent of a new major operation is not such a rarity in these days as to call for much comment in itself. Nor is Dr. Edebohls’ idea that he can cure chronic nephritis in all but practically the last stages is likely to be believed at once. Nevertheless such a daring claim by a man so well known deserves at least investigation, which we have no doubt it will get. Dr. Edebohls presents a series of cases in which the diagnosis of chronic nephritis has been made and in which his operation has been followed by a disappearance of the symptoms. There are eighteen cases, ten of which, for various reasons, are not available for discussion, some having passed out of observation and some having been operated on too recently to consider. To quote from the article: “I have left, eight patients observed from one year to over eight years after operation, further progress of whose cases and whose final conditions fully justify the title
EDITORIAL.

of this paper. These eight patients were all cured of their former chronic Bright's disease, and some of them (case eleven having meanwhile died an accidental death), remained so cured as a result of operation on their kidney or kidneys, none of them having received further treatment of any kind after operation. They are free from all symptoms referable to the kidney, and their urine remains permanently free of albumin and casts. My authority for the latter statement is Professor H. T. Brooks, who has made repeated examinations of the urine in every case except one (case eleven), his examinations in six cases extending over a number of years." The operation as done by Dr. Edebohls is as follows:

The patient is placed prone upon the table, with the author's kidney air cushion underlying and supporting the abdomen. Both kidneys are thus rendered accessible to operation without the necessity of changing the patient's position. An incision is carried from the twelfth rib to the crest of the ilium along the outer margin of the erector spinae, without opening the sheath of that muscle. The fibers of the latissimus dorsi muscle are bluntly separated in the direction of their course, without cutting. The iliohypogastric nerve is sought for and drawn to one side or other, out of the way of harm. Division of the transversalis fascia exposes the perirenal fat. This is divided over the convexity of the kidney until the capsule proper is reached. The fatty capsule is now bluntly separated everywhere from the capsule proper, the dissection advancing on either aspect and around both poles of the kidney until the pelvis of the kidney is reached. Now and then the fatty capsule may be found so thickened and adherent, as the result of chronic perinephritis, that the scissors or knife may be required to separate it from the capsule proper. The kidney with its capsule proper is next lifted from its fatty capsule bed, and, if possible, delivered through the wound. The capsule proper is divided on a director along the entire length of the convex external border of the kidney and clean around the extremity of either pole. Each half of the capsule proper is in turn stripped from the kidney and reflected toward the pelvis until the entire surface of the kidney lies raw and denuded before the operator. In separating the capsule proper from the kidney, care must be exercised not to break or tear away parts of the kidney, which is often both very friable and very firmly connected with its capsule proper. The stripped-off capsule proper is next cut away entirely, close to its junction with the pelvis of the kidney, and removed. Delivery of the kidney makes this otherwise difficult work easy. If the kidney cannot be delivered, the capsule proper must be entirely peeled off the kidney by the fingers in the bottom of the wound, and excised as far as possible, any remaining portion being simply reflected backward around the root of the kidney, where it will curl up and stay. The kidney is dropped back into its fatty bed and the external incision is closed. Drainage, except when the parts are ex-
tremely edematous, is dispensed with. After both kidneys have been thus operated upon, the dressings are applied and the patient is put to bed.

He has had no mortality in eighteen cases. His idea as to how operation acts in bringing about an improvement in chronic Bright's disease is that removal of the capsule removes the barrier to that arterial hyper-emigation from without which from his observation of kidneys chronically inflamed, he believes is the method of repair attempted by nature. Dr. Edebohls' article is very interesting. It is another surgical invasion of the field of general medicine. It follows directly upon the lines of work already done upon the liver. It tells the story of work carefully considered, fearlessly undertaken and conscientiously followed up. If the operation as done will accomplish anything like what its originator claims for it, it is the most important addition to our surgical knowledge in years. The paper is, however, unsatisfactory for the following reasons: He has given us but meager histories of the cases before operation; he has not told the urinary findings in full, nor has he been able to give us microscopic evidence from kidney sections as one might suppose he would have done. To remove a small piece of kidney tissue would be a slight additional ordeal to that organ after having its capsule stripped, and the knowledge gained thereby would be great. The progress of cases must be followed longer in most instances before a cure may be pronounced. It is to be regretted that case eleven, a woman who died one year after operation from an intercurrent disease did not come to autopsy for the sake of those kidneys. But no doubt these deficiencies will be made good so soon as time and opportunity render that possible, and we hope Dr. Edebohls' thoroughly original and practical article will be followed by one a little more histological and complete.
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INDEX TO ADVERTISERS

Ammonol Chemical Co........................... 2
Angier Chemical Co............................. 20
Antikamnia Chemical Co. ....................... 9
Arlington Chemical Co........................... 14
Auto Chemical Co................................ 28
Bermuda S. S. Co.................................. 5
Bovynine Co. .................................. 6
Breitenbach, M. J., Co. ......................... 4
Chesterman & Streeter ......................... 34
Clark & Roberts .................................. 30
Crittenton, Charles N., Co. .................... 3
Cystogen Chemical Co............................. 3
De Bary, F., & Co. ................................ 18
Dios Chemical Co. ................................ 16
Electro Medical Mfg. Co. ....................... 30
Etna Chemical Co. ................................ 4
Farbenfabriken of Elberfeld Co. ............... 36
Fellows & Co. .................................. 35
Foster, John B., & Bro. ......................... 13
Globe Mfg. Co. .................................. 35
Kress & Owen Co. ................................. 13
Immune Tablet Co. ............................... 10
Laughlin Mfg. Co. ................................ 32
Lippincott Co., J. B. ............................ 29
Lucon Chemical Co. .............................. 5, 17
Maltine Manufacturing Co. .................... 5
McGuire, Stuart, M. D. .......................... 14
Mellin's Food Co. ................................ 36
Mcaugh & Co. ................................... 2
N. Y. Pharmaceutical Co. ....................... 10
Od Chemical Co. .................................. 12
Palisade Mfg. Co. ................................ 10
Parmuele, C. R., & Co. ......................... 38
Parke, Davis & Co. ............................... 5
Peacock Chemical Co. ........................... 15
Perfection Chair Co. ............................. 30
Planten, H., & Son. ............................... 12
Reed & Carnrick ................................ 19
Rio Chemical Co. .................................. 7
Robinson Thermal Bath Co. .................... 30
Schering & Glatz ................................... 8
Scott & Bowne .................................... 18
Shaw-Walker Co. .................................. 34
Southern Railway Co. ........................... 28
Sultan Drug Co. ................................... 15
Speer, N. J., Wine Co. ........................... 53
Tincture Amil Mfg. Co., Ltd. ................. 11
Vass Chemical Co. ................................ 11
Wheeler, Dr. T. B. ................................ 12
Williams, P. G. ................................... 31

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HERNIA IN RELATION TO LIFE EXPECTANCY.

By W. B. DeGARMO, M.D., of New York, Professor of Special Surgery, New York Post Graduate Medical School and Hospital.

The insurance companies have long recognized the importance of hernia in its bearing upon long life, and medical directors have endeavor to impress upon their examiners rules which should be in a measure protective, but their success has perhaps been considerably short of that which is to be desired. Unfortunately, the examiner has few writings upon the subject which he can refer to as a reliable aid in forming an opinion in any given case, and his surgical teaching in this branch of surgery has not been clear.

In most instances the applicant is required to sign a special clause attached to his policy, by which he agrees to wear at all times a "good-fitting truss." The intent of this is in the interest of the company as well as the man, but as a matter of fact, it amounts to little to either, for the reason that just what constitutes a good-fitting truss, no one competent to judge is called in to decide.

In one just such instance the author found the insured wearing a left side truss upside down for the protection of a right side hernia. This, the wearer asserted, had been applied by the same doctor who had examined him for insurance. The truss clause was in this, as has been seen in many other instances, little more than a delusion, and more likely to lead to serious results to the man and loss to the company with, than without it, owing to a false sense of security on the part of the insured.

It has been estimated that of the entire population, between seven and eight per cent. suffer from hernia of one form or another, but this estimate includes many that are not of an insurable age, and are therefore left out of the present consideration.

Perhaps the most reliable figures for our present use are the statistics of the Provost-Marshal-General's Bureau, compiled after the Civil War, which show that among the drafted men, 500,000 in number, the number of hernias found was between 31 and 32 per thousand. These statistics agree closely with those compiled from the examination of conscripts in France, and as they were in both instances among men of an insurable age, they have special bearing upon the subject under consideration. Over 1,000,000 men were examined during the Civil War in this country, but
only those who were examined as a result of the draft should be considered. The fact that among the drafted men in the United States and the conscripts in France the percentage is almost identical is strong evidence that the number of hernias existing in men between eighteen and forty-five, as here given, is fairly correct; i.e., that men between the ages stated are the subject of hernia to the extent of from three to four per cent. This is considered a thoroughly conservative estimate and probably a little below the actual facts.

If then, about four per cent. of all the applicants for insurance have hernia, what risks do the companies take upon them as a class? It seems impossible to compile very reliable tables upon this subject, but those from the larger London hospitals and the experience of the London Truss Society, prepared by Macready,* are as trustworthy as can at present be obtained. In the latter tables, prepared from cases operated upon for strangulated hernia, he shows that a little more than one-third died. He also calculates that among 21,116 ruptured persons recorded, 117 died of strangulated hernia, and therefore gives the death rate as one-fifth of one per cent. In the tables of the Registrar-General of London for a period of twenty years, it is shown that the annual return of deaths from strangulated hernia is 43.5 per million of the living, the actual deaths in each year averaging 1,208.

Could the truss clause attached to the policy of the ruptured man be so executed as to insure his being supplied with and taught how to wear an efficient truss, there is no doubt that this death rate would be materially lessened.

During the past fifteen years there have been remarkable changes in the understanding and treatment of hernia, and the author feels confident in asserting that the time will come when most insurance companies will decline to take ruptured men as risks without special fees, and this for two reasons. First: No matter how carefully mechanical treatment is carried out in these cases, it goes without saying that there is always an element of risk that does not apply to the man who has no hernia. Second: In former times an operation for the cure of hernia could not be insisted upon by the company because it was not only attended by considerable risk to the patient, but it was in no degree certain as to its result. This, by the general advance in surgical methods and the special advance in the operation for the cure of hernia, has been entirely changed and would, even now, if fully comprehended by medical directors and their superior officers, lead to a change in the requirements of the companies.

This, however, is anticipating the future, and will be considered by many as a radical view of the subject, and in the meantime it is well to ask ourselves just how these men can be admitted to insurance and at the same time protected against the risks of strangulated hernia.

Every year the truth is becoming more firmly fixed in the mind of the medical man that strangulated hernia is strictly a surgical subject, and that it must be promptly treated by the surgeon; that it has, in fact, no medical side. When this has become a recognized fact and prompt action is taken accordingly, then at once the mortality rate will be largely reduced. Delay is the all-important thing to avoid in this trouble. The surgeon should be called, if possible, but far better for the average physi-

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cian to operate at once than take the risk of any great delay. But this is reversing the proper order of our subject, considering the last part first, and it will perhaps be more practical to make a few suggestions that will aid the examiner in his rather difficult work in making careful selections of risks for his company.

The important questions to the examiner are:
1. Does hernia exist?
2. Is it reducible?
3. Is a good truss being worn?
4. Is the truss being properly worn?

Does hernia exist? This question opens up such a wide field in diagnosis that it is impossible to answer it in so brief a paper. From the examiner's point of view, however, it can be made very simply. Reducible tumors in the region where hernias are generally found are almost uniformly hernia. This is at least the safe view for the examiner to take.

FIG. 1.

Showing complete inguinal hernia on the right side and bulging over canal on left, indicating incipient hernia. The treatment by truss should protect both sides. If operative, both sides should be operated upon.

An even more important question relates to the type and reducibility of the hernia or its possible complication.

Inguinal Hernia. An inguinal hernia of medium size, such as shown in Figure I, i. e., not larger than a hen's egg, which returns completely to the abdominal cavity, can usually be safely retained by a proper truss and should be no bar to insurance. If, however, it is found that with the person recumbent, there remains thickening in the upper part, or any part of the inguinal canal, then there are complications (adhesions, thickened sac, cyst of the cord, or varicocele), which will make truss retention uncertain and therefore, the risk an extra hazardous one. Scrotal hernia, or those of large size not scrotal, should constitute a sufficient cause for rejection even though they may at the time he retained by the truss. There is no certainty that the applicant may not at any time, either from loss of spring power or the breaking of the truss, have a protrusion and suffer from strangulated hernia. Double inguinal hernia increases the difficulty
of truss fitting, and there is no good reason why it does not double the risk of strangulation.

What constitutes a "good-fitting truss?" One that retains the protruding viscera within the abdomen, with its springs so shaped to the body that it will remain constantly in place no matter what position the person assumes. The pad should be convex and just long enough to cover the canal, and its lower edge should always rest a little higher than the upper edge of the pubic bone, never upon the bone.

Fig. II.

Right scrotal hernia, prepared for operation. Truss treatment had failed to retain and is never perfectly reliable in such cases. Protruding mass both omentum and intestine.
In order to emphasize bad, and therefore unsafe, truss fitting, the photograph of a very common type is introduced. (Figure III.) Perhaps there are more of this form of truss sold by druggists and instrument makers than any other, and still it should have been abandoned nearly one hundred years ago. As shown in the photograph, the truss-pad is acting as a compress over the pubic bone, keeping the hernia out of the scrotum, it is true, but leaving the canal unprotected, full of protruding bowel, and liable to strangulation at any time.

Figure IV shows the same man on the same day with his hernia held in proper position, relieving the cord from pressure and keeping the bowel within the abdomen. Support has been given to both sides, as an incipient hernia was found to exist on the left. The pads are so applied that the upper part of the canal is closed. The spring of the truss is so shaped as to follow around the pelvis just below the crest of the ilium, where it is free from the movements of the abdominal muscles above, and the muscles of the thigh below. Trusses should be constructed in the most durable manner possible, and for this reason, as well as reasons of cleanliness, those covered with hard rubber are to be preferred.

It is in the interest of insurance companies that truss-wearing policyholders not only have a secure and durable truss, but that they be carefully taught its proper use. Wearers who relieve themselves of the irksomeness of truss wearing by leaving off their trusses evenings (a common practice), do not realize in many instances the dangers they incur. Nor do they appreciate their danger in getting up in the night or bathing, or
dressing in the morning without putting on the support. The average truss seller gives himself little concern about instructing his customer on these points, even if he appreciates their importance himself. Medical directors of the larger companies would do well to issue a few plain instructions on this subject to present to those who are asked to sign the “truss clause.”

Femoral Hernia. In this type of hernia the dangers of strangulation are materially increased, and it is very doubtful if any truss can be so applied as to make the wearer perfectly safe. A large percentage of sufferers from this form of hernia eventually have strangulation. Owing to the structure of the parts, the fatal effects are more rapidly developed than in other varieties of hernia. Such applicants should only be admitted to insurance after the most careful truss-fitting, and with the pledge of keeping themselves under medical inspection. The difficulties of accurate truss fitting are much greater than in inguinal hernia. In order to secure complete retention, a small, prominent pad must be firmly held in the femoral space. Owing to the motion of the thigh this is hard to accomplish, and because of the close proximity of the large vessels and spine of the pubes, is very uncomfortable if its position is not exactly maintained.

Umbilical Hernia. If very small and recent, this may not be sufficient cause for rejection, especially if in a person who can be made to realize the importance of careful truss protection. The latter, however, is absolutely essential, as in no form of hernia are adhesions so quickly formed, and the company accepting such applicants takes both the moderate risk of the hernia and the uncertainty of its proper care by the insured.

The examiner should make the most careful investigation as to the complete reducibility and perfect retention of the hernia. Small, reducible hernias in not very fat men, may be acceptable, but this defect attended by overweight should always reject. Fat applicants should always be
carefully examined for umbilical hernia. This form is more frequently found in women than in men, but is more common in fat men than generally supposed.

Ventral hernia may come from congenital defects in the muscular wall or from defects of union following abdominal operations. The congenital form usually presents along either edge of the recti muscles as a small, round tumor, and is frequently accompanied by vague abdominal symptoms. Many of the cases seen by the author have been previously treated for dyspepsia, intestinal indigestion, cancer of the stomach (when vomiting had been present), and various other ailments. In several instances the patient had not had sufficient local pain to deem it important to call his physician’s attention to the small tumor. These hernias are seldom perfectly reducible and should, as a rule, cause rejection, or detention until cured by operation. Their operative treatment is eminently successful and recurrence has been unknown in the author’s experience.

Traumatic Ventral Hernia. A few years since, this was not at all uncommon in those who had been operated upon for appendicitis, but more recent surgery has taught how to open the abdomen without cutting across muscular fiber. In suppurative cases, when large openings have been essential as a life-saving element, ventral hernias are pretty sure to follow and are not easily closed by secondary operation. While strangulation rarely occurs, the tendency, even under careful attention, is towards a gradual increase in size and to the introduction of new dangers from intestinal adhesions. They are therefore undesirable risks. The scientific and careful studies of Treves show conclusively that those who have had abdominal operations are much more liable to subsequent intestinal obstruction, and this risk is certainly increased where there is a break in the continuity of the abdominal wall.

This, however, does not apply to a small reducible ventral hernia which may be easily retained by a light truss, or easily cured by a simple operation. It should be borne in mind by the examiner that traumatic ventral hernia in the median line is much more difficult to cure and more liable to become troublesome than one coming through good muscular tissue; also that where the incision has been large that the muscular fiber, nerves and blood vessels have been cut and therefore the whole region more or less permanently impaired.

Irreducible Hernia. Any hernia that has become irreducible, no matter of what type, or how small it may be, has become a sufficient menace to life to prevent serious consideration as an insurance risk. The history of these cases shows conclusively that it is only a question of time when they will get into serious trouble. Fortunately, thanks to the wonderful advance in this line of surgical work, other things being equal, these can be converted into thoroughly good risks by permanently curing them of the hernias.

Strangulated Hernia. It may be said that this is a phase of the subject with which the examiner has nothing to do, but this is an error. It is of the utmost importance in every instance where the ruptured man comes before him to know, if possible, whether that man has ever had symptoms of strangulated hernia. Even with his best endeavors he will be pretty sure to fail if the applicant is inclined to deceive. With the most
honorable intentions, however, many applicants will answer the question incorrectly if asked "whether they have had symptoms of strangulation." This is because the symptoms of strangulated hernia seldom begin with local pain, and it is only when the case is well advanced that the obscure, colicky pain in the vicinity of the navel is attributed to its true cause, namely, a protrusion of hernia in the inguinal or femoral region.

It is better to ask the applicant if he is subject to, or has ever experienced colic or pains of that character across the center of the abdomen.

An applicant suffering from hernia who has ever had one or more attacks of strangulation, or who is subject to attacks of obscure abdominal pains, no matter what form of hernia he has, how small it may be, or how well held it may appear to be by the truss, that man is not a desirable risk for the insurance companies.

The Surgical Cure of Hernia. The present possibilities of the operative cure of hernia are perhaps not fully appreciated by many medical directors, as the complete revolution in this branch of surgery has been brought about so quietly during the past decade, that many physicians are slow to admit that this defect has been taken from the list of incurable, and firmly placed on that of curable diseases.

Many of the companies do not yet fully realize that every man rejected on account of hernia can be safely cured and thereby converted into a desirable risk. Furthermore, when they appreciate that the risks now taken on ruptured men can be practically done away with by requiring that applicants shall be cured before admission to insurance, there is little doubt that it will lead to important changes in the ruling on this subject. Of course the permanence of these cures will have to be proven to them, and will be in due time. The experience of those who operate extensively is that 99 per cent. of the cases operated upon are permanently cured.

The success and safety attending the present methods of operating are far beyond anything that the most sanguine operator ever expected to see and it is making important changes in the calling of ruptured men.

In the British army and navy no man who is or has been ruptured is admitted. Even though he has been operated upon, this rule applies. Formerly it was so in our own army and in our municipal police, but the ruling has been changed, so that after operation the man is acceptable. In our army, formerly, a man ruptured in the service was entitled to his discharge and a pension, but now he has the choice of submitting to a curative operation and returning to service, or receiving his discharge without pension.

The police examiners now pass men three months after operations for hernia, and during the Spanish-American War the author operated on men who had been rejected for hernia who were afterwards enlisted within three months of the operation.

One point regarding the cure of hernia by operation many of the companies have been obliged to concede. A few years since they were very slow to cancel the "truss clause" on the policies of those men who had been cured by operation, but now, most of the larger companies do so promptly and without question, and it is believed that the time is not far distant when they will refuse to insure men suffering from hernia.
SEMINAL VESICULITIS—FRASER.

HOMER E. FRASER, B.S., M.D.,
Assistant to Chair of Genito-Urinary Diseases of Long Island College Hospital Medical College; Assistant Genito-Urinary Surgeon to Kings County Hospital and Polhemus Memorial Clinic.

The seminal vesicles are situated in the rectovesical space, on each side of the median line. The vesicle is about two inches long, irregular in outline, with numerous diverticula and trabeculae, and lined with columnar epithelium.

The ejaculatory ducts connecting the vesicle with the urethra are about three-fourths of an inch long, pierce the prostate, but are not attached to the gland tissue. They open into the prostatic urethra on each side of the coput gallinaginis. With the fibers of the lower part of the vesicle there is an intermingling of the fibers of the prostate. When ejaculation occurs, there is a muscular contraction of the walls of the vesicle which limit the transverse diameter of the cavity, and a contraction of the prostatic muscles limits the length of the vesicular cavity. This decreases the length of the ejaculatory duct and thus increases the caliber of the tube.

All this is important to bear in mind, as anything that interferes with these functions produces pathological symptoms.

Vesiculitis is divided into atonic and inflammatory.

Atonic vesiculitis is where the vesicle is unable to empty itself in whole or part of its contents, due to loss of muscular tone. As a result of this the vesicle becomes over-distended and in time is the seat of inflammation. This condition predisposes to infection by micro-organisms, which occurs sooner or later.

Inflammatory vesiculitis is divided into simple, gonorrheal and tubercular. Simple inflammation may be acute, sub-acute or chronic.

The acute may involve only the epithelium, but more frequently the inflammation extends to the wall and often to the tissue surrounding the vesicle. Abscess may form in this perivesicular inflammation, and the pus find exit into the urethra, bladder or rectum. As the inflammation subsides, it may entirely disappear or become chronic in character.

Sub-acute inflammation confines itself, as a rule, to the epithelium lining the sac, but may invade the wall to a greater or less extent.

Chronic inflammation may be endo, para or perivesicular. There is a gradual change from a round-celled infiltrate to connective tissue formation, causing a hardening of the wall of the vesicle. Contraction of this infiltrate surrounding the vesicle causes it to be bound down. Gonorrheal vesiculitis may be acute or chronic; the infection direct or indirect. The direct is where the gonococci enters the vesicle through the ejaculatory duct. The indirect is where the infection of the posterior urethra extends along the wall of the ejaculatory duct to the vesicle, and gonococci may or may not be found in the vesicle. The indirect is usually chronic in character.

Tuberculosis of the seminal vesicles often is primary, but more frequently secondary to a deposit in the prostate or epididimus. The disease is usually chronic in character, unless complicated with gono-
coccic infection. The walls become studded with tubercular nodules, and the disease may extend to the tissue surrounding the vesicle.

Symptoms of Acute Vesiculitis.—Temperature 102 to 104 degrees, pain in the hypogastric region, lower part of the back and perineum, pain on defecation, rectal and vesical tenesmus. There are also the symptoms of acute posterior urethritis, which is usually present. As soon as the vesicle becomes involved there is a sudden stoppage of the urethral discharge, which later becomes profuse, due to the pus finding an outlet through the ejaculatory duct from the over-distended vesicle. Symptoms of abscess formation may be present; if not, the acute symptoms gradually subside, and the vesicle becomes normal or remains chronically inflamed.

In sub-acute or chronic vesiculitis the symptoms are inflammatory, functional or neurotic.

The symptoms in inflammatory are the same as in the acute form only less marked. In some cases no inflammatory symptoms are present. There may be attacks of acute inflammation from any cause that tends to light up an old inflammation. Quite often there is a slight urethral discharge; at times simply a gluing together of the lips of the meatus or there may be only shreds and pus in the urine. In some cases, in straining at stool, there may be a thick, mucilaginous discharge from the urethra, which may or may not contain spermatozoa.

Functional disturbances of the sexual organs are often present. In many recent cases there is marked increase in sexual power, which later is followed by loss of sexual vigor, the erections being only partial or dying away before the sexual act can be completed. In some cases there is a total loss of erectile power and the subject is impotent.

The nervous symptoms are indefinite neuralgic pains referred to the sexual organs or other parts of the body. It is not uncommon for mental symptoms to be prominent. The patient is melancholic. His mind dwells on his sexual organs and he entertains fears that there is something wrong with the penis, urethra or testicles.

These functional, neurotic and psychical symptoms are not peculiar to vesiculitis, but are also present in posterior urethritis when the vesicle is normal.

Diagnosis.—There may be the symptoms of vesiculitis, but the disease can only be definitely determined by examination of the vesicle by the finger in the rectum and by the character of the expressed contents from the vesicle.

It requires a large experience and a carefully educated touch to determine whether a vesicle is diseased, and if so, its character. In determining the character of the expressed contents, the prostate should be massaged and the patient instructed to pass what urine there is in the bladder.

A few ounces of water should now be thrown into the bladder. The vesicles are stripped and the water now passed will contain only the expressed contents of the vesicles.

The normal empty vesicle cannot always be outlined.

An atonic vesicle has a normal feel, but gives the impression of being full. The expressed contents show sago-like masses in the bottom of the glass, while the fluid has a milky appearance from the liquid parts.
of the spermatic fluid. No pus is present. In acute endo or para-
vesiculitis the vesicle has a baggy feel, and is very sensitive to the touch.
There is more or less pus discharge from the urethra, which at times
is tinged with blood. When there is an acute perivesiculitis a large,
tender mass is felt, at times filling the entire recto-vesical space. There
is a profuse discharge from the urethra.

In chronic endo and para-vesiculitis the vesicle has either a boggy,
firm or sclerous feel, and some tenderness on pressure. The expressed
contents contain more or less pus, mucous and shreds, when granular
patches are present in the vesicle there may be blood.

In chronic perivesiculitis rectal examination shows no line of de-
marcation between the prostate and the vesicle. By placing the tip of
the finger at the base of the vesicle one is usually able to outline the
border of the infiltrate around one or both vesicles. Stripping shows
pus, mucus and shreds.

Tubercular vesicles have a nodular feel. If there is a perivesiculitis
it does not have any marked characteristics from the non-tubercular,
save that it has little or no tenderness on pressure.

Etiology.—Among the causes for vesiculitis may be mentioned any
thing predisposing to congestion of the vesicle, such as inmoderate
sexual connection, masturbation, practice of withdrawal or constant
state of sexual excitement. All of the above predisposes to a congested
condition of the posterior urethra and vesicles, and forms a good field
for pyogenic infection either through the urethra or by colon bacilli
through the tissue. Gonococci is another source of infection.

Treatment.—The treatment of acute seminal vesiculitis consists in
putting the patient to bed, opiates to control pain, light fluid diet, bowels
kept open, urine rendered bland by giving plenty of water to drink and
sandalwood oil for soothing effect on the posterior urethra. Cold or
hot rectal douches have been recommended, but in my experience have
little effect. If there is abscess formation either the expectant plan of
treatment can be adopted, waiting for the pus to evacuate itself through
the bladder, urethra or rectum, or perineal section can be done, tapping
the abscess through the bladder. Others prefer opening the abscess through
the bowel or by puncturing the prostate.

When the inflammation subsides and becomes sub-acute or chronic,
treatment for chronic vesiculitis should be instituted, which consists of
tonics, when indicated, and stripping the vesicles. Stripping should not
be practiced oftener than once in three to five days. If there is blood in
the expressed contents, or signs of acute inflammation from the stripping,
treatment should be discontinued until the acute symptoms have
subsided. Stripping should be continued until not only the expressed
contents is free from pus, but the vesicle is enabled to empty itself.
When the vesicle has regained its tone a moderate amount of sexual in-
tercourse is permissible, while treatment is completed.

Stripping has the effect of causing the absorption of the infiltrate,
preventing and breaking up adhesions and restoring the tone of the
vesicular muscles.

Most cases under forty years of age, under proper care, make a
good recovery. After that age the sexual function may not be restored.

In tubercular vesiculitis only systemic and hygienic treatment is-

SEMINAL VESICULITIS—FRASER.
permissible. If the disease is primary to the vesicle quite a percentage recover.

In this review of vesiculitis it can be easily understood that it is a serious disease. It should always be remembered that it is intimately associated with posterior urethritis and prostatitis and to be successfully diagnosed and treated posterior urethritis and prostatitis must always be taken into consideration.

In the chronic forms the patient ought to be informed that the treatment will necessarily be protracted, but that if he will persevere in the treatment and observe proper sexual hygiene that the chances of his recovery are good.

18 South Portland avenue, Brooklyn, N. Y.

A PLEA FOR FRESH BLOOD EXAMINATIONS FROM THE STANDPOINT OF AMERICAN INVESTIGATORS.

By ROBERT L. WATKINS, M.D., of New York.

At the present time there is a great deal of interest being manifested in microscopical blood examinations by the medical profession. Most of this interest is based on the counting of the red and white blood cells and the presence of the plasmodium in malarial fever. This work has been almost entirely of foreign origin, and this interest it would seem was aroused by the fact that the work came from foreign shores. It would therefore seem quite appropriate for someone to take up the subject from the standpoint of American investigators, for is it not time for America to place itself "in the position with respect to science to which by her wealth and her brains she is entitled?"

While the foundation of the science was laid in Germany more than 50 years ago, the practical development of it has been done in the U. S. of America, and the investigators here have failed as yet to receive the recognition they should. For there are in the blood other things besides the red and white cells and the germ of malaria, things that can be seen by any physician, and it is these that have been discovered by the American.

I have said that the foundation of this work to be described was laid in Germany, because the medicine of to-day has been founded on the pathology of one of the most level-headed scientists the world has ever produced, a man who in his eightieth year has a steady hand and a clear brain. It was he who in recent years investigated the tubercle bacillus, when its discovery was first announced and placed it as a secondary product where it belongs; and this German was none other than Rudolf Virchow. That the profession, I think, is beginning to call a halt in its wild career in respect to this germ of tuberculosis, is largely due to the practical utilization of Virchow's pathology by American investigators. These men have long been neglected and the "watchers on the towers of progress" have many times called the attention of the profession to fresh blood examinations; and the time is fast approaching when the leaders of the profession must place their ear to the ground and listen to this "call," or younger men will step in to fill their places. The term
pre-tuberculous originated in this country, and when used is applicable to this disease as observed by the fresh blood examination. It has been attempted to adopt the term to a certain train of subjective and objective symptoms by a well known physician, but its originator is still on record and his adaptation of it to this blood condition is its only proper use.

It has been said that the Anglo-Saxon race are the greatest travelers on the face of the earth “whether they go for wheat, whether for opium, whether to sell sewing machines or revolvers, but these men of commerce go everywhere.” The American people are the greatest divi-

Fig. 1.

sion of this race. Commercialism has been the great forerunner of progress in the history of the world. The expeditions to the North Pole were not a success either financially or for science until they were taken up as commercial enterprise;—and these great captains of industry are citizens of the United States. They are descendants of our forefathers from foreign soils. America has been the dumping ground for great and small of all countries for many generations. The interest in our nation by those from foreign countries has been such that we are to-day cosmopolitans, and under the Stars and Stripes for 400 years have fought and died the citizens and geniuses of other nations.
Are not the new-born sons of this mighty mixture as good as those from the parent country?

It has been said that we are a nation that will unite the world. Is it not time that the American medical profession were loyal to her own investigators? They have not yet cared to be, not in this work of blood investigation. Compared with some, I am only a traveler through the field of progress. I have taken a few snap shots here and there and thus recorded the glimpses of truth that appealed to my senses with the intention of showing them to the profession, and in this way I have tried to help along the cause of humanity. And still it is said "the people sit in darkness and in the shadow of death." Would it be so, brethren, if the leaders of the profession paid attention to the "call of the watches on the tower of progress?" I say again with a well known writer that our new institutions should "aid greatly in placing our citizens in the position with respect to science to which by her wealth and her brains she is entitled."

From the first the author took up the subject of blood investigation of disease with a great deal of interest and the intention grew upon him
of ultimately making it a specialty so as to be able more accurately to diagnose disease. At that time the subject was little thought about by the medical profession, although off and on it had been brought to their attention. To-day the blood is examined in every hospital, mostly by the dry method; but the original pioneers in fresh blood examinations in America have been grossly neglected. When I look over the careers some of these men, it reminds me of the railroad engineer with the track years in length instead of miles. He sits in his cab always scanning the track ahead for obstructions on the road with the intention of running his train with the human lives on board safely to their destination. These blood investigators have run their train over a rough track. There have been many obstructions on the road, but these I believe have been safely passed and the destination of the train is now plainly in view.

I opened this subject with a plea for fresh blood examination, and will end it by showing photo-micrographs of other than the common run found in the present day test-books of blood diseases.

My intention is to show facts and not theories. If I succeed in showing up this subject from an American standpoint, I shall feel well paid for attempting to comply with the request of the editor of this journal in contributing to the subject of the blood at this time.

I will then simply take up the subject of tuberculosis, a disease which is of interest to all humanity and compare it with rheumatism, bringing out at the same time products that will be found to exist in many other pathological conditions. Before we go on with this, it is better that I give you a few points with regard to fresh blood examinations. It is such an old story that it seems like tautology for us who are familiar with this method to repeat these things so often, but I do so because there are always those in the field on whom these facts have not been impressed.

Blood, to be examined, must be freshly drawn. It must be taken from the individual by the examiner; then it must be examined within
one minute after the specimen is placed under the microscope. In this condition, things are seen as near as they exist in the human body as is possible. The red and white cells will be seen floating about in the serum of the blood. The white cells will be observed to undergo their various ameboid and pugilistic contortions as they perform their normal function or as they come in contact with disease. These cells have been classified too much; although they are apparently various in kind, ultimately they have two functions to perform—namely to build up and to destroy.

The red cells also have their work to perform, but in this article as we said before, we prefer to dwell upon other elements that are found in the blood, for such are far more important than the individual cell as it is studied to-day and those other elements which have been totally neglected by the majority of the profession.

The blood I have always considered one of the vital organs of the body. In the serum of the blood besides the cells, exist many things which are its normal constituents—one of these is the fibrin. Its filaments are of a definite thickness, length and consistency. Pathologically this becomes thickened and elongated. This fibrin is manufactured by
the white cells; it floats next to the wall of the blood vessel to which it is probably attached. This fibrin plays a very important part in the pathology of tuberculosis, rheumatism and many other affections.

In tuberculosis there are chemical changes in the blood that thicken this fibrin somewhat and really produce other pathological elements in the blood stream, and one of these elements has been properly called tuberculous matter. The noted Doctor Watson about fifty years ago (although at that time he had never seen it alone in the living blood), saw after death in tuberculous cases a mixture with pus and a peculiar looking matter. Although Magender had used it before him, it was this and the pus that led him to use this term. This tuberculous matter the pathology of which is now explained in recent text-books, exists in the blood in the advanced stages of the disease in great abundance. In the preliminary stages of this disease it is also present very distinctly, but to a less degree. When it has been found in the blood before the disease has become seated, the disease has been called pre-tuberculous.

Pre-tuberculosis is a term applied only to the disease under consideration before the germ of consumption is seen in the system and as the disease is discernible in the blood as stated. Pre-tuberculosis, then, to be plain, is the existence of tuberculous matter in the blood of one in the incipient stages of consumption. This pre-tuberculous condition is plainly shown in Fig. 1.

This specimen of blood is not taken from an advanced case, if it was there would be more of the tuberculous matter and the blood cells would look more like Fig. 2. There would also be visible the fibrin. This tuberculous matter on exposure to the air disappears in from one to ten minutes; while the fibrin which is, on first drawing the blood, invisible, but at the end of ten minutes is generally perfectly plain. These two pathological elements invariably accompany a tuberculosis in all its forms.

Fig. 4 shows the fibrin as it appears in rheumatism. In this disease the filaments are longer and thicker than in the previous. They also are liable to be mixed up with crystals of various kinds, uric acid and cystin being probably the most common. These crystals are often gathered up in the system by the pathological condition of the fibrin which makes it sticky, and the crystals are carried along in the circulation in this way.

All of these changes which I have pointed out are perfectly plain and seeable in the blood by any physician who will take a little pains, and they are all produced from chemical changes which are sometimes years in producing the elements that are visible to the naked eye through the microscope.

Fig. 2 is taken also from an advanced consumptive in order to show the characteristic agglomerating of the red cells. It is plainly seen that this arrangement of the cells is much different from Fig. 4 which was taken from a man suffering from the ordinary articular rheumatism. There are more cells in the latter disease, while it is perfectly plain in the former that the blood is abnormal because of the bunching grape-like arrangement or agglomerating of the cells. The fibrin in this latter, Fig. 3, is very plainly seen and can be easily differentiated from that in Fig. 4.
In discussing the four photos it is self evident that there is a great difference between photo No. 2 and No. 4. In No. 2 the cells are arranged in small bunches, as has been said before; in other words, they agglomerate differently than Fig. 4. In the former, the picture was taken a few minutes after the blood had stood on the slide in a kind of intermediate stage of drying. A picture taken a few minutes previous would have shown the tubercular matter before it had disappeared by the action of the air, and one taken a few minutes later would have shown the fibrin plainly in view. The remains of some of the tuberculous matter is faintly seen as it is. This arrangement is often characteristic of advanced tuberculosis. I do not know that this particular shape of the agglomerations are characteristic of the disease, but there is a characteristic general appearance like the characteristic convolutions of the brain that distinguished it, and there always is a scarcity of cells in this disease and they do not behave or arrange themselves in any way like Fig. 4, which is the kind of blood found in the ordinary rheumatism. If a man was very sick with rheumatism there would be more adhesiveness of the cells and they would be in large clusters with plenty of cells. While in tuberculosis there are few cells—anemia of course in both—and there is always present this tubercular matter. In cases like Fig. 4 the fibrin, it will be noticed, is thick and long. In Fig. 3 the fibrin is short and thin. The fibrin in this latter case is somewhat broken (Fig. 3), there is little or no tubercular matter, and therefore it is not a case of tuberculosis, although this fibrin is present. This picture was taken from a child twelve years ago; she is now twenty years old and fairly well. It is pretty bad looking blood, but such cases, it seems, recover.

The cases from which Fig. 2 was taken died inside of a year. Fig. 4 was ordinary rheumatism and readily recovered in the allotted time. Fig. 1 is from a tuberculous mother taken in the Sloane Maternity Hospital under the service and by the permission of Dr. E. A. Tucker. It may be interesting to say that the offspring of this child was also tuberculous. These are a few of the cases, but the subject is infinite and space is limited, but I hope I have given enough to the reader so that he will pursue the study for himself.

A CONTRIBUTION TO THE THERAPEUTICS OF ANEMIC CONDITIONS.

By DR. HERMANN METALL,
Assistant Physician to the General Polyclinic, Vienna.

In the medicinal treatment of the various forms of anemia, whether it be essential to chlorosis or the so-called secondary forms arising from severe loss of blood and various diseases (tuberculosis, cancer, etc.), iron has always occupied the most permanent place. In the management of chlorosis, especially, the chief object is the administration of an adequate quantity of iron, since upon this depends the success of all treatment. As to the manner in which iron acts in anemic conditions, that is a secondary matter. Whatever be its mode of action, it remains an empirical remedy and yet one of incontestable value.

Translated from the German.
According to the unanimous opinion of many authors the effect of iron in chlorosis cannot be replaced by alimentation. Reinert, Klein, Immermann, Enslin and others have shown that typical chlorosis cannot be cured in any other way, even by forced feeding. Some of them have made a series of very careful experiments for this purpose, and reached the remarkable result that during superalimentation, extending even over a number of weeks, the quantity of hemoglobin in the blood increased scarcely a few per cent., and remained permanently at this level. That this is actually so we daily convince ourselves in cases of chlorosis in girls of the better classes. These girls, if placed on a full diet, accumulate more fat, while the chlorosis remains practically unaffected—it requires iron. The dietary therefore plays a subordinate part in the therapy of chlorosis (Klein), and is to be regarded only as an important adjunct to the treatment.

I will now devote a few words to manganese, which is employed in combination with iron in some ferruginous preparations for the treatment of anemia. Hannon already directed attention to this metal, which is a constituent of healthy blood, and which besides iron has an important bearing on the absorption of oxygen by the blood. In fact, experiments have shown that anemic conditions are most successfully treated with iron in connection with manganese. Chalybeate medication is materially aided and promoted by the addition of manganese. Efforts have therefore been made to introduce combinations of iron and manganese into therapeutics.

After laborious attempts, Dr. Gude, chemist, succeeded in producing such an iron-manganese preparation, which is easily absorbed by the entire intestinal tract, evokes no concomitant effects, and, as is illustrated in the following histories of cases, has proved an excellent remedy for the formation of blood. The preparation referred to is Pepto-Mangan (Gude). It contains iron and manganese in an organic combination with peptone, and is a clear fluid, resembling dark red wine of an agreeable, non-metallic, non-astringent taste.

The advantage of this preparation is that it exerts a stimulating effect upon the blood-forming organs, these being excited to greater functional activity, and that the favorable effect manifests itself even within a short time by an increased oxygenation of the blood. At the same time, this chalybeate, as already mentioned, causes no digestive disturbances and does not injure the teeth.

In regard to the daily dose of iron, Quincke maintains that it should range from $\frac{7}{4}$ to $\frac{3}{2}$ grains of Fe. Most clinicians prescribe commonly 4 grains, which considerably exceeds the maximum dose recommended by Quincke. Some of them, like Niemayer and Trousseau, give even 7 grains of metallic iron daily; hence Pepto-Mangan (Gude) should be prescribed in doses of one tablespoonful three times daily for adults, and one teaspoonful twice daily for children up to twelve years, after meals. Sour, fatty foods and red wine should be avoided during its administration. The preparation is much relished by all patients, and it is my custom to administer it to children in water, or, better, in cold milk, with the addition of sugar, in which form it is very palatable.

After this brief introduction I will describe a number of cases which have been treated by me with Pepto-Mangan:

Case I.—Mary B., 16 years old, has complained since a week of
general debility and lassitude. She is very pale and restless, has no appetite, and suffers from headache and a feeling of pressure in the stomach. She is constipated, and the menses are irregular. Diagnosis, chlorosis.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2</td>
<td>2,480,000</td>
<td>20</td>
<td>49.2</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 9</td>
<td>3,212,000</td>
<td>25</td>
<td>50.4</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 16</td>
<td>4,020,000</td>
<td>30</td>
<td>51.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 24</td>
<td>4,300,000</td>
<td>40</td>
<td>52.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>September 2</td>
<td>5,000,000</td>
<td>50</td>
<td>57.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
</tbody>
</table>

After a week, the appetite was good, no headache; at the end of the second week, no further disturbances; menses not painful, and lasting only three days (formerly five days). After four weeks, the patient discharged cured.

Case II.—Anna H., 23 years old, has suffered for three years from chlorosis, with irregular menstruation, palpitation of the heart, a feeling of weakness and occasional syncope. Physical examination showed the presence of anemic murmurs over the heart, as well as a venous murmur; no fever or edema.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 4</td>
<td>3,750,000</td>
<td>35</td>
<td>55.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 9</td>
<td>4,010,000</td>
<td>60</td>
<td>58.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>September 14</td>
<td>4,200,000</td>
<td>70</td>
<td>62.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
</tbody>
</table>

Appearance of menses after absence of 12 weeks; subjective disturbances have disappeared.

Case III.—M. W., 16 years old, has suffered since a year from headaches, dyspnea, tinnitus aurium, vertigo and gastric disturbances. There was marked pallor of the face and of the mucous membranes; systolic murmurs over the mitral and pulmonary valves, with dilatation of the heart. No fever; spleen not palpable. Diagnosis, severe chlorosis.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 5</td>
<td>2,250,000</td>
<td>25</td>
<td>52.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 13</td>
<td>2,200,000</td>
<td>30</td>
<td>53.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 16</td>
<td>3,350,000</td>
<td>35</td>
<td>55.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 23</td>
<td>3,530,000</td>
<td>40</td>
<td>56.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>September 1</td>
<td>4,250,000</td>
<td>45</td>
<td>58.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
</tbody>
</table>

The subjective symptoms rapidly subsided, the appetite improved and the stools became regular. The menses reappeared in the second week of treatment after having been absent for a year.
ANEMIC CONDITIONS—METALL.

Case IV.—M. P., 15 years old. Menses absent since one-half year; always scanty. Vicarious hemorrhages from the nose. Since three months the patient has suffered from dyspnea, vomiting, cardiac palpitation, general weakness, headaches, feeling of dulness and sleeplessness. Physical examination reveals anemic murmurs, moderate dilatation of the heart, venous murmur.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 5</td>
<td>2,400,000</td>
<td>20</td>
<td>47.</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 10</td>
<td>3,600,000</td>
<td>25</td>
<td>47.5</td>
<td></td>
</tr>
<tr>
<td>August 16</td>
<td>3,850,000</td>
<td>30</td>
<td>48.5</td>
<td></td>
</tr>
<tr>
<td>August 23</td>
<td>4,250,000</td>
<td>35</td>
<td>49.0</td>
<td></td>
</tr>
<tr>
<td>August 31</td>
<td>4,700,000</td>
<td>40</td>
<td>49.7</td>
<td></td>
</tr>
<tr>
<td>September 7</td>
<td>5,000,000</td>
<td>45</td>
<td>52.</td>
<td></td>
</tr>
<tr>
<td>September 14</td>
<td>5,200,000</td>
<td>50</td>
<td>53.</td>
<td></td>
</tr>
</tbody>
</table>

After the first week improvement set in; at the end of treatment disappearance of all disturbances. Increase of bodily weight, 12 pounds.

Case V.—J. K., 18 years old. Chlorosis. Anemic murmurs, cardiac dilatation, loss of appetite, insomnia, general lassitude and headaches.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 10</td>
<td>2,200,000</td>
<td>35</td>
<td>52.</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 24</td>
<td>3,000,000</td>
<td>45</td>
<td>55.</td>
<td></td>
</tr>
<tr>
<td>September 22</td>
<td>3,300,000</td>
<td>60</td>
<td>57.</td>
<td></td>
</tr>
</tbody>
</table>

At the end of the first week appetite vigorous; headaches had subsided. At the end of the fourth week no disturbance of any kind.

