

DR. W. W. TOMPKINS, Charleston—These cases are very unfavorable to treat because of two things: They will not carry out instructions as to diet, especially if too rigid, and when they feel a little better they discontinue treatment. My plan is to allow a certain amount of carbohydrates in the daily food. In attending the case, we should pay more attention to the general condition of the patient than to the precise amount of sugar in the urine. In fact, sometimes the patients are doing better when the quantity of sugar in the urine is rather large.

DR. HEINRICH STERN, New York City—The discussion has not brought out any points in connection with my paper on "Coma Diabeticum and its Treatment." In reply to the question as to the frequency of diabetes mellitus and its relative occurrence in both sexes, out of 1867 deaths from this affection which took place from 1889 till 1899 inclusive, 931, that is nearly 50 per cent. ensued in women. Former authors speak of a mortality of males from  $2\frac{1}{2}$  to 3 times as large as that of women.

Glycosuria is only a symptom of diabetes; it is not an entity per se. I have seen it following extirpation of the sublingual glands. I have seen it also occur after removal of the tonsils. Glycosuria may be the result of prolonged chloroform anesthesia. True diabetes, as I have pointed out some years ago already, is not dependent on the mere excretion of glucose. Long before dextrose is recognized in the urinary fluid, the disease has made its appearance. I have substituted for "diabetes mellitus" the designation "diabetic deterioration," for, by careful observation we may recognize a pre-glycosuric stage. The stage of toxemia, most always occurring with diminished or no output of grape-sugar, forms in reality a post-glycosuric state. I think I was the first to use the exclusive milk regimen in diabetes mellitus. My experiments date back to the year 1889. While, in my experience, many patients do very well on the exclusive milk diet, others, after the injection of but 150 or 250 c.c. excrete dextrose. This shows plainly that we have conversion of lactose into glucose in certain cases, while this transformation does not occur in other instances. In other words: chronic glycosuria is not always due to the very same underlying systemic disturbances; the causative factors of diabetes differ widely, and we should not confine ourselves to treat a mere symptom, but we should try to recognize and treat the original affection.

I fully agree with my friend, Dr. Bartley, that the copper tests, as Haines', Fehling's, Trommer's, Elliott's, etc., do a great deal of mischief in the hands of physicians and even in those of physiological chemists. A great many minor constituents, of normal or abnormal occurrence, besides dextrose, bring about copper reduction. Thus it occurs that cases have been treated for years for diabetes, where in reality diabetes never occurred.

If a total meat diet is continued for a protracted period—a period which differs as to its length materially in different subjects—diabetic cachexia with its protean manifestations is apt to be produced. It is necessary that we individualize each single case; that we study minutely the condition and systemic idiosyncrasies of every patient, and that we prescribe a diet suitable for the special case. Routine treatment in diabetes, I hesitate not to say, is responsible for just as many deaths in diabetes as is no treatment at all.

I am opposed to alcohol, as a food as well as medicine. Still, in some cases, especially where the patient was a habitual user of alcohol and where it is of the utmost importance to increase the caloric value of the food, and where a natural aversion against the diabetic diet has been produced, I was compelled to use alcohol. I have made use of alcohol in three forms: First, by ordering Moselle wine; second, by recommending diluted brandy, and third, by prescribing spts. vini rect. together with stomachics and bitter tonics.

**Menstruation by Vagina and Eyelids.**—A curious case is related by Dolganoff in *Vratch* of September 9, of a young woman with normal menstruation, accompanied by an oozing of blood on the external surface of the eyelids, appearing in minute droplets like sweat. The eyes are otherwise normal.

## PROLONGED FEVERS OF OBSCURE ORIGIN.\*

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CHICAGO.

There are a considerable number of organisms that normally, or at least frequently, cause prolonged fevers, which may be called obscure, only when the localization of the organism is unusual, or the disease appears in portions of the country in which the disease is exceptional. For example, the tubercle bacillus is a common cause of long-continued fevers, but the nature of the disease is usually manifest; the malarial organisms cause cases of prolonged fevers of obscure origin in portions of the country where malaria is not endemic. It is not my intention to consider these cases, nor do I plan to mention such obscure conditions as the chronic recurrent fever (Ebstein), commonly called pseudoleukemia, but to limit this paper to that very common and wonderfully polymorphous disease or group of diseases which Leube so aptly calls "kryptogenetic sepsis." Sepsis is too commonly considered a condition within the exclusive province of the surgeon, and from the conspicuous absence of this subject from most of the text-books upon medicine, one might believe that it is a disease which the medical man is not called upon to treat. This idea, however, is erroneous, and I fully believe that the more serious forms of sepsis are more common in medical than in surgical practice; this is certainly true if I am correct in including under this head a considerable number of diseases at present described as morbid entities. In the present state of our knowledge a concise definition of sepsis, septicemia, septicopyemia, is difficult. It is a combination of infection and intoxication of the organism as a whole by any one of a large number of bacteria and their chemical products, and is characterized by the great irregularity of its clinical course, and by the multiplicity and varying intensity of its manifestations. In addition to this, the infection atrium is unknown during life, and often undiscovered after death.