Case VI.—A. N., 19 years old, has suffered from chlorotic disorders since two years. Improvement occurred under a milk diet and a sojourn in the country. Since five months the patient again complains of disturbances: palpitation of the heart, lassitude, headache, vertigo, tinnitus and constipation; anemic murmurs and venous hum perceptible.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimeter</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 17</td>
<td>4,500,000</td>
<td>25</td>
<td>53.5</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 25</td>
<td>4,100,000</td>
<td>30</td>
<td>54.</td>
<td></td>
</tr>
<tr>
<td>August 31</td>
<td>4,000,000</td>
<td>35</td>
<td>54.5</td>
<td></td>
</tr>
<tr>
<td>September 7</td>
<td>3,950,000</td>
<td>40</td>
<td>56.</td>
<td></td>
</tr>
<tr>
<td>September 22</td>
<td>4,200,000</td>
<td>45</td>
<td>57.5</td>
<td></td>
</tr>
</tbody>
</table>

The subjective symptoms diminished after a few days. The disturbances disappeared, the appetite improved, and the stools became regular.

Case VII.—J. R., 20 years old, has suffered from chlorosis since two years. Status present: General lassitude, palpitation of the heart, a feeling of pressure in the stomach, difficulty in breathing; menses ir-
regular as well as dysmenorrhea. In the last three months all the disturbances have become more intense.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimetre</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 22</td>
<td>4,250,000</td>
<td>30</td>
<td>52</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>August 26</td>
<td>4,350,000</td>
<td>35</td>
<td>52.5</td>
<td></td>
</tr>
<tr>
<td>September 5</td>
<td>5,420,000</td>
<td>40</td>
<td>53.5</td>
<td></td>
</tr>
<tr>
<td>September 12</td>
<td>5,300,000</td>
<td>50</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>September 18</td>
<td>5,350,000</td>
<td>55</td>
<td>54.5</td>
<td></td>
</tr>
<tr>
<td>September 27</td>
<td>5,300,000</td>
<td>60</td>
<td>55.5</td>
<td></td>
</tr>
</tbody>
</table>

The disorders have disappeared, the appetite is good and the bowels are regular; no anemic heart murmurs.

Case VIII.—L. N., 19 years years old, complains of headaches, cardiac palpitation, vertigo; scanty menses.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimetre</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 28</td>
<td>2,500,000</td>
<td>40</td>
<td>54</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>September 13</td>
<td>3,750,000</td>
<td>55</td>
<td>55.5</td>
<td></td>
</tr>
<tr>
<td>October 1</td>
<td>4,300,000</td>
<td>70</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

The subjective disorders have vanished; menses more abundant.

Case IX.—J. M., 16 years old, has suffered since two months from palpitation of the heart, dyspnea, feeling of pressure in the stomach, vertigo, tinnitus and headaches. There is a slight cardiac palpitation, with systolic murmurs and a venous hum. Anorexia and constipation are present. The menses have been irregular since a year.

<table>
<thead>
<tr>
<th>Date</th>
<th>Red Blood Cells in Cubic Millimetre</th>
<th>Hemoglobin per cent.</th>
<th>Bodily Weight</th>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2</td>
<td>4,500,000</td>
<td>35</td>
<td>50</td>
<td>Pepto-Mangan (Gude), one tablespoon three times daily.</td>
</tr>
<tr>
<td>September 11</td>
<td>4,750,000</td>
<td>40</td>
<td>50.5</td>
<td></td>
</tr>
<tr>
<td>September 20</td>
<td>4,850,000</td>
<td>50</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>September 29</td>
<td>4,950,000</td>
<td>55</td>
<td>52</td>
<td></td>
</tr>
</tbody>
</table>

Menses regular; bowels normal; no disturbances.

Case X.—Z. F., 30 years old, had a miscarriage two weeks previously, with profuse hemorrhage. After a month's treatment completely restored to health, and an increase of weight of four pounds.

Case XI.—A. N., six years old; rickets and anemia. Under treatment an increase of weight of two-thirds of a pound. Much better appearance.

Case XII.—J. W., 30 years old. Pulmonary tuberculosis and anemia. After two week's administration of Pepto-Mangan (Gude), an increase in weight of two pounds and an increase in hemoglobin of 15 per cent.
XIII.—K. L., 50 years old. Cancer of the stomach, cachexia, and anemia. During three weeks' use of Pepto-Mangan (Gude) the patient felt better, the appetite had improved, and there was an increase of weight of two-thirds of a pound.

Case XIV.—A. B., 14 years old. Chlorosis; hemoglobin 40 per cent. After two weeks' treatment, hemoglobin 85 per cent.; disappearance of all disturbances.

Case XV.—F. K., 18 years old. Chlorosis; hemoglobin 35 per cent.; after two weeks treatment 50 per cent.

Case XVI.—E. J., 5 years old. Anemia following scarlatina. After eight days' treatment with Pepto-Mangan (Gude) the patient developed a vigorous appetite, and recovered so rapidly that he could be discharged cured at the end of the second week.

Altogether, twenty-three cases of anemia were treated with Pepto-Mangan (Gude), of which twelve showed a normal hemoglobin per cent. of the blood after fourteen days, five after three weeks and five after a month. On the other hand, one of the patients who had hereditary trouble (here father having suffered from pulmonary trouble disease) was discharged only improved, the blood, after two months' treatment with Pepto-Mangan (Gude), showing only an increase of hemoglobin to 75 per cent. This was probably a case of tuberculosis which stimulated an obstinate or severe chlorosis at its beginning.

Furthermore, two cases of acute anemia after profuse hemorrhages were treated with Pepto-Mangan (Gude). A favorable result was obtained as early as the end of the first week. In one instance the patient felt so well that only the fear of further hemrhage constrained him to stay in bed for another week. In the case of three women who had miscarried during the early months of pregnancy, and were making a very slow recovery from the resulting anemia, I was able to obtain a complete recovery after four weeks' administration of Pepto-Mangan (Gude). In six other instances of weakness and anemia following acute and chronic disease (tuberculosis, varicinoma, scarlet fever, etc.), a disappearance of the feeling of weakness and a considerable improvement of the general health could be observed in every instance.

The histories cited above will afford conclusive evidence of the high therapeutic value of Pepto-Mangan (Gude). Unpleasant concomitant effects and disagreeable sequela were never observed during the use of the remedy. Eructations, pressure in the stomach and nausea were never noticed.

In conclusion, I would say that Pepto-Mangan (Gude) is a valuable and reliable blood-building remedy, which can be recommended for general use in appropriate cases.
BENZOATE OF GUAIACOL.

By MARK W. PEYSER, M. D., Richmond, Va.

Assistant Physician to the Home for the Aged and Infirm, Secretary of the Richmond Academy of Medicine and Surgery, etc.

Four years ago I read before the academy a paper giving a brief account of the proportion of the benzoate of guaiacol (sometimes called benzoyl-guaiacol and benzosol), with reports of cases of bronchitis, pneumonia, and tuberculosis satisfactorily treated by its means. Since that time I have employed the remedy in a variety of conditions the results, though not uniformly successful, being all that one could hope for in such an uncertain practice as medicine.

In a number of respiratory diseases, the salt is one that appears ideal, containing as it does, both guaiacol and benzoic acid. In cystic affections, the acid content is excellent avail. In both these classes we have the remote local action of the agent, an action which is too often neglected. The benzoate when swallowed, is decomposed in the intestines, chiefly the small, into benzoic acid and guaiacol and, according to Butler, exerts a favorable influence in intestinal fermentation, auto-intoxication, diarrhea etc. My experience in this direction has been limited, but agrees, so far, with the statement. I have had no experience with it in the treatment of diabetes, in which disease it is said to have been administered with good results.

There are certain advantages possessed by the benzoate over guaiacol and its carbonate and creosote. It is almost tasteless and odorless, and while after the first few days of its administration there may be some objection, the patient soon becomes accustomed to it and no longer rebels—not so with other preparations. It contains when pure, no cresols, which are present even in the purest guaiacol, and, therefore, it does not irritate the stomach nor cause burning and itching of the skin. The dose for an adult is from five to ten grains, gradually increased, the maximum per day being forty grains; but the length of time required to produce the maximum effects is shorter than those of the other preparations. The remedy may be administered in capsules, powder or in suspension, either alone or in combination. Below is a further report of cases in which it was given:

Mrs. J. M. D., Cystitis. There had been several acute attacks at longer or shorter intervals, and various remedies had been used with more or less success, none, however, overcoming the inflammatory state entirely. Eighty-five grain capsules of the benzoate finally succeeded in doing so, since which time, so far as I know, there has been no other seizure.

C. H. E. Microscopic examination made by Dr. Greer Baughman, shows that this patient has myo-sarcoma of the bladder. When the urine becomes scalding and its passage agonizing, the administration of a five grain dose of the benzoate results in speedy relief.

F. W., Prostatitis. The pain and cystitis incident, readily succumb.

Read before the Richmond Academy of Medicine and Surgery, Feb. 25, 1902
to a combination of five grains of benzosol and a fourth grain of codeine given at three hour intervals.

Mrs. C. L. P.  Acute nephritis, first seen in the fourth day of illness. Owing to the intense pain in the back and lower abdomen, and whenever urine was void, the remedy was prescribed in the combination just described. The following day she reported much relief from pain, and passed in the preceding twenty-four hours, showed two per cent. of easy urination. Examination of the urine, three quarts of which she albumin, a few casts and a large number of kidney cells. The medicine was continued, flannel underwear ordered and a strictly milk diet enjoined. The next day the quantity of urine was two and a half quarts, albumin a little less than one per cent., kidney cells were much diminished and casts absent. On the fourth day of treatment, the quantity of urine was normal, and there was but a trace of albumin and very few cells. On the fifth day albumin had disappeared entirely. Pain was not a factor in the case after the third day. Codeine was discontinued. The patient is now taking the ammonio-acetate of iron.

R. D. and A. R. M., each aged two years. Acute bronchitis with temperatures respectively of 101° and 103°. Benzoate of guaiacol suspended in syrup of amorphous quinine, was given every three hours. In twenty-four hours all fever, cough and pain had disappeared. This is a fairly common result; indeed, in some cases of acute laryngitis, I have seen the cough cease almost entirely in twelve hours.

Mrs. J. H., Acute Bronchitis. A hot mustard foot bath and a mustard plaster to the chest were ordered, and the combination of the benzosol and codeine were prescribed. The next day, pain having ceased, codeine was stopped, but the benzosol was continued for two days longer, when symptoms disappeared.

S. J., Jr., Acute Lobar Pneumonia. The benzoate was given suspended in syrup of quinine. In five days after the beginning of the disease and three days after I had first seen him, the crisis ensued. The attack was short but sharp, and strychnine and atropine were employed coincidently. In one or two other cases, I have seen the crisis appear on the fifth day under the use of the benzoate.

Mrs. T. E. W.  An attack of pneumonia and typhoid fever in March, 1899, left this patient frail and weak. The benzoate was given during the course of her illness with excellent effect, and was continued for some time afterward. I saw no more of the patient professionally till the 9th of January, this year, when she had a pulmonary hemorrhage. Suprarenal capsule checked this successfully. She was then given the benzoate of guaiacol, the use of which she has continued ever since. A day or two ago she informed me that she weighed more now than ever before in her life, with the exception of the time she spent in the mountains after her first sickness. This patient is the only one in my experience who has complained of eructations produced by the remedy.

With this account I shall conclude, desiring to say, however, that there were some cases in which the benzoate of guaiacol was of no avail; but the majority in this report was chosen at random, and from it my hearers may judge of the value of the agent. If they incline to use it, I trust their results will be as satisfactory as mine.

No. 303 Twelfth street, North.
Dr. W. E. Fitch, founder, and for many years editor and business manager of The Georgia Journal of Medicine and Surgery, published at Savannah, Ga., has sold his interest in the publication to his former associate and co-editor, Dr. St. J. B. Graham, who becomes editor and sole proprietor.

The journal, under Dr. Fitch’s editorial management, from the appearance of the first issue, merited the support of the profession, and gradually, year after year, made for itself a place among the best medical periodicals of this country.

The doctor will devote his entire attention to the practice of his profession in Savannah, Ga.

Society Proceedings.

The regular meeting of the Baltimore Medical and Surgical Association was held at the hall of the Medical and Chirurgical Faculty, No. 847 North Eutaw street, on Monday evening, November 11, 1901. Dr. Charles G. Hill in the chair and Dr. Eugene Lee Crutchfield, secretary.

The Committee of Honor favorably reported on Dr. R. Percy Smith, and he was unanimously elected to membership.

Dr. E. L. Whitney read the paper of the evening, viz., “Report of Five Cases of Poisoning,” Dr. Whitney said these cases were of interest from the standpoint of the difficulties in the diagnosis. The entire family were discovered by neighbors when in a state of unconsciousness, and physicians were hurriedly summoned, and on account of the contracted pupils, opium poisoning was suspected and atropine was given. Ptomaine poisoning and also gas poisoning were later suspected. The examinations of the blood with spectroscope and chemical tests showed that they were cases of carbon-monoxide poisoning. The father of the family, after regaining consciousness, related facts which confirmed the diagnosis of carbon-monoxide. The man afterwards complained of numbness and anesthesia in different parts of the body. One of the children also complained likewise. The rapid disappearance of albumin and sugar from the urine of different ones in the family eliminated these as causative agents in these cases. The cause of sugar in the urine in such cases is not definitely known. Different theories have been advanced. All of these five cases recovered promptly. There was taken with small aseptic hypodermic syringe from the brachial a small quantity of blood, which showed between the D and E lines a wider coloring, proving a reduced amount of hemaglobin. There was a constant variance in its character. Dr. Whitney showed the seal test in sterilized tube. The blood, of course, was arterial. In these cases the police did not notice gas poisoning. Carbon-monoxide poisoning is a familiar form of suicide among the French. A dog, under test, being well before, showed signs of such poison. Partial suffocation is presumed to be the cause in these cases by Hoppe-Seyler, while Minkowski declares it traceable to disturbances of the liver. The theory of muscular chemistry in the loss of ability to handle sugar and the
excess of sugar in urine were briefly referred to by Dr. Whitney. The anemia in these cases, is due to deficient oxydation.

Dr. Charles G. Hill said it is interesting to note that the man showed albumin in the urine, while he also showed sugar. From observation he is led to believe that albuminaria is due to changes in the blood primarily, the kidney lesions being subsequent. Had these blood changes continued, they would have been followed by structural changes in the renal organs. Typical cases of diabetes, Dr. Hill believes, are traceable to structural changes in the liver. These patients he treats with thyroids and purified bile, and gives them fatty substances, with a moderate restriction of starchy foods. In reference to Dr. Whitney's cases, Dr. Hill said that such cases might have caused serious criminal charges, but he did not believe in circumstantial evidence.

Dr. Hill recalled a case of carbon-monoxide poisoning in the country, where children suffered from a Christmas tree taking fire. Dr. Hill also mentioned a case of diabetic gangrene that was relieved by thyroids. Also a case of transient glycosuria that after a short treatment proved acceptable to a life insurance company. Dr. David Streett said we see all phases of gas poisoning. All complain of headache, vertigo and dizziness. A soft pulse, such as is described in yellow fever, is observed. In the fatal cases we see the face flushed, stertorous breathing and rapid respiration. Chlorosis and anemia are no doubt caused by gas poisoning. The oyster heat and the coal stove are noticed to cause these phenomena. The habit of inhaling gas was noticed by Dr. Streett in one of his cases, the patient being a young woman who was decidedly chlorotic.

Dr. C. Urban Smith said that in these cases the treatment was on general principles. In two cases he had treated, one with a cylinder of oxygen, the results were poor, and he used stimulants. The second was a worse case, and he used intravenous injections of salt solution. Results were good. He practised blood-letting to the extent of at least twelve ounces. Blood pressure was markedly increased after the salt injections. The patient revived in twenty minutes, and the blood pressure increased in five minutes, and the patient was conscious in one hour. These results were better than in the other case where oxygen was employed.

Dr. J. I. Pennington said about twenty years ago he saw a case of gas-poisoning in a young man who had been exposed six hours. Oxygen treatment was employed, but to no avail. Dr. Pennington asked if any of the members had had experience with the Kloman treatment with nitro-glycerine.

Dr. J. M. H. Rowland reported a case that he was called to on North Howard street, which was as follows: On arriving, found the room full of gas and the man unconscious. Man was suffering from narcosis, and his respiration was nine to the minute. Then it went down to five, and then to four a minute, or even three. Stimulants, strychnia, digitalis and aqua ammonia were given, and when these failed, all the hospital corps assisted in endeavoring to establish artificial respiration. Case recovered. Cold cloths, slapping on the face with ice cloths and the application of ice to the chest also was used with
good results. In another case Dr. Rowland noticed unusual excitation; this was probably due to the strychnine. Dr. Rowland quoted Dr. D. Streett as saying that edema of the lungs frequently followed these cases, and sometimes pneumonia.

Dr. J. T. King said no words are too laudatory in commending the care and work of Dr. Whitney in his cases. Care should follow the work of diagnosis. It is easy to diagnosticate a case where we go into a room and smell gas and find the patient unconscious. Dr. King had never seen a fatal case. He uses nitro-glycerine, strychnia and artificial respiration. In four cases he reported all recoveries due to employment of atmospheric air.

Dr. David Streett said it is remarkable how quickly some persons become narcotized by gas, and others how slowly. He related cases and said it is still to be solved why this is.

Dr. Hill related case of a boy who inhaled gasoline, and after enjoying it taught a number of others the practice, and soon a crowd were seen engaged in the habit.

Dr. Whitney, in closing, said, in these cases the blood is not able to carry oxygen, hence the futility in giving it. Amyl-nitrite is probably contraindicated; it produces methemaglobin. Transfusion probably would do some good. The temperature in these cases is somewhat elevated two to three degrees.

Report of a case by Dr. J. I. Pennington:

Was called two weeks ago to see a young girl who had taken two tablets that a physician had given her for vaginal injection. From the burning he suspected bi-chloride of mercury poisoning, there being vomiting present. He used egg-albumin and washed out the stomach. The case went on to an uneventful recovery.

The meeting then adjourned.
Book Reviews.


We are glad to welcome the third edition of Dr. Hirst's excellent book. The work has become the standard one in English, and in this new setting bravely holds its own.


Part I, on Pregnancy, begins with a discussion of the anatomy of the female pelvis, well illustrated. The plates of the pelvic lymphatics and nerves are especially fine. The description of the development of the sexual organs which follows is taken with modifications from Newell Marin's article in the "American System of Obstetrics."

The second chapter deals with menstruation, adulation, etc., and the changes in the ovum following impregnation. The next three chapters deal with the development, anomalotus and diseases of the embryo, fetus and fetal appendages. The chapter upon Diseases of the Fetus is a very interesting one. The subject of fetal syphilis is exhaustively considered. The author states Lusk's dictum that the syphilitic poison will not traverse the septa intervening between the fetal and maternal vascular systems and gives numerous instances where the contrary was true. He discusses the diagnosis of syphilis in the new born and the finding of autopsies, and says that on three easily made out signs the post-mortem diagnosis may be readily made. First, by finding Wegner's sign which consists in a curious condition of the dividing line between epiphysis and diaphysis of the long bones of the syphilitic infant. "Instead of a sharp regular delicate line . . . there may be seen in syphilitic cases a jagged broad line of a yellow color separating bone from cartilage." Second, by the greatly increased weight of the liver, which, in the normal infant, should weigh about 1-30 of the body weight, and third, by the increased weight of the spleen—normally 1-300 of the body weight.

The infectious and the non-infectious diseases of the fetus, fetal injuries, the conditions of the mother which injuriously affect the fetus, bring us to the maternal side of the case. The physiology of pregnancy is then briefly considered, and the diagnosis of that condition thoroughly discussed this section is most fully illustrated from photographs.

The pathology of the pregnant woman covers nearly one hundred pages and includes the discussion of abortion and extra uterine pregnancy. In regard to the treatment of this latter condition, the author recommends laparotomy as soon as the diagnosis is made, whether the roe has ruptured or not, as the only safe procedure. A little over one hundred pages are devoted to the consideration of the normal labor
and puerperal state, with full directions as to the conduct of mother and nurse. The latter half of this part of the book, Part III, The Mechanism of Labor, is beautifully illustrated with diagrams and plates. The pathology of labor considers the anomalies in the forces of labor, under which head deformities of the pelvis are included, and the accidents and diseases that may complicate it. In this chapter the consideration of lacerations of cervix and femur is especially worthy of praise. We consider it the best discussion of this subject that we have seen.

In Part V, devoted to the Pathology of the Puerperium, a large allotment of space is given to sepsis, which is exhaustively and graphically discussed. A rather short section upon obstetric operations and a little chapter on the new-born child close the book. The book is intended for the student and the active practitioner, and is well suited to its purpose.

It is well classified, clear and concise in its treatment, and it does not devote undue space and attention to conditions rarely seen outside the museums. Upon one or two subjects of common interest it appears to us more might have been said. As for instance, the conditions seen in the post-pontium breast.

The illustrations are many, modern and well done. The author himself is happy in possessing a style that is pleasant and easy reading. We unhesitatingly recommend the book as the best all around obstetrics we know.


Regularly every year a new edition of this excellent text-book is called for, and although it is distinctly a text-book, it appears to be in as great favor with physicians as with students. Indeed this book has taken its place as the ideal work for the general practitioner. The author presents the best teaching of modern gynecology, untrammeled by antiquated ideas and methods. In most instances only one plan of treatment is described. This is a great advantage, since it prevents confusion on the part of the reader, and also gives space for carefully detailed instruction in the methods recommended. In every case the most modern and progressive technique is adopted, and the main points are made clear by excellent illustrations.

The new edition has been carefully revised, much new matter has been added, and a number of new original illustrations have been introduced. In its revised form this volume continues to be an admirable exposition of the present status of gynecologic practice in this country.
EDITORIAL.

A meeting of the New York County Medico-Pharmaceutical League was held on January 23 when an interesting discussion followed the reading of a paper by Dr. W. R. Inge Dalton on the question of whether Boards of Health, besides furnishing vaccine and antitoxin gratuitously should sell them in competition with the regular drug trade. In the course of his paper Dr. Dalton pointed out that physicians, wholesale manufacturing houses, retail druggists, officials entrusted with the care of the public health, and the public at large had lessons to learn from the recent deaths from the use of impure antitoxin in St. Louis and from tetanus following vaccination in Camden, N. J., and other parts of the country. The lesson was that cheapness should not be the first consideration in purchasing vaccine virus and serum; the second that routine, haste and careless technique even in the performance of such a simple operation as vaccination should be avoided; the third that doctors should keep their patients under observation, no matter how simple the operation, until the wound had thoroughly healed; and a fourth was that the manufacture of such prophylactic and curative preparations should be left to those whose business it was, and that Boards of Health, instead of dabbling in competitive commercialism, should devote more attention to their legitimate duties—inspection, investigation, analysis, the collection of scientific data and the dissemination of information and suggestions in regard particularly to the means that should be adopted for preventing the spread of contagious diseases. Dr. Dalton was of the opinion that vaccination should be left as far as possible to the family physician, who
should not only see that his patient was in a proper state of health for the operation, but should insist upon having an opportunity of watching the development of the incubation and the healing of the sore. It was not his intention to advocate any peculiar technique, or recommend any particular brand of vaccine virus, but this he would say that that form of operation or that kind of vaccine virus which produced a large, inflamed sore was not to be commended. He had said elsewhere, and he had seen no reason for taking back any of his words that the fact of the deaths at Cleveland, Camden, and other places being all alleged to have been traced to particular brands of virus, furnished a prima facie case for a searching inquiry into the actual facts of the case. But the Boards of Health of Camden and other cities did not court publicity. After declaring that he was not the opponent of any Board of Health, and referring to the useful functions which such bodies performed, Dr. Dalton stated that the antitoxin plant of the New York City Board of Health was a gift-enterprise present from one of the daily newspapers, and though it was ungracious to look gift horses in the mouth, he had always been inclined to think that those donated for antitoxin purposes were rather of the nature of white elephants. What they had cost the city had never been made known and probably never would be. There was a cloud of mystery over the fund under which antitoxin was made and sold, and the facts that the surplus sold in competition with regular trade amounted to from four or five times what was required for legitimate purposes, that cities outside of the State got preferential rates, and were occasionally given inferior sera, etc., were not such as to invite confidence. All the charges made against the Board of Health had been practically admitted and the strongest plea which Dr. Brill (who had constituted himself the champion of Boards of Health in general and of the New York Board in particular) could bring forward on their behalf was that “private manufacturers were not in business for their health.” Had they been so Dr. Dalton argued that there might then have been a good reason for avoiding the use of their products, which were, however, kept up to their present high standard of excellence by the keen competition which regulated business concerns. They could not afford to run such risks as were run by the St. Louis Board of Health, and that had been, if they were not still, run by the New York City Board of Health. Business houses had to strive continually after perfection and to achieve this had to employ the very best available scientific skill, to see that the hygienic conditions of their premises were beyond reproach, and to make tests and experiments ad infinitum to prevent the escape from their store-house of a single package of goods which might tend to lower their reputation as manufacturers of high standing. It was taking all these and other facts into consideration that made his prefer the products of regular manufacturers to those of amateur
boards of nondescript and ever-changing character. In the discussion
which followed, and in which Professor Reynold W. Wilcox, Drs. Charles
Good, D. P. Austin and others took part, the consensus of opinion was
that it was altogether without the province of Boards of Health to manufac-
ture vaccine virus or antitoxin for purposes of sale. Dr. Wilcox was
very emphatic on the subject and referred to the testimony given before
a legislative committee at Albany two years ago when one of the Health
Commissioners of New York city admitted that inferior antitoxin, such
as was not considered good enough for use in New York was sold at
reduced rates to Chicago, and when a description was given of the stable
where the New York antitoxin horses were kept—said stable being the
basement of a veterinary hospital—which was certainly the reverse of
satisfactory and presented a striking contrast in point of cleanliness and
hygienic arrangements to the establishments of private manufacturers.
It was a matter of wonderment and cause for providential thankfulness
that New York had so far escaped a calamity of the kind that had
occurred in St. Louis.

Mr. J. Pierpont Morgan’s palatial Lying-in Hospital in Second
avenue, which was erected and equipped at a cost of more than $1,350,000,
was opened to the public a few weeks ago. We do not wish to criticise
the charitable spirit in which Mr. Morgan conceived this enterprise, nor
the scientific and perfect manner in which it was carried out, but the
question arises in the minds of those who are familiar with this subject,
was there a crying need for another maternity hospital in this city? We
believe that statistics will bear out the assertion that there are ample
hospital facilities in New York for those women who are too poor to be
confined at their own homes. Indiscriminate charity is two-edged, and
may harm those who are intended to benefit by it. This particularly
applies to institutional charity, and we can readily understand that a
magnificently equipped hospital, like the one just opened for the recep-
tion of maternity cases, will attract not only the very poor, for whom
ample hospital facilities already exist, but also women in better circum-
stances, who could well afford to be confined at their own homes. To
that extent such women are pauperized, and to the same extent many a
worthy practitioner of medicine is deprived of a legitimate source of
income. Such institutions also attract another class of patients from far
and near. They are the women of loose morals who are rendered less
fearful of becoming pregnant by the assurance that they will be well
taken care of if the necessity arises. We know of one unmarried woman
who has been confined three times in as many lying-in institutions,
always posing, of course, as a married woman whose husband was out of
work. We know of another case, a young unmarried girl, who left the
Sloane Maternity on the very eve of her confinement and went to her home in a miserable tenement-house that she might have her mother with her. In the hour of a woman's supreme trial she craves other than professional sympathy, and, after all, it is a rather melancholy event for an infant to be ushered into this world in the wards of a public hospital, even in such a magnificent institution as the one just completed through the lavish generosity of Mr. J. Pierpont Morgan, with its cornerless rooms, and illuminated ceilings, and roof garden, and solarium.

As time flies by, amid the rush and bustle of this eminently practical, work-a-day world, one unconsciously displaces from the mind of to-day the remembrances of the happenings of yesterday; there are, however, some things which should remain "in everlasting remembrance." The gentleness, strength and beauty of the personal character of William McKinley and the inestimable value of his services to the Nation and the world at large, should not be consigned to the mental dust-heap of oblivion, but should be cherished as a precious heritage by every patriotic American, whether native or foreign born. Feeling confident that their friends in the medical profession will appreciate at its proper worth a souvenir which shall serve as a constant reminder of the life, character and services of our third martyr President, the Arlington Chemical Company has prepared for gratuitous distribution, a magnificent enlarged reproduction (17x13) of one of the finest and most faithful portraits in existence. Competent critics who have seen this reproduction have expressed themselves as surprised at the faithfulness with which the beautiful Rembrandt effect has been carried out with its rich dark sepia tints and with the general artistic worthiness of the portrait as a whole. The advertisement of Liquid Peptonoids is so unobtrusive as to be entirely unobjectionable. The Arlington Chemical Co., Yonkers, N. Y., will be pleased to send a copy to any physician who may have failed to receive one, together with suggestions for proper method of framing.

Dr. J. B. Mattison, Medical Director, Brooklyn Home for Narcotic Inebriates, offers a prize of $400 for the best paper on the subject, "Does the Habitual Subdermic Use of Morphia Cause Organic Disease? If so, What?"

Contest to be open two years, from December 1, 1901, to any physician, in any language.

Award to be determined by a committee—Dr. T. D. Crothers, Hartford, Conn., editor Journal of Inebriety, chairman; Dr. J. M. Van Cott, Professor of Pathology, Long Island College Hospital, Brooklyn, and Dr. Wharton Sinkler, Neurologist to the State Asylum for the Chronic Insane, Philadelphia.

All papers to be in the hands of the chairman, by or before December 1, 1903; to become the property of the American Association for the Study and Cure of Inebriety, and to be published in such journals as the committee may select.
Therapeutics.

PHENALGIN, IN NEURALGIA AND OTHER PAINFUL AFFECTIONS.

By A. CAMPBELL WHITE, M.D., New York,
Formerly of New York Department of Health.

Neuralgia is a disease which, in its severe form, has frequently baffled the skill of the most careful physician. It has been generally understood that when the system was below par, one was more liable to attacks of neuralgia than under other conditions. Malaria has been considered a pronounced positive factor in these cases. Heavy colds have frequently been accompanied by neuralgia of the face and the brachial plexus.

Severe attacks of "La Grippe" have frequently had neuralgia of the various nerves as complications. Of course the rule to be followed in these cases has been to flush out the system and rid the alimentary canal of accumulated perverted secretions and then to administer quinine in large doses, alternating with salicylic acid.

Where the attack has been very severe it has often been necessary to give morphine hypodermically and more or less medication in the direction of opiates has been the rule. There can be no doubt, however, that these cases are better managed without opium than with it, as this drug checks secretion and one of the chief objections is that it has a very agreeable effect upon some patients and its allurements are so strong as to favor the formation of a habit. Too frequently the physician does not guard his patient properly against such danger.

Impressed with these thoughts for some months past I have been endeavoring to handle my cases of neuralgia without the administration of morphine or opium. I have been quite successful. I can better illustrate my method of procedure by citing a case of facial neuralgia which came under observation with a history of cold and malaria.

At first the neuralgia appeared every alternate day in the afternoon and could only be controlled by the use of morphine. The proper purgation was accomplished and large doses of quinine were administered. After a time, however, the pain in the face returned every afternoon. Fearing the unhappy effects of the too long continued morphine I was induced to try as a substitute to control the pain, phenalgin. I gave 10 grain doses of phenalgin every three hours the first day until four doses were taken. The pain was controlled in a very satisfactory manner and the effect of the drug was such as to encourage excretion. The bowels were moved that evening without any purgative, the skin was moist and there was an increase in the flow of urine.

Every afternoon for a week thereafter I instructed my patient to take, an hour in advance of the usual return of pain, a ten grain powder of phenalgin and repeat the same in two hours. In the intervals between I administered a combination of quinine and phenalgin 2½ grains of each every four hours. At the end of ten days I was enabled
to leave off the phenalgin and put my patient on a tonic composed as follows:

Tincture of Nux Vomica,
Tincture of Cinchona.
One part of the former to three parts of the latter.
Dose—A teaspoonful three times a day, diluted with water, at meal time.

When, as is often the case, the neuralgic condition is closely allied to a rheumatic state, I have found the following prescription as recommended by Dr. Cyrus Edson to be excellent:

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<thead>
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<th>R</th>
<th>Phenalgin</th>
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<td></td>
<td>Sodium Salicylate</td>
<td>gr. x.</td>
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Rub together in a glass mortar.

Do e.—One powder three times a day with water.

The combination of phenalgin with the salicylate produces an effervescence and a chemical change, the result being a sweetish powder, which for want of a better name I have designated ammonia-salicylate of phenalgin. The ammonia of the phenalgin appears to combine with the salicylate producing a salicylate of ammonia with which the phenalgin is synergistic.

As a hypnotic and anodyne the use of phenalgin is not followed by symptoms of depression. (Hofheimer, N. Y. “Medical Journal,” December 28, 1898, says: “Phenalgin stimulates the pulse rate for a short time after taking and then the heart’s action gradually slows down with a strengthening of its first impulse.”)

I desire to impress upon the profession the importance of treating all these cases with a remedy, such as phenalgin, that carries with it no allurements and no dangers in the direction of the drug habit, rather than to administer demoralizing remedies, such as morphine and opium. It is a well known fact that women, in consequence of living so much indoors, and taking so little exercise, are quite prone to neuralgia, and it is well for us to keep in mind a remedy like phenalgin which will enable us to control these attacks. In painful disturbances of the teeth it is most excellent. Nervous headaches of a very severe type, which formerly called for hypodermic injections of morphine can be promptly relieved by phenalgin in ten grain doses, repeated in one or two hours. Often attacks can be anticipated and prevented by the proper administration of phenalgin. In many cases this drug is practically a supplanter of morphine and opium.

537 Fifth avenue.
SOME OBSTINATE BLADDER CASES.

By GEORGE W. HOPKINS, M.D., Cleveland, Ohio.

John C——, aet. 31. Occupation, patrolman. Following exposure, patient experienced bladder symptoms as follows:

Frequent urination, tenesmus, hypogastric pain and a temperature of 101.4 degrees.

The urine was scanty, turbid and loaded with mucus.

Diagnosis: Acute cystitis.

Treatment consisted of rest in bed, restricted diet, anodynes for the tenesmus, diluent and alkaline drinks.

The acute symptoms promptly subsided, but the urine continued abnormal despite the general measures employed and the internal administration of urinary antiseptics.

Irrigation with boric acid solutions of varying strength proved unsatisfactory, as did also solutions of potassium permanganate and silver nitrate similarly applied.

A twenty per cent. solution of Glyco Thymoline was then substituted for irrigation, and the improvement was marked and continued until recovery was perfect.

Harry R——, aet. 43. Occupation, bookkeeper. Had a history of bladder trouble of several years’ duration.

His urine was blood tinge and loaded with mucus.

Microscopic examination revealed an abundance of ammonia, magnesium phosphates, numerous disintegrating pus corpuscles, blood corpuscles and blood shadows.

Repeated examination with the sound gave negative results, but a skiograph taken with a high vacuum hard tube, revealed a small calculus which had persistently evaded the sound in previous examinations.

Lithotomy was performed and the calculus removed, but the urine failed to return to normal.

Irrigation in turn with boric acid, potassium permanganate and silver nitrate solutions proved unsatisfactory.

Glyco Thymoline irrigations proved satisfactory from the start and recovery was ultimately perfect.

William L——, aet. 55. Occupation, saloonkeeper. Had a history of repeated attacks of gonorrhea which were never appropriately treated.

Urine was voided with great difficulty, at frequent intervals and loaded with mucus. Reaction was alkaline and the microscope revealed an abundance of amorphous phosphates of calcium and magnesium flat epithelial cells, disintegrating pus corpuscles and indigo crystals.

Examination confirmed diagnosis of chronic cystitis due to urethral stricture and hypertrophied prostate.

Catalectrolysis by the slow method removed the stricture and Rot- tini’s operation relieved the enlarged prostate, but the urine failed to clear up as desired.

The cystoscope showed marked changes in the bladder walls, but catheterization of the ureters yielded negative results.

Appropriate urinary antiseptics were administered internally and
silver nitrate solutions by vesical irrigation with only slight improvement.

Irrigation with twenty per cent. solution of Glyco Thymolime gave early and continuous improvement until recovery was perfect.

THE NECESSITY FOR EXHAUSTIVE PHYSICAL EXAMINATIONS.

The majority of the cases met with in hospitals and institutions devoted to the treatment of all pathological conditions, both acute and chronic, have been, and probably always will be, those which have been treated by almost every known form of treatment, scientific and empirical, before entering the institutions. These patients, as a rule, have tried many original treatments, advised by able practitioners and surgeons, and not infrequently I find that they have exhausted the whole list of isms, pathies, specialists, etc. We notice the favorable and unfavorable effect of these varied experiences on our patients. The unfavorable effect is usually experienced by the patient in the event of his having encountered dishonest, incompetent, and temporary symptom-relieving individuals. Whether the effect of our patient's experiences with ourselves is favorable or unfavorable, depends not only upon the real merits of our treatment, but also upon our methods of diagnosis and prognosis.

With the ideas gleaned from these various services such patients become conversant with many interpretations of their symptoms. They are cognizant of the superficial methods which have been produced by some of the physicians or specialists whom they have met, and they thus become appreciative of the thoroughness of that diagnostician whose conscientiousness and ability permit him to find, so far as possible, the condition of every organ and function in the body. Therefore, if we make an exhaustive and intelligent functional examination as well as a subjective investigation, we are frequently greatly helped by the previous experiences of our patient. Nothing inspires a patient with confidence so much as honest thoroughness and intelligence on the part of the practitioner.

The most successful physician is the one who has the ability to demonstrate to every patient coming under his care the fact that he investigates the structural and functional condition of every organ and tissue in the patient's anatomy, and if he does not understand his findings, will candidly say so, and explain the obscure character of the objective and subjective symptoms. The functional examination which enables you to start treatment properly must be frequently repeated, in order that you may understand it correctly. Furthermore, if you do not repeat your examination, the patient will, although he may be convinced that you are capable, also believe that you are very negligent and not properly interested in his case. It is true that the diagnosis consists of much more than a mere naming of the disease or diseases. Physicians are especially liable to be incomplete in their examination when the symptoms of a certain disease predominate; also when they have at hand a
remedy such as bovinine, which has an unlimited field of usefulness. Admitting that the bovinine will at least benefit or cure many chronic diseases, in which all other forms of scientific treatment have failed the tendency grows on many of the profession to relax their diagnostic vigilance, and place too much responsibility upon the shoulders of the most useful of all remedies which medical science has brought to a perfect state.

Physicians who have practised in large hospitals, institutions, or clinics, are confronted with cases referred by able practitioners, which have been improperly examined. Not because the physician in many cases did not know, but because he did not carefully study his case. Every case that comes under the physician’s care is worth looking at and looking at well. No physician should be too busy to make a thorough examination of his cases. If individually he has not the time, a competent assistant had better be employed so that he might refer the surplus to him. In doing this he can be honest to himself and attentive. In this advanced age, with all the great methods and means at our disposal, there is absolutely no excuse for careless and lazy diagnosticians. The absurd term “a natural born physician” is a relic of the dark ages, and treatment by intuition and imagination are absurd, and about as useful in diagnosis as the absent treatment in therapeutics. The doctor using bovinine, or indeed the doctor using any other medication, will get the best results who spends the time necessary to make a complete functional exploration of his cases, and uses the methods for investigation of substances taken from the body which have been furnished him by advanced medical research. The most common error with a good many physicians is that they treat the disease without treating the patient. In instances where there is a severe ulceration of the leg, it of course requires local dressings, and in a case of this kind so many physicians stop here. They do not look at the patient’s general condition, which requires just as much attention as the dressing of the sore. Often it is a constitutional condition which produces the local condition.

T. J. Riggs, M.D.

A NEW FOOD-BEVERAGE.

Writers on hygiene who, unlike some other writers, study a subject patiently before passing judgment on it, say that the best form of cocoa is that prepared for the jolly jacks in the British navy. It is made of the whole bean, unsweetened, ground and crushed to an impalpable paste.

It may be necessary, for the benefit of readers unfamiliar with cocoa-making, to explain that the prepared cocoas commonly sold are not made from the whole bean. The fat, generally known as cocoa butter, is extracted to as great an extent as possible, for the manufacturers need it in other branches of their business. It is used in cookery, candy making and medicine and always commands a good price. Since the cocoa, minus the butter, is sold as readily as if the butter were left
in, a sympathetic public will understand the temptation to which the thrifty manufacturers yield.

The consumer's interest is pleaded as an excuse for the extraction of the butter, which is admitted to be the most nutritious ingredient of the cocoa bean. It is alleged that the fat is hard to digest, yet some of the cocoa manufacturers themselves put the butter into high grade confectionery. The logical weakness of their position is apparent.

One reason why physicians have not recommended ordinary cocoa to dyspeptics is that it contains a great deal of starch, with no inconsiderable percentage of cellulose. Starch is a food of the highest order if you can digest it. But it is not always easy of digestion, and the unaided powers of the body are frequently unequal to the task.

The digestion of starch is an intricate process, involving the conversion of that substance into dextrin and invert sugar. This work is begun in the mouth and continued in the small intestine, the stomach having virtually nothing to do with it. A curious compound called diastase, in the saliva and the pancreatic juice, assists the digestion of starches. It is not as abundant in man as in his fellow creatures whose food is wholly vegetable.

Starch digestion is artificially promoted by malt diastase, a circumstance of which manufacturers of cocoa have not availed themselves until lately, when a compound of malt diastase and cocoa has been made by the Malt Creamlet Co. One effect of this dietetic novelty is the complete digestion of the starch in the cocoa, so that dyspeptics need no longer deny themselves a drink that is also a food of the greatest value. Another result of the union of cocoa and malt is said to be the breaking up of the butter into such small globules that it is readily absorbed even in bodies usually intolerant of any sort of fat.

THE CURABILITY OF SYPHILIS.

Speaking of the curability of syphilis in the symposium upon that disease in the October number of the International Medical Magazine, William S. Gottheil, of New York, takes exception to the opinion of its practical incurability which is prevalent in certain quarters. Everyday experience shows that the great majority of cases are cured in every practical sense, the occasional late relapses and accidents to the contrary, notwithstanding. He concludes:

1. Syphilis is a curable disease, and may even, with restrictions, be called a self-limited one.

2. Whilst cure in a given case cannot be affirmed with scientific accuracy, the chances of its being the fact after a certain time under proper treatment are so great that it may be properly claimed to have been affected.

3. Practically, a patient who has been properly treated throughout the active stages of the disease, and who has had no manifestations of its persistence for several years thereafter, may be regarded as cured, and may be told so.
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### INDEX TO ADVERTISERS

<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonol Chemical Co.</td>
<td>2</td>
</tr>
<tr>
<td>Angier Chemical Co.</td>
<td>19</td>
</tr>
<tr>
<td>Antikamnia Chemical Co.</td>
<td>9</td>
</tr>
<tr>
<td>Auto Chemical Co.</td>
<td>14</td>
</tr>
<tr>
<td>Bermuda S. S. Co.</td>
<td>20</td>
</tr>
<tr>
<td>Bovine Co.</td>
<td>6</td>
</tr>
<tr>
<td>Breitenbach, M. J., Co.</td>
<td>4</td>
</tr>
<tr>
<td>Chesterman &amp; Streeter</td>
<td>24</td>
</tr>
<tr>
<td>Clark &amp; Roberts</td>
<td>26</td>
</tr>
<tr>
<td>Cortexalin Co.</td>
<td>16</td>
</tr>
<tr>
<td>Crittenton, Charles X., Co.</td>
<td>3</td>
</tr>
<tr>
<td>Cystogen Chemical Co.</td>
<td>3</td>
</tr>
<tr>
<td>Dios Chemical Co.</td>
<td>16</td>
</tr>
<tr>
<td>Farbenfabriken Elberfeld Co.</td>
<td>28</td>
</tr>
<tr>
<td>Fellows Co.</td>
<td>27</td>
</tr>
<tr>
<td>Globe Mfg. Co.</td>
<td>27</td>
</tr>
<tr>
<td>Kress &amp; Owen Co.</td>
<td>13</td>
</tr>
<tr>
<td>Immune Tablet Co.</td>
<td>10</td>
</tr>
<tr>
<td>Laughlin Mfg. Co.</td>
<td>24</td>
</tr>
<tr>
<td>Lippincott Co., J. B.</td>
<td>21</td>
</tr>
<tr>
<td>McGuire, Stuart, M.D.</td>
<td>14</td>
</tr>
<tr>
<td>Mellin's Food Co.</td>
<td>28</td>
</tr>
<tr>
<td>Micanah &amp; Co.</td>
<td>2</td>
</tr>
<tr>
<td>Mumma, G. H., &amp; Co.</td>
<td>18</td>
</tr>
<tr>
<td>N. Y. Pharmaceutical Co.</td>
<td>10</td>
</tr>
<tr>
<td>Od Chemical Co.</td>
<td>12</td>
</tr>
<tr>
<td>Parke, Davis &amp; Co.</td>
<td>5</td>
</tr>
<tr>
<td>Peacock Chemical Co.</td>
<td>15</td>
</tr>
<tr>
<td>Perfection Chair Co.</td>
<td>22</td>
</tr>
<tr>
<td>Planten, H., &amp; Son</td>
<td>12</td>
</tr>
<tr>
<td>Rio Chemical Co.</td>
<td>7</td>
</tr>
<tr>
<td>Robinson Thermal Bath Co.</td>
<td>26</td>
</tr>
<tr>
<td>Schering &amp; Glatz.</td>
<td>8</td>
</tr>
<tr>
<td>Scott &amp; Bowne</td>
<td>18</td>
</tr>
<tr>
<td>Southern Railway Co.</td>
<td>20</td>
</tr>
<tr>
<td>Sultan Drug Co.</td>
<td>15</td>
</tr>
<tr>
<td>Speer, N. J., Wine Co.</td>
<td>25</td>
</tr>
<tr>
<td>Tincture Amal Mfg. Co., Ltd.</td>
<td>11</td>
</tr>
<tr>
<td>Western Surgical Instrument House</td>
<td>22</td>
</tr>
<tr>
<td>Wheeler, Dr. T. B.</td>
<td>12</td>
</tr>
<tr>
<td>Williams, P. G.</td>
<td>23</td>
</tr>
</tbody>
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The Stigmata of Degeneracy in Relation to the Medical Examiner. By Eugene S. Talbot, M.D., D.D.S., Fellow of the Chicago Academy of Medicine. In this well-illustrated article the author discusses the numerous so-called stigmata of degeneracy, and calls attention to the importance of the subject from various standpoints. It is of interest to the physician from its relation to inherited tendencies, to diseases like tuberculosis, cancer, insanity and bodily defects; to the dentist, in connection with deformities of the jaws and irregularities of the teeth; to the jurist, in connection with civic and criminal litigation; to the teacher, because of the mental and nervous instability of pupils; to the minister and philanthropist, because of its relation to vice and pauperism. To the medical examiner it is of peculiar interest, since the degenerate is more liable to disease and death than normal individuals. To the general community at large it is of interest because reproduction of defective results in parasites which disgrace society and fill public and private institutions with defective dependents. Dr. Talbot concludes that mentally we are not degenerating, but physically we are...117

Medical Inspection of School Children. By H. D. Hoge, Jr., M.D., Richmond, Va., Member Board of Health, Physician to Infants' Home, etc. The reader will find presented in this article a topic of vital importance to the medical practitioner and one which should be given careful attention. Dr. Hoge has gone to considerable trouble to collect data relative to this subject, and the statistics obtained illustrate powerfully the necessity of some action in the direction of medical inspection of school children...132

A Case of Fulminant Appendicitis with Unusual Complications; (a) Post-Operative Ileus, and (b) One Week Subsequently a Pyo-Thorax. The Pus perforates the Lungs and is Discharged Through Bronchial Tubes. Resection of the Seventh Rib and Insertion of a Drainage Tube. By Talbot Jones, M.D., St. Paul, Minn. The patient was a boy of thirteen years. Within twenty-four hours after the onset of his symptoms, perforation occurred. Upon opening the abdomen, the appendix

Continued on page 9.

**Dysmenorrhea.**

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Albuminuria Considered From the View of Life Insurance. By Prof. B. J. Stokvis, M.D., of Amsterdam, Holland. Chief Physician of the Mutual Life Insurance Company, of New York. This is one of the most complete and interesting papers that have thus far appeared upon this subject. The author emphasizes, particularly, the importance of discovering whether the albumin is of extra, or int arenal origin. For this we must resort to the microscope in order to learn if it contains some elements proceeding from the blood, from pus, from the mucous membrane of the urinary passages, etc. According to different authorities, the number of cases of extra-renal albuminuria range from 60 to 68 per cent. of the cases in which albumin is found in the urine. The prognosis in these cases is most favorable. In regard to renal albuminuria, it is necessary to distinguish between organic renal albuminuria the result of permanent affections, and functional renal albuminuria resulting from curable diseases of the kidneys.

Appendicitis from the Standpoint of a General Practitioner. By Dr. B. L. Hillsman, of Richmond, Va. A valuable treatise on a most interesting subject. But little literature has been printed on this topic, and this treatise is a splendid addition to that which has appeared.

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<tr>
<td>Nitrate Strychnine</td>
<td>gr. 1.45</td>
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<tr>
<td>Extract Saw Palmetto</td>
<td>gr. 1</td>
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<td>Strychnos Ignatia</td>
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THE STIGMATA OF DEGENERACY.

By EUGENE S. TALBOT, M.D., D.D.S.,
Fellow of the Chicago Academy of Medicine.

Perhaps there is no subject at the present time that is of so much importance as that of human degeneracy. It is of interest to the physician from its relation to inherited tendencies, to diseases like tuberculosis, cancer, insanity and bodily defects; to the dentist, in connection with deformities of the jaws and irregularities of the teeth; to the jurist, in connection with civic and criminal litigation; to the teacher, because of the mental and nervous instability of pupils; to the minister and philanthropist, because of its relation to vice and pauperism; to the community at large, because reproduction of defectives results in parasites which disgrace society and fill public and private institutions with defective dependents.

Moreal of France, fifty years ago, laid down the essential principles governing human degeneracy. Since his time, although many scientists have labored with the subject, none have forced it so much to the front as Lombroso, of Turin, Italy. Lombroso, however, made the fatal error of trying to establish a peculiarly criminal type. His pupil, Max Nordau, by his "Degeneration" popularized Lombroso's views. As Lombroso
remarked, "Nordau with a stroke of the pen has accomplished at once what I have been trying to do in the past thirty-seven years."

Nordau's work excited the literati more than the scientist, since he attempted to diagnose degeneracy of authors from literary productions

The scientific methods of study of the degenerate are based on the status of physical development, which produces deformities of the brain and body called, "Stigmata of Degeneracy."

Degenerates of the marked type are, therefore, the congenital deaf, dumb, blind, insane, idiots, criminals, paupers, harlots, extreme egotists, one-sided genius, kleptomaniacs, habitual liars, "smart" business men and "eccentric" people. These all display stigmata to a marked degree.

These stigmata are evinced in excessive or arrested development of tissue or the entire individual. The degenerate, therefore, should be studied from the standpoint of his stigmata.

Figure 1 illustrates a fetal brain at six months. No convolutions have yet developed, though the fissure of Sylvius is well marked. The surface of the brain is smooth. Figure 2 is a normal adult brain of the mathematician Gauss. Marked change is noticable in the development of a large number of convolutions scattered over the surface. The larger

the number and the deeper the convolution, the greater the distribution of gray matter. Figure 3 shows the side view of the brain cut into near the median line. The depth of the sulci is marked, especially in the anterior part. The fine subdivision of the convolutions affords space for much

The illustrations were obtained from Prof. D. R. Brower's collection and medical and dental works.
DEGENERACY—TALBOT.

gray matter. Figure 4. The location and white matter affords expression to the intelligence. From these extremes it is easy to understand how from any cause the brain may cease development at any period between the two. Such cessation has occurred in the brain of an idiot (Figure 5),

where the brain is very small, the anterior and posterior parts are wanting and the convolutions are very large and also in that of an imbecile (Figure 6), where the convolutions are very large and scattered, but the anterior development is deficient. A more marked deficiency appears in the brain of an idiot (Figure 7), in which the cortical of the left hemisphere is

entirely wanting. In this case, as in most cases of porencephaly an attempt has been made to compensate this loss of development of many small convolutions. Each of these layers performs some particular function. Figure 8 is a side view of the brain of a man, showing the location
of some of the various functions. Thus (1) is the center for the movement of the opposite leg and foot; 2, 3, 4, centers of complex movements; 5, extension of forearm, etc.; 13, vision; 14, hearing. If these centers should be destroyed or should not develop, these functions could not be performed. A section from one of these areas prepared and placed under the microscope shows layers of cells.

Aside from bulk development and development of convolutions, cell

or neuron development is the most important factor. Thus a New York imbecile's brain weighed four ounces more than that of Cuvier. On the other hand, people with small brain growth like Gambetta and Shelley may frequently be very bright and intelligent. Brain cells possess three functions, sensation, coordination and growth.

At birth, the brain is the largest part of the body. It weighs one-fifth of the entire body, while in the adult it is but one-thirty-third.
During the first six months it doubles in weight. Hence stability of brain evolution is necessary to normal development of the body.

Degeneracy, according to Ray Lankester, is a gradual change of structures by which the organism becomes adapted to less varied and complex conditions of life. The opposite progressive process of elaboration is a gradual change of structure by which the organism becomes adapted to more varied and complex conditions of existence. In elaboration there is a new expression of form corresponding to new perfection of work in the animal machine. In degeneracy there is suppression of form corresponding to the cessation of work. Elaboration of some one organ may be a necessary accompaniment of degeneracy in all others. This is very generally the case. Only when the total result of the elaboration of some organs and the degeneracy of others is such as to leave the whole mass in a lower condition, that is, fitted to less complex action and reaction

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2Degeneration.
in regard to its surroundings than is the type, can the individual be regarded as an instance of degeneracy.

As Harriet Alexander has shown, since degeneracy is a process of evolution, leading to alteration of form because of cessation of inhibition in certain directions resultant on diminished work, it logically follows that since diminished function precedes change of structure, increased function must check the change of structure in its biochemic stage. Nay, more, it is evident that structural elaboration due to degeneracy may be retained while the degenerate structures resume their higher functions. Hence a degenerate race may rank higher in evolution because of the utilization of the beneficial variations due to degeneracy. The influence of this principle is increased by the fact that the majority of the children of degenerates inherit a tendency to degeneracy rather than degeneracy itself.

\[\text{\textsuperscript{3}}\text{Medicine, 1896.}\]
Since as Kiernan\(^4\) points out, certain parts may disappear in the evolution of the organisms, and since the disappearance and developing tendency must center around the type when certain functions will be lost by the disappearing and others gained by the developing, periods of stress must occur, around which the law of economy of growth will center the struggle for existence between the parts of organs and between the organs. Struggles for existence on the part of the different organs and systems of the body are hence most ardent during the periods of intra and extra-uterine evolution and involution at the four and one-half months' period of fetal life. During the first dentition, during the second dentition (often as late as the thirteenth year), during puberty and adolescence (fourteen to twenty-five), during the climacteric (forty to sixty), when uterine involution occurs in woman and prostatic involution in man, and finally

\(^4\) Medicine, 1901.
during senility (sixty and upwards), mental or physical defect may, as I have elsewhere shown, occur; a congenital tendency to which has remained latent until the period of stress.

There is an important stress period at four and one-half months' intra-uterine life, called the simian or senile period (Figure 9). This wrinkled, dried up appearance which is sometimes noticed at birth and which remains throughout life is due to native inferiorities of constitution, of temperament, of vital resistance, perchance to retardation, arrests or imperfections of development, mental, physical or manifested in organic changes which produce either malformation of organs or monstrosities. Arrests and excessive developments which so frequently begin at this period are often spoken of as inherited peculiarities. Such a theory does not account for a monstrosity or arrested development where the parents have been normal for three or four generations. Arrest markedly noticeable in even seemingly normal man of certain races occurs from the third

Fig. 12.  Fig. 13.

year onward when further growth, though an absolutely necessary adaptation to environment, is to some extent growth in degeneration and senility.

The body, and especially the head, retains its childlike appearance throughout life (Figure 10) due to arrest of the bones in the face, and not in the bulk of brain, but in cell development. This is why some men and women retain the fresh, youthful appearance late in life. In many cases such people are superficial in mental development. This type is frequently found among harlots.

The eruptive fevers or other constitutional disease will produce arrests of development in every child, some times for a short period and again for life. Figure 11 illustrates a person thirty years of age whose development became arrested at eight. He possesses the brain of a child at that age. Any structure of the body is liable to become arrested or excessively developed as a result of constitutional disease producing an

°Degeneracy.
unstable brain. Children recovering from the eruptive fevers or other constitutional disease should be given a change of climate, food and environment when practicable.

While it is possible only in a general way to draw conclusions of brain stigmata by the shape and contour of the skull, yet there are many stigmata in connection with the head which are of value in determining human degeneracy. Many of these are markedly visible in the head and skull of the criminal Gasparone, Figure 12. The head is dolichocephalic with exceedingly low forehead and excessively developed occipital region. The excessively developed orbital cavities and super-orbital ridges with sunken eyes are atavistic, since they are Neanderthaloid. The excessively developed visual region of the brain, together with the stigmata previously mentioned, indicate atavism along the line of primitive man in warfare.

The excessively developed jaws, malar bones, mastoid processes and occipital ridges are also atavistic, since they indicate the attachment of heavy powerful muscles for biting or mastication. The inca or wormian bones due to imperfect development of the dermal bones of the skull are a marked sign of degeneracy.

The physician should know what the average normal type of head and face of a given race is before drawing conclusions. Thus brachycephaly may be normal in the German races. High cheek bones are normal in the Mongols and American Indians, etc. Excessive protrusion of the jaws is normal in negroes. In studying the degenerate faces, two imaginary lines are drawn, one at the median line of the head and face dividing them into two halves, the other by extending a perpendicular line from above, and touching the super-orbital ridge below the chin. By starting from these lines, unilateral development of the face can easily be studied as well as protrusion or recession of the forehead, face and jaws.
Among striking features of the degenerate head are arrest of development of the frontal region, the excessive or arrested development of the bregma, and the excessive or arrested development of the occipital region. Usually one side of the head is excessively developed, the other is arrested. One ear is higher than the other, the supra-orbital ridges excessively developed, the orbital cavities are large, the eyes small, sunken, set close together or very far apart, the cheek bones excessively developed or one larger and higher than the other, the face arrested or excessively developed, usually arrested, the lower jaw excessively developed or arrested. These points are indicated by the two imaginary lines.
Figure 13 shows a criminal colored boy from the New York State Reformatory. The most marked stigmata here displayed are sphenocephaly (wedge-shaped head) arrested jaws, excessively large right orbit and arrested ears. This brain is macrocephalic as a result of arrested hydrocephalus. It is markedly degenerate either in the white or negro. A line dropped from the super-orbital ridge shows that the head, face and jaws were developed upon that line. In Caucasian races this would be consid-

![Figs. 22 and 23.](image1)

ered a normal face, but in a negro of so low a type, the jaws should protrude far below this line; they are hence arrested.

Figure 14 shows two types of degenerate faces. A line dropped from above the supra-orbital ridge shows the forehead to be low and very narrow, with lack of frontal brain development. The lower jaw, which seems to be excessively developed, is normal. The face, from the supra-orbital ridge down to and including the superior teeth, is arrested; the face has a hollowed out appearance.

Dropping a line in the same manner from the supra-orbital ridge

![Fig. 24.](image2)

would show the same forehead as in the other, but just the opposite condition of the face. The face is excessively developed; the lower jaw arrested. There is, however, marked lateral arrest of development of the face and lower jaw (which does not appear in a side view picture), producing a hatchet face.
By applying these rules to degenerates of different races, taking into consideration race types, it is obvious that there is very little difference in stigmata except in degree. The higher the race in the order of evolution, the more intensified the deformity. Figure 15 illustrates English criminals. The head and face stigmata are very marked. Figure 16 shows Italian criminals. The forehead is arrested, the small sunken eyes set close together and wide apart, there is lateral asymmetry. Figure 17 illustrates Russian harlots with exceedingly low foreheads, small sunken eyes and facial arrest.

A degenerate type often found in America is that of Patrick Eugene Joseph Prendergast, Figure 18, the assassin of Carter Harrison. Height, five feet, seven inches; weight, 132 pounds; hair, red, coarse and stiff; very little upon face. Nose, fairly normal, thin at bridge, broad at alae. Ears, large and projecting, lobes, short and broad, tragus well developed; helix broad, with typical tubercles at the upper and outer border of the ear. Lips, upper, small and thin; lower, excessively developed, more prominent because of undeveloped upper jaw. Arrest of development of the bones of the face, especially at the alae of the nose. Zygomatic arches normal, but appear prominent owing to the arrest of the bones of the face. Lower jaw normal. Forehead receding. Head sunken at the bregma; occipital region excessively developed, circumference, 22.2 inches (57 millimeters) anteroposterior 7.75 inches (20 millimeters) lateral 6.36 inches (164 millimeters); lateral index 82; therefore extreme brachycephalic. Feet, large; hands, normal; fingers, long and skinny. Width outside first permanent molar, 2.25 inches; width outside second bicuspid, 2 inches; width of vault, 1.25; height of vault, .75; anteroposterior, 2.
Of typical faces of the degenerates; the following are here illustrated: Figure 19 is a photograph of Charles V, of Germany, in his coffin, taken nearly 300 years after death. The face is markedly deformed. The forehead is broad and low. The eyes wide apart. The left eye higher than the right. The nose long and slender. The cheek bones, bones of the face and upper jaw are arrested in development. The lower jaw protruded from three-fourths to one inch beyond the upper. The mouth is open from excessive development of the ascending rami. He was a mouth breather. This man, although an enormous eater, could not chew his food properly. The upper jaw was so small that the teeth closed inside of the lower. A large number of special cooks were required to prepare his food, so that it could be swallowed. Figure 20 is that of Judas. Had the artist lived at the present time and been familiar with the degenerate type, he could not have portrayed a better likeness than is here displayed. The head and face of the degenerate nobility type; the small eyes, arrest of the face and upper jaw, and the excessive lower jaw stamp him as a very degenerate person.

The sense organs most apt to show defect are the ears. The reason is that they are cartilaginous organs springing from the side of the head and attached to bony bases. The blood supply is scanty and irregularly distributed. In an examination of 6,000 ears of persons ranging in age from twelve to fifty years, it was found that the average length is 2.50 inches; width, 1.25 inches. Ears of these dimensions, all parts being developed in proportion, should be considered normal. Each ear develops from six little buds forming a part of the normal ear. If, on account of an unstable brain, these buds do not develop harmoniously, an abnormal ear results. Figure 21 shows a number of deformed ears of criminals. None of these are graceful in outline. Some are more arrested than others. Unlike any other organ of the body, the ear grows throughout
life, thus old people are frequently seen with large and long ears. This is especially true of defective people. The color of the ear is a sign of the physical condition of the child. When white, it indicates fatigue.

The structures which are next most easily affected by degeneracy are the jaws and teeth. These defects are the result of both excessive and arrested development of one jaw, or want of harmony in the development of both. The upper or lower may protrude beyond the imaginary line. The upper may become arrested and a V (Figure 22) or a saddle-shaped (Figure 23) arch be produced.

The law of Aristotle, whereby a structure or organ is lost for the benefit of the organism as a whole, is here beautifully illustrated. Figure 24 illustrates the advance of the brain and the recession of the face and jaws in the order of evolution as shown by the perpendicular line. The brain is still advancing and the jaws are still receding until to-day, in an examination of 10,000 people in London, 83 per cent. possessed jaws inside of the line, and among 3,000 English school children, 93 per cent. had jaws inside of the line. The face and jaws are hence transitory structures, and are the first to be arrested or excessively developed by an unstable nervous system. The V and saddle-shaped arches are the result of arrest of the upper jaw. There is no room for the teeth to develop in a normal manner. Whether the jaw will become V or saddle-shaped depends upon the order of the eruption of the teeth, which is purely mechanical.

Figure 25 illustrates hypertrophy of the alveolar process which is a very common stigma in the degenerate. It has been claimed that the hypertrophy produces a deformed palate, which is not the case. In the cases illustrated, the palate is normal, but because of an unstable nervous
DEGENERACY—TALBOT.

system and of the transitory nature of the alveolar process, it becomes enlarged, sometimes extending across the mouth, meeting at the median line.

Man at his present stage of evolution has twenty teeth in his temporary and thirty-two in his permanent set. Any deviation in number is the result of embryonic change occurring between the sixth and fifteenth week for the temporary teeth, and the fifteenth week and birth for the permanent. The germs of teeth which erupt late in life and are (properly) called third sets, appear ere birth and are completely formed at the beginning of the second year, although they remain protected in the jaw until late in life. This is an expression of polyphodont atavism.

More than twenty teeth in the temporary set or thirty-two in the permanent set is an expression of atavism.

From a maxillary and dental standpoint, man reached his highest development when well developed jaws held twenty temporary and thirty-two permanent teeth. Decrease in the numbers meant, from the dental standpoint, degeneracy, albeit, it might mark advance in the man's evolution as a complete being. *Marsh points out that in the New Mexican lower eocene occur a few representatives of the lowest primates, such as the lemurarius and limnotherium, each the type of a distinct family. The lemurarius, closely allied to the lemurs, is the most generalized primate yet to be found. It had forty-four teeth in continuous series above and below. The limnotherium, while related to the lemurs, had some affinities with the American marmosets. †A. H. Thompson in discussing the "missing teeth" of man, remarks that these researches suggested and subsequent studies aided solution of the problem of the origin of the extra teeth (known as supernumeraries) which sometimes occur in man. These, usually regarded as pure freaks, like polydactylism are, however, excellent illustrations of atavism demonstrating that man during his evolution from the lowest primate has lost twelve teeth. These supernumerary teeth assume two forms—either they resemble the adjoining teeth or are cone-shaped. Figure 26.

While supernumerary teeth may be located at any point in the mouth, as noticed in one of the illustrations, they are usually found in either the extreme posterior, like the middle figure, or the extreme anterior, as seen in the smaller figure.

Stigmata of degeneracy are not confined to the upper part of the body. All structures may be involved, as is often shown by the arrest of the right forearm and the excessive development of the middle finger of the left hand. Figure 27. Next to the ears and jaws the vermiform appendix is probably most liable to degeneracy. This organ varies in length and location alike.

Figure 28 illustrates the evolution of the foot from the perfectly flat foot of the negro to the high arched foot. Degenerates usually possess a nearly or quite flat foot. They often have the prehensile power of the foot found in the anthropoids.

*Vertebrae Life (Proceedings American Association for Advancement of Science, 1877.)
†Dental Cosmos, 1894.
In view of the fact that some time ago, the members of the Board of Health were requested to make an inspection of the school buildings, out-houses and drinking water, and we having performed that duty and reported the results, I thought it might prove of interest and instruction to state in detail what has been done by other cities in inspecting the school children.

While schools and scholars form two distinct subjects for investigation, and must be considered from two different view points, still to have sanitary buildings frequented by diseased scholars is one thing, but sanitary buildings attended by healthy scholars is quite a different matter and the one to be desired and provided for.

The first efforts in this country, looking towards the hygienic inspection of school children, were made by Joseph Willard, Esq., of Boston, Mass., who read the draft of a proposed law upon the medical inspection of schools before the American Social Science Association in 1875, at its meeting in Detroit, Mich.

The matter was agitated for years in various public bodies without much practical result till in 1894, during a severe epidemic of diphtheria, the School Board of Boston gave its consent to the inauguration of the system.

The plan adopted there, was to appoint a discreet, well-qualified physician at a salary of $—— per annum. He was given four school houses embracing a school population of about 1,400 children. He made daily visits to the schools soon after opening; the principals received from each teacher a report of the symptoms of illness of any of the children; the doctor, on arriving, at once privately examined the reported children, and kept a record of all facts in the case. If the child was too sick to remain at school, it was sent home by the teacher with that statement, leaving it optional with the parents to call the family doctor. If the disease was of a contagious nature, the fact was promptly reported to the School Board. The medical inspector never undertook to prescribe for the sick children, his only object being to give the parents timely warning in cases of simple sickness, and to protect the well children from contagious diseases.

After this brief outline of the plan, now see what the result of one year's inspection proved. During the session 1894-5, out of 14,666 pupils, 9,188 were found to be diseased at one time or another: 1,745 were sick enough to be sent home; of these, 437 had some infectious disease, as follows: Diphtheria, 70; scarlet fever, 26; measles, 110; whooping cough, 28; chicken-pox, 34; mumps, 43; lice, 66; itch, 42; congenital syphilis, 8. These children had been in their seats or playing with the rest, spreading disease broadcast.

Without giving the figures, among the other diseases discovered by
the inspector, were abscess, anemia, bronchitis, catarrh, St. Vitus dance, debility, diseases of the eyes, nose and ear, epilepsy, malaria, lup-joint disease, ring-worm, tonsilitis, ulcers, wounds, etc., etc. Who can estimate the number of sick ones saved from disease, loss of time and possible death? The beneficial results of one year's inspection to be plainly observed, were that the teachers became more interested in the children and more expert in detecting diseases. As to the public, parents felt that there was decidedly less danger in sending the children to school, so that at once, confidence was increased along with a feeling of security and contentment.

From year to year, these inspections have been carried on. The inspectors meet monthly, or oftener if the occasion requires it, to make out condensed reports, discuss the various phases of work and thus arrive at uniform methods of action.

In the city of New York, in the annual report for 1899, we find that the total average number of attendance was 413,256; school days, 192; schools visited, 594; children examined, 128,787. Of these, 9,367 were excluded—among them were found measles, 278; diphtheria, 119; scarlet fever, 42; croup, 20; whooping cough, 227; mumps, 675; contagious-eye diseases, 1894; head lice, 4,498; body lice, 86; chicken-pox, 474; skin diseases, 988. This work was done by one chief inspector and 150 assistant inspectors.

From Cleveland, Ohio, Dr. L. B. Tuckerman reports the following: A teacher in one of the public schools had sore throat, but she continued at work; within two weeks, five children out of her room died, and there were over forty cases of diphtheria in the same school which were traceable to her as the source of infection.

In Philadelphia, last year, 350 schools were inspected; there were found contagious skin diseases, 62; diphtheria, 77; whooping cough, 18; chicken-pox, 13; lice, 66; scarlet fever, 6; ringworm, 60, etc., etc. And so I might go on giving you statistics from a number of cities, all showing practically the same results.

From the above facts and figures, I am indebted to Dr. D. S. Lamb of Washington, D. C., who has studied the subject very exhaustively, and has placed his collected material at my disposal.

Is it enough for the School Board to build houses, elect teachers, and formulate certain rules for their guidance, then throw open the doors and invite in as many children as possible? Are you aware that sixty-six and two-third per cent. of the infectious diseases of children are found among those who attend public schools? If I have shown anything, it is the fact that our public schools are so many foci for the dissemination of sickness and death which, by proper means of medical inspection, may be reduced to a minimum.

Without wishing at present to formulate any rules and regulations, but simply to throw out some suggestions of a practical nature—for that after all, is the object of the paper—I would say:

First. There should be a closer touch in the future, between the School Board and the Board of Health. Calling on the latter from time to time, for advice or opinion on matters relating to public hygiene and health.

Second. There should be one chief medical inspector elected (as are-
teachers) at a salary of $134——— per annum, who should be a clear, level-headed physician of discretion and education, who also should be a bacteriologist capable of making a rapid and skilful diagnosis of diphtheria, tuberculosis, etc., and who should be responsible for the faithful work of the assistant inspectors, and aid them in every way possible.

Third. There should be four assistant medical inspectors elected (as are the teachers) at a salary of $134——— per annum, whose duty it should be to divide the schools as evenly as possible between them; visit each one every school day between the hours of 8:30 and 9:30 A. M.; examine all sick children reported by the principals through the teachers; keep full records of each case; have those requiring it sent home by the teacher; take cultures from all suspected diphtheria throats and bring such promptly to the chief medical inspector for bacteriological diagnosis; verify all vaccinations; have general sanitary supervision of the buildings and surroundings; from time to time address the teachers on sanitary and health measures; have monthly, or oftener, meetings for conference and report, and, in fine, such duties as the School Board should see fit to impose upon them.

No. 308 Grace street, East.

The Committee on Pathologic Exhibit for the American Medical Association is anxious to secure materials for the coming session at Saratoga, June 10 to 13 inclusive.

This exhibit was accorded much praise and comment during the sessions at Atlantic City and St. Paul, respectively, where were collected valuable exhibits from all parts of the country. The materials included not only pathologic specimens but the allied fields, bacteriology, hema-tology, physiology and biology, were well represented.

It would also be desirable to secure exhibits of new apparatus, charts, etc., used by teachers of pathology and physiology in medical colleges.

This exhibit has already become a permanent feature of the annual sessions of the American Medical Association and the committee is desirous of securing its list of exhibits as early as possible and to this end asks those having desirable materials to communicate with any member of the committee.

To contribute to the value of the work, it is suggested that as far as possible each contributor select materials illustrative of one classification and by such specialization enhance the usefulness of the display.

Those lending their materials may feel assured that good care will be given their exhibits while in the hands of the committee and due credit will be given in the published reports.

Very respectfully,

F. M. Jeffries,
214 East Thirty-fourth street, New York city.

W. A. Evans,
103 State street, Suite 1403, Chicago, Illinois.

Roger G. Perkins,
Western Reserve Medical School, Cleveland, Ohio.
A CASE OF FULMINANT APPENDICITIS WITH UNUSUAL COMPLICATIONS; (a) POST-OPERATIVE ILEUS, AND (b) ONE WEEK SUBSEQUENTLY A PYO-TORAX. THE PUS PERFORATES THE LUNGS AND IS DISCHARGED THROUGH BRONCHIAL TUBES. *RESECTION OF THE SEVENTH RIB AND INSERTION OF A DRAINAGE TUBE.

By TALBOT JONES, M.D., St. Paul, Minn.

I was called one Friday afternoon at 5 o'clock to see a lad, 13 years old, who had been feeling somewhat ill since morning, but who felt well the preceding day. He had no warning of the intra-abdominal storm that was impending. He had some vomiting, severe pain in the right iliac fossa, fever and a hurried pulse. A diagnosis of appendicitis was made, an ice bag applied, and a hypodermic of morphine given.

The next morning he was worse; at noon decidedly worse, and late in the afternoon he was screaming with pain. A hypodermic of ½ grain of morphine sufficed to relieve the pain for only one hour. Just over McBurney's point there was a spot about the width of two fingers, which yielded some dulness on percussion. Surgical council was requested, and Dr. Schwyzer called at 9 P. M.

The patient was now in intolerable pain and made no effort to locate it. He assumed the dorsel decubitus position, with his knees drawn up, his head thrown a little back; his breathing was rapid, shallow and thoracic; the abdominal walls were rigid and extremely tender to pressure, the weight of the bed clothes causing pain. Every effort to vomit caused an agonizing expression which strongly appealed to the physician's sympathy. His temperature was 104° F., and pulse 143, fine and thready. A diagnosis of perforation of the appendix and advancing general peritonitis was made.

As illustrating the fulminating character of the disease, it will be noted that the perforation took place within twenty-four hours of the commencement of the first symptoms. The lad was removed to St. Joseph's Hospital and laparotomy began at 12 midnight and completed at 1 o'clock Sunday morning. The appendix was found perforated on its under side, the opening being about 5 millimeters in diameter. On slitting the appendix up with a knife, after its removal from the body, four enteroliths were found in it. The appendix was found in a pocket of pus; considerable general peritonitis was present.

The lad rallied well, considering his grave condition at the time of the operation.

Six days subsequent to the operation, when the lad was apparently convalescing, he developed suddenly the following symptoms: distension of the bowels, pain, an inability to pass feces or flatus, shock and persistent vomiting. Later on the vomiting became unmistakably stereoraceous. Whether or not this complexus of symptoms meant an ileus (intestinal obstruction) or a very obstinate form of constipation, so often met with and difficult to overcome after operation in the abdominal cavity, is impossible to say. Most authorities insist that a differential
diagnosis between the two is practically impossible. The stomach was repeatedly washed out with warm saline solutions, but this did not control the vomiting. Every effort was made to move the bowels by means of various cathartics, given by mouth and rectum. For a time these efforts proved futile, and the family was informed that the boy would probably die of this intestinal obstruction. Finally, to a pint of water was added an ounce of turpentine and two drops of croton oil, and this was injected high up in the colon, while firm pressure was made by the nurse over the anus to insure its retention. This proved successful and the lad had eight movements of the bowels during the ensuing twenty-four hours.

During the next ten days he showed a decided improvement. Then he suddenly developed a pain in his right chest, with cough and dyspnea. His respirations and pulse became rapid, and his temperature registered 103° F. An examination disclosed dulness on percussion, amphoric breathing and negophony, especially behind near the angle of the scapula, and an absence of vocal and tactile fremitus. A pyo-thorax was diagnosticated. While deliberating what had best be done, the pus from the pleural cavity suddenly burst through the pleura into the right lung, and the quantity was so large that the boy was in immediate danger of being suffocated as the pus poured out of the bronchial tubes, the mouth and nose. This discharge was so offensive that one could scarcely remain in the room. Great quantities of it were expectorated, proving extremely offensive and distressing to the boy, while his cough was so constant that no nourishment or stimulants could be taken by the mouth. To add still further to his misery, a persistent vomiting set in, and he was soon in profound shock. He was now placed on the operating table and 2½ inches of the seventh rib resected near the angle of the scapula. When the pleura was cut through a great quantity of horribly offensive pus flowed out. It was curious to note the hissing sound made by the air both during inspiration and expiration. The pleural cavity was washed out with a solution of thymol, and a large drainage tube was inserted.

Profound shock followed the operation and energetic measures had to be adopted to prevent him from dying on the table. We looked upon the operation as a pis aller. He was placed in bed, and from the moment of the operation he never coughed again nor raised any pus, which drained away through the tube. The lad hung between life and death for forty-eight hours following the operation, but he finally began to improve. The opening into the lung closed, the pus soon ceased to discharge through the drainage tube and convalescence became fully established. At the present time, three years subsequent to the operation, the boy is in fine health, and he has no thickening of the pleura or falling into of the right chest wall as a consequence of his pyo-thorax.
ALBUMINURIA—STOKVIS.

ALBUMINURIA CONSIDERED FROM THE VIEW OF LIFE INSURANCE.

By PROF. B. J. STOKVIS, M.D., Amsterdam, Holland.

The man in perfect health, the absolutely normal man, does not exist in nature. He is only a fiction, an abstract idea; the product of the imagination. Each living man has his blemish, and the calculation of the probable duration of the life of a given individual has only been made possible in tabulating among entire populations the individuality affected with slight blemishes, as well as the individuals possessing prejudicial blemishes. Albuminuria is a pathological blemish. If we examine 10—50 cc. of normal urine, chemical reactions used by us to detect albumen give a negative result. Therefore, there is no physiological albuminuria—in the actual state of our scientific knowledge—albumen cannot be considered as a normal constituent of urine.

Albuminuria being a pathological blemish, what are the risks we incur therefrom? This is the only question that concerns the science of "life expectancy." Is this blemish the manifestation of a persistent normal state or of a transient state affecting the average duration of life no more than baldness, chronic conjunctivitis, slight catarrh of the bronchial tubes, or a common cold? Is it, on the other hand, the symptomatic manifestation of a disease of the kidneys, and the kidneys being necessary to life, shall we take the risk?

To begin with, when we say albuminuria, we must make a distinction. This word, introduced into science by Martin Solot, has remained, notwithstanding the protestations of Rayer, to whom we have been indebted since the last sixty years for the scientific notion that "albuminuria is only a symptom indicating a lesion of the genito-urinary apparatus, occurring accidentally in several acute diseases, and sometimes observed in the state of health." The following synoptic table has all the defects of classification in general, yet it may prove useful as a guide (see table on next page):

In the first place, we must establish a distinction between extra-renal and renal albuminuria. This distinction is of the greatest importance from the point of view of continued life of the patient. Extra-renal albuminuria has nothing to do with a lesion of the kidneys; it only shows a functional trouble or a lesion of the genito-urinary organs. The mortality statistics of the "Mutual"—concerning a selected population—during the last fifty-six years has demonstrated that out of a total of 44,988 deaths, 716 only were due to diseases of the bladder and prostate. The percentage is, therefore, only 1.59 per cent., but it must be noted, and this is of the utmost importance from the point of view of Life Insurance, that the great majority of deaths occur after sixty years of age, the percentage being 0.21 per cent. below sixty and 1.29 per cent. above sixty years. On that account I am convinced that many good risks were refused by medical examiners.

How are we to distinguish extra-renal from renal albuminuria? In the first place through its intermittent, transitory character. In his

Read before International Congress of Medical Experts. Translated from the German.
classical work on diseases of the urinary passages, Professor Guyon has demonstrated the transitory character of albuminuria resulting from affections of the genito-urinary organs. However, the same peculiarity applies to certain cases of renal albuminuria. For this reason it is necessary to resort to the microscopical examination of the urine to ascertain if it contains some elements proceeding from the blood, from pus, from the mucous membrane of the urinary passages, etc., etc., and if it is exempt from renal cylinders.

And right here I must ask, are we sufficiently convinced of the fact that the greatest number of cases of so-called physiological albuminuria are only cases of extra-renal albuminuria?

Following the example of Leube, who discovered albumen in the blood of soldiers in good health, my friend and former assistant, Dr. Zeehinsen, examined the urine of 144 recruits sent to the hospital for ophthalmological examination. Among these 144 young men, there were twenty-one whose urine contained albumen detected without trouble through ebullition. In thirteen cases, however, albuminuria was extra-renal; the microscope disclosed the presence of red corpuscles, leucocytes and epithelial cells, but no renal elements.

The percentage of cases of extra-renal albuminuria according to Zeehinsen is, therefore, 60 per cent. From researches made by Van Noosden under similar conditions, this percentage reaches 68 per cent.

The prognosis of these cases is most favorable. Flensburg examined the urine of the same soldiers two years later. He could find no albumen; he could not detect a single symptom of disease of the kidneys.

Through personal experience I have found, on many occasions, how easy it is to make an error of diagnosis between renal and extra-renal albuminuria. In this respect we should never forget the fundamental law of pathology; that is, we shall always consider the symptoms in their "ensemble." The importance we attribute to albuminuria is always too great, notwithstanding the warnings of classical authors like Prout, Bright, Rayer and Frerichs; the erroneous opinion that albuminuria and nephritis are identical is entertained by too many practitioners.

We might mention here that a very slight quantity of blood in diluted urine is apt to be mistaken for albuminuria. In his experimental researches on hemoglobinemia and hemoglobinuria, Dr. Yitta has demonstrated that there is no "reactif" more sensitive to ascertain the presence of hemoglobin than its albuminous character. In an aqueous, colorless solution of 1:100,000 of hemoglobin or 1:800,000 of blood, the "reactif" with caustic potash as well as the spectroscope examination were entirely at fault, while ebullition and the "reactif" of Heller with nitric acid give positive results.

At all other times, the existence of extra-renal albuminuria was obscured because the urine gave a clean acid reaction and appeared at first to be clear, the patient not complaining of troubles of the genito-urinary organs. The absence of these symptoms led us to neglect the microscopical examination of the urine; and neglect is the source of erroneous diagnosis.

I have been called upon on many occasions as an arbiter to determine if the urine was albuminous or not, and I must say that in the
SYNOPTIC TABLE OF ALBUMINURIA.

I.

EXTRA-RENAL ALBUMINURIA.
(Presence in the urine of albumen produced in the urogenital organs outside of the kidneys.)

II.

RENAL ALBUMINURIA
(Presence in the urine of albumen produced in the kidneys.)
A.—Organic (Nephritis, Bright's disease, amyloid degeneration.)
B.—Functional (symptomatic) determined by agents.

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<td>Albuminuria after a bath at 12° C.</td>
<td>Pyrogalol.</td>
<td>Diacetic acid.</td>
<td>Icterus.</td>
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<td>Alcohol.</td>
<td>Products of dis- assimilation in the organism.</td>
<td>Scurvenage, etc.</td>
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<td>Chloroform.</td>
<td>Microbial toxins and microbes.</td>
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<td>Arsenic.</td>
<td>Anoxylaemia and excess of carbonic acid in the blood.</td>
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majority of those cases the albuminuria was extra-renal; the urine contained only nucleo-albumin, leucocytes, mucous filaments, etc.

Concerning the examination of urine, the insurance companies exact that the sample of urine should be passed in the presence of the examiner in order to avoid fraud. It would be preferable for the examiner to secure this urine directly from the bladder with the catheter. Besides, urine not being constant in its composition, two samples should be secured, one in the evening, and the other in the morning.

To distinguish renal albuminuria from the extra-renal, Pizzini recommends to separate the globuline from the serine. If the urine contains only globuline, he thinks he has to deal with extra-renal albuminuria. In my estimation, the predominance of nucleo-albumin in the urine furnishes a better proof of extra-renal albuminuria. The microscope, however, is to be preferred to chemical methods.

In regard to renal albuminuria, it is necessary to distinguish between organic renal albuminuria the result of permanent affections, and functional renal albuminuria resulting from curable diseases of the kidneys.

Until further orders, organic renal albuminuria is not to be accepted as a risk; but how can we recognize it?

In the first place, through its character of permanency; this is only an indication, however, not a proof, because we cannot agree upon the lapse of time constituting permanency. Is it one or two years, or the whole life? Besides, we have often to deal with a case of enigmatic albuminuria, persisting during many years, the patient experiencing no pain and his vital chances not being impaired. Such cases have been recorded by Prout, Simon, Becquerel, Schmidt, Schmitziger, Sollman and McComb. I have myself seen at least ten such cases in which the degree of albuminuria was not influenced by food, digestion, corporeal fatigue, but rather depended upon the circulation of the blood.

I do not hesitate to say that risks of this kind are acceptable. I have known such cases to be cured in three to four years. Dr. Brandreth-Symonds took the trouble in 1861 to inquire about the health of forty-four individuals refused from 1876 to 1879 by the examiners of the "Mutual" for albuminuria. Most of them (68 per cent.) were yet alive, and ten of them (22 per cent.) were in perfect health and had secured Life Insurance. Therefore, the only absolute signs are those denoting the existence of an incurable disease of the kidneys. These signs are:

Kidneys.—Alteration of diuresis, oftener polyuria and pollakiuria (presence of renal cylinders, etc.).
Heart.—Hypertrophy, dilatation.
Arteries.—Endarteritis (arteriosclerosis).
Eyes.—Hemorrhagic retinitis.
Nervous System.—Uremic symptoms.
Skin.—Odeina exanthema.

When a rigorouos examination fails to disclose one of these symptoms, the existence of an incurable disease of the kidneys is very improbable, notwithstanding the presence of albumin in the urine, and the candidate for insurance should be admitted. When, on the contrary, endarteritis or any other symptom is found, the diuresis increasing, the specific weight of the urine being below 1.013—1.010, nephritis un-
doubtfully exists, notwithstanding the absence of albumin in the urine, and the candidate should be refused.

Renal albuminuria, functional or symptomatic, is transitory, but of variable duration. In its pathogenic the toxic element predominates. In the majority of cases this element is not sufficient to determine albuminuria; the thermic or pathogenic element comes to assist the process; in this category can be quoted the albuminuria of batters described by Reim, Picci and Gulewitz, which is probably produced through the intervention of a chemical element (intoxication, auto-toxicity). In cases of intoxication from the outside, we must take into consideration the blemish resulting from this intoxication. The same rule obtains with symptomatic albuminuria, the result of auto-intoxication.

Uric acid arthritis, diabetes and icterus, should be judged according to the degree of vitiation of the organisms which have produced them. The same rule applies also to the symptomatic albuminuria of the troubles of digestion, which I attribute to the sulpho-conjugated acids, to hepatic albuminuria and phosphaturia, described by Teissier and Albert Robion. The most important cases in this category are caused by corporeal "turmenage," which I attribute to an auto-intoxication of the products of dis-assimilation.

Cases of renal infectious albuminuria are never examined for insurance during the period of the febrile or infectious disease. Later on we must examine the risks of admissibility to insurance on the ground of morbid symptoms, without paying exaggerated attention to the presence or absence of renal cylinders. The examiner will have to consider particularly the diuresis, the condition of the heart, etc., etc. If there is no blemish in these parts, the risk is admissible.

In renal infectious albuminuria, not depending upon the processes by which the blood eliminates the toxins through the kidneys, we have to deal with one of the most difficult problems. Infection follows an inverted route. The microbes proceed from the mucous membrane of the urethra, and the bladder to the kidneys. In other words, renal albuminuria is superimposed upon the extra-renal albuminuria. If there is tuberculosis, the diagnosis is not difficult by means of a bacteriological examination. Concerning gonorrhea, Goldberg and Sterling have recently asserted that in from 12 to 14 per cent. of cases it produces renal albuminuria. I do not dispute the presence of albuminuria in these cases, but I cannot admit that it is renal.

Finally, we have to consider functional renal albuminuria resulting from the blood circulation in the kidneys. A slackening in the circulation is sufficient to produce functional troubles, the cause of which is a deficiency of oxygen in the blood, as well as an excess of carbonic acid. For this reason, I have classified albuminuria determined by venous stasis or arterial ischemia with toxic albuminuria. Cardiac albuminuria belongs to this group. It can result in permanent lesions of the kidneys, but often disappears without leaving any traces. In insurance matters, such cases must be examined in connection with diseases of the heart. For that matter, cyclic albuminuria, which I prefer to call orthostatic albuminuria, belongs also to the group of cardiac albuminuria. From an insurance point of view, cardiac albuminuria is not admitted as a risk by the companies. Yet it is advisable to postpone such cases, the prognosis of cyclic albuminuria particularly being favorable, as a rule.
APPENDICITIS FROM THE STANDPOINT OF A GENERAL PRACTITIONER.

By Dr. B. L. HILLSMAN, Richmond, Va.

This subject has been selected, not so much to call attention to its importance, or that I have discovered a method of differential diagnosis between its several forms, but in the hope that its discussion may lead to a concerted plan of treatment, and in so doing, decrease the present mortality.

I will not go into the symptoms, diagnosis and prognosis in full, but just so far as to allow me to deal with its treatment in an intelligent and practical manner.

Appendicitis is an inflammation primarily involving the vermiform appendix, frequently complicated by ulceration, perforation, gangrene and pus formation. We divide it into catarrhal, suppurative, gangrenous, etc.; and as a cause for each form, we claim microbic infection, which takes place after irritation or de-vitalization, produced by hardened fecal masses, foreign bodies, traumatism or interference with the blood supply.

The cardinal symptoms are pain, tenderness and rigidity. Deaver says these three symptoms present a picture in 90 per cent. of cases that cannot be mistaken. We have in typhoid fever, extraneous pregnancy, cholecystitis and acute mechanical obstruction, the same set of symptoms; but with proper care and a correct history, the diagnosis can be made. The pain in appendicitis is sudden in onset, may be localized to either iliac fossa, or may radiate to the umbilicus, testicles or epigastrium. Tenderness is usually localized in the right iliac fossa. Pressure made on other parts of the abdomen elicits tenderness, not over the point where pressure is made, but at McBurney’s point. Rigidity of the right rectus muscle is always present, though at times, it can only be demonstrated by a delicate touch.

Nausea and vomiting are usually present, but do not give any information as to the severity of the attack. The pulse is usually accelerated, with a slight rise of temperature, but this is not always the case. Both may range high. There may be diarrhea or constipation, but constipation is the rule.

The diagnosis of appendicitis can be made from the symptoms enumerated; but what we want is a method of differential diagnosis between the mild and the severe types, the operative and the non-operative. Have we any? I say no. The clinical thermometer, our standby in other diseases, tells us nothing. Morris (Med. Record) says: the temperature is a matter of no consequence as giving a clue to the condition of the appendix. The pulse is uncertain. Palpation, percussion, auscultation, are worthless. Of course, in 24 to 72 hours, we can make the distinction, but very often in that time, the patient has passed from your hands to the undertaker, and we comfort the friends by saying that everything was done for their relative that medi
cal skill could do; that it was a bad case from the first, and surgery could not have done any good. This, my fellow practitioners, cases your conscience a little, and retains the family to you as patrons; but if the truth were known, you in your own conscience know that had a surgeon been called as soon as you made your diagnosis, that your patient could have been saved. You inwardly censure yourself, but I claim, gentlemen, that you should be censured by the public and your profession for robbing your patient of the best means known to science of saving life in this treacherous malady.

Treatment.—With our present methods or knowledge of the differential diagnosis between the mild and severe cases, there is absolutely no medicinal treatment for appendicitis. In my experience of about five years in the practice of medicine, it has been my fortune to attend about forty cases of appendicitis, either in my own practice or on consultation with my father; and I always will regret that I gave any of those cases a single dose of medicine. It is true that about thirty recovered with medical treatment. Ten were operated on, with five deaths: but I firmly believe that, considering the splendid condition of the forty cases when first seen, immediate operation would have given a mortality of less than 1 per cent. Give me a method of diagnosing the mild from the severe form, and I will change my opinion; but until you do, I say operate on every case as soon as you make your diagnosis. You see one case with a pulse of 110, temperature of 103°, and treat medically, and recovery follows; another with a pulse of 90, temperature 99°, and treat in the same way and he dies; another type where you find a small tender spot as the only symptom, and you operate and find a pint of pus. Such a case is reported.

Let me give you a few opinions as regards differentiating the several forms: White (British Med. Journal): “At present, the symptoms of a mild catarrhal appendicitis cannot, with certainty, be distinguished from those marking the onset of the gravest type.”

Sym (N. Y. Med. Journal): “No fixed rule can be laid down for deciding in the early stages, between the mild and the severe cases.”