**Etiology.** A large number of bacteria have been found in cases of this class, but not all with equal frequency. The various pus cocci are most often found, probably the pneumococcus comes next in order of frequency, and then come such organisms as the gonococcus, bacillus pyocyaneus and bacillus coli communis.

These bacteria may enter through any broken surface, cutaneous or mucous, and because the atrium is often small, or hidden, or has already healed and been forgotten before constitutional symptoms develop, it is impossible clinically and often also at the autopsy to discover it. In many cases we may infer something as to its location; for example, symptoms of an angina often precede the constitutional symptoms; in other cases there are signs of a severe gastro-enteritis; in others, a bronchitis, and so forth. In still other cases the autopsy will show some old and encysted suppurative focus which has furnished, after years of quiet, the bacteria necessary for the constitutional symptoms. The demonstration of the bacteria during life is usually difficult, but is sometimes successful, as is illustrated by the cases of pneumococcus septicemia and septicopyemia reported to this Section last year. It is perhaps possible that the many failures are due to the fact that only small quantities of blood are used in the inoculation of the culture-media. For this to be successful, large numbers of the bacteria must be present, in order that each

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drop of blood may contain bacteria. Blood for this purpose should be drawn directly from a vein.

When one considers that this disease or group of diseases may arise from a large number of bacteria, each of which shows marked variations in virulence; that the individuals infected show varying degrees of resistance to the infection, and that the bacteria may exert their influence upon the organisms as a whole or mainly upon any set of organs, it becomes at once evident that the clinical manifestations are so polymorphous that a detailed description of them is impossible in the brief time allowed, and we can refer only to the various types of cases now described as morbid entities, and leave the more complete description and illustrative cases to the paper, of which this is but an extract.

The cases may be conveniently arranged in two main groups: 1. The systemic group, in which the organism as a whole suffers. 2. The focal group, in which some organ or set of organs furnishes the bulk of clinical symptoms. Among these cases we recognize the following subgroups: *a*, cardiac cases; *b*, pulmonary cases; *c*, gastro-intestinal cases; *d*, hepatic cases; *e*, renal cases; *f*, osteal and articular cases; *g*, dermal cases; *h*, hemolytic cases; *i*, nervous cases.

#### THE SYSTEMIC TYPE.

The onset may be gradual, resembling that of typhoid, with depression, malaise, anorexia, headache, myalgia, and a temperature; but usually the onset is sharp, with single or repeated chills, followed by rise in temperature, and the constitutional disturbances common to acute fevers. The type of the temperature is oftenest markedly irregular, and interrupted by chills at varying intervals; but there are many variations from this rule, and the temperature may be perfectly regular and continuous at any level, like the temperature of a typhoid; it may be regularly intermittent like that of a typical malaria, or it may be absent altogether. Such temperature may continue for days or weeks.

The pulse is usually rapid for the temperature, even from the onset, a point which may have differential value when the case resembles typhoid, but cases are seen in which the pulse is slow throughout the course.

The patient is much depressed and weakened from the onset; is manifestly ill, although examination shows no demonstrable change in any organ except an enlarged spleen, such as is seen in most infectious diseases. The blood suffers a rapid loss in hemoglobin and red blood-corpuscles. The number of leucocytes may be increased, but are often normal in number or even decreased. These blood-changes may be so marked as to overshadow all other symptoms. Examination for a bacterium is usually without result. The Widal reaction is absent. The diazo-reaction in the urine is frequently present and marked.

The diagnosis of such cases, while simple in surgical practice where some gross infection atrium is present, is difficult when such atrium is lacking. The diagnosis is based mainly upon the exclusion of the more typical infective processes, and in many cases subsequent localization upon some organs removes all doubt as to the diagnosis. It is in the diagnosis of this group of cases that the greatest progress has been made of recent years; many cases formerly classed as typhoid, typhomalaria and malaria are now readily recognized. This improvement is due to the more careful examination of the blood and the discovery of specific serum reactions. Repeated failure to demonstrate the plasmodium malariae excludes malaria. Persistent absence of the Widal reac-

tion, especially when the diazo-reaction is also absent, excludes a typhoid.