Shrady (N. Y. Med. Journal): “Danger may exist without being shown by pulse or temperature.”

Richardson (American Journal Sciences): “Recovery may follow a temperature of one hundred and five degrees and death occur with nearly a normal temperature.”

Now, with the above facts, we are in the dark as regards our prognosis when we are called to a case, and with the very small mortality (practically less than 1 per cent. if operation is performed inside of the first twelve hours), I say operate at once in all cases and you will save not only the cases that would have gotten well with medical treatment, but those that would have died with it. I know I will be opposed by some for the position I have taken, but I believe that all authorities will very soon come to the same conclusion, unless we find a method of differentiating the several forms. To those who will report a series of ten or fifteen cases treated medically without a death; I will say that mother nature has been very kind to them. Here are some of the conclusions of eminent men:

Carstens (N. Y. Med. Journal): “The conservative treatment of ap-
appendicitis, consists in prompt operation. The starvation method of procrastination is vicious and has cost many lives.” Davie (Dom. Med. Monthly): “Early operation in abscess cases, means small abscess easily and safely dealt with. Early operation in non-perforating cases, means avoiding all sorts of catastrophes to the patient, as perforation, gangrene, etc., and recurrence at inopportune times. Early operation means, in short, successful operations; delay means uncertainty and brings surgery into disrepute. The ideal time to operate, to obtain ideal results, is in the stage of appendicular colic.” Deaver: “The sooner the appendix is out, the better for the subsequent welfare of the patient.” Murphy (Amcr. Medico-Surg. Bull., 1866): “I am satisfied there are some cases which can be cured by medicine, but the question is, can they be differentiated? By medical treatment with a mortality of 10 per cent. and 3 per cent. with the knife, should we not save the other 7 per cent. by early operation?” Price (Journal American Med. Association): “If we made it a practice to operate when the trouble is first recognized, without delay of a day or more for consultations and therapeutical treatment, the deaths would be very few. The so-called very “conservative” man gives us the ugly abscess class of cases and the virulent perforative cases.” Crutcher: “A rapid pulse and high temperature favor the destructive process; their absence is no assurance of recovery.”

Morris reports a series of one hundred cases operated on, with a mortality of 2 per cent. and in this series, there were 30 abscess cases, gangrene, perforation, etc., and claims that 28 per cent. would have died if they had been treated medically and at this, allows a recovery of 22 of the abscess cases.

In conclusion, I will say: First, that it is better to operate prematurely, than to wait until the patient is practically moribund. Second, we cannot anticipate the severe forms and so call them out and operate only on them alone; we have no method of telling the catarrhal cases from the pus and gangrenous cases, and until we can, it is safer in every case to operate at once before the last named conditions have time to assert themselves. Third, I acknowledge a recovery of from 40 to 60 per cent. of all cases without operative intervention, but we are unable to say which case is going to help make this percentage, and with a mortality of less than 1 per cent. if immediate operation is resorted to against an acknowledged 28 per cent. without it, it certainly seems sensible to operate at once on every case.
Book Reviews.

ATLAS OF URINARY SEDIMENTS: With Special Reference to Their Clinical Significance. By Dr. Hermann Rieder, of the University of Munich. Translated by Frederick Craven Moore, M.Sc., M.D. Edited and annotated by A. Sheridan Delepine, M.B., C.M. (Edin.) B.Sc., with thirty-six plates, comprising 167 figures (many in colors), and several figures in the text. For sale by J. B. Lippincott Co., Philadelphia, Pa.

This splendid work of Dr. Rieder has long been known, but it is quite recently that an English translation has made it accessible to the English reading physician. Few or no works can compare with this one in the faultless execution of the plates. Many of them are in colors, so as to compare almost exactly with the original microscopic field; while those not printed in colors display a painstaking care seldom seen in medical illustrations.

To my mind this work cannot help but be of great assistance to any one engaged in microscopic urinary analysis. Almost all microscopic findings are to be found carefully delineated, and in an accompanying text accurately described.

To any one who is called on to do microscopical urinary work, this book cannot fail to be of immense assistance. I can heartily commend it as the ablest and most valuable work of its kind in the English language.


The plan of issuing the year-book in two volumes, inaugurated two years ago, met with such general favor with the profession that the publishers have decided to follow the same plan with all succeeding issues. Each volume is complete in itself, and the work is sold either separately or in sets.

The contents of these volumes, critically selected from leading journals, monographs and text-books, is much more than a compilation of data. The extracts are carefully edited and commented upon by eminent specialists, the reader thus obtaining, not only a yearly digest of scientific progress and authoritative opinion in all branches of medicine and surgery, but also the invaluable annotations and criticisms of the editors, all leaders in their several specialties. As usual, this issue of the year-
book is not lacking in its illustrative feature; for, besides a large number of text-cuts, the surgery volume contains five, and the medicine volume four, full-page inserts. In every way the year-book of 1902 fully upholds, if it does not strengthen, the reputation won by its predecessors.

The Urine, and Clinical Chemistry of the Gastric Contents, the Common Poisons, and Milk. By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia, with forty-one illustrations. Sixth edition, revised and enlarged. Philadelphia: P. Blakiston’s Son & Co., 1012 Walnut street.

We take great pleasure in testifying to the above little book. It is replete with facts and suggestions, and any student or physician can readily make the ordinary chemical and microscopical examinations of the urine, the gastric contents, and milk by its aid. The chapter on the common poisons is more difficult, and for it to be of practical use requires many reagents and apparatus not ordinarily possessed by the student and practitioner—however, it will serve to post him in the technique and toxicology of this branch. Any one can read this book with great profit and satisfaction.


We have examined this little book critically, and can cheerfully recommend it as a safe, reliable and compact guide.

It is written in a clear, lucid style, and only reliable methods are given and well tried formulae used. Especially is the chapter on blood examinations excellent, shorn as it is of many things which only tend to confuse and embarrass the beginner. With this little book any one can do the necessary bacteriological work of his practice.


This volume contains 107 illustrations, 34 special formulae, table on infant feeding from one week to three years, and articles by widely known American teachers of the highest rank, among whom we might mention Norman Bridge, Chas. H. Burnett, John B. Deaver, Wm. S. Gottheil, J. P. Crozier Griffith, A. Jacobi, J. Frank Lydston, John S. Musser, Frederick A. Packard, Nicholas Senn, Alfred Stengle, John Madison Taylor, and James J. Walch.

This 11th series of International Clinics has 1,221 pages, 110 articles, 250 illustrations, in colors and black and white, from 20 to 36 of the leading writers of the world represented in each volume.
EDITORIAL.

At the annual dinner of the Society of Medical Jurisprudence, Judge Woodworth, of the Appellate Division of the Supreme Court, spoke to the toast of "Expert Testimony, as Viewed by Appellate Tribunals." In the course of his admirable address he said that experts who told partial truths, or who for a fee testified for the side on which they were retained, were perjurers who disgraced both the profession of medicine and that of law.

"Expert testimony," said Judge Woodworth, "presents a problem that can be solved by honesty, and in no other way. Its value rests entirely upon the integrity of the man who gives it. I came here to be serious to-night, and I hope I may deliver a message to you. All the testimony given in courts of law finds its value from the truth that is in it. That some testimony should contain less truth than others is a disgrace to the profession to which the expert belongs.

"Any witness who takes the stand and testifies on a subject not clear to the lay mind and does not tell the whole truth and the exact truth is a perjurer before God, just as much as a man who swears he saw an accident when he was ten miles away. A man who for a fee testifies in the interest of the particular side on which he is retained is no longer worthy to be received in decent society.

"When expert witnesses of the medical profession give testimony to things not scientifically true, their brothers of the profession know
that before high Heaven they have testified falsely, and if such men were
treated as outcasts that kind of swearing would be a matter of the past.

"A retainer to a lawyer that carries with it the opinion of an expert
witness is a corrupt retainer. When judges see certain experts repeat-
edly appearing in cases with the same lawyer it is difficult to tell how
much weight their testimony should be given. Men of high character
who give the courts the result of years of investigation and experience
are entitled to all respect, but men who may be retained on either side
for a fee are of all people the most to be despised."

The plain language used by Judge Woodworth upon this subject
is very timely, and we trust that a number of so-called medical experts,
whose true value, as well as the value of their "expert" testimony is well
known, will profit by it. Every lawyer knows that he can buy a medical
expert to testify to anything: that So-and-So died as the effects of kid-
ney trouble or was killed with a club—it makes no difference to the
"medical expert" whose testimony is paid for by the hour, and such
men should be "treated as outcasts" by the profession which they dis-
grace. Indeed, things have come to such a pass that many honorable
physicians absolutely refuse to appear as medical experts, and the time
will come when the necessary medical expert testimony in a legal case
will be furnished by an independent commission of men of experience
and high character, appointed by the court or commonwealth, whose
opinion will be unbiased by any retainer.

Smallpox has become quite prevalent in many sections lately, and
its presence again serves to emphasize the need of more extended and
careful vaccination. No reasonable person will deny or attempt to con-
trovert the protective value of this small operation. There is no better
illustration needed to prove the protective power of vaccination than
the recent report of a person in one of the New England States who
did not believe in vaccination, being laid low with smallpox after a visit
to a pest-house where there were some cases of that disease under
treatment. Recently, here in New York, several smallpox passengers
have been found in our street cars; and it is not over a month ago that
it was reported that three street car conductors were found to be suf-
f ering from the disease. We do not know if these persons had been
recently vaccinated, or whether they had ever been vaccinated, or
whether they were non-believers in vaccination, but of one fact we are
positive, and that is, all of these persons were great sources of contagion
to the traveling public. There should be some law by which all persons
should be compelled to be vaccinated; certain it is that there should be
a law by which no person should be allowed to visit our city, or to re-
side therein, if he cannot produce evidence of a previous successful vac-
EDITORIAL.

vaccination, or failing in this, then he should submit himself to be vaccinated. A strict exclusion act would tend to stimulate the public to a thorough belief in the protective power of vaccination.

Quarantine, or forty days' detention should be done away with, and be supplanted by proper vaccination and disinfection, as these are the only means of preventing this disease. It has often occurred to us that the one reason why secondary vaccinations, and in some cases primary vaccinations, are unsuccessful, is that they are improperly done, or are done with inert virus. In these cases the operation should be repeated several times in order to be of any value. Why is it that our physicians and attendants in smallpox hospitals take this disease so rarely—the answer is very simple indeed—it is because they have been repeatedly vaccinated in a proper manner with reliable virus.

Then again, we hear some hysterical persons say that tetanus, or blood poisoning, may occur as a complication to vaccination. Here also, our saying comes in truly, that vaccination done properly with reliable virus, is never followed by any accident. Any and all of the accidents and complications that may occur after vaccination can be traced to some careless omission on the part of the vaccinator, or to some infection carried to the wound of operation by the patient himself. Many persons are very prone to scoff at things they cannot see, and because these same persons cannot see disease-producing germs, they have no faith in their existence, or entirely ignore them as a cause of disease, and with their infected finger nails will scratch around the itching and inflamed vaccine ulcer, and thus infect it. Sympathizing friends and ignorant persons are then ready and over-willing to lay the blame to impure virus.

In by-gone years, when arm to arm vaccination was done, and in still more recent years when non-sterile bovine virus was used, the accidents of infection were much more common. Huge sloughs and erysipelasinous inflammations were not rare, but now when we can procure sterilized virus and prepare the place of operation by antiseptics, and protect the seat of operation by suitable shields, there should not be any complications or accidents.

Moving day will soon be here, and we desire to again call attention to the advice we gave about a year ago, relative to the spread of disease by persons moving into infected houses, and by infected household effects being transported through our streets.

Many of the infectious diseases are spread by persons moving into houses that are already infected. Tenants have no means of knowing the condition of the houses they move into, and landlords are only concerned about getting their rent.
These conditions again serve to emphasize the fact that our health officers should be given more power to deal with diseases of an infectious nature, and should require all owners of property to produce reliable evidence that their premises are in a sanitary condition before allowing them to be occupied.

Thus many cases of an infectious nature would be prevented and the spread of disease greatly lessened.

There were 70,723 deaths in Greater New York in the year 1901, the total death rate being 20.02 per thousand. Pneumonia and tuberculosis were the chief causes of death; the former killed 9,165 persons and the latter 8,141. Typhoid fever and smallpox were much more prevalent in 1901 than in 1900. Last year there were 729 deaths from typhoid fever, as compared to 178 in 1900, while the number of deaths from smallpox increased from 156 to over 400. There were 3,857 deaths by accidents, 701 suicides, 105 homicides, and 1,273 victims of sunstroke; 8,395 or over ten per cent. of the total number of persons dying in 1901 found a temporary resting place in the morgue. Most of these were subsequently identified by friends, only 223 being left for distribution among the medical colleges or burial in Potter’s Field. About forty per cent. of the bodies received at the morgue each year are those of persons less than five years old. Many of these died at birth and their parents were too poor to provide a burial; the number also includes those who died in public institutions.
Therapeutics.

In a preliminary communication upon the use of concentrated light in the treatment of dermal affections, W. S. Gottheil briefly reviews the work done by Finsen, Kime and others in this field, and describes the arc light that he employs for the purpose. This is at present the only available source for the actinic rays of sufficient volume and intensity for therapeutic employment. Sunlight is, of course, the best and is costless; but it is too uncertain for satisfactory use. No combination of incandescent bulbs, run on the ordinary continuous or alternating commercial current, is sufficiently actinic, and the apparatuses arranged with them practically give us heat and no light baths.

The author employs an apparatus called the actinolyte, made by Kliegl Bros., of New York, which can be adapted to either the continuous or the alternating current, uses from 25 to 55 amperes, and gives a concentrated circle of light of from 20,000 to 30,000 candle power. He is not prepared as yet to publish his results; but the progress of cases of lupoid and syphilitic ulceration has been most encouraging. The cosmetic results of this non-operative and painless method of treatment are especially good; a point of the greatest importance, of course, when the face is involved.—The Medical News, July 6, 1901.

In a paper "The Symptomatic Treatment of Tuberculosis," by Dr. Karl von Ruck, published in The Journal of Tuberculosis, Asheville, N. C., January, 1902, the author, under the caption "The Treatment of Pneumonia Complicating Phthisis," says:

"Until several years ago, I had much faith in the administration of one or two full doses of quinine (10 to 15 gr.), and while I still believe its use to be valuable, I have for the present abandoned it in favor of full doses of creosotal, which has appeared to have a decided influence in diminishing the ordinary duration and in bringing about resolution of the pneumatic process. My experience extends now over upward of 20 cases, in none of which the pneumatic area progressed to cessation as is so apt to be the case in pneumonias complicating pulmonary tuberculosis, especially if the inflammatory area is already the seat of tubercle. This may be, of course, a fortunate coincidence, and I would still consider it so were it not for the favorable results reported by various clinical writers in other forms of pneumatic inflammation."

In the same paper, under the heading "The Treatment of Hemorrhage," Dr. von Ruck again recommends creosotal:

"Although the benefit from expectorants is not susceptible to proof, I can say that I have seen fewer pneumonias since using them after severe hemorrhages than I did before, and if the favorable reports and my own favorable experience of the action of creosotal (carbonate of creosote) or carbonate of guaiacol in the treatment of pneumonia is further confirmed, we may hope that their administration for the first three or four days in the cases under consideration may still further reduce the frequency of this serious sequela to hemorrhage."
Dermatitis herpetiformis, first described by Professor Duhring, of Philadelphia, is probably of commoner occurrence than is generally supposed, more especially in children; two cases are described by William S. Gottheil, of New York, in the June number of the *Archives of Pediatrics*. The resemblance at first sight to an ordinary eczema, dermatitis, or impetigo, is marked, and doubtless cases of the disease are not infrequently so classified. The points which distinguish the less common affection are:

1. The extreme obstinacy and chronicity of the malady, it being prolonged almost indefinitely by successive exacerbations or relapses.
2. Its original herpetic character and subsequent multiformity of lesion.
3. The intense puritus.

Any apparent eczema, dermatitis or impetigo in children presenting these features should be carefully observed; a certain number of them will undoubtedly be found to be cases of Duhring’s disease.

In an article on the prevention of ophthalmia neonatorum, Dr. Lucien Howe, of Buffalo (Philadelphia Medical Journal, January 18, 1902), whose name is so prominently identified with this subject, urges the enactment of laws which will make it compulsory upon the practitioner to adopt some form of prophylaxis against this disease, which is responsible for so many cases of blindness. He cites statistics by Kostling, showing that in 17,000 births where no prophylactic treatment had been employed some trace of ophthalmia developed in over nine per cent., whereas in 24,000 children treated by the Crede method the number who developed the disease was only one-half of one per cent. The Crede method, however, has the disadvantage of always producing some pain and usually more or less conjunctivitis, while in a few instances it has given rise to corneal ulceration. According to the statistics of Piotrowski, in 1030 children treated with a strong solution of boric acid and a ten per cent. solution of protargol not a single case of ophthalmia occurred, while slight catarrhal conjunctivitis was observed in only 1.2 per cent. Aside from the numerous favorable reports on the value of protargol as a prophylactic against this affection by European authors, the drug is preferred for this purpose by many ophthalmologists in this country, including Drs. Alt, Peck, Cheney, Fox, Hotz, Zimmermann, Converse, and Todd. In commenting upon Dr. Howe’s paper the *Philadelphia Medical Journal* remarks editorially: “If we cannot reach the fons origo of ophthalmia neonatorum, we can at least save the offspring from a life of darkness, and protect the community from a source of burden and expense. That this can to an enormous extent be accomplished by prophylactic instillation need hardly be repeated, and its negligence constitutes a sin of omission that deserves commensurate punishment. The enactment of such a law is feasible, its interpretation obvious, and its enforcement not difficult, provided the accoucheur receives the intelligent support of an intelligently instructed community.”
In the *International Medical Magazine* for October, William S. Gottheil calls attention to the frequent insignificance and fugacity of the syphilitic initial lesion, which leads to its non-recognition in quite a large proportion of cases. Ignorance of its occurrence, and not voluntary falsification, is the cause of the frequent absence of a syphilitic history in undoubtedly specific cases. The author calls attention to the following points of diagnosis:

1. The presence of a tumor as the original lesion. In its essence, and invariably at the beginning, the chancre is a small round cell accumulation in the skin or subcutaneous tissue. Ulceration may occur, and usually does, or even phagedenism, but these are accidental, and epiphenomena and almost invariably the specific induration is appreciable at the base of the lesion.

2. The tumor is indolent, painful and recalcitrant to treatment.

3. A peculiar and characteristic "stony" induration of the nearest lymphatic glands accompanies it, different from the general adenopathy that occurs later as a consequence of the systemic infection. Other lesions, as gummata, do not show it.

4. Chancre runs its full course in a few weeks, whilst tuberculosis takes months and carcinoma even years, for its development.

5. The well-known signs of general luetic infection, osteoconic pain, cephalgia, synovitis, general lymphadenitis, exanthem, etc., must be carefully and persistently searched for in every suspicious case. They may be so slight as to entirely escape careless examination.

In reporting his experience in the treatment of sciatica, Fred. E. Davis, M.D., of Brookside, Ala., writes as follows in "Annals of Gynecology": "I have been giving antikamnia and heroin tablets a thorough trial in the treatment of sciatica and I must say that my success has been phenomenal indeed. I have also induced two other physicians to give them a trial, and their success equals or surpasses my own. I meet with many cases of sciatica, and until antikamnia and heroin tablets were introduced I was compelled to use a great deal of opium and morphine to relieve the pain. Since then, though, I have not given either. One of my patients had been confined to bed for three weeks during her last attack of sciatica. I prescribed one antikamnia and heroin tablet every four hours, and in forty-eight hours she was up and about and has not felt the pain since. I thank you for the introduction of this most excellent remedy and assure you of my willingness to report the results of still further investigation."

Acute metritis resulting from exposure to cold during menstruation or from gonorrheal infections usually manifests itself by a chill, more or less severe, with pains in the lumbar or hypogastric region.

The most satisfactory treatment for this condition is rest in bed with an ice coil or bag on the abdomen over the uterus followed by thorough flushing of the vagina with hot water in which has been dissolved Micaiah's Medicated Uterine Wafers (one to the quart). After the acute stage has subsided, a Micaiah Wafer inserted into the vaginal canal up to the cervix will exert the antiseptic astringent action so essential in these cases.
J. P. W. Smithwick, M.D., in an article entitled "Therapeutics of Convalescence from La Gripe," says, in the Southern Medical Journal, "during the past year I have made use of Angier's Petroleum Emulsion with Hypophosphites among my patients which were convalescing from La Gripe. All of them improved rapidly with its use, who had done badly under the administration of cod liver oil and various tonics. I have noted no case in which Angier's Petroleum Emulsion caused digestive or intestinal trouble, it being, on the contrary, well borne by weak and irritable stomachs."

Dr. Smithwick gives clinical histories of a number of cases in all of which the relief of the cough was prompt, digestion and assimilation resumed normal conditions with a consequent improvement in the appetite, there was an invariable gain in weight and the patient's convalescence was prompt and satisfactory in every instance.

In these affections, antikamnia is indicated for two reasons: First, because of its absolute power over pain: at once removing this element of distress and placing the whole system in the best possible condition for a speedy recovery. And second, because of its power to control inflammatory processes, lowering the fever by its peculiar action on the nervous system. Codeine is strongly indicated because of its power as a nervous quietant, often quickly and completely controlling the cough. In nervous coughs, irritation of the throat, laryngitis, bronchitis and phthisis, where the cough is altogether out of proportion to the amount of expectoration, Antikamnia-Codeine tablets will give prompt satisfaction. In fact, in cases or nervous coughs, irritable throat, so commonly attendant upon influenza and la grippe, as well as in sub-acute laryngitis, and slight bronchitis, this tablet alone will often so control the cough that the disease rapidly subsides. This is not strange when we remember that nothing could keep up this irritation more than constant coughing. In the more severe cases of bronchitis and in phthisis, the patient is not only made more comfortable, but the disease itself is brought more directly under control by checking the excessive coughing, relieving the pain and bringing the temperature down to the normal standard.

For the convenience of physicians, Messrs. H. Planten & Son, the well known capsule manufacturers of New York, have just issued a list with detailed formulas of capsules and "Perloids" of sandal oil and its various combinations, which is so full of valuable hints to the profession that we suggest you write for a copy. It is one of the most instructive price lists we have yet seen of this class of pharmaceuticals. Address your request to Messrs. H. Planten & Son, 224 William street, New York, and mention this journal.

It is a fact worthy of record that during the year 1901, there was imported into the United States 120,359 cases of G. H. Mumm's Extra Dry, or nearly 60,000 cases more than any other brand. This is certainly a banner performance, and but goes to show how much appreciated the good qualities of Mumm's are in this country. It is certainly a beautiful wine, and well suited for use by the sick.—Canadian Journal of Medicine and Surgery, March, 1902.
Dr. F. R. Burnham (Southern California Practitioner, January), in some very interesting and suggestive observations in Johns Hopkins, calls attention to the fact that surgery is the fad of the day; everybody from the new graduate without experience, but tremendous ambitions and unbounded confidence, to the accomplished surgeon, would carve his way to glory and renown by means of the scalpel. In no place has he been so impressed with this fact as at Johns Hopkins Hospital, where, to a far greater extent than any other place he has visited, the grandest opportunities in all lines of medical thought and research are within the reach of the student, and yet, he says, nine out of ten of the post-graduates neglect everything else for surgery. "From early in the morning until late at night both Dr. Kelly's and Dr. Halsted's operating rooms were crowded to the utmost limit of observation, and then only a few of the fortunate ones were able to see the details of the operation.

"These men seemed utterly oblivious of the fact that, at the same time, Dr. Osler, one of the most accomplished teachers of clinical medicine in the world, was going through the hospital wards giving the most helpful practical clinical lectures that it was ever my good fortune to listen to. Dr. Osler's lectures at the bedside were perfect diagnostic gems, concise, full of well-ordered thought from a large and long experience. Nineteen out of twenty of the doctors doing post-graduate work need diagnostic skill far more than a better technique in surgery. Instruction in diagnosis is not gained, at least to only a very limited degree, in witnessing surgical operations in the presence of a crowd. We cannot all be great surgeons, neither is there need that we should be, but we ought all to be able to summon to our aid, in every case, all of the helps that modern scientific medicine has so bountifully put within our reach. The curing need of the profession to-day is not surgeons, but great diagnosticians."—N. Y. Med. Journal.

The opinions of various prominent physicians on this subject are collated by the editor. A number of questions were propounded. As regards mild or moderately severe attacks, Wyeth, Roswell Park, Stockton, DeForest Willard, Edwin Martin, Turek and Maurice Richardson would rely on emptying the bowels and quiet unless symptoms become more severe. Park would err on the side of operation rather than otherwise. Morris, Ochsner and Murphy would operate early. In severe cases, in the early stages, nearly everyone would operate. Ochsner would, in some instances, act as in the former case if no safe surgeon was at hand, DeForest Willard would operate as soon as the diagnosis is reasonably certain. Turek would wait for perfectly clear diagnosis before operating. During the active stage of a moderate attack, most would watch the condition and be ready for operation. Dr. Morris would operate anyhow. Ochsner would use exclusively rectal feeding: no nourishment or cathartics by the mouth. In very severe attacks, during the active stage, operation is the rule, though Ochsner would consider the same treatment as before. Of course, if the patient has collapsed, stimulants will always be required or possibly operation might be impracticable. When the case is subsiding after expectant treatment and there is a brawny, tender swelling over the eecum, Wyeth, Park,
Ochsner, Murphy, Stockton, Willard, Martin and Turck would wait. Morris would operate, as also would Richardson if the patient is not in a favorable condition for waiting. The only case in which Park would advise against operation is where the patient is moribund and the case hopeless. Morris would do so if a competent operator is not at hand. Ochsner would advise against operation where the infection has extended beyond the appendix and has not produced definite circumscribed abscesses. Murphy would operate in any case where the serious condition of the patient did not forbid it. Stockton and Martin and Richardson rather agree with Murphy and Park. Wyeth is conservative. He would let the patient alone if the acute symptoms subside in a mild attack. Most would operate during the interval between the first and second attacks. Some would prefer to wait until the third or fourth attack and would operate when convalescence seems to be complete.—Exchange.

In the congestive type of dysmenorrhea, in which the painful menstruation is usually due to some inflammatory condition of the pelvic organs, especially the uterus, much benefit is derived from intra-vaginal applications that will relieve the engorgement of the parts. Tampons soaked in glycerine and boric acid, or iodine, or ichthyol have been largely used for this purpose, but this has only been in the absence of something better, since the inconvenient and disagreeable nature of the tampon treatment has always been recognized. The modern way of accomplishing the same purpose in a far more efficient, cleanly and convenient manner is by the use of Micajah's Medicated Uterine Wafers. They are easily introduced into the vagina, are unirritating and do not require removal. Their ingredients are gradually liberated, exerting an astringent, antiseptic and antiseptic and antiseptic action upon the congested and inflamed parts. The congestion is relieved, the circulation regulated, the absorption of exudates promoted and the dysmenorrhea thus permanently removed.

I fully regard chionia as an excellent remedy and am highly pleased with its action in all cases of hepatic torpor, and can especially laud its action in many cases of sick headache. This is the first testimonial I have given in twelve years, and have absolute confidence in its physiological action.

Newark, Ind.

J. B. Young, M.D.

It gives me great pleasure to state that my experience with cactina pellets has been most satisfactory in cases of rapid, irregular heart action. I find their use most successful in controlling and relieving the cardiac pains accompanying this condition.

James H. Carr, M.D.

Buffalo, N. Y.

I am more than pleased with the physiological action of Seng in the treatment of chronic indigestion. It seems to nicely restore the action of the stomach, re-establish perfect digestion and its good effect is quickly evidenced by the general improved appearance of the patient.

Cincinnati, Ohio.

J. Carl Ludwig, M.D.
Do Your Phthisical Patients Assimilate Their Food?

Next to its power to relieve the cough and other distressing symptoms of Phthisis, the certainty with which ANGIER'S PETROLEUM EMULSION with Hypophosphites enables the patient to eat, digest and properly assimilate more food so as to derive the greatest possible benefit, is most gratifying. It conserves the tissues; antagonizes emaciation.

Angier's Petroleum Emulsion exerts wonderfully beneficial influence upon all mucous surfaces, and its effect is most positive in promoting digestion and assimilation and consequent gain in weight and strength. Hence the valuable aid of this Emulsion in the treatment of all tuberculous diseases.

I have used ANGIER'S PETROLEUM EMULSION in a case of Incipient Phthisis with an irritable stomach that persistently refused to take cod-liver oil or creosote. This Petroleum Emulsion agreed perfectly with the gastro-intestinal tract, the cough diminished in frequency and severity, and I feel that at last I have found the remedy that meets all the indications in this class of cases.

M. R. BEAUDOIN-BENNETT, M. D.

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**INDEX TO ADVERTISERS**

| Ammonol Chemical Co.                          | 2  |
| Angier Chemical Co.                           | 19 |
| Antikamnia Chemical Co.                       | 9  |
| Auto Chemical Co.                             | 14 |
| Bermuda S. S. Co.                             | 20 |
| Bovine Co.                                    | 6  |
| Breitenbach, M. J., Co.                       | 4  |
| Chesterman & Streeter                         | 24 |
| Clark & Roberts                               | 26 |
| Cortexalin Co.                                | 16 |
| Crittenton, Charles N., Co.                   | 3  |
| Dios Chemical Co.                             | 3  |
| Farbenfabriken of Elberfeld Co.               | 28 |
| Fellows & Co.                                 | 27 |
| Globe Mfg. Co.                                | 27 |
| Kress & Owen Co.                              | 13 |
| Immune Tablet Co.                             | 10 |
| Langhin Mfg Co.                               | 24 |
| Lippincott Co., J. B.                         | 21 |
| McGuire, Stuart, M.D.                         | 14 |
| Mellin's Food Co.                             | 28 |
| Miejah & Co.                                  | 2  |
| Mumm, G. H., & Co.                            | 18 |
| N. Y. Pharmaceutical Co.                      | 10 |
| Od Chemical Co.                               | 12 |
| Parke, Davis & Co.                            | 12 |
| Peacock Chemical Co.                          | 15 |
| Perfection Chair Co.                          | 22 |
| Planten, H., & Son.                           | 12 |
| Rio Chemical Co.                              | 7  |
| Robinson Thermal Bath Co.                     | 26 |
| Schering & Glatz                              | 8  |
| Scott & Bowne                                 | 18 |
| Southern Railway Co.                          | 20 |
| Sultan Drug Co.                               | 15 |
| Speer, N. J., Wine Co.                        | 25 |
| Tincurture Amil Mfg Co., Ltd                  | 11 |
| Western Surgical Instrument House             | 22 |
| Wheeler, Dr. T. R.                            | 12 |
| Williams, P. G.                               | 23 |

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<tr>
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<th>18th EDITION, 1900.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Pages,</td>
<td>No. of Pages,</td>
</tr>
<tr>
<td>1073</td>
<td>2045</td>
</tr>
<tr>
<td>No. of Indexed Subjects,</td>
<td>No. of Indexed Subjects,</td>
</tr>
<tr>
<td>4611</td>
<td>45,144</td>
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CONTENTS, PAGES 7 AND 9
ADVERTISERS' INDEX, PAGE 21.

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Puerperal Insanity. By Robert Jones, M.D., B.S., F.R.C.S., Eng.; Medical Superintendent of the London County Asylum, Claybury. In this article the author divides puerperal insanity in three periods:

Continued on page 9.

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Book Reviews .......................... 185

Editorials.
Rumination in Man .......................... 187
Saloon Regulation .......................... 188
Tendon Transplantation for the Relief of Paralytic Deformities .......................... 189

Therapeutic Notes .......................... 191
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WHAT CAN WE DIAGNOSTICATE IN ACUTE APPENDICITIS?

By CHARLES A. ELSBERG, M.D.,
Adjunct Attending Surgeon to the Mount Sinai Hospital, New York.

Whenever the subject of acute appendicitis comes up for discussion in any of our medical societies, most attention is generally given to the consideration of the indications for operation, and the time when operative interference is advisable. The question usually discussed is, "When shall we operate in acute appendicitis?"—in other words, what symptoms call for immediate surgical interference in this disease? In the present state of our knowledge it is recognized that we cannot make the diagnosis of the pathological condition of the appendix and therefrom deduce principles of surgical treatment. In this country most surgeons are agreed that the early operation is, in many cases, the safest, and that an appendix which has once been the seat of disease had best be removed. The extreme conservatism of the French and German surgeons is slowly yielding to the radical ideas of operators in our own country—such well-known surgeons as Rehn, Tuffier, and Czerny being recent converts to the doctrine of early operation.

Unfortunately, we have not, and may never have, at our disposal pathognomonic signs which will enable us to say in each case whether the appendix vermiformis is the seat of mild or of severe lesions. Hence, it is safer to remove the organ in most acute conditions, and we have to content ourselves with finding the indications for the time when such operation is to be done in the character and frequency of the pulse, the temperature, the degree and extent of the pain, and the conditions found on physical examination. The character and frequency of the pulse are of foremost importance as indications of the degree to which the general system is affected by the disease, and, therefore, in a limited sense, of the severity of the inflammatory process; the height of the temperature has its value, as it often shows to us the reactive powers of the organism; the severity and area of distribution of the pain have their value; as have a number of other signs and symptoms. Experience has shown, however, that none of these signs are characteristic of one or other lesion of the appendix. The mildest symptoms may go hand in hand with the gravest lesions, and the severest symptoms are often caused by relatively slight pathological changes in the appendix.
The physician, and more especially the surgeon, should not, however, be deterred from the attempt to formulate in his own mind the condition of the organ which he is to remove at an operation. I do not believe that any confusion will result from asking ourselves the two questions: When shall we operate, and what can we diagnosticate in acute appendicitis? Further advances in our clinical knowledge of this affection can only be made along these lines of investigation.

In this paper I shall attempt to answer, to some extent, the second of these questions: In the present state of our knowledge of acute appendicitis, what pathological conditions can we recognize from the signs and symptoms presented? I shall consider the subject under the following headings:

1. Can we diagnosticate the position of the appendix?
2. To what extent can we diagnosticate the changes that have occurred in and around the organ?
3. What can we determine regarding the general peritoneal cavity?

1. Can we diagnosticate the position of the appendix? Does it lie behind, in front of, external to, internal to or below the cecum?

In many ways this is a point of importance. In the first place, a knowledge of the exact position of the appendix is of great value to the operator. If he knows the exact location of the organ he can approach and expose it in the best and quickest manner, and in many cases he will be able to make his incision smaller than otherwise. Every surgeon knows how difficult it may be to find the organ. If he feels fairly certain where to look for the appendix before he begins the operation—no matter whether it lies in a mass of adhesions or somewhere in an abscess cavity—his operative work may be rendered much more easy. In the second place, a knowledge of the position of the diseased organ may influence our prognosis, and, therefore, make the indications for operation more or less urgent. In adults, when the inflamed appendix lies behind the cecum, firm adhesions are formed early, and the cases are more apt to run a favorable course than in children. This is, perhaps, due to the close proximity in children of the liver and the great absorbing lymphatics of the right side of the diaphragm (Recklinghausen). The inflamed appendix situated below the cecum is more apt to be complicated by an abscess in the pouch of Douglas; the appendix internal to the colon by early invasion of the general peritoneal cavity.

Medical literature contains few references to this subject. The situation of a tumor, if present, in the right iliac fossa or in the pouch of Douglas, the location of the greatest tenderness to pressure, and a number of other physical signs, may, in a general way, indicate where the appendix is to be found. Excluding those cases, however, where the diseased organ can be made out on palpation, we have seldom been able to determine the exact position of the appendix before operation. Some writers have claimed that the diseased organ generally lies beneath the point where there is the greatest tenderness. I have examined a considerable number of patients for this point of great tenderness to pressure, and in many cases the diseased organ was found at some distance from this point. I have endeavored in seventy cases of acute ap-
ACUTE APPENDICITIS—ELSBERG.

159

appendicitis to localize the organ by the following simple method, and at operation I found that the appendix had been correctly localized in sixty of the patients.*

The appendix is considered to lie between two points, one the apex of the cecum, the other the diseased portion of the organ. The apex of the cecum corresponds in general to what is known as McBurney’s point. In children this point, which is taken only as the anatomical base of the appendix, lies one to two c.m. above where it would lie in the adult. The second point on the abdominal wall is the one at which the patient localizes the greatest subjective pain, and it is to be found in the following manner: Ask the patient to point with one finger to the spot where he has the most pain, without looking at his abdomen, and as quickly as possible. Make him repeat this procedure a number of times until you are certain that the correct point has been obtained. Then the general course of the appendix will lie between the base of the organ and this point. The appendix may be bent upon itself; and then run in some other direction; it may run beyond the second point, but a considerable portion of the organ will be found between these two points. Very early in the disease this method cannot be made use of, because the first pain complained of is generally around the umbilicus. The organ will be wrongly located in cases where there is a congenital absence of the ascending colon, but these are only exceptional. Where there is already well-marked general peritonitis, the patients are generally unable to say where they have the most pain. Among the seventy cases that I have examined there were ten in which the organ could not be, or was wrongly, located. Two were cases of short or absent ascending colon; three were in patients who were unable to say where they had the most pain; in the five remaining cases there was diffuse peritonitis, so that the patients complained of much pain in all parts of the abdomen.

2. To what extent can we diagnosticate the changes that have taken place in the appendix and its immediate surroundings?

These cases may be divided into (a) Those in which no mass is to be felt; (b) Those in which a mass is to be felt.

(a) No mass to be felt.—Most authorities are agreed that we can seldom feel the normal appendix, and that an appendix that has once been the seat of an inflammatory process and can be felt must not be called a normal appendix. If the symptoms of appendicitis are mild—the temperature not high, the pulse below 100 beats to the minute (except in children and in nervous individuals), the abdomen soft, with little or no rigidity of the right rectus muscle, no mass to be felt, the tenderness only very slight and of only one or two days’ standing—the appendix is probably the seat of slight changes. In these cases, however, especially if there is a history of one or more previous attacks, the wall of the organ may be so much diseased that a localized ulceration, perforation, or gangrene can occur at any moment, and a rapid absorption of toxic material or acute infection of the peritoneal cavity follow. Therefore, even the mildest attacks require careful watching. Any moment the clinical picture may change, the pulse and temperature rise, the

*The greater number of these cases occurred on the surgical service of Dr. Howard Lilienthal at Mt. Sinai Hospital.
pain become more severe and spread, and immediate operation become indicated.

It is generally impossible to diagnosticate correctly a perforation or gangrene of the appendix in a case where no mass is to be felt. A sudden collapse or the sudden onset of very severe symptoms during the course of a mild attack often indicates a perforation as the cause. Physical examination may reveal nothing but the sudden appearance of extreme rigidity of the right rectus muscle, perhaps accompanied by a chill or a sudden increase of the pulse rate. A localized gangrene may sometimes be suspected where the general symptoms are of short duration, but are altogether out of proportion to the local signs.

(b) A mass is to be felt.—The diseased appendix can sometimes be recognized on palpation when it is much thickened or distended with fluid, and when there is little or no rigidity of the right rectus muscle. A mass in the right iliac region in appendicitis generally means that the inflammatory process has extended beyond the appendix; i.e., there is a localized peritonitis in the right iliac fossa. Either there is an abscess or a mass of adhesions around the diseased organ. If the mass is of soft consistency, with tympanitic resonance over it, it is probably a mass of adherent intestine, perhaps with a small abscess in its center. Large abscesses, and often small ones, may be recognized by the characteristic feel and their immobility. Aside from the height of the temperature and the pulse, etc., one can often say from the characteristic feel of the mass that there is an abscess. In a certain number of cases there is a small mass which is freely movable from side to side. Such a freely movable mass is generally the inflamed appendix with some omentum wrapped around it. A thrombosed mesentery of the appendix may sometimes be suspected where the attack of appendicitis is only of one or two days’ duration, but where the patient has had frequent severe chills during the course of the disease, and where malarial poisoning can be excluded.

An exudate which persists longer than two to three days without diminishing in size, or is increasing in size, always contains pus as its nucleus. It may be that the pus is small in amount, or that it is well encapsulated and not under great tension. In such a case the symptoms may be mild, and may remain so for days, weeks, or months. I recently operated upon a patient whom I had seen about two months before with a large, tender mass in the right iliac region without a single symptom excepting localized pain. Although warned of the danger, he walked around for two months withholding his assent to the operation. He finally concluded to be operated upon, again consulted me, and was prepared for immediate operation, at which I opened a large abscess, which contained much foul pus. During the two months the size of the tumor had remained unchanged, and the pain had remained the same. If the pus is under great tension and not well walled off from the general peritoneal cavity, the symptoms will become progressively more severe. Sudden disappearance of the mass means rupture into the general peritoneal cavity or into a hollow viscus, and is accompanied by an evanescent or permanent amelioration of the symptoms, perhaps with a discharge of pus by rectum or urethra.

When, in appendicitis, a mass is to be felt by rectal examination it means an inflamed appendix partially in the pelvis, or a secondary ab-
ACUTE APPENDICITIS—ELSBERG.

161

cess or adhesions in the pouch of Douglas, or a gravitation of fluid from the general peritoneal cavity into the pelvis. The tip of the inflamed organ can sometimes be felt by rectum, and is then an aid in the diagnosis of the location of the diseased organ.

Periappendicular abscesses are most often caused by perforation of gangrene of part or of the entire organ, but in a certain number of cases an abscess is found around an appendix which is only slightly diseased. In the patients, therefore, who give a history of acute appendicitis, and who have a mass in the right iliac fossa, we can only diagnosticate “acute appendicitis-abscess;” we can never say beforehand what pathological changes have occurred in the appendix.

3. What can we diagnosticate regarding the general peritoneal cavity?

If all the classical signs and symptoms of general peritonitis are present—and I need not enumerate them—the diagnosis can always be made with ease. Can we, however, make a diagnosis that the peritoneal cavity is in immediate danger, or that infection or inflammation has already begun? Slight general tenderness and tympanites have little more than confirmatory value; they are often present, especially in children or nervous individuals, where the general peritoneal cavity is found normal at the operation. Spreading pain and tenderness in the abdomen have their value, especially in advanced cases, as have tympanites, obliteration of the liver, dullness, dulness on percussion in both lumbar regions, repeated vomiting, constipation, and the general symptoms relative to the pulse, temperature, and the general appearance of the patient. Rigidity of the abdominal muscles, and especially of the left rectus muscle, in addition to that of the right side, is often of the greatest value. It is a rigidity that does not disappear when the patient is under the influence of narcotics, and not until he is under deep anesthesia. This rigidity is often present before the pulse has begun to rise. I have operated upon four cases during the past year (two in adults and two in children) where the symptoms were mild, the pulse slow, the temperature not high, where the main indication for immediate operation lay in the extreme rigidity of the abdominal muscles. In all four cases the general peritoneal contained turbid fluid; in two the gangrenous appendix was found free in the general peritoneal cavity; in the other two cases it was only partially walled off by adhesions.

In the attempt to arrive at a conclusion regarding the condition of the general peritoneal cavity, every fact of the case must be carefully weighed. Even in the absence of a rise in the pulse rate, or a sudden extension of the pain or tenderness, I have learned to rely more and more upon marked abdominal rigidity as an indication of impending trouble in the peritoneal cavity.

The differential diagnosis between acute appendicitis and other affections is generally easy. Occasionally an affection of the gall-bladder, a torsion of the omentum, a new growth in the intestine, an intestinal obstruction, an affection of the female adnexa, or a reflected pain from thoracic disease, may make differentiation difficult.

The frequency of appendicitis must be kept in mind. It is more frequent in the late spring and the summer months, and more severe cases occur in large cities, probably from hygienic and dietetic causes.
On the service of Dr. Lilienthal, at the Mt. Sinai Hospital during 1900, 77 per cent. of the cases of right-sided abdominal disease, and 68 per cent. of all abdominal affections, exclusive of hernia and affections of the kidney, were due to inflammation of the appendix vermiformis.

In the foregoing remarks but a few points have been considered, and these from a standpoint that might be called narrow. It would be just criticism to declare that for a disease of such a protean character as is acute appendicitis one cannot lay down any fixed rules; one cannot make any fine pathological distinctions between the various forms of the disease. As has already been said, in some cases the severity of the disease is in inverse proportion to the acuteness of the symptoms. In other cases the changes in the appendix remain slight, but the symptoms of general poisoning are very severe. Most operators must have seen deaths from general septicemia in cases where the appendix was only moderately diseased. Up to the present time, therefore, we are able to recognize few of the pathological changes that have occurred in the appendix. We must still depend upon the pulse, the pain, the temperature and the other symptoms as indications of the severity of the disease and of the treatment to be followed. It would be a manifest error to attempt to diagnosticate the pathological condition of the appendix, and to find in the pathological diagnosis the indications for or against operation. Such a course would most certainly be followed by the direst results. We must find our indications for operation in the condition of the pulse, the pain, the temperature, the general symptoms, and the results of the physical examination. We may, however, learn more of this disease by attempting to have a better pathological knowledge underlie our principles of operative treatment. It is with this object in view that the subject has been approached in this paper from, what I venture to call, a somewhat novel standpoint.
PUERPVERAL INSANITY—JONES.

PUERPERAL INSANITY.

By ROBERT JONES, M.D., Lond., B.S., F.R.C.S., Eng.,
Medical Superintendent of the London County Asylum, Claybury.

INTRODUCTION.

The reproductive process is one of the most fundamental and imperative activities that operates in Nature. It is not limited to the reflexes involving the special instruments of reproduction, for it affects the whole organism; it depends upon vital protoplasmic bodily states, and includes most of the elementary excitations of which man is capable—the various sensations and sentiments, the pleasure of possession, admiration, self-esteem, love of approbation, reverence, exalted sympathies, and certain physiological wants; all of them enter into this great "complex," which involves the most powerful as well as the most compound of the feelings.

This process in certain constitutions depending upon temperament, diathesis, and heredity, is apt to be disturbed; which is evidence, if any were needed, that the idea of mind and body being separate and independent is radically false, and that bodily phenomena accompanying states of feeling are not factors external and negligible, foreign to psychology, and without interest to it.

When disturbance takes place during the fulfilment or after the immediate completion of this process, it converts (as Clouston states) the most joyous time of life into one of fearful anxiety, and, short of death, no event is so great a shock to all concerned, for the perfection of the providence for childhood is destroyed by disease, and the strongest affection turns to hatred and becomes a danger.

Those who have studied the reproductive life of woman admit that gestation is attended with much nervous disturbance in many, and some nervous disturbance in all; the intimate sympathetic connection of the mammae with the gravid uterus gives rise in normal persons to various forms of neuralgia, severe headaches, dizziness, and insomnia, whereas in highly-susceptible persons these changes of disposition and character become so marked that irritability, fractiousness, and despondency may and do amount to actual insanity; and although this period of life is less liable to insanity than any other, the dynamical changes in the nervous currents are so great that insanity does actually occur about once in every 700 confinements. As against these figures, however, it may be well to quote Ripping, who, whilst acknowledging and admitting that changes in the uterus or its appendages—physiological or pathological—may have an effect upon the mental susceptibilities of woman, denies that these are ever profound enough to become a cause of insanity.

GENERAL STATISTICS.

As to actual insanity during the reproductive life, and connected with it, the report of the Lunacy Commissioners (1900) shows that of all occurring insanity among women of all ages, the yearly average number

Portions of this paper formed the introduction to a discussion on Puerperal Insanity in the Section of Psychological Medicine at the annual meeting of the British Medical Association, held at Cheltenham, July-August, 1901.—British Medical Journal.
of admissions for the five years 1804 to 1808, inclusive, due to pregnancy, parturition, the puerperal state, and lactation bears the ratio of 7.2 in the private class, and 8.41 in the poorer classes to the total yearly average admissions. The proportion is somewhat higher, as might be expected, among the poorer insane during the period of lactation, but that due to parturition and its attendant stage is higher among the well to do. At Claybury the statistics for 1900 correspond very closely with those of the Lunacy Commissioners' report, the number due to the causes under consideration being 7 per cent, of all occurring insanity, and 10 per cent. when compared to those admitted during the child-bearing period, calculated as between 15 and 45 years. I note that Dr. Clouston 1 gives the percentage of the insanities of childbed, nursing, and pregnancy as 9 per cent. of all female cases admitted under his care for nine years. Dr. Warnock in his report for the Egyptian Asylum in Cairo during the same period, gives the proportion of 10 per cent. of this class to all occurring insanity among females.

The cases out of which my numbers are taken represent about 3,500 female patients, who were received into the asylum during the past eight years. They exclude all those transferred from other asylums suffering from chronic and terminal mental conditions, although in many instances the insanity of these was due to puerperal conditions, but we ourselves have no definite record of this. Out of the 3,500 admissions, 259 cases were admitted suffering from insanity, for which reason pregnancy, confinement, the puerperal state, or lactation was assigned as a cause, a proportion of 7.4 per cent., and these are comprised as follows: 56 were from pregnancy, a proportion of 21.62 per cent., 49 of these being delivered in Claybury; 120 occurred during the puerperal period, a proportion of 46.33 per cent; and 83 were associated with lactation, a proportion of 32.43 per cent. Dr. Batty Tuke, 2 quoting 105 cases, gives the proportion of 18.66 per cent. for the insanity of pregnancy, 47.09 for that accompanying the puerperal period, and 34.8 for that accompanying lactation. Marcé, 3 quoting 310 cases, gives the proportion of 8.66 per cent. for pregnancy, 58.06 for the puerperal period, and 30.3 for lactation. Dr. Clouston, quoting 141 cases, gives roughly the proportion as 5 for the puerperal period, 4 for lactation, and 1 for pregnancy. My statistics tend to agree much more with those of Batty Tuke, but I am unable to throw any light upon the apparent discrepancy with others. Dr. Menzies, in a very interesting and complete analysis of 140 cases published in the American Journal of Insanity for 1803, gives the percentage of 13.5 cases of puerperal insanity among those occurring in the county of Lancahire and admitted into Rainhill Asylum. In the annual report of the asylums of London for 1900 there were 120 puerperal cases admitted out of a total of 2,000 female patients, a proportion of less than 5 per cent., but a large number of the total were transfers of chronic cases from other asylums owing to the recent opening of two of the new asylums of London. During the same year the births of London are given as 132,052, which gives the approximate ratio of 1 case of puerperal insanity admitted into asylums for every 1,100 births.

1 Mental Diseases, 1883.
3 Traité de a Folie des Femmes Enceintes.
In Dr. Menzies's paper, dealing with Liverpool more especially, he calculates the ratio to be 1 for every 700 births; but Dr. Clouston gives the proportion of puerperal insanity as 1 in every 400 confinements, and this high average clearly includes all cases, whether treated in their own homes, institutions, or special hospitals, and are probably based upon statistics of maternity hospitals, public and private practice. M. D. MacLeod gives the ratio as 1 for every 469, of which about one-fourth only come into asylums. Pedler, in an interesting article, quoting Johnston and Sinclair, gives the relation of puerperal insanity as 1 in every 528 confinements. In his paper he gives the history of 76 cases.

DIVISION OF DISEASE.

As to the division of insanity for these periods, the classification which is customary is (1) that which occurs during pregnancy, (2) that from the date of parturition to six weeks after confinement, which in this paper we shall refer to technically as "puerperal" insanity, and (3) insanity occurring during lactation, and dating from six weeks after confinement. This classification must not be taken as suggesting a type of insanity, and it is more convenient than accurate.

The insanity of lactation is calculated to date six weeks after confinement, under the impression that involution of the uterus is then complete, although authorities differ upon this point, for some consider involution at this date to be only half complete, and not accomplished under three months. Moreover, the secretion of milk commences within the first few days of confinement in the majority of women, and is not infrequently accompanied with constitutional disturbance, but the exhaustion and drain due to nursing is probably not evidenced until the process has gone on for some time, and six weeks is generally agreed upon as the commencement of this period.

As to the types of insanity corresponding to these periods, my experience leads me to conclude that there is no type associated either with pregnancy or lactation, but with parturition and the period immediately succeeding it the case is different, the insanity presents such a marked delirium with wildness and delusions of a hallucinatory character, in which religious and erotic features become so prominent that I recognize an almost distinct nosological entity, a view I am bound to confess which is not supported by high authorities. The ratio which these three divisions bear to each other in my 259 cases is—4 of puerperal, 3 of lactation, and 2 of pregnancy. As already stated, Batty Tuke gives the relation as 2.6 puerperal, 1.9 lactation, and 1 pregnancy; and Clouston, as 5, 4, and 1 respectively; a relatively smaller number of cases occurring before delivery in the latter's experience.

It would appear in some cases that marked mental disturbance takes place during the period of gestation, not amounting to actual insanity, but culminating in acute mania during the later puerperal period; also that some mental alienation during this period may culminate in actual insanity during lactation. The relationship between the various forms of nerve-cell reduction and consequent psychic changes requires further elucidation, and may well form one of the subjects for discussion.

\*West Riding Asylum Reports, 1872.
GENERAL CHARACTERS.
1.—Primiparae—Civil State and Illegitimacy.

Changes of so far reaching a character as gestation implies, with all the nervous excitation and psychic changes involved in the full development of the reproductive process, together with the arousal of maternal instincts for the first time, must cause many phases of mental condition, varying from vague fears and morbid dread to exalted feelings and eager expectations. The introspective life consequent upon more or less retirement during this period has many actions and reactions. In the predisposed these new relationships and changes may give rise to morbid mental action resulting in insanity, and we should expect this to be more marked among first pregnancies, more especially in the single, where the moral shock of disappointment and shame in addition to the nervous exhaustion becomes an additional strain.

Of the 56 cases of pregnancy no fewer than 14 (25 per cent. or one-fourth) were first confinements, and of these 11 (78 per cent.) occurred in single women, who were 14 in number, whilst the first confinements among married women amounted to only 3 out of a total of 40, namely, less than 6 per cent., 12 per cent. were second confinements, 17 per cent. were third, 12 per cent. were fourth, 22 per cent. were fifth, and 15 per cent. were between the sixth and thirteenth.

As to illegitimacy, of the 259 cases 12 per cent. of the insanity was among single women, and of this proportion 25 per cent. were among the pregnancies, 12 per cent. among the puerperal cases, and only 3 per cent. among the lactation cases, but the proportion of single women to married in the total puerperal cases is only 14 per cent., in the lactation

| Table 1.—Showing the Civil State of those Suffering from First Attacks of Insanity. |
|---------------------------------|-----------------|-----------------|-----------------|
| Single.                        | 14              | 1               | 15       | 3               |       | 3               |       | 12              | 2               | 14       | 32 |
| Widowed                        | 2               |                | 2        |                |       |                |       | 1               | 1               | 2        | 4 |
| Married.                       | 75              | 28              | 103      | 58              | 22    | 80              |       | 24              | 16              | 40       | 223 |
|                                | 120             | 83              |          |                  |       | 56              | 259    |

only 3.7, whereas, as stated in those suffering from the insanity of pregnancy, it is 32 per cent.

Dr. Clouston states that in Scotland, where illegitimacy is more common, 25 per cent. of his cases of puerperal insanity occurred among single women. Dr. Bevan Lewis, quoting 66 cases, gives a ratio of only 10 per cent. among single women; and as his statistics deal with a total female insane population of 1,810 cases, among whom the proportion of single to married was 1.4, the proportion of puerperal cases among those who had illegitimate offspring is exceptionally low. Dr. Menzies gives
<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Total</th>
<th>Married</th>
<th>Widowed</th>
<th>Previous Attack</th>
<th>First Attack</th>
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<tbody>
<tr>
<td>Single</td>
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<tr>
<td>Widowed</td>
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<table>
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<th>Widowed</th>
<th>Previous Attack</th>
<th>First Attack</th>
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<th>Total</th>
<th>Married</th>
<th>Widowed</th>
<th>Previous Attack</th>
<th>First Attack</th>
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<td>Single</td>
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<th>1st confinement</th>
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<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>13th</th>
<th>14th</th>
<th>Not stated</th>
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<table>
<thead>
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<th>Marital Status</th>
<th>Total</th>
<th>Married</th>
<th>Widowed</th>
<th>Previous Attack</th>
<th>First Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td></td>
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<td>Married</td>
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<td></td>
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<tr>
<td>Widowed</td>
<td></td>
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</tbody>
</table>

| Table II.—Showing at which confinement Insanity occurred, together with the Civil State, among the Insanities of Puerperal Insanity—Jones. | 167 |
a percentage of only 7.1 of illegitimates among his 140 cases, which is lower than that among the general admission.

The incidence of illegitimacy in the general population varies greatly in different counties. In Middlesex and Essex, which are the lowest (as compared with Cumberland, 70 per 1,000 births, and Scotland, which is probably higher still), it is 29 illegitimate births per 1,000 legitimate, a proportion of 1 illegitimate to every 34 legitimate.

In my cases, out of 259 insane puerperal women 32 were single, a proportion of over 8 to 1, but the proportion of married to single in the general asylum population is 1.7 to 1, which argues a considerably increased liability to insanity among single puerperal women, the liability being nearly four times as much.

### Table III.—Showing Civil State, Ages and Heredity of "First" Confinements.

<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Single</th>
<th>Married</th>
<th>Total</th>
<th>Heredity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Attack</td>
<td>Previous Attack</td>
<td>First Attack</td>
<td>Previous Attack</td>
</tr>
<tr>
<td>15 to 19</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>20 &quot; 24</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>25 &quot; 29</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>30 &quot; 34</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>8</td>
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<td></td>
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</table>

### Details of above Cases of Heredity.

<table>
<thead>
<tr>
<th>Age</th>
<th>Details of above Cases of Heredity</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Father died apoplexy; two brothers died phthisis, sister committed suicide.</td>
</tr>
<tr>
<td>21</td>
<td>Mother insane and phthisis; father's cousin insane.</td>
</tr>
<tr>
<td>22</td>
<td>Mother puerperal fever when patient 5 years old.</td>
</tr>
<tr>
<td>23</td>
<td>Mother phthisis.</td>
</tr>
<tr>
<td>22</td>
<td>Maternal uncle shot himself.</td>
</tr>
<tr>
<td>25</td>
<td>Brother insane, grandfather eccentric, father drink.</td>
</tr>
<tr>
<td>31</td>
<td>Father and mother phthisis; mother had a good deal of trouble before child born.</td>
</tr>
</tbody>
</table>

### II.—Form of Insanity and Onset.

Of the 259 cases, 60 per cent were married women suffering from their first attack, and 25 per cent, were married women who had suffered from previous attacks. One of my patients had suffered from an attack of insanity with each of twelve children, and another with nine, each closing the scene by becoming chronic and incurable at the climacteric. As to the cases of insanity of pregnancy in single women, some of these were weak minded, with weakened emotional inhibition, unable, therefore, to restrain their passion, and thus were more readily tempted. They were of the type which is also less likely to be helped and more liable to neglect disappointment, and shame. Taking single and married together, they suffered in about equal proportion from
melancholia and mania, but the acute form of melancholia was more
intense than that noticed in mania. Especially was the insanity of an
unfavorable form among single women, for of the 56 cases, 4 were
epileptics (1 single woman), 2 general paralytics, and 2 were congenital
imbeciles, also single women. It has been stated that insanity was
more common when the sex of the child was male. In 44 of my cases
the sex of the child was ascertained, the sexes were equally divided, and
I am unable to bear out the truth of the above statement.

Of the puerperal cases, more suffered from mania than melancholia,
and, again, more from the acute form of mania than the same of mel-
ancholia. Of the 83 lactational cases, on the other hand, a greater proportion
suffered from the depressed than the exalted variety of insanity.

<table>
<thead>
<tr>
<th>Table IV.—Showing Sex of Infant in Cases of Insanity of Pregnancy.</th>
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</thead>
<tbody>
<tr>
<td>---------</td>
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<tr>
<td>Males.</td>
</tr>
<tr>
<td>Females.</td>
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<tr>
<td>Not Stated:—</td>
</tr>
<tr>
<td>Confinements before admission...</td>
</tr>
<tr>
<td>Twins...</td>
</tr>
<tr>
<td>Confinements after discharge...</td>
</tr>
<tr>
<td>Pregnant at death...</td>
</tr>
<tr>
<td>Stillborn...</td>
</tr>
<tr>
<td>Abortion...</td>
</tr>
<tr>
<td>Premature fetus...</td>
</tr>
<tr>
<td>——</td>
</tr>
<tr>
<td>56</td>
</tr>
</tbody>
</table>

The onset of insanity in this class is either sudden or gradual.
The onset in the puerperal cases was sudden more often than
gradual, and the gradual onset characterized the advent of melancholia
twice as often as mania. Clouston states that the nearer the insanity
is to the confinement in point of time the more acute the symptoms, and
this accords with my experience. It has been my experience, also, that
when the onset is more gradual and the form is melancholia, the termina-
tion is more often in dementia. Also in the melancholia cases there has
been more tendency before admission to wander and go away from
home.

Of the 259 total cases 102 had a sudden onset, of whom 68 re-
covered, and over 30 died or became chronic, a proportion of more than
two to one; whereas of the 155 cases with a gradual onset only 81 re-
covered, and over 70 became chronic or died, a proportion of recoveries
of only about 8 to 7. Of those resident and chronic, or died, over 50 per
### Table V.—Showing Form of Insanity and the Civil State.

<table>
<thead>
<tr>
<th></th>
<th>Combined Total</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>14</td>
<td>3</td>
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<td>1</td>
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<td>1</td>
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<tr>
<td></td>
<td>Widowed</td>
<td>17</td>
<td>4</td>
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<td>1</td>
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<tr>
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<td>Single</td>
<td>18</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td></td>
<td>Total</td>
<td>49</td>
<td>10</td>
<td>5</td>
<td>3</td>
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<td>104</td>
<td>20</td>
<td>10</td>
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</table>

|                      | Mania          | 13       | 1         | 1         | 1         | 3         |          |          |          |          |          |          |
|                      | Acute          | 5         | 2         | 1         | 1         | 1         |          |          |          |          |          |          |
|                      | Chronic        | 6         | 4         | 1         | 1         | 1         |          |          |          |          |          |          |
|                      | Epileptic      | 5         | 2         | 1         | 1         | 1         |          |          |          |          |          |          |
|                      | Melancholia    | 10        | 1         | 1         | 1         |           |          |          |          |          |          |          |
|                      | Acute          | 3         | 5         | 1         |           |          |          |          |          |          |          |          |
|                      | Chronic        | 4         | 5         | 1         |           |          |          |          |          |          |          |          |
|                      | Epileptic      | 3         | 5         | 1         |           |          |          |          |          |          |          |          |
|                      | Delusional Insanity | 3       | 3         | 1         |           |          |          |          |          |          |          |          |
|                      | General Paralysis | 3       | 3         | 1         |           |          |          |          |          |          |          |          |
|                      | Congenital Imbecility | 15      | 2         | 1         |           |          |          |          |          |          |          |          |

|                      |                | 103      | 2         | 1         | 1         | 1         |          |          |          |          |          |          |

|                      |                |          | 120       |          |          |          |          |          |          |          |          |          |

**Note:** The table shows the distribution of forms of insanity among married, widowed, and single individuals during pregnancy, lactation, and puerperal states.
PUERPERAL INSANITY—JONES.

Table VI.—Showing Onset Compared with the Form of Insanity.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Sudden</td>
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<td>10</td>
<td>45</td>
</tr>
<tr>
<td>Gradual</td>
<td>11</td>
<td>22</td>
<td>33</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>..</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>47</td>
<td>32</td>
<td>79</td>
</tr>
</tbody>
</table>

cent. had a gradual onset of insanity. In the 83 lactation cases the onset was equally frequent between the second and third month, and the first and second years, and was gradual in more than 68 per cent. The onset next most frequent was between the third and fourth month, and then between the fourth and fifth and sixth and seventh month, and it was gradual much more often than sudden in these also. In the 56 pregnancy cases, 49 of whom were delivered in Claybury and 3 before admission, the onset occurred before the third month in 25 per cent., after the fifth month in 48 per cent., and after the sixth month in 34 per

Table VII.—Showing the Onset in all Cases under Treatment.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovered</td>
<td>45</td>
<td>33</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Relieved</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Chronic (resident)</td>
<td>8</td>
<td>11</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Died</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Totals</td>
<td>63</td>
<td>55</td>
<td>19</td>
<td>64</td>
</tr>
</tbody>
</table>

118*  83
*2 not stated
120  56

257*  259
*2 not stated
259
cent. In these the onset was also more often gradual, and I am inclined to think that the strain during the last months of pregnancy, and immediately before parturition, is more likely to unbalance a mentally unstable woman than that attending the early changes of pregnancy, and this applies equally to the single and married.

Table VIII.—Showing Onset of Disease previous to Admission in the Puerperal and Lactation Cases, and how far Pregnant on Admission in the Pregnancy Cases.

<table>
<thead>
<tr>
<th></th>
<th>Single.</th>
<th>Widowed.</th>
<th>Married.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 2 days</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>2 to 3 days</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>3 to 4 days</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4 to 5 days</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>5 to 6 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 to 7 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 2 weeks</td>
<td>3</td>
<td>1</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>2 to 3 weeks</td>
<td>5</td>
<td>1</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>3 to 4 weeks</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>4 to 5 weeks</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>5 to 6 weeks</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Sudden—No date</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gradual—No date</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>14</td>
<td>1</td>
<td>75</td>
<td>28</td>
</tr>
</tbody>
</table>

III.—General Symptoms and Etiology.

The symptoms of puerperal mania in 40 per cent. (48 out of the 120 cases) occurred within the first two weeks, and of these more than a third occurred within the first week. In 58 per cent. of the 120 cases the first symptoms occurred within the first three weeks after confinement. The almost universal early symptom of insanity in puerperal cases is loss of sleep. The progress of the case is described by those who have the care of the patient as first sleeplessness, then a feverish and anxious restlessness, a busy concern about trivial details, distrust, a suspiciousness, loss of appetite, and a readiness to take offence when none was meant, an exacting irritability and ready reaction to outward stimulus, culminating in wild delirious excitement and mania of the peculiar character already described. When sleeplessness and headache, followed by an indefinable feeling of apprehensiveness, occur in puerperal women of hereditary nervous instability, any sudden unaccustomed
PUERPERAL INSANITY—JONES.

<table>
<thead>
<tr>
<th>Table VIII.—(Continued.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactation—Onset before admission.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lactation</th>
<th>Single</th>
<th>Married</th>
<th>Widowed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Attack</td>
<td>Previous Attack</td>
<td>First Attack</td>
<td>Previous Attack</td>
<td>First Attack</td>
</tr>
<tr>
<td>6 to 7 weeks</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7 to 8 weeks</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>1 to 2 months</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2 to 3 months</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>3 to 4 months</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>4 to 5 months</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5 to 6 months</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6 to 7 months</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7 to 8 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 to 9 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 to 10 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 to 11 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 to 12 months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 2 years</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2 to 3 years</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3 to 4 years</td>
<td>6</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>3</td>
<td>58</td>
<td>22</td>
<td>83</td>
</tr>
</tbody>
</table>

stimulus of however slight a nature tends to and may presage a mental breakdown. It is for this reason that early attention should be given to sleeplessness and headache. In some of the cases symptoms of unrest appeared upon the second day, and one of my patients was brought under treatment on this date suffering from the most violent delirium, with sensori-motor disturbances. In puerperal women the anxious expectancy of the latter months of pregnancy, followed by the subsequent exhaustion of parturition, causes this period to be one of unusual anxiety even in normal women. It is a period eminently impressionable, active and irritable for all the systems—the nervous, circulatory, secretory, and excretory—and it is one in which disordered conduct appears to result and be out of all proportion to the apparent stimulus. I have known pictures in the lying-in room becomes the basis upon which a regular system of delusions was weaved, and I have known a mother to injure her child because she herself has been crossed; and I have also known a woman attempt to jump out of a window merely because she suffered from a toothache. Suicidal promptings were most common in the lactation cases (47 per cent.). In the insanity of pregnancy they occurred in 41 per cent., and in the puerperal cases in only 21 per cent. The "fear of insanity" acted as the apparent cause in one case, and the mental
change against which she struggled came on quite suddenly whilst engaged in her domestic duties; in another the conversation of her nurse that babies were occasionally removed piecemeal; and in a third the suggestion of a slight operation by her medical man was the apparent cause of a mental breakdown. Peculiar mistaken ideas about the baby are not infrequent; one imagined her baby was a skeleton, and that she was compelled to nurse it; another that her baby and the other children were horrid animals whom she had to destroy. Infanticidal promptings were also relatively more common in the lactation cases, and in married rather than single women. These were present in 14 per cent. of all cases of lactation, and in only 10 per cent. of puerperal cases. Several cases in each variety of insanity were, however, described as careless and neglectful, and having lost their love for their children.

Delusions as to place and surroundings are not uncommon; women frequently imagine their children to be in bed with them, and they often wrap a portion of the clothing under the impression that it is their infant—acute hallucinatory confusional insanity. I have known religious differences well understood and tolerated between husband and wife before confinement to be the starting point of wild and terrifying religious melancholia, when the most abject fear of hell fire caused suicidal attempts.

Hearing of the accouchement of the Princess May caused one to imagine herself the identical subject of conversation. The firing at the Military Tournament, to which a visit was paid too soon after confine-

<table>
<thead>
<tr>
<th>Table VIII.—(Continued.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy—Pregnant on admission.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Attack</td>
<td>Previous Attack</td>
<td>First Attack</td>
<td>Previous Attack</td>
</tr>
<tr>
<td>Confined before admission</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1 to 2 weeks after admission</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1.00</td>
</tr>
<tr>
<td>2 to 3 weeks after admission</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>3 to 4 weeks after admission</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>1 to 2 months</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4.00</td>
</tr>
<tr>
<td>2 to 3 months</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6.00</td>
</tr>
<tr>
<td>3 to 4 months</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6.00</td>
</tr>
<tr>
<td>4 to 5 months</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6.00</td>
</tr>
<tr>
<td>5 to 6 months</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4.00</td>
</tr>
<tr>
<td>6 to 7 months</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>10.00</td>
</tr>
<tr>
<td>7 to 8 months</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>10.00</td>
</tr>
<tr>
<td>8 to 9 months</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>6.00</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Totals</td>
<td>14</td>
<td>2</td>
<td>40</td>
<td>56</td>
</tr>
</tbody>
</table>
ment, was the cause of breakdown in one case, and bad news has frequently been assigned as the cause. Is this due to septicism or some other form of toxemia? Is it a bodily exhaustion, or is it partly mental also?

Most of the patients admitted had undergone the most severe bodily strain, for, in addition to the puerperium, they also had the care, responsibility, and management of a home under peculiar difficulties.

There is in all cases of insanity a breaking strain beyond which the crisis occurs. What this may be we have referred to under the remarks on its pathology, but such is the tendency with some authorities to look upon mental disease as essentially bodily that a mere reference to mental strain may not be out of place. We know that in ordinary life the perusal of a letter or the sudden communication of bad news may strike the stoutest to the ground; indeed, the physical accompaniments of fear are too well known to require detailing. Fear can paralyze and hope can instantaneously give soundness and vigor to the frame, as much as despair can effect the reverse. It is during the early puerperal period that care should be rigidly exercised to avoid sudden excitement, to procure sleep, and to sustain the organs in a healthy nutritive state during the process of restoration. Once abnormal conditions are started, loss of sleep occurs, hallucinations of the senses arise, and I have noticed in several instances that of the sense of smell, with suspicions of poisoning and refusal of food.

As to hallucinations of the senses, those of hearing were six times as common as any other.

Few had hallucinations of smell, touch, or taste. I have known a case where the too free administration of alcohol gave rise to the most painful hallucinations of sight: the patient imagined she saw the devil, and attempted to murder another under the impression she was killing the devil. With confusion of ideas, the patient has delusions of personal identity; she mistakes those about her for others she has seen and known, and fails to recognize her own identity or that of her baby. She develops marked antagonism to her husband; erotic delusions appear, with immodest behavior and improper language, generally with rapid and inconsequent chatter and indecent suggestions. Marked sexual excitement with faulty habits mingled with religious exaltation, and more often met with in this form of insanity than in any other. They appear in a person previously of pure and unblemished character, and this condition shocks and alarms everybody about her. As to the association of

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Single, first attack..</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>&quot; previous attack...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed, first attack...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot; previous attack...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, first attack...</td>
<td>8</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>&quot; previous attack...</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>
prurient language with sexual disturbances and religious exaltation, it
must be remembered that love and religion are the two most volcanic
emotions to which the human organism is liable, and when the one is
disturbed, as so extensively occurs, in pregnancy and parturition, the
vibration naturally and readily extends to the other. Religious and
sexual manifestations associated together are well known among certain
classes of the insane, such as the epileptics, and they are not unknown
among the sane in the lives of some religious devotees and ecstacies. As
Havelock Ellis states, religion like modesty consists in the repression of
natural impulses, and a certain reticence and restraint are characteristic
of what is best in religion, art, and life. When the proper balance be-
tween certain definite restraint and impulse is disturbed, as occurs par-
ticularly in this form of insanity, the symptoms we have referred to as
characteristic of the disease appear with painful prominence. This con-
fusional condition passes into an absolutely uncontrollable and restless
violence, accompanied with profound physical exhaustion, in which the
patient presents a peculiarly glaring, wild look, with a markedly anemic
and general sallow hue. The bodily exhaustion is probably the cause
of an overpowering tendency to yawning which I have frequently noticed
in these cases. The gibberish nonsense, erotic, immodest conduct and
bad language, the evolutions of shameless indecency, accompanied with
noisy delirium and marked religious exaltation, with purposeless restless-
ness, characterize—sum up, if I may say so—the insanity of the puerperal
period, and in this I am disposed to recognize, as already stated, a dis-
tinct type of nosological entity. In the insanity of pregnancy and lacta-
tion, my experience leads me to conclude that there are no general symp-
toms characteristic of these periods, and in the pregnancy cases no
unanimity of opinion other than that the third stage of labor in the in-
sane is perhaps generally precipitate can be obtained. In some there was
slowness on the part of the uterus to contract after the birth of the child,
and free hemorrhage occurred. The patients were described in some
cases as stubborn and resistive. One case was a placenta previa, in two
cases labor came on quite suddenly. Many of the infants failed to sur-
vive their births for long, and I consider that insanity is very unfavorable
to the life of the offspring, which after all may be a kindly Providence.

Insanity has been stated to occur during conception, but I have
never met with such a case. Dr. Savage has divided this form into that of
early and late pregnancy, but my experience is that it mainly occurs
towards the end of gestation. Over 33 per cent. of this form were over
six months pregnant upon admission. A transient insanity during deliv-
ery has not come under my notice. Such cases would naturally only
come under the notice of the obstetrician, but they are of great medico-
legal interest in view of unexpected and occasional tragic occurrences.

IV.—Attacks.

Of the 120 puerperal cases 88 (namely, 73 per cent.), were first
attacks, and of these 13 out of 15 cases were single women (namely, 86
per cent.); 19 (namely, 16 per cent.), had one previous attack; 9 (namely,
8 per cent.), had two attacks; 9 were third attacks; 3 (namely, 2.5 per
cent.), had four attacks, and 1 had eleven previous attacks, each at
a puerperal period.
Of those cases who had first attacks mental changes had occurred in some previous confinement, but not sufficiently marked to be in an asylum. Of the lactation cases, 83 in number, 58 (69 per cent.), were first attacks, and of the other 25, 13 (namely, 15 per cent.), had one previous attack; 7 (8 per cent.), had two previous attacks; 2 (2 per cent.), had three previous attacks, and were suffering from the fourth; 2 were suffering from the fifth, and 1 from the sixth.

Of patients at Claybury, but not coming under the purview of this paper, one female was at another asylum for an attack of puerperal insanity, but she afterwards bore seven other children without an attack of insanity, and it may be worth recording that five of these children became insane.

It is interesting to notice in many of these the previous record of hysteria, although the percentage of such cases is not common. The question may be asked whether hysteria in early life increases the possibility of a mental breakdown in the puerperium, and if so their marriages should be discouraged; but it must be remembered that to many girls marriage fulfils a natural expectation, and may lessen the possibility of a breakdown at the climacteric, and therefore to condemn such cases to singleness may be adding to the increase of insanity.

As to the number of the confinement after which insanity occurred, 41 (including 8 of the 15 single women), followed the first pregnancy, or 33 per cent.

<table>
<thead>
<tr>
<th>12 followed the second confinement, equal to 10 per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 “ third “ 7 “</td>
</tr>
<tr>
<td>9 “ seventh “ 7 “</td>
</tr>
<tr>
<td>8 “ fifth “ 6 “</td>
</tr>
<tr>
<td>6 “ sixth “ 5 “</td>
</tr>
<tr>
<td>5 “ fourth “ 4 “</td>
</tr>
<tr>
<td>2 “ ninth “ 2 “</td>
</tr>
<tr>
<td>1 “ eighth “ 1 “</td>
</tr>
<tr>
<td>1 “ twelfth “ 1 “</td>
</tr>
<tr>
<td>26 were not stated 21 “</td>
</tr>
</tbody>
</table>

Of the lactation cases, on the other hand, the strain of frequent pregnancies, and the drain of prolonged suckling (in some amounting to over two years), appears to have been the cause of insanity rather than a first attack:

<table>
<thead>
<tr>
<th>15 cases occurred after the third child, equal to 10 per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 “ first “ 13 “</td>
</tr>
<tr>
<td>10 “ fifth “ 12 “</td>
</tr>
<tr>
<td>9 “ fourth “ 11 “</td>
</tr>
<tr>
<td>8 “ sixth “ 9 “</td>
</tr>
<tr>
<td>6 “ second “ 7 “</td>
</tr>
<tr>
<td>5 “ eighth “ 6 “</td>
</tr>
<tr>
<td>4 “ seventh “ 5 “</td>
</tr>
<tr>
<td>2 “ ninth “ 16 “</td>
</tr>
<tr>
<td>18 were not stated.</td>
</tr>
</tbody>
</table>

Of the pregnancy cases, 19 (including 13 single women out of 15) per cent.) had a faulty heredity, and this was direct maternal oftener than the first pregnancy, and an equal number of married women at the second and fourth. These statistics prove beyond a doubt the great moral shock of a first pregnancy especially in women with illegitimate offspring.
VI.—Hereditiy.

Of the 259 cases 129—nearly 50 per cent.—had some hereditary predisposition either physically or mentally, and this includes both direct and collateral insanity, epilepsy, suicide, intemperance, phthisis, etc., as shown in the accompanying tables, a higher proportion than is generally ascertained. Of these 129 cases, nearly 53 per cent, had a direct heredi-

Table X.—Showing the Number of Attacks of Insanity in the Puerperal, Lactation and Pregnancy Cases together with Ages and Heredity of the "First" Attacks.

<table>
<thead>
<tr>
<th>Number of Attacks, Civil State, and Heredity of First Attacks.</th>
<th>Ages and Heredity of First Attacts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st attack</td>
<td>13</td>
</tr>
<tr>
<td>2d</td>
<td>&quot;</td>
</tr>
<tr>
<td>3d</td>
<td>&quot;</td>
</tr>
<tr>
<td>4th</td>
<td>&quot;</td>
</tr>
<tr>
<td>11th</td>
<td>&quot;</td>
</tr>
<tr>
<td>Not certain</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

Analysis of Heredity in above 31 Cases.

<table>
<thead>
<tr>
<th>Age.</th>
<th>Analysis of Heredity in above 31 Cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Mother (when pregnant) fits; four brothers and sisters died fits; grandfather and grandmother died asthma.</td>
</tr>
<tr>
<td>19</td>
<td>Mother Colney Hatch four times.</td>
</tr>
<tr>
<td>20</td>
<td>Father died consumption.</td>
</tr>
<tr>
<td>21</td>
<td>Mother suicide; aunt insane.</td>
</tr>
<tr>
<td>21</td>
<td>Father eccentric.</td>
</tr>
<tr>
<td>21</td>
<td>Maternal aunt insane.</td>
</tr>
<tr>
<td>21</td>
<td>Maternal aunt insane.</td>
</tr>
<tr>
<td>21</td>
<td>Mother insane; phthisis.</td>
</tr>
<tr>
<td>22</td>
<td>Father intemperate.</td>
</tr>
<tr>
<td>22</td>
<td>Brother insane; father phthisis.</td>
</tr>
<tr>
<td>23</td>
<td>Phthisis in family.</td>
</tr>
<tr>
<td>24</td>
<td>Parents intemperate.</td>
</tr>
<tr>
<td>25</td>
<td>Father insane.</td>
</tr>
<tr>
<td>25</td>
<td>Mother phthisis.</td>
</tr>
<tr>
<td>25</td>
<td>Father insane (after patients admission).</td>
</tr>
<tr>
<td>26</td>
<td>Father epileptic fits.</td>
</tr>
<tr>
<td>27</td>
<td>Brother insane.</td>
</tr>
</tbody>
</table>

Analysis of Heredity in above 31 Cases.

<table>
<thead>
<tr>
<th>Age.</th>
<th>Analysis of Heredity in above 31 Cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Phthisis and drink.</td>
</tr>
<tr>
<td>28</td>
<td>Parents phthisical.</td>
</tr>
<tr>
<td>30</td>
<td>Paternal grandfather and maternal uncle insane; mother died paralysis.</td>
</tr>
<tr>
<td>30</td>
<td>Maternal grandfather insane.</td>
</tr>
<tr>
<td>31</td>
<td>Father and others insane.</td>
</tr>
<tr>
<td>31</td>
<td>Mother insane.</td>
</tr>
<tr>
<td>32</td>
<td>Uncle and cousin insane.</td>
</tr>
<tr>
<td>34</td>
<td>Eccentric relatives.</td>
</tr>
<tr>
<td>34</td>
<td>Brother insane, another epileptic.</td>
</tr>
<tr>
<td>35</td>
<td>Mother and two sisters insane.</td>
</tr>
<tr>
<td>37</td>
<td>Maternal grandfather and uncle insane.</td>
</tr>
<tr>
<td>37</td>
<td>Paternal aunt insane; phthisis in family.</td>
</tr>
<tr>
<td>39</td>
<td>Mother and sisters insane.</td>
</tr>
<tr>
<td>45</td>
<td>Paternal aunt insane; phthisis on mother's side.</td>
</tr>
</tbody>
</table>
Table X.—(Continued).
Lactation.

<table>
<thead>
<tr>
<th>Number of Attacks, Civil State, and Heredity of First Attacks</th>
<th>Ages and Heredity of First Attacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>--------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>1st attack.</td>
<td>3</td>
</tr>
<tr>
<td>2d attack.</td>
<td></td>
</tr>
<tr>
<td>3d attack.</td>
<td></td>
</tr>
<tr>
<td>4th attack.</td>
<td></td>
</tr>
<tr>
<td>5th attack.</td>
<td></td>
</tr>
<tr>
<td>6th attack.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>83</td>
</tr>
</tbody>
</table>

Analysis of Heredity in above 28 Cases.

<table>
<thead>
<tr>
<th>Age.</th>
<th>Analysis of Heredity in above 28 Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Cardiac disease in family.</td>
</tr>
<tr>
<td>21</td>
<td>Phthisis on father’s side.</td>
</tr>
<tr>
<td>22</td>
<td>Mother eccentric; father drink.</td>
</tr>
<tr>
<td>22</td>
<td>Mother and maternal aunt insane.</td>
</tr>
<tr>
<td>23</td>
<td>Mother insane.</td>
</tr>
<tr>
<td>24</td>
<td>Brother insane.</td>
</tr>
<tr>
<td>24</td>
<td>Mother insane (at birth of patient).</td>
</tr>
<tr>
<td>24</td>
<td>Father suicide.</td>
</tr>
<tr>
<td>26</td>
<td>Mother died of paralysis.</td>
</tr>
<tr>
<td>26</td>
<td>Mother intemperate.</td>
</tr>
<tr>
<td>26</td>
<td>Cousin insane.</td>
</tr>
<tr>
<td>26</td>
<td>Paternal grandfather insane.</td>
</tr>
<tr>
<td>28</td>
<td>Mother died in a fit.</td>
</tr>
<tr>
<td>28</td>
<td>Brother insane.</td>
</tr>
<tr>
<td>30</td>
<td>Mother insane; sister insane after childbirth.</td>
</tr>
</tbody>
</table>

Analysis of Heredity in above 28 Cases.

<table>
<thead>
<tr>
<th>Age.</th>
<th>Analysis of Heredity in above 28 Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Maternal aunt insane.</td>
</tr>
<tr>
<td>30</td>
<td>Parents intemperate.</td>
</tr>
<tr>
<td>32</td>
<td>Mother insane (epileptic); aunt insane.</td>
</tr>
<tr>
<td>32</td>
<td>Father insane.</td>
</tr>
<tr>
<td>33</td>
<td>Mother died of phthisis.</td>
</tr>
<tr>
<td>33</td>
<td>Mother epileptic; aunt insane.</td>
</tr>
<tr>
<td>34</td>
<td>Mother and aunt insane.</td>
</tr>
<tr>
<td>35</td>
<td>Paternal side insane.</td>
</tr>
<tr>
<td>35</td>
<td>Mother in asylum.</td>
</tr>
<tr>
<td>36</td>
<td>Paralysis father’s side; all brothers and sisters.</td>
</tr>
<tr>
<td>37</td>
<td>Phthisis in family.</td>
</tr>
<tr>
<td>38</td>
<td>Mother hysterical.</td>
</tr>
<tr>
<td>41</td>
<td>Sisters insane.</td>
</tr>
</tbody>
</table>

Puerperal insanity, 11 per cent. had a collateral, and 21 per cent. had both a collateral and a direct.

Of the total 120 puerperal cases, whether first attack or not, 51 (50 per cent.) had a faulty heredity, and this was direct material oftener than it was paternal. In the 89 first attacks among the puerperal cases 34 per cent. suffered from a hereditary taint, and in these maternal heredity was twice as frequent as paternal. In some of the chronic cases who did not recover, and who are still in the asylum, although no hereditary history was obtainable upon admission, one or other parent subsequently became an insane inmate of an asylum, showing that, although not apparent, the faulty strain nevertheless existed.
Of the 83 lactation cases, 58 were first attacks, 23 of these had a hereditary history, direct maternal heredity being twice as common as paternal.

In the 56 pregnancy insanities there was heredity in 82 per cent., but there was no marked difference in the maternal and paternal heredity. Of the 56 cases 14 were first attacks with a percentage heredity of 57. It is upon the baneful influence of an evil heredity that attention should be concentrated, for it is impossible to qualify that great biological law according to which all beings endowed with life tend to repeat the elements and functions of their organism in their descendants—a law which governs the subordinate no less than the dominant charac-

Table X.—(Continued).

Pregnancy.

<table>
<thead>
<tr>
<th>Number of Attacks, Civil State, and Heredity of First Attacks</th>
<th>Ages and Heredity of First Attacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st attack ......</td>
<td>12</td>
</tr>
<tr>
<td>2d &quot;</td>
<td>1</td>
</tr>
<tr>
<td>3d &quot;</td>
<td>1</td>
</tr>
<tr>
<td>4th &quot;</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

Analysis of Heredity in above 25 Cases.

21 Father died of apoplexy; two brothers died of phthisis.
21 Sister committed suicide.
21 Mother insane and phthisis; father's cousin insane.
22 Father eccentric.
22 Mother puerperal mania when patient 5 years of age.
23 Mother phthisis.
23 Maternal uncle shot himself.
24 Mother's uncle insane.
25 Aunt insane.
25 Mother phthisis.
25 Father drinks.
26 Mother phthisis.
26 Father died of paralysis; brother died of phthisis, also eccentric.
27 Grandmother paralysis; mother and sisters drink.
28 Grandmother insane; father drink

Analysis of Heredity in above 25 Cases.

29 Grandmother, grandmother's sister, mother and three aunts insane.
30 Mother drinks, and eccentric.
31 Father and mother phthisis; mother much trouble before birth of patient.
31 Mother paralysis; brother epilepsy and paralysis.
32 Father insane.
32 Father died of cardiac; mother died of asthma.
33 Paternal grandfather and brother insane; father drinks.
33 Maternal grandfather and brother insane; maternal side epilepsy.
37 Father drinks.
38 Father fits.
39 Brother insane.
### Table XI.—Showing Approximate Ages.

<table>
<thead>
<tr>
<th>Ages</th>
<th>15 to 19</th>
<th>20 to 24</th>
<th>25 to 29</th>
<th>30 to 34</th>
<th>35 to 39</th>
<th>40 to 44</th>
<th>45 to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Single, Widowed, Married</td>
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<tr>
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<td>Attack</td>
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<td>Previous</td>
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<tr>
<td>Single, Widowed, Married</td>
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</tr>
<tr>
<td>Attack</td>
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<tr>
<td>Attack</td>
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<td>Previous</td>
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<tr>
<td>First</td>
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</tr>
</tbody>
</table>
teristics, and which involves internal and external structures with their physiological and psychological consequences.

V.—Ages.

That of greatest incidence was between the ages of 25 and 29 years, both for the insanity of pregnancy and that of the puerperal period, whereas the greatest incidence in lactation cases was between 30 and 34 years, a fact which supports the view that this latter form is closely related to exhaustion, and occurs most commonly immediately after the best period of life—namely, that under 30 years.

The next period of greatest incidence in the two first classes was between 20 and 24 years.

Of insanity among pregnant women, a high proportion—26 per cent.—occurred in unmarried women, and of these 20 per cent. were under 20 years of age, the same proportion was over 30 years of age, one (a widow, illegitimate) being over 40 years. Only 3 single women out of 83 cases suffered from the insanity of lactation, which is probably due to the fact that few illegitimate infants are allowed to be nursed by their mothers. Of the first pregnancies and first attacks of insanity, 75 per cent. occurred in single women, whereas only 21 per cent. occurred in married women. Most first attacks, both in married and in single women, occurred between the ages of 20 and 24 years; but 43 per cent. of married women were over 30 years of age when suffering from the insanity of pregnancy, 50 per cent. of these being first attacks. Of the insanity during lactation and the strictly puerperal period, 4 per cent. and 12 per cent. respectively occurred in single women, 14 per cent. and 12 per cent. respectively occurred with the first child, and between the ages of 35 and 45 years, a fact which agrees with general experience and expectation that when pregnancy and parturition occur beyond the age at which restoration and recuperation naturally and readily occur, the great outlay and exhaustion consequent thereon are more likely to act as the breaking strain. The shame and worry of an illegitimate pregnancy must exercise a considerable influence as a moral factor in the production of insanity, but it is difficult to state upon which age-extreme of the reproductive life this is greater, and this is open to further inquiry.

VII.—Temperament.

Of the 120 puerperal cases 48 per cent. were described as cheerful, 15 per cent. as reserved, 7.5 per cent. as unstable, and 8 per cent. as excitable.

Of the lactation cases 42 per cent. were described as cheerful and 18 per cent. as reserved. Of the pregnancy cases 41 per cent. were cheerful, 23 per cent. reserved, and 9 per cent. excitable.

As to the coloring, most had brown hair and brown or gray eyes. Very few had dark hair, only two had red hair. Several were described as having fair hair, but brown and dark brown greatly predominated. The color of the eyes was noted as either dark, brown, hazel, gray, and blue. Brown hair with hazel or gray eyes greatly predominated, so also does this type normally in the London area; the dark Iberian-Mediterranean type being comparatively infrequent outside Cornwall.
SALPINGO OOÖPHORITIS.

By PHILIP G. SANDERSON, M.D., Detroit, Mich.

In considering salpingo ooöphoritis it is well to remember the histology of the tube at least. There is the serous coat or covering, the muscular coat, a mucous membrane and lining the interior or lumen of the tube ciliated columnar epithelium.

The intimate relationship between the tube and ovary makes it necessary in the great majority of cases to consider their affections conjointly. The etiology in inflammatory conditions of each is practically the same. Infection following labor or abortion is quite a general cause. Gonorrhea and infection associated with latent gonorrhea in the male is a very prevalent factor. The spread of inflammation from neighboring parts, inflammatory condition of uterus peritoneum or bowel. Endometritis, malpositions of the uterus, severe chills, violent exercise at menstrual periods, excessive coitus.

The most marked pathological changes in the tube take place in the mucosa, although all the coats are more or less affected. When the serous coat is primarily affected it leads to twisting or bending of the tube and the formations of adhesions. When the muscular coat is the seat of the inflammatory changes it becomes thickened and hardened. In the mucosa the changes are varied, due somewhat to the etiological factor. Infiltration and effusion into the sub-mucous tissue, the blood vessels are congested, there is increased secretion of mucus into the lumen of the tube containing epithelial cells, leucocytes, red blood corpuscles. There are places where the epithelium is entirely lost, other portions where the epithelium is degenerated. Just here let me speak of a condition peculiarly due to the etiological factor or agent. The gonococcus in the urethra produces an ulcer with destroys the epithelium so that when healing takes place after the inflammatory condition subsides, a cicatrix is formed, the connective tissue of which contracts and thus produces a stenotic condition or stricture. The same condition prevails in the oviduct where the infection is due to the gonococcus, and thus in a large percentage of cases is produced a distended tube filled with either fluid or pus, hydro or pyosalpinx. The treatment in hydro and pyosalpinx of course is surgical as the treatment where marked adhesions have taken place. It is not of the surgical treatment of these conditions that I wish to speak, but of the medicinal treatment of the non-purulent salpingitis.

As I said at the beginning, the ultimate relationship between the tube and ovary makes the ovary partake of the inflammation found in the tube and thus is presented the long train of symptoms of a neurotic nature and the development of ill health. Then the symptoms of dysmenorrhea, menorrhagia and metrorrhagia. Upon examination there is found a localized tenderness. The tube and ovary may be felt somewhat enlarged and irregular or small, irregular and hard.