#### THE FOCAL TYPE.

*Localization Upon the Heart.*—Here we must place the cases generally included under the heading of malignant endocarditis, which I believe, with Leube, is merely a localized sepsis. Most will agree to his proposition, but many may be unwilling to place here the cases of so-called simple or verrucose endocarditis, so frequently appearing in the course of acute articular rheumatism; but most will agree that the simple and the malignant endocarditis differ in degree but not in kind.

The constitutional disturbances with the endocarditis are such as briefly described above; the recognition of the endocardial process must be delayed often for weeks until the changes in the valves of the heart have led to physical signs. Great care must be exercised in the diagnosis for, because of the anemia and changes in the heart secondary to it, the commoner valvular defects, notably the mitral insufficiency, are frequently simulated. The appearance of diastolic murmurs is of great value in the diagnosis, for they are not often accidental, although I have once heard a persistent diastolic murmur over the heart of a patient dying of sepsis, and found the heart valves normal at the autopsy.

*Gastrointestinal and Liver Cases.*—Gastrointestinal symptoms not infrequently initiate the clinical course, and this, with the violence of the symptoms, sometimes suggests that the infection atrium is here. The symptoms consist of nausea, vomiting, purging, pain. To these are added the constitutional symptoms, fever, chills, etc., and in a considerable number of cases jaundice, with acute swelling of the liver. Here, perhaps, we should place such cases as have been described under the name of Weil's disease, and here also belong some of the cases which present themselves clinically as acute yellow atrophy, cases which are in reality diffuse systemic infections, with especial localization in the liver.

*Articular Cases.*—A considerable number of the cases of sepsis show bone and joint symptoms exactly resembling those usually described under the heading of acute articular rheumatism. This last disease is, to quote Sahli, "a faded mirror image of pyemia," and transition cases from manifest pyemia to ordinary acute articular rheumatism have been seen by you all, the transition being so gradual that it is impossible to say where one leaves off and the other begins. For the present, at least, we must consider them as the same condition, the only difference between them being one of degree.

The frequent association of joint pains with hemorrhages into the skin brings us into contact with the *peliosis rheumatica*, another septic condition which can not be separated from the simple purpura, and the *morbus maculosus Werlhoffi*, just as the latter can not be sharply separated from the scurvy.

We have, then, in the cryptogenetic sepsis, a wide group of cases which border upon, if they do not cover, a number of diseases now described as morbid entities; the malignant endocarditis, the Weil disease, and possibly the more intense acute yellow atrophy, the acute articular rheumatism, and the various forms of primary purpura, including the scurvy. In the present state of our knowledge, it is well for us to remember that while these various diseases are described separately, they may all be various manifestations of the same underlying condition, and I believe that this thought will lend clearness to our general conception of this puzzling group of diseases.

In closing, I must mention briefly the general lines of treatment. Having no specific treatment, we can but treat symptoms, and our efforts are directed mainly to supporting the strength of the patient. Hydrotherapy, quinin, iron, strychnia, salicylates, guaiacol, mercurials, and various nuclein preparations are all used. Mention should also be made of the Credé ointment, the anti-streptococcus serum, the bleeding and subsequent intravenous injection of salt solution, all of which at times seem to yield results.

## DISCUSSION.

DR. WILLIAM KRAUSS, Memphis, Tenn.—I have observed a number of times, particularly in the autumn, a number of cases of fever neither malarial, typhoid nor tuberculous, which, upon blood examination, showed only leucocytosis. The paper of Dr. Preble was very instructive to me, and I shall follow up those lines and try to verify the observations made.

DR. LOUIS FAUGÈRES BISHOP, New York—We often have cases in which we fail in making a diagnosis, because we insist upon putting them in long-established groups. I have been impressed with the thought that there should be a group of cases that, in popular parlance, we might call blood-poisoning. Such are the patients who run a long course of irregular temperatures after we exclude every possible disease that can be diagnosed by the microscope or by physical examination and about which we can not arrive at any definite conclusions. But such a group must not be made a dumping-place for undiagnosed cases. The suggestion of Dr. Preble that some of these are cases of typhoid is a good one. I was called in consultation to see a case in New Jersey a few months ago. The patient was a woman, of middle life, who had a great deal of pelvic trouble. She was a chronic pelvic invalid. A very clever gynecologist who examined her said there were many adhesions, but no pus in the pelvis. The woman was sick for a long time running this irregular temperature. Then it was thought it might be tuberculosis. I examined the chest and found only a slight amount of dullness at the base of the right lung; I suspected there might be pus there, but the needle introduced at that point did not show any. A careful restudy of the case led me to suspect typhoid fever which had attacked a person already an invalid. I then took some of the blood and got a very good Widal reaction. The case was entirely atypical. It was simply a chronic invalid who had commenced to run an irregular temperature. On that reaction, without symptoms of typhoid, I made the diagnosis of typhoid fever and gave a good prognosis. The woman recovered after prolonged nursing and treatment.