In regard to the treatment of salpingo ooöphoritis conservatism should certainly be observed and medicinal and local treatment be instituted for a considerable period before an operation is decided upon. For a considerable period I used in connection with local treatment, the various preparations of viburnum prunifolium with more or less success, but some time
ago I began experimenting with sanmetto in non-operative cases and in a few operative cases where an operation was refused. I was delighted with the results. It acts as a general tonic, giving increased vitality to the organs of generation. In those cases where so many nervous symptoms are manifested, it works beautifully. It seems to build up the nervous system. Besides being a general tonic it acts as a local sedative and tonic to all the pelvic organs.

I was led to its use in pelvic inflammatory conditions by the following case: Mrs. P., forty years of age, married twenty years, has had three children; was slightly lacerated in perineum, complained of severe pain in both ovarian regions, increased in severity at times. She complained more of frequent and painful micturition. Examination revealed a slight retroversion, and the tube and ovaries on both sides enlarged and tender and quite hard. I advised operation, considering the age of patient and duration of the painful condition. However, operation was refused and she asked me to treat the condition in bladder and urethra. I gave her a prescription for an eight-ounce bottle of sanmetto—a teaspoonful to be taken at meal time and on going to bed. The cystitis and urethritis disappeared, and to my amazement the pain in the ovarian region began to disappear also. She had not been on this treatment three months when every sign of oophoritis or salpingitis had disappeared. I thought it an accident, but tried sanmetto in a number of cases of salpingo oophoritis following closely upon the first experience, and the results were so gratifying that now I use it very extensively.

The following case I consider an interesting one: Mrs. N., aged thirty-two, married ten years, two children. For two years she had severe attacks of pain in both ovarian regions. She was examined by her physician, who said she must have an operation for the removal of the tubes. A gynecologist was called in, who also said an operation was the only thing that would help her, and, in fact, that she was in danger every minute she delayed the tubes rupturing and bringing on peritonitis. She hesitated and delayed and in the meantime came to me for treatment of a coryza. She told me of the condition found by her physician and the gynecologist, and she said that she could not make up her mind to submit to the operation. I encouraged her to undergo the operation by all means, but I said while you are making up your mind I would like you to take something that I will prescribe. I gave her a R for sanmetto. She has been taking it now three months and there is now very little evidence of there ever having been any inflammatory condition in tubes or ovaries. The tenderness is almost completely gone. The gynecologist has been cheated out of an operation.
Morphinism and Narcomania.—Morphinism and Narcomania from Opium, Cocain, Ether, Chloral, Chloroform, and other Narcotic Drugs; also the Etiology, Treatment and Medico-legal Relations. By T. D. Crothers, M.D., Superintendent of Walnut Lodge Hospital, Conn.; Professor of Mental and Nervous Diseases, New York School of Clinical Medicine, etc. Handsome 12mo of 351 pages. Philadelphia and London: W. B. Saunders & Co., 1902. Cloth, $2.00 net.

The alarming increase, in the last few years, of morphomania and the associated various narcomanias imperatively demands immediate attention by the medical profession. Every year the increasing prominence of this psychosis calls for more exact studies, with a fuller recognition of the conditions and causes of the disease. Medico-legally, questions of responsibility have been asked with increasing frequency, and there has been no literature and no study of the subject to afford an intelligent answer until this present volume was initiated.

The special object of this work has been to group the general facts and outline some of the causes and symptoms common to most cases, and to suggest general methods of treatment and prevention. The object could not have been better accomplished. The work gives a general preliminary survey of this new field of psychopathy, and points out the possibilities from a larger and more accurate knowledge, and so indicates degrees of curability at present unknown. The author shows his absolute familiarity with his subject in the clear, concise, and in every way admirable work which he has given to the profession, whom he has placed under merited obligations.

A Practical Manual of Insanity.—For the Student and General Practitioner. By Daniel R. Brower, A.M., M.D., LL.D., Professor of Nervous and Mental Diseases in Rush Medical College, in Affiliation with the University of Chicago, and in the Post-Graduate Medical School, Chicago; and Henry M. Bannister, A.M., M.D., formerly Senior Assistant Physician, Illinois Eastern Hospital for the Insane. Handsome octavo of 426 pages, with a large number of full-page inserts. Philadelphia and London: W. B. Saunders & Co., 1902. Cloth, $3.00 net.

No graduate in medicine is thoroughly equipped to practice his profession unless he be acquainted with at least the rudiments of the science of psychiatry. Broad though its domain and difficult of mastery, yet every one may readily acquire knowledge of those principles upon which depend a successful treatment of those cases of mental disorder that form a part of every physician's practice.

This work, intended for the student and general practitioner, is an intelligible, up-to-date exposition of the leading facts of psychiatry, and will be found of invaluable service, especially to the busy practitioner unable to yield the time for a more exhaustive study. The work has been rendered more practical by omitting elaborate case records and path-
logic details, as well as discussions of speculative and controversial questions. Certain special features of the work, also broadening its field of usefulness, are the mention of the forms of insanity not usually met with in hospitals, and the including of a comparative table of classification and a chapter on some of the ethical questions relating to insanity as they may arise in the practice of medicine. Indeed, we know of no work of its scope that covers the field so completely, yet concisely and clearly.


By the general practitioner, diseases of the intestines are often very little understood. The ordinary text books only deal with these affections in the most general way, leaving many things to the imagination of the physician, and hence it is that when one is able to obtain such information as we find in this volume he is indeed fortunate. We called attention to the first volume of this work last year, and we now have the second volume before us. A careful examination of this work shows it to be replete with information, sound in judgment, and sensible in advice. The author needs no introduction to the medical profession, for he is well known as an able writer and clinical investigator.

No one can read this work without great benefit. The chapters on appendicitis and intestinal occlusions are excellently written and abound in learning and safe advice. We commend to our readers the chapter on “The Clinical Aspect of Intestinal Surgery; Border-lines Between Medicine and Surgery.” Too often the surgeon is called when the case has passed the border-line of a safe operation—hence it is that Dr. Hemmeter has taken such pains in writing this chapter. This volume is divided into twelve chapters, as follows:

1. Appendicitis.
3. Intestinal Occlusion.
5. Enterorrhagia.
7. Intestinal Atrophy.
8. Abnormalities of Form and Position.
10. Intestinal Neuroses, Nervous Diseases of the Intestines.
EDITORIAL.

RUMINATION IN MAN.

The curious phenomenon of rumination, or merycism, or, as it is commonly known, "chewing the cud," is not uncommon in the human subject. It occurs usually in persons who are large eaters and in those who swallow their food without properly masticating it. The condition may be hereditary, several cases being on record in which both father and son were ruminators. Shortly after the food is swallowed, at a period usually of from ten minutes to half an hour, and sometimes even during the progress of the meal, the food is regurgitated into the pharynx and the process of rumination begins. Brown-Sequard is said to have suffered for a time from this peculiar complaint, brought on by some experiments made upon himself to determine the time required for the digestion of various alimentary substances. In conducting these experiments, he inclosed the articles of food in a sponge to which a string was attached, and after a certain period of time he brought up the sponge by pulling on the string. After this had gone on for a while he found that the sponge was returned spontaneously, and subsequently that whatever he swallowed was returned in the same way. Blanchard, who was himself a ruminator, has testified to the pleasurable sensations experienced in the act, and even confessed to having occasionally selected certain articles of food which his previous experience had taught him would most promptly cause rumination, or which would have a specially agreeable taste when masticated a second time.
In the "New York Medical Record" of July 31, 1886, Dr. W. A. Hubbard, of Bloomfield, N. Y., reported the case of a farmer, 35 years old, of Irish descent, who consulted Dr. Hubbard for, as he expressed it, the restoration of his "lost cud." He had contracted the habit of rumination at a time beyond his recollection, and there had been no intermission in its practice until one month previously, when it suddenly ceased, and its cessation was followed by dyspeptic symptoms. He had constant nausea, although vomiting he found to be impossible. It had been his habit to swallow his food hurriedly, with as little mastication as possible, and retire from his family or associates, after which the process of regurgitation immediately began and continued for twenty or thirty minutes. This retirement was necessary for the perfect digestion of the food. He had been an enormous eater and his health had been perfect until the sudden stop in this peculiar process occurred.

Another case of rumination in man was recently reported by Cascella in "La Reforma Medica." The writer reviews the various theories held on the subject and concludes that whether the habit is a morbid symptom or whether it is merely a reflex phenomenon which, by constant repetition, becomes a perversion of the digestive function, it is always the expression of an atavistic functional phenomenon. It is oftenest seen in persons who possess other signs of degeneration.

**SALOON REGULATION.**

We have been dropping into the side doors of liquor saloons, good, bad and indifferent, in various localities throughout the city, so that we might form some opinion based upon the medical as well as moral side of the question of saloon regulation.

That the human race has been addicted to drink ever since the fermented grape juice laid out old Noah goes without question. On the continent they have learned this fact long ago, and recognize it, not as a social evil, but as a necessary accompaniment of civilization; Germany and France in particular encourage beer gardens and jardins under government control.

But there it is all open and above board. In summer the gardens are the Mecca of the poor and thrifty—music charms their senses, laughter, good nature and life, keep them happy and beer or wine keeps them healthy. "Take a little wine for thy stomach's sake," said St. Paul. The mind controls the functions of the body, and a man or woman is digesting well when the brain is at peace. Man is by nature a social creature and seeks society if he is normal. These foreign gardens and open saloons offer sociability to hundreds who otherwise would be deprived of it. We believe we might well imitate their example. We have yet to
EDITORIAL.

see any evidences of drunkenness, disorderly conduct or vicious influences in well ordered and conducted saloons which are thrown open to the people. Of course, the enclosed boxes, curtained off corners and back rooms of the liquor saloons are to be condemned and should be closed—they are dens of vice and iniquity—places where young girls are lured to drink and ruin; places where gambling is secretly carried on, where assignations are made and where tips are given and bribes taken.

But the freely open, exposed, clean, brightly lighted rooms connected with well conducted saloons we cannot regard as in any way harmful or a menace to morality or sobriety. Eight out of the twelve months, in our climate, keep people indoors. Four months only can they seek open gardens or spaces set aside for a social glass and evening chat. Let our City Fathers, therefore, recognize this and give its citizens every legitimate chance to avail themselves of such privileges. In the winter months they should require that all such inside resorts shall close at 12 midnight. In summer they could be allowed to remain open until 2 A.M., under police regulation.

TENDON TRANSPLANTATION FOR THE RELIEF OF PARALYTIC DEFORMITIES.

At a recent meeting of the New York Academy of Medicine, this subject came up for discussion, and Dr. Russell A. Hibbs said the operation had been performed upon some 150 cases at the New York Orthopedic Hospital. A review of these cases is now being made, especially of those in which sufficient time (two or three years) has elapsed since the operation to make the results of importance in estimating its value. In such cases, in comparing the immediate results with the ultimate, the latter has been in most instances disappointing. In spite of this, Dr. Hibbs considered the operation justifiable, because it is done in a class of cases that are compelled to wear apparatus which is often not successful in relieving the deformity or in preventing its increase, and the muscle transplanted is of small benefit or it may actually increase the deformity, whereas, while acting from its new point of motion, it will not increase the deformity, and may correct it to the degree of making the apparatus more effective, though not to the degree of eliminating the necessity for its use.

In Dr. Hibbs’ opinion, the operation of tendon transplantation will ultimately occupy a useful place among the other means used for the treatment of paralytic deformities, but it will not be accorded the value that it at first promised, and our efforts along mechanical lines in treatment, but more especially in the prevention of these deformities, should not be relaxed. It will be an adjunct to, rather than take the place of mechanical treatment.
Therapeutics.

THE RATIONAL TREATMENT OF PROLAPSUS UTERI.

This condition so generally prevalent in women and only afforded temporary relief by the use of pessary can be more rationally and satisfactorily treated by relieving the burden thrown upon the round ligament which supports the uterus by depleting this engorged and congested member of its abnormal blood supply, we suggest the following procedure:

First, the uterus and entire uterine canal should be thoroughly cleaned by flushing with hot water.

Second, the use of an astringent antiseptic should next be employed which will contract the uterine capillaries and blood vessels.

Third, the ligaments and surrounding tissues must be toned up to enable them to more rapidly regain their normal tonecity. As a remedy particularly adaptable in the above condition, Dr. M. A. Wheeler, Attending Physician of the Rensselaer Co. Hospital, Troy, N. Y., highly recommends Micajah's Medicated Uterine Wafers, and says that after many years of practice he places his sole reliance upon them. These wafers combine the aseptic and astringent action so imperatively required and also tone up the relaxed condition of the uterus and its adnexa. Leucorrhrea, so often prevalent in these cases, will rapidly disappear under this treatment.


A new and valuable treatise containing about two hundred (200) pages, and profusely illustrated with drawings especially made for this book. It is bound in cloth and white leaf, printed on heavy book paper, and devoted to the treatment of the surgical conditions that are met with in the daily practice of every physician.

This book is thoroughly practical and presents the subject in an interesting and instructive manner. (Price, $1.50.)

In the British Medical Journal, No. 1997, p. 880, Thomas W. M. Blake, M.D., St. Andrews, M.R.C.S., England, says: "Many patients with consumption or other wasting diseases appear to tolerate its (Angier's Petroleum Emulsion) use when cod liver oil cannot be tolerated. Instead of setting the stomach in revolt, as the latter will often do, it appears to soothe the mucous membrane and produce a more natural tone and power of assimilation. Petroleum does not irritate the nerves supplying the mucous membrane of the stomach, but doubtless cleanses
away the foul mucous and leaves the digestive organs in a more healthy condition to perform their functions naturally. "Nutrition is improved, therefore the condition of the weakened and diseased lungs improves."

THE THERAPEUTIC VALUE OF PHENO-BROMATE.

By ROBERT A. GUNN, M.D., New York city.

Much has been said and written regarding the analgesic and sedative value of the various coal-tar derivatives, but when the busy practitioner administers these agents, as recommended, he often finds great depression of the heart’s action, cyanosis and syncope, which not only alarm the patient, but disappoints the physician.

With little time to investigate for himself the therapeutic value of new remedies, the general practitioner accepts with caution the claims made by the manufacturers of pharmaceutical preparations, and thus many valuable new remedies are neglected. Such was my own experience when my attention was first called to the use of pheno-bromate about two years ago. I had prescribed the several coal-tar preparations with varying degrees of success, but on the whole had come to the conclusion that they had to be used with great caution, and in many cases the depression of the heart’s action was so great as to produce alarming symptoms.

Having suffered one day from a severe nervous headache, and having no other remedy at hand, I determined to try pheno-bromate. I took four 5-grain tablets (20 grains) at the first dose and two tablets (10 grains) half an hour afterward. Within the first half hour the severe pain was greatly relieved, and soon after the second dose it was entirely gone. I fell into a natural, refreshing sleep, and in about two hours I awoke entirely well, and without the dizziness and cyanosed condition of the lips and fingers I had always noticed after the use of acetanilid, antipyrin and similar preparations.

After this experience I naturally wished to know something more about the remedy, and upon investigation I learned that pheno-bromate is a synthetic combination of derivatives of the phenetidin and bromine groups, and not a mixture of various coal-tar derivatives. After careful observation of its therapeutic action, I found it entirely free from depressing effects upon the heart and general circulation. It acts as a sedative upon the brain, spinal cord and great sympathetic nerve, thus equalizing the circulation at the nerve centers, and reducing the irritability of both the sensory and motor filaments of the peripheral nerves. A specific sedative action is therefore produced upon both the receptive and conductive nervous structures. Pheno-bromate is thus, in the broadest scientific sense, a sedative to the entire nervous system, and can be relied upon in all affections resulting from irritation of the nervous system or congestion of the nerve centers.

The therapeutic value of pheno-bromate extends over a wide range of conditions, and on investigation it will be found that in each case the nervous tension caused by congestion and irritability of the nervous system is relieved by its sedative effect on the nervous activities of the system and the equalization of the circulation.
Aside from my own personal experience with pheno-bromate for the relief of nervous headache, I have prescribed it in a large number of cases and always with the most satisfactory results. When overworked, or deprived of sleep for several nights in succession, I have for many years suffered from severe attacks of nervous headaches, and have tried all the known remedies with but little success. The coal-tar derivatives would often relieve the pain, but my heart's action would be so depressed that I would not feel myself for several days. Since using pheno-bromate my headaches have been less frequent, and when they do occur are much less severe. When I feel a headache coming on I take 20 grains and assume the recumbent position. I often go to sleep within half an hour, and after two or three hours I awaken refreshed and rested, and ready to resume my work. Even after the headache has set in severely I rarely have to take more than the second dose of ten grains, to give me absolute freedom from pain. It is always best to take 20 grains for the first dose and to remain quiet for a few hours. When a person is compelled to keep at work it may be necessary to repeat the 10-grain dose two or three times, at intervals of from half an hour to one hour, before the pain is entirely relieved.

From the many cases I have treated with pheno-bromate, I select the following to illustrate its wide range of usefulness:

Case I.—Mrs. C., aged 37, had suffered from girlhood from dysmenorrhea. The pains would begin from twenty-four to forty-eight hours before the appearance of the menstrual flow, and would continue throughout the entire period. She had been treated by many prominent physicians but obtained no relief except when under the influence of narcotics. When she first came under my care an examination showed that it was clearly a case of congestive dysmenorrhea, with considerable ovarian irritation and congestion. I prescribed the usual remedies and during the time between the menstrual periods, I made local applications to the neck of the womb. I even resorted to leeches when the pains first began, but no treatment gave more than temporary relief.

I at last prescribed pheno-bromate, 20 grains for the first dose, and 10 grains every half hour, till relieved, or till 60 grains were taken in all. The first dose was taken after the pains commenced, and before time for the third dose the pains were greatly relieved and the menses appeared. After the third dose the pains were practically relieved and the menses continued for four days and were freer than they had been for years.

Acting on reports I had read from other physicians, I recommended the continuance of the medicine during the month, and directed that 10 grains be taken every night on going to bed. The next month the menses appeared without any preceding pain, greatly to the surprise of the patient and myself. The flow continued freely for five days without the slightest pain.

During the following month the medicine was omitted, and as a result there was slight pain at the beginning of the next menstrual period, but this was quickly relieved by two or three doses of pheno-bromate. The medicine was then continued during the interim for several months, with the result of a regular and free menstrual flow, without the slightest pain. She has not taken the medicine now for several months, but the flow continues free and without pain.

Case II.—Mrs. E., D., aged 22, consulted me Jan. 10, 1901.
She said she had been married two years and had never been pregnant, and both she and her husband were anxious to have children. She said she had always suffered severely during her menstrual periods, and that the flow was very scanty. On examination I was satisfied that the dysmenorrhea was congestive so I determined to try pheno-bromate before resorting to other measures. As she was just over her menses, I prescribed to grains of pheno-bromate, every night at bed time during the month, and asked her to report to me when the menses again appeared. She did so, and was delighted that the appearance of the blood was the first indication that she was unwell. She had a little pain the first day, but this disappeared after three 10-grain doses, an hour apart, and she had no pain afterward, while the flow was greater than she had ever known. She continued the treatment for four months, when I advised her to stop. The menses continued regularly with a free flow, lasting from four to five days, and entirely without pain. She missed her menses in November, and to her great delight she is now pregnant.

I might mention many similar cases but these two are sufficient to demonstrate the action of pheno-bromate on the uterine organs. There is no doubt that its sedative action on the great sympathetic nerve so regulated the circulation in the uterine and ovarian blood-vessels, as to decrease the congestion, while the sedative effect on the sensory nerves supplying these organs prevented the reflex action which caused the muscular contractions, thus relieving the local pain and so relaxing the veins of the uterus and the mucous membranes of the cervix as to admit of the free egress of the menstrual blood into the uterus and its free passage out of the womb, without necessitating uterine contraction to expel it.

Case III.—Mr. J. W., aged 47, had been a great sufferer for many months from intercostal neuralgia. He had taken gelsemium till he had drooping of the eyelids and double vision; he had used antipyrine till his hands and face were blue; he had used morphine till it became a habit and he resolved to stop it.

He consulted me February 2, 1901, and though I was unable to determine the cause of the persistent neuralgia, I decided to try pheno-bromate. I ordered 20 grains to be taken on going to bed, and 15 grains more in one hour, if awake. I then ordered 10 grains in two hours after the second dose, if awake, and 10 grains more three hours after the third dose, if awake. He took the first dose on retiring, at 9 o’clock, and after the third dose he went to sleep and slept till morning. The next day he had very little pain, so I ordered him to take 10 grains, morning, noon and evening, and 15 grains on going to bed. On retiring he had no pain, and slept all night. He continued to take 10 grains night and morning for four days, when he discontinued it. He had no more pain for ten days, when he began to feel it again. I then ordered 5 grains of quinine three times a day, and 10 grains of pheno-bromate night and morning. The pain was entirely relieved in two days, but the treatment was continued for ten days, and he has had no neuralgia since. The pheno-bromate, no doubt, relieved the irritation and congestion of the nerves and the quinine overcame some malarial influence that probably caused the neuralgia.

Case IV.—W. S., aged 34, consulted me February 13, 1901, for a supra-orbital neuralgia, from which he had suffered for several weeks,
He usually felt it most on arising in the morning, and it would gradually wear off toward evening, except when he was exposed to severe cold or a strong wind, when it would become very severe.

I prescribed 10 grains of pheno-bromate four times a day, for three days, and 10 grains night and morning, afterward, for a week longer. I also ordered 5 grains of quinine three times a day. The pain was entirely gone in three days, and did not return. At the end of two weeks I discharged him cured.

Case V.—C. W., aged 41, was taken sick March 5, 1901, after taking part in the Presidential inaugural parade. He reached home the night of the 5th and I found him suffering with inflammatory rheumatism. To relieve his intense pain I prescribed 20 grains pheno-bromate, to be repeated in an hour. This gave him decided relief for the night and he slept fairly well. The pain increased, however, the next morning, so I repeated the pheno-bromate in the same doses, but at the same time prescribed 10 grains of salicylate of soda every three hours, and applied hot fomentations of hops to the inflamed joints. He was greatly relieved before evening, and had a very comfortable night. Though the rheumatism continued for two weeks, 10 grains of the pheno-bromate three times a day kept him almost entirely free from pain. The recovery was complete in a much shorter time than is usual in such cases, and the pain was reduced to a minimum, without an opiate, internally or externally.

Case VI.—F. R., aged 61, had been a sufferer from chronic rheumatism for several years. His ankles and knees pained him severely at times, and it was with difficulty that he would walk or use his hands. I had frequently prescribed for him, but nothing seemed to relieve the pain. Finally I prescribed pheno-bromate, in 10-grain doses three times a day. As long as he took the remedy he was free from pain, and it would not return for two or three days after he discontinued it. It would return, however, and would soon be as bad as ever. I then placed him on the following:

R. Potassii Iodidi...............................5 8s
Vini Colchici.................................1 i
Fl. Ext. Phytolaccæ dec....................3 2 ii
Syrup Stillingiæ Comp. ....................Ad. 5 viii
Sig.—Teaspoonful in water, after each meal.

I also ordered 10 grains of pheno-bromate three times a day. He has now been under this treatment three weeks, and he is free from pain, and says he feels better than he has in years. The swelling and stiffness of joints are both relieved, and he seems to be gaining daily. After the first week he took only 10 grains of pheno-bromate night and morning.

I had frequently given this patient the same or similar rheumatic remedies, but never with as good results as have been obtained since taking the pheno-bromate. The usual attention to diet was, of course, carefully observed throughout.

Here again the sedative effect of the pheno-bromate must have relieved the nervous irritation and equalized the circulation, thus overcoming the local nervous tension and favoring proper absorption and elimination.

Case VII.—I was called January 10, 1902, to see Mrs. M. K., aged 26. She said she had been "aching all over" for several days, and had a pronounced chill the night before. She had an acute catarrhal con-
dition of the nose, throat and bronchi, and her temperature was 103\frac{3}{4}^\circ. In short, she had a pronounced attack of la gripe. I at once ordered 20 grains of pheno-bromate, to be followed by 10-grain doses every half hour till relieved. After the third dose she was free from pain, and when I called in the evening the temperature was down to 100\frac{1}{2}^\circ. Three 10-grain doses of the pheno-bromate, daily, kept the temperature below 100^\circ, and relieved the distressing headaches and muscular pains, and with quinine and the usual tonics the patient made a good recovery in two weeks.

I have used pheno-bromate in many similar cases, and consider it one of our safest and most reliable antipyretics and analgesics. In all inflammatory conditions accompanied with much pain I consider it indispensable.

In one case of extensive erysipelas of the face and head, it promptly reduced the temperature, and relieved the burning pain, while the disease did not spread after the administration of 60 grains of the pheno-bromate.

---

**GYNECOLOGICAL ANTISEPTICS.**

By J. S. TYREE, Chemist, Washington, D.C.

"Women are changeable," Thus sang the Duke in "Rigoletto;" but is the sex more changeable than the practice of her medical advisers? A few years ago the curette held universal and almost undisputed sway. This instrument of torture still has a limited number of misguided followers, but its use is now being roundly condemned by very many practitioners as savage, cruel, and productive of untold harm in thousands of cases. There is no doubt but its sway for a decade left an army of chronically if not irreparably injured cavities and canals.

A better, more humane and rational way of treating a majority of gynecologic cases has been found. Antiseptics have solved the problem, and it is to be hoped the cruel curette has been given a permanent vacation. It has been demonstrated that septic conditions are more surely and safely corrected by topical applications than by the scraper. The use of the latter, except in the removal of adventitious tissue—and there are much better ways than by the use of this instrument—is no more rational than it would be to attack an eczematous surface with a sharp steel ink eraser and vigorously denude it of skin.

The hey-day and eclat of the fresh-fledged hospital internes, with his array of scalpels, curettes, vulsellums, catgut and antiseptic gauze, has happily reached its zenith and is on the decline. The ubiquitous gynecologist, with his mania for immediate operation, is being invited to take a vacation—in some instances to "go away back and sit down."

The late Prof. Skene, than whom no gynecologic specialist stands higher in the estimation of his colleagues in this country or Europe, was, before his lamented death, vigorous in his denunciation of the prevailing tendency to operate in all cases of degenerative disturbances of the female generative system. His matured conviction was that local and constitutional measures should in all cases first be intelligently pursued,
leaving operative interference for the few rare cases in which it is imperatively demanded.

The reaction has set in. This is the age and era of antiseptics in medicine. They are the sheet anchor of every rational practice regardless of its name or school. Without them both physician and surgeon would be practically helpless. Their consumption probably exceeds that of any other class of medicines. There is scarcely a disease in the pathologist's nomenclature for which antiseptics are not prescribed. The list is fairly interminable and indicates how woefully lame the modern practitioner would be without his ever ready and efficient antiseptics. Practically, as with the disconsolate Othello, if deprived of them, his occupation would indeed be gone.

The demand for an antiseptic combining strength with safety, efficiency with absence of evil after-affects, for gynecological uses, resulted in Tyree's Antiseptic Powder. These positive and negative properties are thoroughly represented in this powder. Sensitive mucous membranes have to be invaded, and while they need thorough relief from the attacks of virulent germs, their delicate surfaces and structural integrity must be preserved and maintained at all hazards.

Tyree's Antiseptic Powder is destructive to germ life and cleansing to mucous membranes. It is not only harmless, but is a tonic to healthy tissue.

In nearly all cases of uterine troubles, we find more or less nervousness, inability to rest at night, etc. When I find this state of case to exist, I almost invariably use celerina as a nerve tonic and quietive, with the best of results. It quiets, harmonizes, and puts your patient in a better frame of mind, which gives her assurance of more speedy recovery, something very essential in the treatment of all female troubles, especially of a uterine character. I think physicians would generally find it to their interest, as well as to their patients' interest, to use this remedy more frequently. I do not intend by the foregoing to limit the use of celerina to nervousness produced by uterine troubles, not by any means, but would recommend it as worthy of trial in all cases of nervousness when a nerve tonic and quietive is indicated.

Mt. Vernon, Ky.

J. J. Brown, M.D.
Written for Gaillard's Medical Journal.
Clipping from American Medicine
Aug. 31st 1901
P. 349

4. -- White, in his article on the physiologic action of petroleum, gives the following summary: It is (1) inhibitory to the growth of putrefactive and pathogenic bacteria, such as are met in the alimentary canal, while it does not inhibit or interfere with peptic or pancreatic digestion; (2) and therefore is an agent for relieving flatulence by preventing fermentation; in fact it acts the part of an internal antiseptic; (3) by its action in stimulating peristalsis, increasing diffusibility of intestinal contents, it not only increases nutrition and weight, but helps the natural movement of the bowels, by its lubricating power relieves constipation, and favors the elimination of noxious and toxic products from the system. As to its weight increasing action he states that the weight gained under its influence is much greater in proportion than it or any other oil could afford, even if digested and absorbed, and that petroleum is perfectly incombiable chemically, and indigestible, but the result of the experiments in this direction at once shows that though this be the case, yet when the emulsion is mixed with digested food material, the effect is very different. [H.H.C.]

5. -- Robinson, in his article on the treatment of catarrh, suggests the following remission of its symptoms:

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INDEX TO ADVERTISERS

Ammonol Chemical Co................................. 2
Angier Chemical Co................................. 19
Antikamnia Chemical Co............................... 9
Auto Chemical Co...................................... 14
Bermuda S. S. Co..................................... 20
Bovinine Co............................................ 6
Breitenbach, M. J., Co................................. 4
Chesterman & Streeter................................. 24
Clark & Roberts........................................ 26
Cortexalin Co.......................................... 16
Crittenton, Charles N., Co............................. 3
Cystogen Chemical Co................................. 3
Dios Chemical Co....................................... 16
Farbenfabriken of Elberfeld Co....................... 28
Fellows & Co........................................... 27
Globe Mfg. Co.......................................... 27
Kress & Owen Co........................................ 13
Immune Tablet Co....................................... 10
Laughlin Mfg. Co....................................... 24
Lippincott Co., J. B.................................... 21
McGuire, Stuart, M.D.................................. 14
Mellin’s Food Co........................................ 28
Miejah & Co............................................ 2
Mumm, G. H., & Co.................................... 18
N. Y. Pharmaceutical Co............................... 10
Od Chemical Co.......................................... 12
Parke, Davis & Co...................................... 5
Peacock Chemical Co.................................... 15
Perfection Chair Co..................................... 22
Planten, H., & Son...................................... 12
Printers’ Ink............................................ 24
Rio Chemical Co......................................... 7
Robinson Thermal Bath Co.............................. 26
Schering & Glatz........................................ 8
Scott & Bowne.......................................... 18
Southern Railway Co..................................... 20
Speer, N. J., Wine Co.................................. 25
Tincture Amal Mfg. Co., Ltd............................ 11
Western Surgical Instrument House.................... 22
Wheeler, Dr. T. B...................................... 12
Williams, P. G.......................................... 23

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<thead>
<tr>
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<th>18th EDITION, 1900.</th>
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<td>No. of Pages,</td>
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Arteriosclerosis. By Dr. E. Moritz, Physician-in-Chief to the Insurance Company “La Rossia.” In this interesting paper the author limits himself to two phases of the subject: 1, The importance of arteriosclerosis as to the duration of life. 2, The means of recognizing the existence of arteriosclerosis, and foreseeing it in the more or less distant future. As affecting the duration of life, the following types are mentioned: Arteriocapillary fibrosis of the kidney is the cause of interstitial nephritis; sclerosis of the small vessels of the brain produces apoplexy, thrombosis and softening; sclerosis of the coronary artery is sometimes the cause of sudden death (embolism), and of-

tener produces degeneration of the myocardis; sclerosis of the aorta is the cause of aneurism of this vessel; sclerosis of the arteries of the lower extremities induces gangrene; similar alteration of the liver induces typical cirrhosis. The etiological causes of arteriosclerosis the author classifies as follows, in the order of their importance: (1) syphilis; (2) alcohol; (3) heredity; (4) occupation; (5) muscular or cerebral overwork; (6) other noxious agents. If arteriosclerosis is detected at the time of the examination, or if there is cardiac trouble, intermittent claudification, or any indication of albuminuria or vertigo, the author finds this result whatever may be the applicant’s age...........197

Continued on page 9.

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On the Etiology, Prognosis and Modern Treatment of Tabes Dorsalis. By Johann Hirschkron, M.D., Neurologist, of Vienna, Austria. Among the etiological factors of tabes dorsalis, the author mentions syphilis, traumatism and cold. Among the predisposing causes he mentions sex, age and occupation. As to the prognosis, we must admit that a proper anatomical cure of the pathological process is not apt to take place, but the prognosis should not be too gloomy, as the progress of the disease may be very slow; in fact, cases have been observed in which, after a duration of years, scarcely a perceptible aggravation could be noticed. As regards therapy, various aspects are discussed by the writer. One of the most important is the general treatment, which has the gratifying objects to supply sufficient and proper nourishment, to protect the patient from excitement, to prevent excesses of any kind, to call his attention to the dangers of sudden changes of temperature, of dampness, and the excessive use of alcohol and tobacco. The patient is to sleep regularly and avoid sexual excitement. In short, he should follow Erb’s dictum to “Lead a life as if you were an old man, quiet, regular and peaceful”.

Society Proceedings
Baltimore Medical and Surgical Association. Case of Tubercular Peritonitis 222
Treatment of Tuberculosis with Urea 224
The Serum Treatment of Tuberculosis 225

Editorial
The Diagnostic Features of Smallpox 231
Medical Advertisements in the Newspapers 233
Substitution 234
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<tr>
<td>Nitrate Strychnine</td>
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<tr>
<td>Extract Saw Palmetto</td>
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<td>Strychne Ignatia</td>
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<td>Zinc Phosphide</td>
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I may state by way of introduction that I rely in writing this paper upon my long experience and also upon an extensive series of autopsies performed by me as chief hospital surgeon during 20 years; besides the numerous observations made on the patients whom I have treated.

As I speak from the standpoint of the diagnostician, the paper will be divided as follows:

1. Importance of arteriosclerosis as to the duration of life.
2. Means of recognizing the existence of arteriosclerosis, and foreseeing it in the more or less distant future.

We shall first, however, define what is meant by the word "arteriosclerosis." Etymologically, arteriosclerosis means that the walls of the arteries (large arteries and those of medium caliber) are thickened, offering less resistance and having lost their elasticity.

During the last century, when pathology, as a science, was progressing, it was admitted that the processes of sclerosis of the arteries extended on one side from the periphery toward the small arteries, even in the vasa vasorum, and from the other side toward the aorta and the heart itself. Actually, under the caption arteriosclerosis, we include angiosclerosis of the small arteries (the arterio-capillary fibrosis of the British authors Gull and Sutton), the arteriosclerosis of the middle-sized arteries, and of the arteries of the extremities, and the atheroma of the aorta and cardiosclerosis.

Huchard says: "Arteriosclerosis is a primitive affection of the whole circulatory system." We shall, however, explain in a few words the theory of arteriosclerosis: While the scientists agree on the fact that the sclerous alterations of the arteries are the result of old age, and produce the marasmus of old age—a thing well-known to the practitioner—they differ in opinion as to the pathological changes which constitute the primary cause. Huchard, basing his contentions on the researches of Hyppolyte Martin, finds this cause in the endarteritis of the nutritive vessels of the arterial wall. He says, in his Monograph: "All told, arteritis of the small vessels is the characteristic of arteriosclerosis." The degeneracy of the vascular tubes progresses from the
periphery toward the center; in the coronary artery, sclerosis begins in
the terminal ramifications and determines cardiosclerosis.

According to the theory of Thoma, indorsed by Professor Schrötter
of Vienna, in his last extensive publication, the muscular tunic of the
arteries loses its contractility through the length of time of its function;
that is, through life itself.

The dilatation of the "media" finds its compensation in the prolific
processes of the "intima," in which we observe at the beginning a cellular
infiltration between the elastic strata and then the conjunctive tissue
is transformed, its thickness is increased, and stiffness results.

This theory explains without difficulty the arteriosclerosis of old
people, which is not considered as a disease, but as a slow process of
life ending in senile marasmus, often over-reaching the century mark.
These are the forms of sclerosis seldom producing atheromatous lesions,
but leading to arterial fibrosis, with dilatation, and to myofibrosis cordis
senilis.

It seems to me that the theories of Huchard and Thoma are not
absolutely contradictory; in fact, both theories are based upon very
conscientious anatomic and microscopic researches. It is sufficient to
mention them to understand the dangers to life resulting from arteriosclerosis.
The microscopic alterations of the tissues of the vascular tubes are not dangerous, providing they allow the blood to circulate
without obstacle. Diminution of elasticity by the substitution of muscular fibers in the middle tunic of the conjunctive tissue seldom results
in disease. It is only the stenosis of these vessels, ending in obliteration,
that can produce a rupture and hemorrhage. Such are the dangers to
be feared.

We can distinguish several types of angiosclerosis affecting the
duration of life:

1. Arterio-capillary fibrosis of the kidney is the cause of interstitial
nephritis.
2. Sclerosis of the small vessels of the brain produces apoplexy,
thrombosis and softening.
3. Sclerosis of the coronary artery is sometimes the cause of sudden
death (embolism), and oftener produces degeneration of the myocardis.
4. Sclerosis of the aorta is the cause of aneurism of this vessel.
5. Sclerosis of the arteries of the lower extremities induces gangrene.*

These groups of diseases cause an enormous number of deaths,
even exceeding tuberculosis, particularly if we add to the number the
patients who die from other diseases (such as pneumonia and bronchitis)
on account of co-existing cardiosclerosis. As a cause of death, arteriosclerosis, as defined by us, occupies the first place. But, as we have
stated, it is the natural sequence of life itself; it is not avoidable, and
if the number of deaths from accidental, violent, infectious or contagion causes should diminish, the number of people reaching the age
of senile arteriosclerosis would increase. Professor Strümpell says:
"Many people suffer no inconvenience from their arteriosclerosis and
reach old age.

*Similar alteration of the liver induces typical cirrhosis.
The insurance companies would record a smaller mortality if all their members would die from senile arteriosclerosis. But in practice, facts are different; the companies experience considerable losses through hypermortality; many of their insured die at a comparatively early age because their circulatory system has been unduly exposed to noxious influences and to unhygienic surroundings in their most dangerous forms.

Again, we quote Cazalis, who said: "Man has the age of his arteries;" but this axiom gives us a prognosis no more accurate than a birth certificate, unless we can ascertain in time the signs of precocious arteriosclerosis and appreciate the etiological elements which permit us to foresee its production.

To fully appreciate the state of the circulatory system in a given case, we must know the state of this system during the decades of a normal life, and be familiar with the changes that are apt to occur with advancing age.

I will quote three authors, who recently discussed this subject:

Mitchell Bruce (Brit. Med. Jour.) found that during the decades of life ranging between 20 to 45 years, the pressure of blood increases, the heart gains in volume and strength, and the arteries enlarge, the dilatation being particularly noticeable between the ages of 35 and 45. The diameter of the arteries during that decade remains constant, while the peripheral resistance begins to diminish; the blood pressure is lowering and the heart loses in dimension and force until the age of 65. After this time, the network of capillary vessels begins to show signs of obliteration; the blood pressure increases, the heart returns to its volume, and at 75 years it has the same dimensions it had at 45.

About the same time Professor Dehio published a remarkable report upon old age of the heart, in which he describes the same changes of the circulatory system produced by age. In the first place, there is an increase of the peripheral resistance which determines a high arterial tension; then a dilatation of the muscular tunic of the middle arteries, shrinkage and partial obliteration of the small arteries, and finally, senile hypertrophy of the heart. He concludes in these words: "Although the senile heart keeps up a hypertension in the arteries, this hypertension is not sufficient to effect complete compensation; the aged heart has only a diminished energy and probably a capacity inferior to the young heart."

Huchard, in the third edition of his clinical treatise on arterial cardiopathies, makes no essential difference between senile arteriosclerosis and arteriosclerosis from any other cause. He says: "Old age is a disease (Senectus ipsea morbus) and this disease is an intoxication."

According to this author, senile intoxication is due to two main causes: (1) "Venosity" of the blood, which depends from the vital capacity of the lungs; (2) Azotemia; the blood of old people contains a larger quantity of urea, together with an increased percentage of cholesterine and extractive matter. It is really toxic, and thus can be explained the adynamic tendency of their diseases, as well as the production of arterial degeneracy.

Among the symptoms of arteriosclerosis, the first, beyond doubt, is the stiffness; the increase of resistance of the arterial vessels, directly
detected through the touch. The great arteries of the extremities, of the neck and of the temple are palpable. In the carotid we seldom find accentuated sclerosis. The sclerous condition of the radial, femoral and temporal arteries are, on the contrary, easily distinguished by palpation, and therefore we should examine them. When we recognize the sclerous alteration in these arteries, we generally find them enlarged, elongated and sinuous, and the beating is ample. Stiff radial and temporal arteries are the exception. To fully appreciate the degree of rigidity of the arteries, particularly of the radials, we should always take into account the state of the surrounding parts, the muscles, the tendons, the fatty parts, etc. Very well marked rigidity of the radial arteries has a different meaning, according to the patient, his age and occupation. Workmen, peasants, carpenters and blacksmiths, have larger and stiffer arteries than teachers, merchants or clerks. Besides, in examining arteries by inspection and palpation, it is necessary to possess a certain amount of experience. Anybody will be able to diagnose a sclerosis of the radial artery with calcification, but in many cases the process is less advanced, and we have to rely on the tension of the pulse.

Arterial hypertension of the radial artery, recognized by direct palpation, will aid us to establish a diagnosis of angiosclerosis.

Digital palpation of accessible arteries is a very simple process, but it is not always accurate; it varies at each examination. For this reason, instruments have been devised to measure the blood pressure in a more correct way and to express it in millimeters of mercury. The most accurate instrument of this kind is the "pulse watch" (Pulsuhr) of Professor Waldenburg; it is too complicated, however, and therefore seldom used. Among modern instruments we have also the sphygmomanometers or sphygmographs of Potain, Verdin, Basch, Riva-Rocci, and the tonometer of Gartner. Huchard regards them all as defective, because they give only an untrue and approximative measurement of the arterial tension.

Recent medical literature contains several studies of these instruments. Hirsch compared the instruments of Basch and Gartner and gave the preference to the former, stating, however, that both instruments have no absolute value. Professor Basch himself, who acquired a great experience in the use of his sphygmomanometer, recently published a book on heart diseases of arteriosclerotic patients, in which he studied the blood pressure of 356 individuals. According to him, the normal pressure of the radial artery was 110-140 millimeters of mercury; a pressure exceeding 150 is pathological and means arteriosclerosis. Personally, 20 years ago I made some observations with the Pulsuhr of Waldenburg and the sphygmomanometer of Basch, but I discarded both because the results were inaccurate. During the last few months, I advised the young physicians in my hospital to make some observations with the new model of Basch (Luft, Stuttgart) and with the tonometer of Gartner. It seems to me that this last instrument may be of service to record blood hypertension. If the instrument, when applied to the finger, shows a pressure exceeding 90 millimeters, there is arterial hypertension.

Following the invention of the sphygmograph by Marcy, and the
simplification of its construction by others (Dudgeon, Riegeld, Somer-broid), it was thought that the sphygmographic charts would give accurate information regarding the arterial tension. Huchard found the contrary to be the fact, and states that the sphygmographic tracings give only vague indications. Personally, I drew more than one thousand sphygmographic charts; many of them show the loss of elasticity through the retardation of the line of ascent, while in others the dicrotism is hardly indicated, a sign of arterial hypertension. But all these charts were furnished by individuals in whom arterio and atherosclerosis was so potent that it could have been readily discovered through palpation. Therefore, we can do away with the sphygmograph for life insurance purposes, particularly as the use of the instrument requires a good deal of experience, many preparations and much time.

After examining the peripheral vessels, we must examine the heart, the central part of the circulatory system, which furnishes us important signs from which an opinion upon the entire condition of the system is obtained. The accentuation of the second 'bruit' of the aorta is never absent when there is arteriosclerosis (unless under special circumstances). The diastolic resounding of the aorta is a proof that there is arterial hypertension, which in its turn depends upon the increased peripheral resistance, and can result, as Huchard says, in arteriosclerosis of months' and years' duration. To appreciate this symptom fully, we must remember that arterial hypertension may be the result of temporary causes. For instance, it may be produced by the exaggerated muscular work of a bicyclist, by irritation of the heart, by over-feeding, or by alcohol. There is also the hypertension in women preceding menstruation and during the change of life; in both sexes, hypertension exists also at the time of puberty.

If a single one of these forms of hypertension does not obtain, there is undoubtedly an angiosclerosis, or a threatening of it.

This symptom is easily diagnosed. The "bruit clangoreux" (hammer-strike) described by Huchard at the second intercostal space is in fact very characteristic; but if this accentuation of the diastolic "bruit" is not very well marked, it requires a good deal of experience in auscultation to avoid an error of diagnosis. When I receive from the provinces a medical certificate reading: "Slight accentuation of the second 'bruit' of the aorta," and signed by a young physician, I generally discard the verdict and send another examiner to see the case, who, as a rule, discovers nothing. Another obstacle to ascertaining the diastolic resounding of the aorta consists in the difficulty of differentiating the second "bruit" of the aorta from the resounding of the pulmonary artery.

The seat of the maximum of these two "bruits" varies very much, and we should not forget that we hear both of them on both sides of the sternum, which can be easily demonstrated. Not uncommonly, at the right of the sternum, we hear nothing, and the maximum of the aortic bruit is found in the middle of the sternum on a level with the third rib. In many cases, we will only discover the resounding noise at the base of the heart. The semielogical table, furnished by Huchard,¹

¹Loco citato, page 99.
and intended to establish the diagnosis according as the seat of the resoundings is to the right or to the left, or in both places, has only a theoretical value, and will seldom be found of practical use.

When we have been able to discover the diastolic resounding of the aorta, or at the base of the heart, we shall expect to find other sequences of arterial hypertension. When this hypertension has become permanent, as in arteriosclerosis, we necessarily meet with exaggerated shock and hypertrophy of the left heart. Even when dealing with one of the forms of temporary hypertension (accidental, for instance) but of long duration, like among athletes after a season of heavy work, we find also left hypertrophy; if such hypertension becomes permanent, it produces true arteriosclerosis. If we find diastolic resounding of the aorta, left hypertrophy and exaggerated shock, we will have to decide if the hypertrophy is temporary and of long duration, yet apt to cease if the cause is removed, or if it is permanently established. According to Professor Basch, angiosclerosis is not patent, unless albuminuria is pre-existing. According to the new researches of Hasenfeld, permanent cardiac, idiopathic hypertrophy is always produced by an angiosclerosis; that is, by visceral angiosclerosis. The vessels of the abdominal cavity act like main regulators of the mass of blood. In his opinion the sclerosis of the vessels of the periphery is not the only cause of cardiac hypertrophy, and it may also follow sclerosis of the vessels of the abdomen (the hepatic, celiac, coronary of the stomach, superior and inferior mesenteric and renal) or the abdominal aorta.