DR. N. S. DAVIS, JR., Chicago—The obscure cases which are difficult to diagnose and difficult to describe are made much clearer by what Dr. Preble has said regarding them. There is one point that I wish to emphasize, i. e., the liability in certain cases of infection through the gastrointestinal tract. This important point has been impressed upon my mind by several instances. I will call attention to two in the paper which I am to read here to-morrow. Another point is the frequency with which, in these cases, cardiac symptoms arise. In prolonged fevers of obscure origin we should watch for an endocarditis. And yet, when we ultimately discover the existence of a cardiac lesion we are not justified in concluding that we have had to do from the beginning with ulcerative endocarditis, but with a septic disease, in the course of which endocarditis has developed. I speak of this particularly, because in meeting other physicians and talking over cases, especially cases of malignant endocarditis, I find that it is usually an endocarditis superimposed on a general sepsis.

DR. ROBT. B. PREBLE, Chicago—In regard to the Widal reaction, I would be unwilling to make a diagnosis upon it; nor would I be willing to exclude typhoid fever in the absence of this reaction. I believe, though, that it can be obtained in the vast majority of cases.

**Iron in Eggs for Invalids.**—The *Gazzetta degli Osp.* of October 18 states that Dr. Viray feeds hens with salts of iron incorporated in their food. The fowls tolerate the iron perfectly and eliminate it mostly in their eggs, which are thus delicately medicated.

## ACUTE ARTICULAR RHEUMATISM—ITS ETIOLOGY AND PATHOLOGY.\*

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PHILADELPHIA.

With the exception of a small and gradually lessening number, modern writers consider acute articular rheumatism an infectious disease. The nervous origin of rheumatic arthritis, proclaimed by the elder J. K. Mitchell<sup>1</sup> in 1831, and defended by Charcot, and more recently by Friedländer<sup>2</sup>, who places the primary lesion in the medulla oblongata, has been abandoned. More tenacious is the lactic acid theory of Prout, Todd, Fuller, Richardson, and others, according to which rheumatism is dependent on an excess of lactic acid in the blood. I need not bring forth any arguments against this theory. As MacLagan<sup>3</sup> says, the advocates of the lactic acid theory have taken one of the phenomena of the disease and raised it from its normal and subordinate position as a symptom to the rank and dignity of an exciting cause. Edwards,<sup>4</sup> Eisemann, and lately Haig,<sup>5</sup> have modified the acid theory, and replaced the lactic with uric acid, the retention of which in the system Haig considers to be the causative factor in rheumatism. He presupposes the existence of an excess of uric acid in the blood, and that this is driven into the joints, owing to a diminution of the alkalinity of the blood. But not only has he failed satisfactorily to prove that uric acid accumulates in the joints in acute articular rheumatism, he has also drawn a conclusion that is scarcely warranted even in the premise—a pre-existing "uricacidemia"—is accepted; for it is just as likely that if an excess of uric acid does occur in rheumatism, it is a consequence—a symptom, merely—and not the cause of the disease. The very fact that Haig finds uric acid retention in so many affections suggests the thought that, like fever, leucocytosis, or albuminuria, the hypothetical "uricacidemia" is only a symptom.

There are two ways of proving that a disease is infectious: by direct evidence, that is, by the unequivocal demonstration of the causative agent; and by indirect or circumstantial evidence, which rests largely on analogy. I may say that in the case of acute articular rheumatism we are not yet in possession of direct or prima facie evidence; in other words, I do not believe that the cause has been definitely discovered. It is true that a large number of investigators claim to have found the specific micro-organism, but in no instance has indubitable proof of the causative relation of the particular organism been brought. If it were that the micro-organisms hitherto found could not be cultivated, we might, as in the cases of leprosy and malaria, rest content with the mere demonstration of their invariable presence, and not demand, for final proof, the production of the disease in the lower animals; but the organisms which have been found are, for the most part, readily cultivated, and yet it has not been possible to reproduce in the lower animals the typical picture of rheumatism as we see it in man. This fact, however, does not render invalid the proposition that acute articular rheumatism is an infectious disease. The same is true of syphilis, scarlet fever, smallpox, chickenpox, and possibly of whooping-cough and measles; and yet no one doubts their specific nature. The circumstantial evidence in favor of the infectious origin of rheumatism

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