In cases of interstitial nephritis examined by Hasenfeld, he always found the entire heart hypertrophied; if, at the same time, the other splanchnic vessels were sclerosed, the left hypertrophy was more frequent. Basch, through his numerous observations on blood pressure, came to the following conclusions: All the clinical symptoms accompanying exaggerated blood pressure (that is, arterial hypertension) are due to angiosclerosis of the small vessels. Sclerosis of the large arteries and atheroma of the aorta may exist also, without change of the blood pressure and without cardiac symptoms.

The importance of renal angiosclerosis in connection with the whole system is recognized by Huchard, who says: "Interstitial nephritis, previous to being a disease of the kidneys, is an affection of the cardio-arterial system."

Besides these cardiac symptoms, which are the result of generalized angiosclerosis, there is a series of other symptoms dependent upon the same sclerous processes, which involve the heart itself (cardiosclerosis). Through the intermediary of the coronary arteries, sclerous changes attack the myocardium, the valves and the endocardium, and we observe abnormal "souffles," irregularities of the rhythm, of the strength of the contractions of the cardiac muscle, Bradycardia, tachycardia and asystolia. The cardiosclerosis is followed by serious symptoms of cardiac insufficiency, asthma, cardiac dyspnea and angina pectoris. Serious cardiopathy is seldom encountered by the insurance examiner, and therefore, I will not speak at length about it. For the same reason, I will pass over the subject of sclerosis of the aorta and aneurisms. I would like, however, to mention two symptoms: the increase of the aortic sound in
line with the sternum, and the elevation of the subclavians, which are considered by French authors, among them Huchard, as characteristic of sclerosis of the aorta or acute aortitis. The German authors are quite skeptical on the subject, and they have not accepted acute aortitis as a pathological entity. Professor Thoma, at the German Congress of Internal Medicine in 1895, read a report on the elastic tissue of the arterial wall and on angiomalacy, in which he explains how angiomalacy is the sequence of the dilatation and extension of the wall under exaggerated pressure, the results being lesion of tissue, giving way of the wall, and the formation of aneurisms.

Besides, there is at the same time a proliferation of the conjunctive tissue, and sclerosis. The process is the same in all the arteries, and it can be called aortitis when its seat is located in a large vessel. It is hardly probable that an individual presenting the two, well marked symptoms of aortitis would run the gauntlet of an examination for life insurance. Doctor Schmidt (Frankfort), recalls the symptom of Oliver Cardarelli (tugging), pulsation of the larynx, when the head is pushed backward, as one of the first signs of aneurism of the aorta; Brushim mentions a rhythmic shaking of the head, induced by an aneurism of the arch of the aorta. Concerning old, well known indications of aneurism of the aorta, I may mention the swelling and the pulsations of the thoracic wall, the paralysis of the recurrent nerve of the larynx, the slowness of the left radial pulse, the various "souffles," etc.

As to the diagnosis of "latent" arteriosclerosis, when the above symptoms do not exist, we have to resort to a series of indirect symptoms. These symptoms are to be observed in various parts of the body, when the circulation is still sufficient for nutrition, but cannot fulfill its complete functions. As a characteristic example, Huchard quotes the intermittent claudication of the extremities, described by Charcot in men, after it had been observed in the horse. Claudication is seldom seen in man; it is practically a pain located in the leg or calf, and is felt by the individual while walking; it may rapidly increase to the point that he would fall if he did not rest. Often the pain is accompanied by a cramp. This phenomenon is produced by a reduction in size of the large arteries of the leg or of the abdominal aorta. The inferior extremities require a large amount of blood to carry on their functions; when this amount is reduced on account of the reduction in size of the blood vessels, the extremities may do well at rest, but if a brisk walk is undertaken, claudication follows. I have seen cases when obliterating endarteritis of the femoral arteries was not the cause of this symptom, but it could be traced to aneurismal dilatation of the abdominal aorta; the decrease of the blood current was produced by the formation of a large thrombus, obstructing almost entirely the interior of the aneurismal sac. The first signs of this intermittent claudication will permit us at times to recognize the presence of arteriosclerosis before it could be discovered through the cessation of the crural pulsations. Guided by this symptom, we will find a small reduction in the fullness of the crural pulse on one side. The same phenomenon will also be of use in other vascular regions; for instance, one of the first symptoms of a sclerosis of the coronary artery is the pain under the sternum, observed by the individual while walking, particularly after a
meal. One of my friends, a well-educated physician, experienced this
pain as a "unique" symptom during eight years, and 17 years later he
died from cardiocscerosis. According to Huchard, the true angina pec-
toris is an intermittent claudication of the heart. The same author
quotes an example of an "intermittent claudication of the brain," the
patient being an old man with cerebral atheroma, who was compelled
to stop reading because he ceased to understand what he read.

Going further, Huchard explains other cases of spontaneous
dyspnea, or fatigue; of fatigue resulting from intoxication, due to the
imperfect elimination of the toxins from the digestive tract through
the kidneys. The insufficiency of the kidneys is a precocious sign, and
is almost always present in arterial cardiopathies, even in the absence
of albuminuria. There is a decrease of the toxicity of the urine; the
urotoxic "coefficient" of Bouchard is diminished. I do not dare to
criticise the toxic theory of the illustrious scientist, through which he
explains the arteriosclerosis of old age, but from personal observation
I can state that there is a whole series of "objective troubles," rheuma-
toid pains, cramps, vertigo, cephalalgia, visual troubles, etc., etc., ap-
parently resulting from arteriosclerosis. All these symptoms, which
look insignificant, should be considered as proof of sclerosis and ag-
gravate the prognosis as soon as there is arterial hypertension.

Among the subjective symptoms already enumerated, I would like
to call attention to lumbago in connection with arteriosclerosis; sev-
eral patients of mine affected with lumbago died suddenly from occlu-
sion of the coronary artery.

The importance of albuminuria, as a sign of angiosclerosis of the
kidneys, is recognized by all. From the standpoint of life insurance, it
constitutes a separate chapter, which was discussed at the Congress
in Brussels, and which will again figure on future programs. While
with renal and visceral angiosclerosis we always observe all the signs
of arterial hypertension, among which are diastolic resounding of the
aorta and hypertension of the left heart, these symptoms may be want-
ing when the sclerosis is localized in the small arteries of the brain
exclusively, even the radial pulse being soft and elastic. The apoplectic
attack often occurs unexpectedly; rigidity and sinuosity of the tem-
poral arteries are not always well marked. In some of these cases
we observe frequent epistaxis as a precursory sign, the source of which
is often a small artery of the cartilaginous septum. Subconjunctival
hemorrhages have no significance, as they are also found in people en-
tirely healthy.

Among the visceral manifestations of angiosclerosis Huchard in-
cludes hepatic cirrhosis, with "retrecissement" (narrowing), and the
cirrhosis of Laënnec, which he considers as an affection of the liver, cor-
responding to chronic nephritis. Although sharing this opinion, I do
not believe that it is necessary to discuss the question at present.

Having summarized the symptomatology of arteriosclerosis, I may
take the liberty to discuss the main causes of this condition. Professor
Strümpell says: "If arteriosclerosis begins before the 40th year, the
cause is either hereditary predisposition, or it may be attributed to nox-
ious influences," which he quotes in turn. Let us begin with heredity.
In including under the caption "arteriosclerosis" or "angiosclerosis"
ARTERIOSCLEROSIS—MORITZ.

205

(according to modern authors), a pathological alteration of the whole circulatory system. I believe that we all should agree on the influence of heredity. Regarding some special forms of angiosclerosis, we possess statistical proofs, in the reports of a few insurance companies, that cerebral arteriosclerosis results in apoplexy. An individual with a sclerotic tendency will be predisposed to the form of sclerosis previously recorded in his family. If there was apoplexy in the family, it is more than probable that he will be subjected to the sclerosis of the arteries of the brain rather than to those elsewhere in the body. Referring to sclerosis of the kidneys, it seems to me that special hereditary predisposition may also exist. In this respect, the great arteries and the heart itself may be considered together as a single group. Professor Huchard, in fact, establishes a distinction in speaking of "hereditary aortism." Every experienced physician, I am sure, has discovered among his patients, many examples of sclerotic heredity. I can personally recall a long series of such cases, but will only mention these belonging to the group of sclerosis of the heart and of the large vessels. A young confere, 36 years old, came to me for examination. He suffered from arrhythmia and tachycardia, and had a very well-marked hypertrophy of the left heart. His father died when he was 60 years old from a rupture of the heart, the result of thrombosis of the coronary artery and of the myocardis (autopsy made by myself); his mother died from a rupture of an aneurism of the aorta. In another family, two brothers (40 to 45 years old), lost both legs (one after the other) from obliterating endarteritis and gangrene. One of my friends, a well-known accoucheur of St. Petersburg, died at the age of 60 from an aneurism of the abdominal aorta; his oldest brother died one year before from arteriosclerosis; two younger brothers died suddenly from thrombosis of the coronary artery; two others, now over 80 years old, are affected with arteriosclerosis and cardiac asthma.

We know that heredity often determines the general constitution of an individual. In some families, obesity (embonpoint) is hereditary, while in others the subjects are dried up and lean. Obesity produces peripheral resistance, increased by arterial hypertension, which induces arteriosclerosis. From an insurance point of view, exaggerated embonpoint (a weight exceeding 100 kilograms), is decidedly unfavorable, as it favors arteriosclerosis.

The influence of heredity is also well known in gout, and in uric acid and gouty diatheses. Modern authors (Schrötter, Huchard, Edgrén), consider the arthritic diathesis as one of the main causes of angiosclerosis. Mitchel-Bruce finds that among the arthritics, sclerosis localizes itself preferably in the coronary artery or the brain in such a way that these persons are subject to sudden death, the result of coronary thrombosis or cerebral apoplexy.

French authors think that the arthritic and neurotic diathesis often exists side by side, and in fact there are families in which we alternately discover neurotic and arthritic individuals. If such substitution is possible, we may say that the neurotic tendency favors arteriosclerosis, a statement which looks plausible to me. Huchard attributes to the spasm of the vaso-constrictors a great importance in regard to sclerosis; Schrötter, in turn, says that a paralysis of the muscular tunic can pro-
duce a vaso-dilatation, causing sclerosis, in accordance with the theory of Thoma.

Among the diseases which we hold responsible towards influencing the production of arteriosclerosis, rheumatism is one of the most important. The term rheumatism in our day, however, does not cover a well-recognized morbid entity. We have good cause to believe that this term is attributed to diseases quite different in their etiology and pathological anatomy, and I do not believe that it is worth discussing. Nevertheless, we can consider as a well-established fact that the ordinary acute polyarthritis often produces valvular and myocardial lesions, which, in turn, affect the whole vascular system. On the other hand, we often observe arteriosclerosis connected with arthritis or any other form of chronic rheumatism.

Still oftener than rheumatism, syphilis induces arteriosclerosis. Some authors, among them Heubner, classify syphilitic endarteritis as a separate disease, differing from common arteriosclerosis, because they find anatomical and pathological differences. Others (among them Baumgarten) claim for obliterating endarteritis in general an independent position, to distinguish it from senile or common arteriosclerosis. Anatomic and pathologic distinctions, which can only be made out with the microscope or at autopsy, are devoid of interest for the insurance expert, and we should rather consider the various forms of sclerosis of the circulatory system as a morbid entity.

From our standpoint it is immaterial to ascertain in which part of the arterial wall the degeneracy originated, be it the perivascular tissue, the middle or the internal tunic.

The alterations in the tissues in syphilitic arteritis are identical with those found in the non-syphilitic, non-sclerous patients. Even gummy tumors and peri-vascular, cellular proliferations invading the walls of a vessel produce the same alterations as we find in common arteriosclerosis. It is true that among syphilitics, the obliterating forms, the aneurisms and atheromatous alterations are preferably found, while we seldom find in them enlarged or calcified vascular tubes. Huchard was certainly right when he said: "Syphilis likes the arteries, and syphilitic arteritis is either aneurismal or obliterating."

Edgren, analyzing the etiology of arteriosclerosis, gives the first place to syphilis. In his opinion, the sclerosis of the syphilitics begins in comparatively early life; about the 40th year. Mitchel-Bruce, speaking of prognosis, believes that syphilitic sclerosis is more dangerous than any other, particularly on account of the frequent occurrence of aneurisms of the aorta. Etienne (Nancy) found 69 per cent. of syphilitics among 240 cases of aneurisms of the aorta. Hampel (Riga), and others, admit the predilection of aneurism for syphilitics, and personally I can indorse this opinion, based on a series of autopsies.

It is claimed also that diabetic patients are very often the subjects of arteriosclerosis. Probably this is a fact, but I have not had very much experience in the matter, because diabetes is an uncommon disease in my country (Northern Russia and St. Petersburg). In Poland, and in the southeastern part of the Empire, diabetes is more common.

Toxic causes play an important part in the etiology of arteriosclerosis. Among the inorganic poisons, lead has an undisputed influence upon the arteries. Saturnism, according to Huchard, causes an arterial
spasm, a contraction of the vascular walls, which produces arterial hypertension, shortly followed by arteriosclerosis. We frequently find among such cases interstitial nephritis and arteritis, with rigid hypertrophy of the vascular tissue, and often fatty degeneration; from the standpoint of pathological anatomy, the arteriosclerosis of saturnism resembles very much the arteriosclerosis of arthritis.

The poison which produces the greatest number of victims of arteriosclerosis is alcohol. Alcoholism, following syphilis, occupies the second place in the etiology of arteriosclerosis. Edgrén counts among his arteriosclerotic patients 26 per cent. affected with alcoholism, the ages averaging 51 years. Out of 31 patients, 22 had cardiac symptoms, and six cerebral symptoms. The theories of alcoholic poisoning are very much at variance. According to some authors, the great elevation of pressure under the influence of alcohol constitutes the primary cause (Thoma); others blame the direct action of the poison circulating along the wall of the blood vessels. Huchard points to the intermediary action of the poison on the liver. Whatever may be the theory accepted by us, there is no doubt of the fact itself, and there is no better proof than the arteriosclerosis existing in children who use alcoholic drink to excess. Still, it is not always easy to fully appreciate the influence of alcohol, because the individuals subjected to it are usually affected by other noxious causes. For instance, excessive alimentation is to be considered, and we should always question the applicants in regard to the quantity and quality of their food.

In the opinion of Huckard, toxic substances, like ptomaines and leucomaines, which are not eliminated by the kidneys, incite arteriosclerosis; he quotes Gautier and Dujardin-Beaumetz, who share the same opinion. Overfeeding, as a rule, and particularly an excessive meat diet, produces arteriosclerosis. This fact is in perfect accordance with the theory of Thoma, who thinks that a plethoric condition leads to arteriosclerosis.

In Russia we have many people who drink as many as 20 glasses (4 liters) of very weak tea (sweetened water, so to speak) during the 24 hours, and this habit has never produced arteriosclerosis. These large quantities of water are readily eliminated by the kidneys. This is not the case, however, with the heavy drinkers of beer, who overload their vascular system not only with liquid, but also with alcoholic poison, and who succumb from the fatty degeneration of the heart described by Bollinger (called the Münchener Bierherz), or from other forms of angiosclerosis. There is no doubt that the heavy eaters, particularly the excessive meat eaters, are more exposed to arteriosclerosis than people with a moderate appetite, or the vegetarians. Heavy dinners and suppers, with high grade wines, excite the circulation, and we have only to look at the guests at the end of a big repast to discover, without a sphygmograph or sphygmmometer, that their hearts are beating faster and that the blood pressure is increased. If such arterial hypertension is often repeated, arteriosclerosis is unavoidable in the course of time. Edgrén has ascertained that arteriosclerosis, already noticeable, may be ameliorated through a change of diet, particularly in suppressing the meat and replacing it by vegetables and amylaceous food. In Japan and China, where rice constitutes the basis of alimentation, arteriosclerosis is less frequent than in other countries.
The sclerogenous influence of tobacco, blamed by German authors, among them Leyden, is considered by Huchard as possible, but not demonstrated. Mitchel-Bruce thinks that the dangers to which people who smoke are exposed are greatly exaggerated. Tobacco causes temporary cardiac troubles of a neurotic character, which may last for years without provoking organic alterations, and without shortening life if the heart is not already affected from some other cause.

If we admit that normal arteriosclerosis, the arteriosclerosis of age, is caused by the change of blood pressure, and the caliber of vessels, the result of life itself, it is clear that continuous enforced muscular work is bound to accelerate the development of sclerosis. In fact, we know that among workingmen who constantly use their hands (carpenters, cabinet-makers, smiths, etc.) precocious sclerosis of the superior extremities, particularly the radials, is the rule, while the other parts of the circulatory system are not affected for a long time, unless there are some other sclerogenous causes; for instance, alcohol.

Excessive physical effort, often repeated, like in athletic contests, swimming, boxing, bicycling, etc., produces such violent arterial hypertension, such enormous passive dilatation of the heart and the large vessels, that the effect does not always disappear during repose, and the invariable result is precocious cardio- and arteriosclerosis. Wrestlers, athletes and champions in violent games of sport seldom attain old age. But excessive muscular work is not the only cause of arterial hypertension ending in arteriosclerosis. Psychic and intellectual overwork also induces exaggerated beating of the heart, and palpitation. This is also the case with great emotions resulting from sexual intercourse, stock dealing, theatrical performances, etc., which favor arteriosclerosis. The one who lives too fast will quickly get old.

A quiet temper combined with moderate work and a regular course of life, without moral or toxic excitation, is the surest guarantee against precocious arteriosclerosis. Examples of extreme longevity, exceeding the century mark, are always to be found among phlegmatic people, working regularly and not indulging in excesses of any kind.
TABES DORSALIS—HIRSCHKRON.

ON THE ETIOLOGY, PROGNOSIS AND MODERN TREATMENT OF TABES DORSALIS.

By JOHANN HIRSCHKRON, M.D., Neurologist of Vienna, Austria.

We designate as tabes dorsalis, a chronic disease of the spinal marrow usually taking a progressive course, which in its fully developed stage is characterized by a peculiar disturbance of muscular action called ataxia, and which is caused by a degeneration of the posterior columns of the spinal marrow.

While the adherents of hippocratism consider sexual excesses exclusively to be the cause of this grave disease, in recent times so many etiological factors have been mentioned to be the original cause that at present the opinions materially differ.

In the first place, cold was regarded to be the cause of tabes. Coldness of the feet and suppression of perspiration of the feet was blamed for producing tabes, and it was assumed that very low temperatures might affect the sensory nerves. I must concur in this view, as in one of my patients, after a severe cold, I have had the opportunity of observing all the symptoms of a grave case of tabes. This patient suffered with such high-graded anesthesia that, when walking in the street he lost his wide felt-shoes and did not notice that he walked in his stockings. But these symptoms disappeared so rapidly in the course of several months that I was able to diagnosticate the process as a variety of pseudo-tabes. At any rate, after such an experience, it appears not impossible that tabetic symptoms following the effect of a very low temperature, after having once been manifest, may remain permanently.

E. Schulze was the first to speak of tabes with traumatism as an etiological factor. Later on, Petit, Ferry and Strauss collected quite a number of partly new, partly previously published cases in which traumatism preceded the development of tabes. I myself was years ago called to a woman whose right leg was amputated after a severe trauma with considerable tissue destruction. The patient sent for me on account of severe lancinating pains in the left leg and in the stump which set in several months after the amputation. At first sight of the patient I was at once struck by the pin-head pupils, as they are usually observed only in tabetics. Upon further examination it was found that she also suffered from diplopia, dysuria, girdle sensation, analgesia and anesthesia; in short, I was able to observe the entire pathological picture of tabes.

Syphilis has also been named as a cause of tabes, and by many it has been placed in the foreground. It was particularly Erb, in Germany, and Fournier, in France, who ascribed a special importance to this etiological connection. These authors consider tabes as the result of a post-syphilitic intoxication, and they assume that under the influence of a syphilitic infection abnormal products of metabolism are formed which have a degenerating effect upon certain nerves, similar to lead, ergot and other well-known chemical poisons.

This view, too, I cannot quite exclude, especially as just all my
female tabes patients, so far treated—as is known, tabes in the female is rare—have at some time suffered from lues, the same as the majority of my male tabes patients. One author even remarked, if there is tabes without syphilis, there ought to be found, at some time or other, a tabetic virgin.

Besides these direct causes of tabes there are to be named quite a number of predisposing factors, for we know that of the thousands and thousands of those that take cold, of the wounded and of the luetically infected, only a very small percentage is attacked by tabes. Among these predisposing causes are to be mentioned:

1. The sex. Men are attacked much more frequently than women, but, as stated before, the latter are not by any means immune.

2. The age plays a part. More cases of tabes occur during middle life than at 60 years of age. Individuals with a nervous family-history are more apt to be attacked by tabes than those of healthy families. Children are almost never attacked, but, as known, hereditary ataxia, described by Friedrich, occurs in them. Tabes is also said to occur hereditarily. It has been reported that several members of the same family were attacked by typical tabes.

The profession also plays a part. Thus soldiers, hunters, fishermen, travelers, railroad employees, are much more subject to tabes than other trades.

As to prognosis of tabes, we must say that a proper anatomical cure of the pathological process is not apt to take place, but it would be entirely out of place to make too gloomy a prediction to the friends of the patient. We can scarcely count on a definite cure, nor on a lasting cessation of the symptoms; a progressive advance being characteristic of the disease. But this progress may be very slow. In fact, cases are observed in which, after a duration of years, scarcely a perceptible aggravation can be noticed. If the disease presents itself with so little intensity, and if the physician knows how to withhold the diagnosis "tabes" from the patient, the latter is spared the troubling anxiety as to the future, he may for years lead a life free from care and devote himself to his occupation. In well-to-do and careful patients we may be enabled partly to compensate for the disturbing symptoms, we may alleviate the pains, make the bladder functionate, ameliorate the sensibility, so that the patient is in a position to a moderate degree of enjoying life. In fact, even if the worst amaurosis and paralysis occurs, we observe that the patients submit to it rather resignedly.

Thus the prognosis does not present many encouraging features, but it is not as unsatisfactory as Romberg’s tragic dictum makes it appear to be: "There is no hope for recovery for any of these patients, they are all doomed." It is the physician’s duty, above all, to be an aid to the patient, and our medical armamentarium offers sufficient means to do it, in assisting him gradually to submit to the inevitable, but he must not frighten and discourage his sufferers. In fact, as I have stated before, after contracting colds there may occur tabetic symptoms which gradually entirely disappear. Those cases in which gastric crises or cerebral symptoms set in present the most unfavorable diagnosis.

The excitus letalis does not occur as the immediate consequence
of the anatomical affection, but mostly on account of increasing debility, insufficient nourishment, deglutition, pneumonia, cystitis or other complicating affections.

The therapy has various tasks. One of the most important is unquestionably the general treatment which has the gratifying object of sufficient nourishment, care and cleanliness, to protect the patient from excitement, to prevent excesses of any kind, to call his attention to the danger of sudden changes of temperature, of dampness, excessive use of alcohol and tobacco. The patient is to sleep regularly and try to keep aloof of sexual excitement. Erb tells his patients: "Lead a life as if you were an old man, quiet, regular and peaceful." Traitement moral is also in place. Try to accustom the patient gradually to a certain resignation and make an effort to uphold and support his cheerfulness during the long course of the disease.

Most injurious to the patient is cold, because he does not feel it, and, consequently, does not guard himself sufficiently against it.

Weir-Mitchell recommended lasting rest-cures. I believe these are in place only in exacerbations of the affection. In my opinion the patients should not be kept in bed too long, because they are afraid that their muscular weakness may be increased thereby.

Possibly it is not even appropriate to extend the period of rest longer than necessary. For, according to experience, the muscles are strengthened by exercise, and with invigorated muscles the ataxia may be improved.

Experience also teaches that energetic, muscular men, like soldiers, preserve the ability to walk, after being attacked by tabes, much longer than the weak and unenergetic. Women, especially, lose their capacity to walk very early. Too extended rest, therefore, is decidedly injurious; neither should the patient be taken away from his occupation too early, as this makes him feel depressed and morose. Many attend to their business affairs up to the last hour of their lives, and this is not the worst, because the patient is more apt thus to become oblivious of his condition.

As may be readily conceived, it has ever been the endeavor to combat the disease with internal remedies, but I will state at once that no tangible success has as yet been achieved.

We know them all, argentum nitricum heading the list, auronatrium chloratum, belladonna, arsenic, etc. According to my long experience I feel inclined to consider only two drugs as possessing some value, viz., secale and sodii iodidum. But the action of either of them is, unfortunately, too one-sided and they, at best, ameliorate some symptoms, like dysuria, and sometimes girdle pain, only temporarily.

Although some authors are fully convinced that syphilis plays a part in tabetic affections, we are sorry we have to admit that antiluetic treatment is not successful at times, in fact, even injurious. Only once did I observe a partial success, and that in a patient who was afflicted with "mal perforans." Most to be censured should be the indiscriminate administration of mercury, used simply for the purpose of easing the conscience with regard to the etiological point. These cures are positively injurious, inasmuch as in the meanwhile the best time is lost to help the patient by other, really useful therapeutic measures. Disap-
pointing was also the organotherapy. The injection of spermine also proved to be useless, as did also the injection of extract of wether’s brain. Nothing is known as yet regarding the success of administering glycerine and glycerine phosphates, the application of which is of a very recent date. Much more successful has been, during the last twenty years, an internal medication with symptomatic treatment.

By far the most annoying symptom confronting the physician in the treatment of tabes is the lancinating pain. This pain occurs with great intensity and perseverance and is a torment to the patient. Antineuralgics should be named here in the first place, and they are resorted to considerably.

Since Knorr, in 1884, produced antipyrin synthetically, which rightly became very popular, the tendency has been to place upon the market a number of antineuralgics having a similar effect. Kahn and Hepp introduced antifebrin in 1886. Rast and Hinsberg phenacetine in 1887, later came Mahnert with methacetin, Dujardin, Beaumetz and Bardet with etalgin, later still appeared lactophenin, analgen, methylene blue, neurostin, antinervin, esalgen, and, quite recently, pyramidon and citrophen.

Many of these drugs possess excellent properties, which are very desirable therapeutically, but at the same time they have many disadvantages. We are familiar with antipyrin intoxication, we know how careful we have to be in the administration of antifebrin and phenacetine, and often we observe how easy it is for the patient to become used to the remedy so that the doses have to be materially increased.

But, in spite of all their disadvantages, these drugs represent an enormous advance in the therapy of tabetic pains, for, without these remedies, we would actually be forced to resort to the often fatal hypodermic syringe. From my experience I must say that, with our modern antineuralgics, I was able to sustain many of my patients for years; in fact, two of them never used a hypodermic injection of morphine until their death, in spite of the pains they suffered. One of the most reliable of the antineuralgics for tabetics now on the market is, in my experience, citrophen, made by Dr. Roos of Frankfort o. M. It has the invaluable property that its effects are prompt in all neuralgic conditions; it does not cause any secondary symptoms, and it may be taken for a very long time before the patient becomes used to it. Two or three grams per day may be given of the same. I have learned to appreciate this drug, and it proves to be an excellent remedy in all neuralgics, especially as it has the appreciable quality of having a slightly hypnotic effect, which is very beneficial to the patient who, after the pain subsides, enjoys a little sleep and awakes greatly refreshed.

I wish to call attention to the fact that I also have had success with the long continued use of bromides, four grams per day. Effective often is also bromidia, introduced from France, which acts as an anodyne and at the same time as an hypnotic. Often the antirheumatics are also of value, like salipyrin, salol, asprin, especially if the pains are subsequent to a preceding cold. Not infrequently I was successful with the following prescription:
R

Extract, cannab indica. .................. 0.50
Acid salicyl. ................................ 5.00

M. Pulv., divide in doses, No. 10.
S. Two powders daily.

Sometimes hypnotics are beneficial, like trional, sulphonal and especially chloralhydrate; the latter alone or in combination with morphine.

If nothing else is left, we must resort to the hypodermic syringe, but I would urgently advise waiting as long as possible before using it, and, when possible, not to entrust its use to the patient.

But there are also a number of external remedies which render excellent services. It may not be universally known that, for instance, ischiolgies were kept up for years by eczemata and tears of the anus, abrasions and swellings of any kind, and hemorrhoids, and did not improve until these lesions were cured. In tabetics, too, it is probable that the lancinating pains are often caused by reflex action through affections of the anus, which, when cured, will relieve the patient of much pain. I have observed such cases. As an excellent remedy for anal eczemata, tears, swellings and hemorrhoids I became acquainted with a drug named analan, which is manufactured in the k. k. Alte Feld Apotheke, of Vienna, a combination of salves, of astringents, antiseptics and ichthyol, the effect of which is really phenomenal. I have treated patients, who suffered from anal eczemata for years, who were unfit for society on account of the continuous itching, and who were cured at once after the application of this salve. Hemorrhoids and tears are also made to disappear by the same in a very short time. If we are thus able to do away with an existing pruritus ani in tabetics, or to remove swellings, or hemorrhoids, we have done very much for the patient, because we have relieved him of a good deal of pain. For this reason I advise a careful examination of the anus in every ischialgic and tabetic. An English colleague called attention to the fact that ischias is connected with such affections of the anus. Upon learning this I tried the above analan in a patient who, besides from ischias, suffered from anal eczema, and his sciatica, with which he had been afflicted for four years, was cured at once; the latter was therefore evidently sustained by the pruritus ani.

But other external remedies are also to be recommended. In my paper, "Therapy of the Nervous Diseases," I have treated this subject exhaustively. There are remedies which give a momentary relief to the patient. If the tabetic is, for instance, attacked by pain in the leg, he forcibly puts his hand to the aching spot and presses the same, thus practising a kind of massage. Some patients run to the hydrant and procure relief by the application of the cold water.

At present the lancinating pains are often treated hydrotherapeutically. Wet packs with water of 18° C., the application of Chapman's bag filled with water of 27° to 29° C.; very warm douches, also dry warm packs are often able to alleviate the pain materially. Many patients feel relief when they put the feet into cold water, others again alleviate the pain with hot water or with a half or full bath at 28° C., adding bran to the water to make the heat last longer. Often an ether or ethylchloride spray renders good services. Cauterization, "pointes de
feu,"' cupping, and blistering plasters are almost entirely discarded or used only in the rarest instances. More in favor, and justly so, are at present applications of heat, as thermo-massage, exposure of the extremities to the electric lamp, also packs of wet sand or Fango. Particularly good results are obtained with ichthyol mud, which was introduced by the firm of Thomas Herrmann of Hamburg. The mud is thickly inspissated in hot water to about 35° to 40° C. The patient is placed on an old lounge which is covered with old blankets. The thick mud is put between linen sheets so that nothing falls out at the side. Upon the aching spot is placed a repeatedly folded piece of mull which has been immersed in a previously warmed 30 per cent. ichthyol glycerine solution, on top of this comes the wrapped-up ichthyol mud, above this a very warm blanket or a thermophor, and the entire member is, besides, placed into a rubber sheet. I was, in several instances, able to remove the pain within a few minutes by means of ichthyol mud. The latter, thus applied, has an excellent effect in all varieties of rheumatism, in gout, to absorb exudates in old neuralgias and myalgias. Ichthyol baths also act excellently and rapidly, 60 grains ichthyol to be used to the bath. Ichthyol is a perfect anodyne in every respect. I use only the ichthyol of the Hamburger Ichthylolgesellschaft from the Seefeld mines, for only with this product was I able to achieve rapid alleviation of pain.

Franklinization is also reported to exercise a soothing influence upon the pains. I had as little success with it as with the anode of the galvanic current. The faradic current should not be applied in any form, because it increases the pain immediately. If the patient is weak, debilitated and hypersensitive, rest in bed will be best for him. Dr. Leydy eulogizes wrappings of flannel bandages in attacks of pain. The bandages are wrapped tight from the toes to the middle third of the thigh. In the same manner it is claimed that a bandage wound around the abdomen immediately alleviates the girdle pain of the tabetic.

Further crises which fully occupy the attention of the physician are those of the viscera. Most difficult, and at the same time most important, is the treatment of gastric crises. There is only one remedy for them, namely, the injection of morphine. Do not waste any time with experiments, because then the most opportune moments will be lost. Often it is practical to administer a larger dose of morphine at the onset, with the object in view that there may be a chance soon to terminate the crisis. To prevent a possible morphinism, there is only one means, and that is to withdraw the morphine most energetically immediately after the termination of the crisis. This measure is necessary for the double reason, first, to guard the patient against a permanent use of the morphine, and, on the other hand, the morphinism itself may be the cause of recidivous crisis. Chloral, trional, cocaine, have a transitory success only, applied internally. Better would be the use of bromidia, which has a quieting effect and lessens the nausea. I had good success with a combination of bromine and morphine.

R—Natr. bromat ........................................... 2.50
Kal. bromat ............................................. 0.63
Nortil. mur ............................................... 180.00
Aque dest ............................................... 20.000
Syrup simil .............................................

S.: One tablespoonful every two or three hours.
Ice, carbolated waters, champagne are of no value. Sometimes the remedy proposed by my late chief, Professor Rosenthal, faradic brushing in the region of the pit of the stomach, is beneficial.

It is important, after the termination of the crisis, at once to look after the nourishment of the patient who otherwise will become too weak. Begin with milk and only gradually adopt a meat diet. If the patient is afflicted with anorexia, give him a tonic. One of the best means to stimulate the appetite is unquestionably the administration of extractum chinæ Nanning. Ichthyl pastils, taken internally, are also well born, increase the appetite and remove flatulence, which is of especial importance in these patients.

Hot lavage and suspension have been recommended for gastric crisis, but proved to be of no avail.

Among the visceral crises are counted those of the larynx, pharynx, penis, globus and heart, ano-vesical crises, and spasms.

Probably the most remarkable are those of the larynx, as they may lead to symptoms of suffocation, which in turn may necessitate tracheotomy. In milder cases painting with cocaine will give relief.

In the other crises the application of narcotics, and often antineuralgics, like citrophen, pyramidon, etc., is sufficient.

The tabetic will do well, in order to meet these crises, to be supplied with a pocket medicine chest, containing principally antineuralgics, urotropine, morphine and a Nelaton catheter.

One of the most important therapeutic methods in tabes are baths. It is not possible to obtain an anatomic process of cure by the use of baths, but they exert a beneficial, quieting and invigorating influence. Contraindicated are too high temperature and too much salt, contained in the baths. The temperature should be between 30° and 32° C., and the time of the bath should not exceed 15 minutes. Only three kinds of bath are to be considered in the treatment of tabes: 1, Sweat baths; 2, plain warm baths; 3, brine or carbonic acid baths.

The sweat and steam baths are only appropriate in the early stages of the disease, and best if there is a reason to suppose that the affection may be caused by a preceding cold. Such cures, however, should not be indulged in to the extreme, because the continued use of these baths weakens the patient considerably. Plain warm baths are also to be recommended during the early stages, especially when symptoms of irritation (pains and twitchings) are present. Many practitioners add bran, malt, calmus, extract of pine needles, or ichthyl. For such patients the indifferent thermé, like Gastein, Ragaz, Baden-Baden, Teplitz, are advisable.

The weak brine and carbolic acid baths are only indicated for patients who are already afflicted with anesthesia, muscular debility and general torpor. For them health resorts like Nauheim, Wiesbaden, Kissingen and the mud baths of Franzensbad are to be recommended.

Hydrotherapeutic procedures were also very much recommended in the treatment of tabes. I am quite ready to admit that some procedures in the symptomatic treatment of this disease are of a certain value and that the undeniable enlivening effect of hydrotherapy is frequently of great importance in improving the general condition, but the effect has been often overestimated and I must say that I really have
not yet observed a striking and obvious success; in fact, many patients feel weakened if too much is done in this direction.

Experience has taught that, for instance, wet packs rarely have a favorable effect, that long lasting packs weaken the patient, who, after using the baths for some time, grows insufficiently and not uniformly warm again.

Neither very cold nor very warm baths, nor vigorous mechanical means should be applied in these patients. It is best to use only half-baths for tabetics, they are the least injurious. Most hydrotherapeutists apply a temperature of 31° to 27° C. The body should not be rubbed in such a bath, only slight massage (effleurage) should be applied, and water should not be thrown upon the back from a certain height, but it should be simply poured over it.

There are no objections to nightly abdominal bandages (Priessnitz). They improve sleep, activity of the intestines, digestion and function of the bladder.

The modern hydrotherapeutists are so well posted as to the effects of the various procedures with water in tabetics, that the latter may be left in their care without any fear.

But we should always bear in mind that many tabetics cannot endure any hydrotherapeutic treatment whatever. If they can, it should be applied with the utmost care and not too zealously, as otherwise the patient would suffer more harm than he is benefited.

Regarding electrotherapy in the treatment of tabes, only the faradic and galvanic current are to be considered.

We apply faradotherapy only in the form of a dry irritation of the body surface, which is done with a metal brush. This tends to cause a counter irritation which lessens the transference of the pains upon the center. The faradic brush is especially indicated in the treatment of paresthesia, anesthesia and of the girdle sensation. I have observed material improvement of the anesthesia, and, consequently, of ataxia, also, in the brush treatment. It is generally assumed that vasomotor influences play a rôle in these improvements.

Central galvanization of the spinal marrow is mostly applied only by reason of empirical successes. An altering catalytic effect is ascribed to the spinal marrow current. In fact, it is noticed that in many tabetics an improvement takes place in the paralysis of the bladder, in the ataxia, pains, anesthesia, paresthesia, sometimes also in existing paresis, that the motor power is increased, a greater reliance and firmness is shown in walking, and that the movements are made with more elasticity. These successes, however, are, unfortunately, only transitory, but, nevertheless, the galvanic current will always remain a valuable auxiliary remedy, as it improves the patient a little, infuses him with new hope and materially raises his moral powers.

The following can be said as to the effect of massage:

It is sometimes possible temporarily to improve, by slight massage, disagreeable symptoms, like lassitude, obstipation, weakness of the bladder, and even impotence, as is contended by some. However, upon the whole, the effect of massage upon the properly anatomical disease is nil. But, as a means of quieting and strengthening these patients, it should not be underrated, especially as the latter, as a rule, have much con-
The traction method, the very application of general massage to the body improves the metabolism, enlivens the processes of nutrition, renders the power of absorption of the organism more active, and causes a revival of the biological activity. The patient has a feeling of well-being, the lassitude ceases, many of them feel happier after it, the power of imagination grows more lively, and we perceive a little more energy in the patient which again materially improves his ability of walking. But here, too, I caution against the "too much," which may have the contrary effect.

For some time the suspension method, as described by Motschutkowski, was especially recommended by Charcot and his disciples, and applied by physicians. A Sayre's suspension apparatus was used for the purpose, and the patient suspended by the head in such a manner that the feet were at least a foot above the floor. Later on it was found that this procedure is not quite without risk. I myself have done away with this method entirely, because the advantages of the treatment do not counterbalance the disadvantages to which the patient may become subjected through vertigo and fainting spells which are liable to occur during the suspension.

While, according to this method, the patient was kept suspended free, more recently suspension was applied in the recumbent posture. The patient is placed on an inclined plane which represents a long board resting on four feet and so constructed that it can be placed at varying inclines. At the upper end of the board is a metal rod which is in connection with a loop for the head and shoulder straps. The traction is, in this case, increased in proportion to the incline.

It is claimed that this method has caused a good deal of improvement, that the lancinating pains, especially, are favorably influenced by it.

During the last years a new method of suspension has been suggested. Gilles de la Tourette and A. Chipault have proven by experiments on the cadaver that a lengthening of the spinal marrow by 1 cm. can be produced by bending the spinal column. The patient sits on a low table (specially prepared for the purpose) to which two straps are attached. The straps are to encircle the trunk in the shape of a figure-eight bandage and to cross anteriorly over the first dorsal vertebra, while the free ends are suspended over the shoulders and held together by a buckle. From this buckle a cord runs over a pulley through the legs of the patient across the table-top and over its border to a handle which is placed at its lower end. By means of this cord one pulls and therefore exerts a traction upon the buckle and strap, which again causes a curvature forward of the upper part of the body. This procedure is done twice a week for 2 to 3 to 4 minutes. It goes without saying that to-day no definite opinion can be expressed as to the effect of this method.

Regarding the treatment with corsets in tabetics, this method deserves to be referred to in a few words. It is known that these patients are very fond of stretching themselves and thus feel a transitory relief.

Hessing was the first, by the making of an appropriate corset with two points of support, one at the axilla and the other at the pelvis, who accomplished this point, so that the patient had this agreeable feeling of relief, caused by such stretching, for some length of time.
The spinal column remains in a lasting extension and is materially unburdened, above all, a better support is created by Hessing's corset. Most patients, upon wearing this corset, feel a certain firmness in the back and sacrum which stands them in good stead. Others again claim that the wearing of the corset does not benefit them to any great extent. At any rate, the corset should be considered therapeutically.

Scarcely any mode of therapy, since it had once been brought to the attention of the medical profession, has been so generally applied and has so quickly gained the favor of the physician, as the exercise treatment in the management of tabes dorsalis. The compensatory exercise therapy after Frenkel proves that, even under pathological conditions, an uncoordinated movement may be coördinated with the aid of repeated and intensive impulses of the will-power. The central apparatus should be educated to be satisfied with the minimum present of sensible impressions, be it, that this reeducation is the means of overcoming anomalies of the conduction apparatus, be it that new coördinatory entities are formed vicariously, or be it that both factors act conjointly. The movements which take place with exercises under control of the will-power are improved, while the self-reliance of the patient is aroused at the same time. This mode of treatment of ataxia is a compensation therapy and is based upon the theory of Leyden who ascribes tabetic ataxia to disturbances of sensibility. The movement therapy is particularly indicated in the second stage of this affection, i.e., in those patients who are afflicted with a pronounced ataxia, while the muscular power is still well preserved. This therapy is also appropriate in the pre-ataxic stage, because the patient trains his musculature, knows how much he is able to accomplish, improves incorrect attitudes, and the ataxia cannot attain a very high degree.

But in the paraplectic stage we must not remain idle either. It is true, in this condition the task of the physician is much more difficult, but I know from my own experience that even at this stage results may be obtained. But there are also contraindications for this cure, viz., optic atrophy, because the expedient of facial control necessary for the exercise is absent, general debility, if it cannot be remedied any more, extremely faulty attitude of the body, affections of the heart and kidney, and severe gastric crises.

To be successful with this therapy it is necessary, above all, for the patient to be willing; he must be made to understand the object of this treatment, in short, it is necessary for him to possess a certain amount of intelligence. For there exist a number of patients who rather remain in the diseased condition to which they have become used, than to subject themselves to new inconveniences. To obtain at once an idea as to the eventual success of the cure, it is advisable to have the patient make the following movements, which, of course, are continued later:

(a) In the recumbent position:
1. Raising and lowering of the legs.
2. Knee-bent position.
3. To place one leg over the other.
4. Lateral stretching and drawing back of the legs.
5. To slide the heel of one foot over the shinbone of the other leg.
6. To hit a certain point with the tip of the foot.
7. To move the foot in certain directions in the bed.
8. To raise and cross both legs.

(b) The same exercises to be made when sitting.

(c) Standing.

1. With the eyes closed:
   (a) With the hands on the double bars or the walking chair:
   1. Standing free with the feet spread apart.
   2. Standing free with the heels together.
   3. Standing free with the feet together.
   4. Standing on the tips of the feet.
   5. Standing on the heels.
   6. To place one foot in front of the other.
   7. To place the feet in a line, one foot in front of the other.
   8. To stand on one foot.

(b) The same movements with hands on the hips:

(d) In walking:
To turn, turn about, walk with support (cane, walking chair, running bar). Walking without support. Walking on a line. Walking backward. Walking on the stairs. Then follow movements with the hands, and later movements of the body in different directions. The patient sits down again, stands up, stands on the tip of his toes, tries to remain erect with the knees bent, stands on one foot, etc.

After this, obstacles should be placed into the way of the patient.
He should learn to walk up and down stairs.
In ataxia of the hands, simple drawings should be made, pegs should be put into the holes of a board, swinging balls caught, pieces of wood and money should be sorted out.

It is very appropriate to make the patients execute these movements with apparatus especially constructed for the purpose. In the first place, this gives the patient a good deal of change and, furthermore, the physician has a better judgment as to the present grade of the ataxia. It would be beyond the range of this paper to describe all the different kinds of apparatus which exist for this purpose. I will only give the names and refer to the exhaustive work of Goldscheider in which an accurate description is given. These apparatuses are: The sleigh apparatus, the lattice apparatus, the running frame, running bars, walking chair, climbing chair, exercising board.

Before closing I have only to discuss the treatment of some symptoms of the disease.
One of the most dreaded complications of tabes is cystitis. Its occurrence is, in most cases, prevented by making the patient walk as long as possible. Should he be compelled to lie down, he should be made to change his position frequently. If, in spite of this, a cystitis occurs, flushing of the bladder should be resorted to, with boric acid, potassium permanganate, argentum nitricum, or ichthargon, in proper solutions. The latter drug has proved itself to be very valuable. It
contains 30 per cent. of silver. The patient should also drink much lemonade, and, eventually, urotropine should be administered.

In incontinence of urine the internal application of ergot, sodium iodide, is of value, but best is the application of the faradic current. One electrode is introduced into the rectum, the other placed on the abdomen. The electric method is also applied in incontinencia alvi. Impotentia ceundi can largely be cured. One may try Yohimbin, ergot, electricity, general and local massage, general treatment.

As to treatment of atrophy of the ocular nerves, the prospects are unfortunately, still more unfavorable than in impotence. Neither mercury nor electricity are of any avail. For the sake of comfort one may apply electricity.

In conclusion I will refer to arthropathies, which sometimes occur in tabes. The affection of the knee-joint is generally ushered in by genu recurvatum, which is caused by the faulty attitude of the body of the patient. Owing to their anesthesia the patients do not observe the joint affection until late. If this is present, rest and care, later the use of appropriate, very light apparatus will be necessary. Movement therapy is here, of course, out of place. In an eventual arthritis one should give lithia waters, like Salvator Quelle, or extr. chine Nanning, to improve the digestion and thus decompose the albumin. Chinic acid is said also to have a favorable effect upon uric acid. Externally one should apply the above mentioned packs of ichthyol-mud which are well able to remove the pain.

If neurasthenia be present, one should administer Fellow's Syrup, which has an excellent effect in all atomic neurasthenias. Of good service are also, besides proper diet, a mild hydrotherapeutic cure, faradomassage, change of climate, especially a stay in moderate altitudes.

Still more accurate details on tabes therapy can be found in my paper. "Therapy of Nervous Diseases."
At the meetings of the Baltimore Medical and Surgical Association held Monday, March 10 and April 28, 1902, the following papers were read and discussed:

"A Case of Tubercular Peritonitis, Laparotomy and Recovery," Dr. Randolph Winslow.

I first want to show a specimen that unfortunately came into my possession to-day. It is a specimen from a patient upon whom I did a gastro-enterostomy for cancer of the pylorus on Saturday last. The man, like a good many others, did well until he died. I have here the specimen showing the cancer at the pylorus and the operation which was done in which the two Murphy buttons used are here in position. Here is the small intestine attached to the posterior wall of the stomach and here the two portions of the jejunum in order to prevent bile from regurgitating into the stomach. At 4:30 this morning the patient was thought to be doing well, but a few minutes afterwards he was dead. I think there must have been a thrombus, embolism, or something of that kind. The conditions were these (illustrating on the board), at the pylorus was a mass which occluded the stomach opening so that food collected in the stomach and after awhile would be regurgitated, perhaps a quart at a time. The man was sixty-three years of age and had been living on his tissues for some time and was consequently in such a weak condition that I did not deem it proper to attempt to remove the growth, although it could have been done readily and perhaps it would have been as well to have done so. There were a few small nodules scattered over the anterior surface of the stomach also. I did not attempt to remove the growth at all, but did a gastro-enterostomy in this way (illustrating on the board)—it is an attachment of some portion of the small intestine to the stomach, either to the anterior wall, or to the posterior wall. The latter is the better where it can be done and in this case it could be done readily. Ordinarily a loop of intestine is pulled up and attached to the stomach, either by means of suturing, or the Murphy button. The operation here is one that so far as technique is concerned is certainly perfect. The intestine was cut across at this point (illustrating), near the junction of the jejunum and ileum and brought up here to the posterior wall of the stomach, so that food passes at once from the stomach into the small intestine. This other limb of intestine is then attached to the loop that we have pulled up and makes an anastomosis between the duodenal end of the small intestine and the far end so that the bile and pancreatic juices pass on into the descending loop instead of going up into the stomach. The man had no pain after the operation, no vomiting, and appeared to be doing perfectly well and was talking to the attendant early this morning, but a short time afterwards was dead, so that there must have been some complication such as heart clot, or embolus, or he simply gave out. There was nothing in the viscera to indicate any trouble in the abdomen. No peritonitis, no hemorrhage, so that in the absence of a systematic post-mortem examination the cause of his death must remain problematical.

I did yesterday another operation for a similar condition and simply attached the intestine to the front of the stomach by means of the Murphy
button, as there was quite an extensive, diffuse carcinoma, and he is doing very well to-day.

CASE OF TUBERCULAR PERITONITIS.

This youth came into the hospital August 11, 1900, a year and a half ago. He had been in good health at the institution from which he came, until in the summer of 1900, when he was taken with febrile symptoms, his temperature being lower in the morning and higher in the evening and he was sent to the hospital and kept in bed a number of days, his temperature chart suggesting typhoid fever and we came to the conclusion that he had typhoid. At the hospital the suspicion of typhoid fever was intensified by the fact that the Widal reaction was said to have been positive. Now here was a case with a certain amount of slow temperature of the typhoid kind, lower in the morning and higher in the evening, with some abdominal tenderness and some diarrhea. History of the grand parents of the boy was not known. Father living and in good health. Mother living: sometimes has attacks of unconsciousness. One sister and one brother in good health. No history of malignant trouble. Has had measles, mumps and scarlet fever when quite young, claims to have had typhoid fever about three years ago when he was in bed about six weeks. This latter fact we did not know at the time he was admitted. About four years ago he had attacks in which he would get dizzy and lose consciousness and remain so for about an hour. This would occur as often as three times a week. He has not had any of these attacks for several years. In August, 1900, he was attacked with pain in the back while at work in the shirt factory and had to stop work. He could not move himself without a great deal of pain. Had no appetite and lost a good deal of flesh in a few days. He was kept in the hospital at the House of Refuge for several days and then was brought in here, with a temperature of 101 and a pulse of 112. The Widal reaction being positive and with tenderness of the abdomen, diarrhea and emaciation he was treated for typhoid until his temperature dropped suddenly and it was thought that there was perforation. Previous to this we had been having quite frequent blood-counts made and no marked rise of leucocytes was found—15,000 or 16,000 at one time—and on having a number taken in one day we found the count falling rather than rising. He was taken in the middle of the night with severe pain in his abdomen which was very tender. There was some fluid in the abdomen and we thought probably we had to deal with a perforation and so I was sent for in the middle of the night and found him in a critical condition.

A laparotomy was done at once and much to our surprise we found no evidence of typhoid fever whatever, but his peritoneum extensively studded over with tubercles. A considerable amount of ascites was evacuated and the wound left open and drained with gauze. I did not expect the boy would live through the night and was considerably surprised to find him alive the next day. The fluid from the peritoneum did not show any tubercle bacilli. He had, however, tubercular peritonitis. The sinus healed slowly and did not close entirely. The granulations were soft and flabby and easily broken down. He was irrigated with a lotion of iodine. He was sent back to the institution with the gauze still in. In January, 1901, he came back to the hospital, the sinuses were curedt
out and the right rectus muscle was cut across as one of the sinuses ran in it and would not heal. A large amount of tuberculous tissue was found. It afterwards became necessary to cut across the other rectus muscle in the same way. In the course of time we succeeded in getting healing of these sinuses. The boy is here before you and you can take a look at him. As you will see from the chart which I will pass around the temperature is very suggestive of typhoid fever and the idea of tubercular peritonitis was not entertained at all until after the opening had been made. Perhaps if proper attention had been paid to the statement that he had had typhoid three years previous not so much importance would have been attached to the positive Widal reaction as it is well known that this reaction may be had quite a long while after such an attack, but I did not know it at the time and thought there was no doubt that we were dealing with a case of typhoid fever. After operation his temperature rapidly fell and then was sub-normal for some time. It has been a year and a half since the operation now and you can see that the boy doesn't look very tuberculous now. He is in good health, but you see he has an abdomen that has been pretty badly used up and which requires him to wear a bandage of some kind to prevent the occurrence of hernia which has already developed to some extent. It is as fortunate for the boy that the operation was done as though the diagnosis had been correct, or more fortunate, for if the diagnosis of perforation had been correct the boy would probably not be here now. It is well-known that cases of tubercular peritonitis are not infrequently cured by operation—the opening of the abdomen and exposure to air and light. In this case not only was the abdomen exposed but also well drained for quite a long time.

DISCUSSION.

Dr. Brinton: I have had three patients with tubercular peritonitis operated on for the purpose of curing them, but they all died within a week or two after the operation. If I am not mistaken I have within the past few weeks read that the operation for the cure of tubercular peritonitis is not any longer sanctioned. I am glad to see this case as it is the first one I have ever seen benefited by operation.

Dr. Winslow: I have not looked up the matter particularly of late, I know that it was only recently that it was regarded as the proper operation and I am not aware that professional sentiment has changed in regard to it. Certainly if one case in fifty recovers on operation it is a proper procedure, for it is, so far as I know, the only way in which they ever do recover. This is the second case I have operated on and the other one was done deliberately, believing that it was a case of tubercular peritonitis and it was found to be a case of post-peritoneal tuberculosis. That patient died.

Dr. Brinton: That was my own impression until I read recently in one of the journals that the operation for the cure of tubercular peritonitis was being abandoned by the men who had been doing it.

Dr. Winslow: In one other case where I operated for intestinal obstruction the intestines were found to be covered with nodules that had every appearance of being tubercular and the patient is still in good health now. The nodules upon the intestine were distinct and of a pearly gray character. She was a thin, spare woman, and, made a practically uneventful recovery.
THE TREATMENT OF TUBERCULOSIS WITH UREA—DR. PENNINGTON.

Dr. Pennington said that his attention had been called to the treatment of tuberculosis with urea by reading an extract from a paper published in the *Lancet* by Dr. Henry Harper on this subject in March, 1901. Dr. Harper reported nine cases treated with urea successfully. He claimed to have found, in looking over his notes of the family history of his patients, that families showing a marked tendency to gout, gravel and calculus, rarely suffer from tuberculosis and quoted Harris and Beal, in their work on "Pulmonary Tuberculosis," as saying: We have ourselves seen a complete arrest or cure of pulmonary tuberculosis, considerably advanced, in a case of a patient who suffered severely from an intercurrent attack of gout. He believes the immunity to tuberculosis found in some persons, is due to the kind of food taken by them, food rich in albumin, and highly nutritious, supplying the system with a greater amount of urea and uric acid, urea possibly being an antitoxin to the germ of tuberculosis.

Dr. Pennington said that in his practice he could call to mind two cases that would bear out this theory. One case a lady who lost her mother, two brothers and a sister from tuberculosis, she having nursed her brothers during a period of long illness and at a time when it was not thought necessary to disinfect the sputa. She had always been a hearty feeder, living mostly upon highly nutritious food, rich in proteids, as a result of which she has long suffered from an excess of urea and uric acid in her system, being highly neurasthenic and at times rheumatic. But she has entirely resisted the infection of tuberculosis.

The other case, a lady, lost her husband and three children from tuberculosis, all of whom she nursed during their illness, extending over a period of five or six years. She too was of a uric acid or rheumatic diathesis, and, escaped infection.

Dr. Pennington said that he had at the present time two cases of consumption under treatment with urea, one, a Mrs. M., aged 39 years, white, married 19 years, has had three children, the youngest child being 14 years of age. She lost one brother at the age of twenty-two and one sister at the age of twenty-eight, with consumption. Her father and mother living and healthy. Three years ago she had a profuse uterine hemorrhage, from which she was extremely exhausted. Shortly thereafter she commenced coughing and did not fully recover from the exhaustion caused by the loss of blood. Her expectoration soon became purulent and upon examination showed the presence of the tubercle bacilli. In short she developed all the symptoms of incipient tuberculosis, the apex of the left lung being the seat of the trouble. She was put upon creosote in increasing doses, and good food, when she had appetite enough to eat and advised to live as much of her time as possible in the open air. She continued much in the same condition, at times seeming to gain something, and again failing, until last October. On the 13th I commenced giving her urea in 10 gr. doses three times a day and within one week there was a marked improvement in her condition. She stopped having fever, her cough became better, her appetite improved, expectoration was less, her strength improved, and indeed in about three weeks she declared herself well. Of course she was not well, but, she was feeling so much
had been for three years, that she really felt well. During this time an acute attack of rheumatism came on, in her shoulder, and on stopping the urea for a few days it passed off. As she became better she relaxed in taking the medicine and improvement in her condition ceased. She is at present taking 20 gr, three times a day and is again improving. The second case has not been taking the urea long enough to enable us to say much about the result. In addition to giving the urea the patient is advised to eat as much of kidney, liver, brain and beef as possible and to live in the open air most of her time.

Dr. Pennington said he simply brought the subject up hoping to bring out in the discussion some facts in regard to the physiological effect of urea in health and disease rather than to claim a new cure for tuberculosis.

DISCUSSION.

Dr. C. Irvin Smith: I would like to ask the doctor if he has not seen chronic interstitial nephritis exist along with tuberculosis? I am sure I have and if an excess of urea in the system would cure the tuberculosis I should not think they could exist together. The patient would succumb quicker to that condition than to tuberculosis. I have a case now in which tuberculosis developed after chronic interstitial nephritis that had existed for ten years. It seems to me that would combat the theory that if the system were saturated with urea it would prevent the tubercle bacilli from taking hold.

Dr. Pennington: In answer to Dr. Smith I would only say that my experience with the treatment has been limited to this particular case. Dr. Harper claims that tubercle bacilli will not grow in a culture impregnated with urea. Of course whether urea retention in the system would prevent the growth of the bacilli I cannot say as this is the only case in which I have tried it. She improved more rapidly under that treatment than with anything else.

Dr. Smith: I would like to suggest that it would be interesting to make a solution of urea that would destroy tubercle bacilli and then ascertain if it could be administered in that percentage without causing uremia.

THE SERUM TREATMENT OF TUBERCULOSIS: REPORT OF CASES—DRS. STEVENSON, ROWLAND AND KEOWN.

Dr. H. B. Stevenson: I mentioned a few days ago that I had been treating a case of tuberculosis with the serum, but I had not intended to report the case at this time.

The case came into the hospital with typhoid fever on October 18, supposed to be in the thirteenth day of the disease. He was treated by Dr. Street and progressed very nicely, over a variable course, but, about the middle of November developed a running temperature, rising every evening. On the 19th of December, his sputum being examined was found to be loaded with tubercle bacilli. On leaving the hospital, November 28, he placed himself under my care. Both lungs were involved; his temperature was running 99-103; his cough was intense—coughing all the time; his normal weight had been 160 pounds and he then weighed 130; his sputum was loaded with tubercle bacilli. On the 24th of December, having heard from Dr. Rowland of his success in a case treated with
serum, I started to use it in my case, beginning with 8 minim dose, seeing him every day for four or five days. On the 28th of December he had his last night-sweat; had none on the 28th and has had none since. I increased the dose 1 minim every other day until the first day of January, after which I increased it only 1 minim every fourth day, until the 20th of January, when he was taking 18 minim. The cough at that time had not disappeared. I sent him in to Dr. Street on the 1st of February at which time the physical signs had all disappeared. He gained from the 24th of December to the 10th day of January, 16 days, 19 pounds in weight. His temperature went to normal on the 27th of December. On January 4 he had a rise in temperature and I found that he had a large abscess of the rectum which I opened and the next morning his temperature was normal again and remained so until the 10th, when he had a pronounced chill and his temperature went up to 100.2. I put him on quinine and in a day or so his temperature was normal again. Up to the 7th day of this month, when I saw him last, his temperature remained normal. He went to work; he is a fireman and fires two boilers. Says he has no discomfort whatever. I am seeing him every fourth day and he is taking 22 minims of the serum every fourth day. On the 16th day of February he complained of feeling badly and was not well for the next two days. On questioning him I found that he had put the serum outside the window and it had frozen and then been thawed out. Whether that had anything to do with his illness or not I do not know. He at the same time had a profuse diarrhea that lasted for two days. On new serum he got all right and has been improving ever since. He still has a few tubercle bacilli in his sputum, but he has gained 22 pounds since I first commenced the treatment and now weighs 152 pounds.

Dr. Rowland: The only case in which I have used the treatment successfully occurred so long ago, and having been unable to verify the good results in that case several times since, that I had not intended to report it. I have, however, treated several cases with the serum. The first and only successful case I had is worth reporting.

I was called to see the case, a girl I had known from childhood and whose family I had known all my life. It was a perfectly healthy family, with no history of tuberculosis at all. The girl was living in the country, in the hilly portion of Cecil county, her home itself being on a hill. She had a pleasant, beautiful home with good environments, where you would surely not expect tuberculosis to develop. She was about thirty years of age and her previous history was very good. I saw her in the spring of 1890, but not professionally. At that time she said she had a slight cold. It was sometime in April or May and I did not prescribe at that time. In June I was asked to see her and found her evidently suffering from tuberculosis. The case seemed to be one of intense infection. There was considerable loss of flesh. Normally she had weighed 130, but had lost a great deal. She had night-sweats and a very distressing cough. In the evening of each day there was a rise of temperature, to 101 or higher. The cough was so intense and troublesome that she could not sleep and she was rapidly emaciating, was able to neither eat nor sleep, and was going down very rapidly. I suggested the usual remedies and believe my instructions were carried out faithfully as the family was a very intelligent one and she was under the care of a very capable physician. In August I
found that she had declined very rapidly. The girl was then weighing only 90 or 95 pounds and was growing rapidly worse. The temperature was 101.2 every evening and the other symptoms, night-sweats, cough, etc., were still present. Just about that time there appeared in the journal of the American Medical Association two articles, both praising very highly the merits of the serum. As the case was so rapidly growing worse I suggested that if there were anything in these articles the serum offered a chance for relief. It was the latter part of August before I could secure the serum and then it was given. It was begun with doses of 2 minims the first day and increased 1 minim a day up to 20 minims. It was kept at this until it had been given for a month or six weeks. Ordinarily it is begun with 5 minims doses and increased rapidly up to 20 minims, then a rest given. We followed the directions on the bottle, except that we ordered smaller doses at first as it was claimed that sometimes unpleasant reactions occurred.

The first report, about a month after the treatment was begun, was a very agreeable one. The temperature was almost normal, the cough was less and the progress of the emaciation had been checked. The girl was able to go about and could sleep some at night. The case gradually improved, although the bacilli remained present in the sputum for some months. She took the treatment constantly, except for ten day intervals occasionally, for about nine months, at the end of which time the bacilli had disappeared, the cough had absolutely disappeared and the girl was weighing 135 pounds which was more than she had weighed before becoming sick. She is now in good health and is working.

If the girl had been taking nothing but the serum this would be a remarkable case, but she did not stop any of the other treatment that had been prescribed, but, up to the time of the beginning of the serum treatment she did not improve and from the beginning of its use she did.

In the other cases in which I used the serum such success was not attained. There was quite an amount of lung destruction in these cases and nothing is claimed for the serum under such conditions. Where destructive lesions are present to any great degree the serum seems to have but little effect. All these cases were in an advanced stage. One of the bad effects which it had in all except the first case is that it caused at the point of insertion, and all about it, an intense edema; no pain, no serious symptoms except this swelling near the point of insertion. I understand that this is not so of the newer serum.

Dr. Keown: Some two years ago the use of the serum was called to my attention and we had at that time at St. Agnes six cases of tuberculosis I decided to try it. One of the tests demanded at that time was the test with Koch's tuberculin. I used it and got a reaction in all six of the cases. Three of them had cavities and were in the advanced stage of the disease. The fourth one had had the disease for a long time, I think about two years and was rapidly going down, and the fifth and sixth cases were in practically good condition. One of them showed a slight lesion in the infra-clavicular space on the right side, the rest of the lung seeming to be fairly normal. The sixth case was that of a young boy, who had been in the hands of other physicians and pronounced tuberculous. I could not find anything but a slight hyper-resonance at the right apex, but on the injection of tuberculin got a decided reaction within eight hours. This
boy I continued to treat for five months. At the end of the fourth month I got a slight reaction with tuberculine. At the end of the fifth month I could get no reaction at all, and, since then he has been well and seems to be getting along nicely.

The case that had the small lesion in the infra-clavicular space on the right side gave no results for two months. The injections were given every day, except with slight intermissions. In the third month the patient gained 15 pounds; during the fourth month there was a corresponding gain. Then, for some reason, she refused any further treatment, insisting that she was well. I could not induce her to continue the treatment, but I have heard from her since and she is doing well. These were the only cases in which I got good results. I think these two cases were practically cures. The other cases died, although I got fairly good results with them: the expectations held out for the serum were realized; the night-sweats and the cough were relieved, but there was no permanent results. Nothing whatever is claimed for the serum in cases where there are cavities. On the other hand it is claimed that in cases where there is a limited amount of consolidation forty or fifty per cent. of them can be permanently cured. The greatest claims for the serum are in the incipient cases of the disease. From a long table of statistics supplied with the serum one would be led to believe that perfect results are had in these cases. So far as my use of the serum is concerned it has been satisfactory in those cases in which claims are made for it.

I have since recommended the serum to a physician in the city in a case of the hemorrhagic form and he used it and reports that the case is doing remarkably well; that the hemorrhages have ceased since the administration of the serum; that the cough has cleared up and the general condition improved, so that the patient is able to attend to his regular duties of life.

**DISCUSSION.**

Dr. Craighill: I would like to ask what is the nature of the serum and how is it obtained.

Dr. Keown: Any information on the subject can be obtained from Jno. T. Milleken & Co., of St. Louis. It is produced from the horse as the other serums are.

Dr. Rowland: The serum is in the nature of an antitoxicin and is prepared like the other antitoxins, in which respect it differs from the tuberculin.

Dr. Jos, T. Smith: I do not think any other disease shows as many vagaries in its activities as tuberculosis and the experimental results are certainly at great variance. There is no doubt but what many of the cases do as well under what might be called normal conditions of treatment that is diet, hygiene, fresh air, etc., as under any others.

I have in mind the case of a young man, an athlete, who come to me one day and said he had been examined by his physician who told him that he had something in his sputum. I could scarcely believe it, but it was true and he developed night-sweats and cough, and had loss of appetite and emaciation. I sent him to the mountains of North Carolina and he has been practically restored to health.

I had another case, a woman, who suffered seriously with tuberculous hemorrhages, in one or two of which they thought she would die
from the amount of blood lost. She entirely recovered and lived twenty years after that.

These cases are more or less common to all of us and it argues to my mind that there are regenerative processes in the body which we do not yet understand and that possibly in many cases the remedial agents employed are not at all responsible for the results obtained.

Dr. Stevenson: I would like to say that the case I reported and which as I said is not well but greatly improved, had nothing else but the serum treatment; no cod-liver oil, nor anything else and he continues in an improved condition now when he gets up and works at a laborious employment from two or three o’clock in the morning until eight o’clock at night.

Dr. Ingle: I would like to ask if Dr. Trudeau is using the treatment?

Dr. Stevenson: I have been informed to-night that Dr. Trudeau is using it extensively.

Dr. Ingle: I had a case a few years ago in the incipient stage which I sent to Dr. Trudeau. The patient expects to come home in May and Dr. Trudeau writes that he is practically well. I do not think the serum treatment was used in this case.

Dr. Richardson: Dr. Hill tried the serum at Mt. Hope in some not very satisfactory cases and we had some very disastrous results. They all died in about fourteen days after the commencement of the treatment.

Dr. Chas. O’Donovan: I would just like to say a few words in regard to this matter. I haven’t had any experience with the serum whatever, but I think it is well to remember some few points that would clear the way to a proper use of this or any other remedy for eradicating tuberculosis from the system.

Consumption when we see it is practically never a simple case of tuberculosis. Almost invariably there is a mixed infection and I think that any serum or treatment directed entirely to tuberculosis—admitting that it would be efficient against that disease itself—would not, in all human probability have any effect at all on the other organisms which are producing, in the vast majority of cases, the symptoms, night-sweats, high fevers, rigors, etc., spoken of as “hectic.” In all probability a streptococcic or other infection has been engrafted on the tubercular infection and is playing the great havoc.

It is out of the question to expect any kind of anti-tubercular treatment to effect an altogether different organism, so you can put these cases out of the record entirely.

Now, let us suppose it is a case of tuberculosis, pure and simple. Ordinarily cases of this kind are met with very early in the course of the disease. We see it in children over and over again, the glandular infections, etc., which can easily be proven to be tuberculous. The possibility of curing these cases is the one that we ought to consider, and individually, I am prepared to accept the possibility of doing this in some way. I believe it is possible for the laboratories to evolve some specific treatment which will enable the human body to throw off tuberculosis. We have it now in diphtheria and other diseases. Every one of us at some time breathe in tubercle bacilli and it is only because we are capable of manufacturing something within ourselves to counteract their effect that we do not develop the disease. It is along this line that the work will be
done. Whether it is along the line of this serum, or something else, it is not possible to say as yet. But, let us understand what we are doing. It is useless to try to cure the advanced cases where other infections have been engrafted upon the tubercular condition. It is possible always to prove tuberculosis, by the expectoration, or with Koch's tuberculin and you can be sure that you have not a mixed infection by the charts. These running charts, with high fevers, up and down, are almost invariably mixed infections and not pure tuberculosis.

THE EFFECTS OF EXCESSIVE ALCOHOLIC STIMULANTS.

We would like to call the attention of our readers to the address of Dr. Bisbee, which was published in the March number of this journal. It contains much food for thought for the medical examiner, and for that matter is important to all medical men. Kidney and liver trouble, with its consequent heart failure and arterial degeneration, is so common nowadays that it behooves one and all of us to carefully inquire into the habits of our patients and of those examined for insurance. As Dr. Bisbee aptly says, an applicant will always minimize the amount of alcohol consumed. The steady drinker is a more dangerous life risk than the occasional one who gets drunk. The constant presence in the blood of the deleterious products produced by alcohol will ultimately lead to degenerative changes in the vascular apparatus, and connective changes are sure to follow. Examiners can, by tact, frequently arrive at a proper judgment of the habits of an applicant, and at the time of the examination observe the force and volume of the pulse. They can also ascertain its tension, and thus be able to judge of the condition of the arterial changes. Then again by carefully examining the heart sounds, as to regularity, rhythm, accentuation and rapidity, they can form a fair idea as to its condition. By carefully mapping out the cardiac area they can gather whether or not it is enlarged, and if so, the direction in which the enlargement extends. By carefully comparing this data with the habits of the applicant, often a judgment can be reached which will enable the examiner to say whether or not any cardiac changes have taken place. One of the most dangerous cardiac changes, which is sometimes present but often overlooked by the hurried and careless examiner, is a fatty degenerated heart with dilatation. This condition is sometimes present in those individuals who combine over-indulgence in alcoholic stimulants with extreme physical exertion; the athletic heart of the middle aged person. These are dangerous cases for the life insurance company. We recommend a careful study of Dr. Bisbee's paper.—Indiana Examiner and Practitioner.
EDITORIAL.

THE DIAGNOSTIC FEATURES OF SMALLPOX.

At a recent meeting of the New York Academy of Medicine, Dr. Frederick H. Dillingham, one of the diagnosticians of the New York Health Department, discussed this subject. He said that while there should be no difficulty in recognizing a typical case of smallpox, the unusual ones cause the trouble, and there are even some where it is impossible, at any stage of the disease, to make a positive diagnosis. Nearly all of the literature on the subject is misleading as far as it relates to the mild, obscure cases, and it is not surprising that the average physician, who sees smallpox only in rare instances, should fail to recognize its lighter forms.

In the text-books, the period of incubation is generally given as from twelve to fourteen days. While this statement, as a rule, is correct, the incubation period is often longer. He recalled one case where it was fifteen or sixteen days, and there are instances where it has been as long as twenty-one days.

The period of invasion is usually given as three days. While this again applies to the majority of cases, there are many instances where there is no period of invasion at all, and where the first symptom noticed is the eruption.

Again, it is stated as a diagnostic point that in smallpox we do not have papules, vesicles and pustules in the same area. That is not
true. He had observed a number of cases where vesicles, papules and pustules were scattered over the same area, and, in addition to these, lesions where desiccation had already taken place.

The throat is usually one of the first localities where the lesions of smallpox appear, although they are not invariably found there. Still, in every suspicious case we should carefully examine the mouth and throat, and by so doing we will sometimes be able to make the diagnosis before the appearance of any lesions on the skin. In regard to the differential diagnosis between scarlet fever and hemorrhagic smallpox, there is one point of great value. If there are conjunctival hemorrhages, you are dealing with a case of smallpox, not scarlet fever. The preliminary eruption of smallpox usually appears first in the groin and next in the axilla. It is sometimes seen on the body, but not as a rule. The regions mentioned are not those in which we usually get the early eruption of either scarlet fever or measles.

The temperature in smallpox usually falls on the appearance of the eruption, but this rule is not invariable. In a certain proportion of cases the temperature will not fall on the appearance of the eruption, but is maintained for several days later.

In differentiating between varicella and smallpox, the statement is usually made that the vesicles in the former disease are very superficial. Dr. Dillingham said that in some cases of smallpox the vesicles are just as superficial as in varicella, and he has seen a number of cases where the only lesions present were vesicular in character. The presence of lesions on the palms and soles is generally regarded as evidence that we are dealing with smallpox and not chickenpox, but he has seen a large number of cases of smallpox, and severe ones, where there were absolutely no lesions on the palms; on the other hand there are cases of chicken-pox in which lesions on the palms are present. In fact, there is no symptom that can be absolutely relied upon in distinguishing between smallpox and chicken-pox. As far as the prodromal symptoms are concerned, they may be as severe in the latter as in the former, although they do not last so long:

As regards the course of the eruption in smallpox, it is very variable. The preliminary papular stage may be entirely absent, or we may have no vesicles or pustules, or we may have to deal with the so-called hemorrhagic form of the disease. As regards the location of the lesions, while the mouth and face and wrist are usually first attacked, there are cases where, without any local application having been made, the lesions appear first on the body, sometimes a number of hours before there are any on the face.

As to the value of vaccination after exposure, Dr. Dillingham made the positive statement that if a patient is vaccinated at the
EDITORIAL.

233
time of exposure, and the vaccination proves successful, that patient will
not have smallpox. If he is vaccinated several days after exposure,
it may not prevent him from having smallpox; the effect it then has
will depend upon how far the vaccination has developed. If the areola
is well marked before the eruption appears, it will modify the disease
to a greater or less extent. If a person is vaccinated two or three
days after exposure, it will modify the disease, but it is a question
whether it will prevent it; in some cases it may prevent it; in others
it will not.

MEDICAL ADVERTISEMENTS IN THE NEWSPAPERS.

At a recent meeting of the Kansas City Academy of Medicine, the
following set of resolutions were adopted:

"Whereas, It can and has been shown, by ample statistics, that the
American race is rapidly decreasing in its birth-rate, thereby threaten-
ing ultimate and complete decadence of the race, and Whereas, Such
decadence has become so apparent that it should claim the serious at-
tention of those of influence and power to in any degree lessen this
evil, and Whereas, Without a special effort to investigate, it must have
been observed by the most indifferent with what flagrant violation of
all sense of delicacy the public press gives place to advertisements of
nostrums and means intended to prevent or cut short pregnancy; these
advertisements appearing in a column of the paper set apart for such
purpose under the name of "Personal Medical Advertisements," and
referred to as "Guarantees," "Sure Relief," "Sure Prevention," etc.,
occupying in some Sunday editions of reputable papers as much as
two columns, destined to fall into the hands of all classes, and Whereas,
We recognize the press as a most potent factor in the education of
the masses; be it Resolved, by the Academy of Medicine of Kansas
City, Mo., that we respectfully recommend that a censorship over the
public press should be exercised to the end of correcting such practice
of publishing advertisements as those referred to in the foregoing. Be
it further Resolved, That it should be deemed of sufficient moment for
the attention of the Post Office Department of the United States of
America restricting or prohibiting the distribution of such papers, peri-
odicals or magazines through the United States mail, to be called to
the matter, if they continue to so prostitute their columns. And be it
further Resolved, That a copy of these resolutions be sent to every State
Medical Association in the United States, urging their co-operation
in this movement by the adoption of these resolutions. Resolved, That
we request the secretary of every State Medical Association adopting
these resolutions to forward two copies, one to the American Medical
Association and the other to the Postmaster-General, petitioning for relief from this destructive influence."

While we heartily indorse these resolutions in their entirety, we especially desire to emphasize the evils resulting from a certain class of personal medical advertisements which regularly appear in many of the prominent daily and weekly papers. In this city, during the past fortnight, at least three young, unmarried girls have died as the result of criminal operations done by professional advertising abortionists.

In one column of a leading New York daily paper we read the pitiful story of an inexperienced girl who was led astray by a man twice her age, and who paid for her indiscretion with her life. In another column of the same issue is the following advertisement, selected at random from numerous similar ones, equally suggestive:

Female irregularities immediately relieved by the latest scientific method: $10; POSITIVELY GUARANTEED. Perfectly safe and harmless; SATISFACTION.

The proprietor of this particular newspaper—and we only refer to him as an example of many others—is supposed to be very wealthy, and he receives the credit of directing the policy of his paper in all its details. Has he ever seriously considered that his column of personal medical advertisements, from which he derives a handsome income, is paid for by unscrupulous men and women, who, for the sake of a few dollars produce a criminal abortion, and not infrequently murder not only the unborn child, but the mother as well? His conscience has probably never told him that he is morally an accessory to such crimes, and perhaps it never will, but we trust to see the day when the suggestion of the Kansas City Academy of Medicine will be adopted, and the Postmaster-General of the United States will debar from the mails all papers, periodicals and magazines which prostitute their columns to such purposes.

SUBSTITUTION.

A most valuable legal decision, of the greatest importance to doctors, on the substitution evil, has been handed down by Judge Fessenden of the Superior Court of the State of Massachusetts in the case of the M. J. Breitenbach Company, plaintiff, vs. Henry Thayer & Company, defendant, in which he enjoin the latter firm by injunction from putting upon the market an imitation of the preparation of the plaintiff's.

Briefly the facts of the case are as follows:

The M. J. Breitenbach Company are the proprietors of an ethical pharmaceutical preparation known as Gude's Pepto-Mangan, which, technically speaking, is a peptonate of iron and manganese. Prior to
the exploitation of this preparation, its manufacturers expended a vast amount of money in perfecting it and demonstrating clinically and otherwise its therapeutic value. Having definitely determined its utility, manufacturers, by commendable methods, brought it to the attention of the medical profession generally, and as a consequence of the universally satisfactory results attending its employment in the wide field in which it is indicated, a large demand for it was created. Henry Thayer & Co. thereupon concocted a preparation styled Iron Peptonate Manganese, which they alleged to be identically the same as Gude's Pepto-Mangan and adopted as a container, therefore, a package sufficiently similar in appearance to that of Gude's to deceive the buyer or consumer.

It was shown conclusively at the trial that this similarity of containers was not the result of an accident, the resemblance in appearance having been deliberately planned by Henry Thayer & Co., for the purpose of misleading those acquainted with the merits of Gude's Pepto-Mangan. So much for the external appearance of the two preparations.

It was also proven conclusively that Henry Thayer & Co. did not submit samples of their concoction to the members of the medical profession, as is the custom in such cases (which custom was followed by the M. J. Breitenbach Co.), nor did they in any way whatsoever invite or encourage physicians to inquire into its value. On the contrary, they sold it direct to retail and prescription pharmacists, for the evident purpose of having them employ it as a substitute for Gude's Pepto-Mangan.

That the concoction is not the same as Gude's Pepto-Mangan, save in external appearance, was shown by Dr. Ogden, demonstrator of chemistry of Harvard University.

Dr. Ogden further proved to the entire satisfaction of the court that Henry Thayer & Co.'s Iron Peptonate Manganese was not a peptonate as alleged by them, it being nothing more than an unstable albuminate. This fact is of infinitely more importance to the physician than any other feature of the case, for the reason that it evidences the great danger of substitution and explodes the time worn "just-as-good" theory.

Heretofore substitution was supposed to have been limited to small concerns, principally retail and prescription pharmacists, and many have been inclined to believe that its practice was exaggerated by medical and pharmaceutical journals for the purpose of increasing their popularity with manufacturers who make liberal use of advertising pages. This cannot be said of the case in question, for Henry Thayer &
GAILLARD’S MEDICAL JOURNAL.

Co. have for many years conducted an enormous business, and were supposedly perfectly honest.

As a matter of fact, few physicians have any conception of the extent of the dastardly practice of substitution. And singular as it may seem, it generally occurs where least expected, which fact renders it highly important that the physician should exercise the utmost discrimination in selecting dispensers of his prescriptions. It is also obviously to his advantage to cultivate more intimate relations with reputable manufacturers, for it is they, after all, who supply a majority of the agents employed at the present time in the healing art.

A manufacturing pharmacist knows full well that if his preparation does not possess actual and unusual merit he will bankrupt himself in an endeavor to create a profit-bearing demand for it; hence business instinct prompts him to thoroughly demonstrate its therapeutic value before he enters upon the expensive task of creating a demand. The substitutor, on the other hand, has no desire to create demand. He waits until a manufacturer has invested thousands of dollars evolving a product, which on accounts of its merits meets with a demand, then he perpetrates something resembling it in appearance for the purpose of profiting by the existing demand, regardless of the merit of his own mixture.

When a manufacturing pharmacist offers a preparation to the medical profession, he is, very properly, required to disclose its formula. This exposes him to the vast army of substitutors, endangers the fortune he has expended in producing, perfecting and introducing the preparation, and materially lessens his reward for honest toil. And it is, to use a slang phrase, “up to” the medical profession to protect as far as possible his interest by resorting to every known means of preventing substitution where his product is prescribed.

Substitution not only deprives the manufacturer of his just reward, but it invariably jeopardizes the life of the sick and the reputation of the physician.

Of the house of Thayer we might say, “To err is human.” Temptation should not be placed before those who are morally weak. No more pathetic picture can possibly be drawn by the imagination, than that of a firm which, after spending years in an honest endeavor to pencil upon the sands of time a good impression, at the very sunset of its life falls from grace, becomes and aids and abets substitutors, and sees the fruits of labor washed away by a flood of tears.
Clipping from American Medicine
Aug. 31st 1901
P. 349

4.—White, in his article on the physiologic action of petroleum, gives the following summary: It is (1) inhibitory to the growth of putrefactive and pathogenic bacteria, such as are met in the alimentary canal, while it does not inhibit or interfere with peptic or pancreatic digestion; (2) and therefore is an agent for relieving flatulence by preventing fermentation; in fact it acts the part of an internal antiseptic; (3) by its action in stimulating peristalsis, increasing diffusibility of intestinal contents, it not only increases nutrition and weight, but helps the natural movement of the bowels, by its lubricating power relieves constipation, and favors the elimination of noxious and toxic products from the system. As to its weight increasing action he states that the weight gained under its influence is much greater in proportion than it or any other oil could afford, even if digested and absorbed, and that petroleum is perfectly incombinable chemically, and indigestible, but the result of the experiments in this direction at once shows that though this be the case, yet when the emulsion is mixed with digested food material, the effect is very different. [H.H.C]

5.—Robinson, in his article on the treatment of arthritis, suggests the following:

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**INDEX TO ADVERTISERS**

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonol Chemical Co.</td>
<td>2</td>
</tr>
<tr>
<td>Angier Chemical Co.</td>
<td>19</td>
</tr>
<tr>
<td>Antikamnia Chemical Co.</td>
<td>9</td>
</tr>
<tr>
<td>Auto Chemical Co.</td>
<td>14</td>
</tr>
<tr>
<td>Bermuda S. S. Co.</td>
<td>20</td>
</tr>
<tr>
<td>Bovinine Co.</td>
<td>6</td>
</tr>
<tr>
<td>Breitenbach, M. J., Co.</td>
<td>4</td>
</tr>
<tr>
<td>Chesterman &amp; Streeter</td>
<td>24</td>
</tr>
<tr>
<td>Clark &amp; Roberts</td>
<td>26</td>
</tr>
<tr>
<td>Cortezalin Co.</td>
<td>16</td>
</tr>
<tr>
<td>Crittenton, Charles N., Co.</td>
<td>3</td>
</tr>
<tr>
<td>Cystogen Chemical Co.</td>
<td>3</td>
</tr>
<tr>
<td>Dios Chemical Co.</td>
<td>16</td>
</tr>
<tr>
<td>Farbenfabriken of Elberfeld Co.</td>
<td>28</td>
</tr>
<tr>
<td>Fellows &amp; Co.</td>
<td>27</td>
</tr>
<tr>
<td>Globe Mfg. Co.</td>
<td>27</td>
</tr>
<tr>
<td>Kress &amp; Owen Co.</td>
<td>13</td>
</tr>
<tr>
<td>Immune Tablet Co.</td>
<td>10</td>
</tr>
<tr>
<td>Laughlin Mfg. Co.</td>
<td>24</td>
</tr>
<tr>
<td>Lippincott Co., J. B.</td>
<td>21</td>
</tr>
<tr>
<td>McGuire, Stuart, M.D.</td>
<td>14</td>
</tr>
<tr>
<td>Melling's Food Co.</td>
<td>28</td>
</tr>
<tr>
<td>Micajah &amp; Co.</td>
<td>2</td>
</tr>
<tr>
<td>Mumm, G. H., &amp; Co.</td>
<td>18</td>
</tr>
<tr>
<td>N. Y. Pharmaceutical Co.</td>
<td>10</td>
</tr>
<tr>
<td>Od Chemical Co.</td>
<td>12</td>
</tr>
<tr>
<td>Parke, Davis &amp; Co.</td>
<td>5</td>
</tr>
<tr>
<td>Peacock Chemical Co.</td>
<td>15</td>
</tr>
<tr>
<td>Perfection Chair Co.</td>
<td>22</td>
</tr>
<tr>
<td>Planten, H., &amp; Son.</td>
<td>12</td>
</tr>
<tr>
<td>Printers' Ink</td>
<td>24</td>
</tr>
<tr>
<td>Rio Chemical Co.</td>
<td>7</td>
</tr>
<tr>
<td>Robinson Thermal Bath Co.</td>
<td>26</td>
</tr>
<tr>
<td>Schering &amp; Glatz.</td>
<td>8</td>
</tr>
<tr>
<td>Scott &amp; Bowne.</td>
<td>18</td>
</tr>
<tr>
<td>Southern Railway Co.</td>
<td>20</td>
</tr>
<tr>
<td>Sultan Drug Co.</td>
<td>15</td>
</tr>
<tr>
<td>Speer, N. J., Wine Co.</td>
<td>25</td>
</tr>
<tr>
<td>Tincture Amiil Mfg. Co., Ltd.</td>
<td>11</td>
</tr>
<tr>
<td>Western Surgical Instrument House</td>
<td>22</td>
</tr>
<tr>
<td>Wheeler, Dr. T. B.</td>
<td>12</td>
</tr>
<tr>
<td>Williams, P. G.</td>
<td>23</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Edition</th>
<th>No. of Pages</th>
<th>No. of Indexed Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1073</td>
<td>4611</td>
</tr>
<tr>
<td>18th</td>
<td>2045</td>
<td>45,144</td>
</tr>
</tbody>
</table>

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Mailed ready to wear specially fitted for each case.
State measure of body—size of hernia, right or left, age, height and weight. Send for catalogue and life plates.

Chesterman & Streeter
Successors to J. B. SEELEY & CO.
25 So. 11th St. Philadelphia.

Some Men Pay

$10,000 for an expert to manage their advertising. There are others who pay $5.00 for an annual subscription to Printers' Ink and learn what all the advertisers are thinking about. But even these are not the extremes reached. There are men who lose over $100,000 a year by doing neither one.

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ADVISOR

LAUGHLIN MFG. CO.
Lovely Women in the Lagar
at the Quinto Celleiros, Portugal.

Girls treading Grapes, to music, wearing short jackets and short linen pants, but a great variety of headgear. A violinist, seated on the edge of the vat, fiddles while one or two of the damsels join in with their voices, keeping time with their feet, treading the grapes.

Rubber Rollers are Used for Crushing the Grapes to Make
Speer's Port, Burgundy, Claret and Other Wines,
Which, as is well known, rival the world in excellence, for invalids and aged persons, and are made from the Oporto grape grown on vines imported from Portugal forty years ago. The soil of northern New Jersey, containing iron, is just suited for them. Mr. Speer, however, uses the improved way of mashing the grapes. He employs large rollers of rubber run by an engine which crush grapes at the rate of a barrel a minute. Speer's Wines, especially the Port and Burgundy now in market, are of very old vintage, and have no superior. Physicians far and near prescribe them for weakly females and aged persons. They are blood-making, adding iron to the system, and tend to prolong life. Extensively used at parties, weddings and general family use.

Sold by Druggists and Grocers who deal in Wines.
Physicians' Reclining Cabinet
FOR GIVING PATIENTS HOT AIR OR VAPOR BATHS IN BED.

A Godsend to physicians and patients. This device has been brought out through the repeated request of the leading physicians of America.

CASES OF CONFINEMENT. Progressive physicians have learned that vapor baths give wonderful relief in confinement cases, by relaxing the muscles, quieting the patient, relieving pain, and greatly hastening delivery. Every physician should give his patient the benefit of this wonderful relief.

DROPSY. This is a most wonderful treatment for Dropsy. Thousands of poor sufferers may be relieved and a large per cent. cured by the timely use of the vapor bath.

INFLAMMATORY RHEUMATISM. Patients who are unable to get out of bed can have this device placed over them and be relieved at once, and its continued use will produce a cure.

PNEUMONIA. The Hot Air bath is the quickest and surest relief for pneumonia. Dr. Whitney, of New York City, states that he has never lost a case where this treatment was used.

LA GRIPPE. The Hot Air or Vapor bath gives instant relief, and a few treatments will produce a cure and leave the patient free from bad results.

We believe there is not a progressive physician in the land that will not be glad to secure this valuable adjunct to the practice of medicine.

Price of Reclining Cabinet with Splendid Heating Apparatus, $7.50. Write us for catalogue of other style Cabinets.

ROBINSON THERMAL BATH CO., 791 Jefferson Street, - - TOLEDO, OHIO.
Preparation—Par Excellence

"Fellows’ Syrup of Hypophosphites"

CONTAINS

Hypophosphites of Iron, Quinine, Strychnine, Lime, Manganese, Potash.

Each fluid drachm contains Hypophosphate of Strychnine equal to 1-64th grain of pure Strychnine.

Offers Special Advantages

in Anaemia, Bronchitis, Phthisis, Influenza, Neurasthenia, and during Convalescence after exhausting diseases.

SPECIAL NOTE.—Fellows’ Hypophosphites is Never Sold in Bulk, and is advertised only to the Medical Profession. Physicians are cautioned against worthless substitutes.

Medical Letters may be addressed to Literature of value upon application. MR. FELLOWS, 26 Christopher St., New York.

GLOBE Vapor Massage

Is the most successful as well as the most rational treatment for

Pulmonary Tuberculosis

And all affections of the Nose, Throat, Middle Ear, Bronchial Tubes and Lungs.

THE GLOBE MULTINEBULIZER

Is the original and only appliance with which Vapor Massage can be efficiently administered.

We manufacture Nebulizers and Nebulizer Supplies exclusively, in our own factory, and can therefore guarantee each outfit in every detail. We have the most complete, elegant and up-to-date line of Nebulizers, Multinebulizers, Table Outfits and compressed air apparatus ever offered to the medical profession.

Write for illustrated circulars.

Globe Manufacturing Co.,

BATTLE CREEK, MICH., U. S. A.
THE VARIETY OF FORMULAE.

The possibilities at the command of a physician in the use of MELLIN'S FOOD for modifying fresh milk in the home are briefly shown below.

R
Mellin's Food ... 2 tablespoonfuls.
Milk ... 12 fluidounces.
Water ... 4 fluidounces.

The analysis of this mixture is

<table>
<thead>
<tr>
<th></th>
<th>Fat</th>
<th>Proteids</th>
<th>Carbohydrates</th>
<th>Salts</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2.72</td>
<td>3.14</td>
<td>6.35</td>
<td>.68</td>
<td>87.11</td>
</tr>
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</table>

With the same formula prescribe 1 tablespoonful of Mellin's Food instead of 2, and the analysis then is

<table>
<thead>
<tr>
<th></th>
<th>Fat</th>
<th>Proteids</th>
<th>Carbohydrates</th>
<th>Salts</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.16</td>
<td>2.85</td>
<td>5.44</td>
<td>.71</td>
<td>87.84</td>
</tr>
</tbody>
</table>

Many other formulae and analyses are given in our Formula Booklet. It is free to physicians. We should like to send you one. You know the Food.

MELLIN'S FOOD COMPANY, BOSTON, MASSACHUSETTS.

TANNOPINE
The Intestinal Disinfectant and Astringent.

TANNIGEN
The Intestinal Astringent.

FERO SOMATOSE
The Ferruginous Nutrient and Tonic.

LACTO SOMATOSE
The Food for Diarrheal Diseases.

AGURIN
The Non-Irritating Diuretic.

SALOQUININE
The Tasteless and Improved Quinine.