

ignored, their use and application being exemplified in a number of alternative formulas for preparing Emulsion of Cod Liver Oil. The directions given are so plain and explicit that they may be readily followed by the operator with assurance of the production of an emulsion containing 50 per cent. by volume of the oil, together with such other medicinal ingredients, hypophosphites, flavoring, etc., as it may be desirable to incorporate. In the case of "Acacia Emulsion" the amount of the acacia need not exceed 12 per cent., while the emulsification is as perfect as in the best emulsions of the market, and far more so than is the case with the most of them. Good, pure material is easily obtained in the market, and will certainly be supplied by the pharmacist if the physician will take the trouble to make the demand for the pharmacist's rather than for the manufacturer's product. As to

*Effervescent powders*, the "Formulary" maintains that they are most conveniently and efficiently dispensed in the form of *fine powder*, because in this condition they can be made extemporaneously and with an assurance of their freshness and efficiency. The popular demand for "Granular Effervescent Powders," however, is not ignored, and formulas are given for their preparation under modifications which are important only in so far as they enable the dispenser to granulate the powder in a convenient and expeditious manner. But the granulation of the powder is admissible only if it is contemplated to prepare the effervescent preparation for stock; and the liability of such to deteriorate on keeping, being the same as that of manufactured effervescent, should prompt the physician to discourage their use, by confining his prescription to extemporaneously prepared effervescent in *fine powder*. The latter can be made as quickly as any prescription that requires the admixture of several powders. To make the plain (non-medicated) effervescent powder, two stock powders, the one composed of sodium bicarbonate and sugar (Saccharated Sodium Bicarbonate, Formula No. 341), the other of tartaric acid and sugar (Saccharated Tartaric Acid, Formula No. 8), are mixed in equal quantities by weight, the proportions of acid to sugar and of alkali to sugar being such that, weight for weight, the two powders represent molecular proportions, and when so mixed form a neutral solution. Both of these powders, when made from dry and anhydrous material will keep indefinitely, but may be prepared expeditiously if not in stock. The medicinal agent having been weighed and finally pulverized if necessary, with a small portion of the plain effervescent powder, a sufficient quantity of the latter is then incorporated to make four grams for each dose contemplated, and the resultant powder may then be dispensed in bulk, to be given in doses of a teaspoonful, or, better, divided into doses of sixty grains, each dose to be enveloped in wax paper. Obviously, any desired medicinal combination of dry, soluble substances can be thus prescribed, a typical prescription being as follows:

R Citrated caffeine . . . . . 12 gr.  
Lithium citrate . . . . . 24 gr.  
Saccharated tartaric acid (N. F.) . . . . .  
Saccharated sodium bicarbonate (N. F.) aa 3 dr.  
Mix intimately and dispense in twelve equal parts (or in bulk) each enclosed in wax paper.

The advantages resulting from the practice of so prescribing are:

*Accuracy*, because the composition is determined by the prescription.

*Celerity*, because the prescription can be prepared from stock at hand, and there is no delay in searching the market for a specialty.

*Efficiency*, because the medicine is freshly prepared.

*Economy*, because the prescription need not exceed a single dose, and there is no loss from deterioration. But not the least of the advantages to be gained from this practice is that the physician and pharmacist are kept in touch with each other, instead of—as is inevitably the case under modern practices—drifting asunder.

## THE PONS ASINORUM OF THERAPEUTICS.

Presented to the Section on Materia Medica, Pharmacology and Therapeutics at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

BY ROBERT G. ECCLES, M.D.

Member of Committee of Revision of the United States Pharmacopoeia, 1890-1900; Fellow of the American Association for the Advancement of Science; Member of the Scientific Alliance of New York; Member of the American Chemical Society; Member of the American Anatomical Association; Managing Editor of the American Medico-Surgical Bulletin; Member of King's County, New York, Medical Society; Member of the American Pharmaceutical Association, Etc.  
BROOKLYN, N. Y.

In the fifteenth century one Johannes Buridan published a treatise which he called the *Summula de Dialectica* and set forth to the public that it would enable any person, however stupid, to easily and rapidly discover the "middle terms" for syllogisms. On the strength of this claim it came to be known as the *pons asinorum* or bridge for what our Colorado friends call "burros." At a later date the fifth theorem of the first book of Euclid came to bear the same title, and still later the forty-seventh proposition of the same book bore this name because they enabled dull students to master otherwise very difficult problems. In modern parlance a *pons asinorum* is a bridge over a mental difficulty that enables ordinary mortals to cross. Geniuses can, of course, get over without such aid. In using it in therapeutics the writer denies any intention of intimating that there are any members of the medical profession whom he feels justified in cataloging as belonging to the genus *Equus*, species *asinus*. We merely use it for the purpose of forcibly indicating the sad need of such a bridge at this point of medical progress. Without it we have the choice of resting entirely in a fool's paradise, taking wings and soaring with the geniuses over the muddy stream of ignorance or remaining mental grallatores floundering in the deep waters of that practically unfordable stream. It is not the first time in the history of science that such alternatives have been placed before mankind. As a rule the majority prefer to remain within the fool's paradise. The subjective method of the metaphysician is much more congenial than the experimental, objective method of getting at truth or what the world considers truth. In therapeutics we are all as anxious to discover a law of cure as were the alchemists to discover the elixir of life, but we of the regular school prefer the inductive, slow method of chemistry to the wild dreams of alchemy. Any pretended therapeutic law that fails to come down to the bed-rock of cause is a mere hallucination. When we can trace by cause and effect exactly how remedies produce their results, then and not till then will we have a true law of cure. We are already sufficiently far

advanced to see the way in which it is likely to be found and to observe where our pons to it is being built. The caissons have already been sunk through the muddy bed of ignorance, and we shall soon see its graceful arch spanning the stream below. In this essay the author hopes to be able to show: 1. That all effective therapeutic measures are preventive ones, depending almost wholly on our ability to make a correct diagnosis. 2. That our present paucity in successful results is due to defective diagnosis. 3. That we cannot overcome this defect, so far as the great majority of medical men is concerned, until we are supplied with a binomial or trinomial nomenclature of diseases.

The therapeutic bridge we need is a scientific system of naming diseases so that the average medical man will be able to know what he is trying to get rid of by the remedies he uses. Our present lack of system is a sad hotchpotch, that if merely useless might be tolerated, but that being positively misleading should be consigned to oblivion as quickly as possible. In medical matters we stand today precisely where botanists and zoologists stood before the immortal work of Linneus was accomplished. Our confusion is as great as theirs was and our gain from a similar revolution would be far greater. Now is the time for us to inquire "where we are at" and try to get order out of the awful chaos that surrounds us. If something is not done soon, we will all be constrained with Cicero to exclaim, "*O dii immortales! ubinam gentium sumus?*" (Ye immortal gods! where in the world are we?)<sup>2</sup>

The number of causes capable of producing bodily ailments is infinite. Fortunately there is a natural grouping by which it is possible to place them all in a few convenient classes. Some are due to mechanical, some to chemic and some to biologic (usually microbial) injuries. If we add to these causes those due to errors of development, we will probably have covered every possible form. In consonance with this grouping of causes there can be a corresponding grouping of effects, thus enabling us to have what we are pleased to call distinct diseases. There are in reality no such things as distinct diseases. Disease in all its protean forms is but the resultant effects of a multitude of causes, being resisted by the organism. As effects often mimic each other, it is never possible for us to be absolutely sure of the nature of any disease until we have discovered its exact causes. The first step toward a rational course of treatment is the step that leads us toward knowing what we have to treat. Until we discover that, what we happen to do is little better than blind guess-work.

To make clear our meaning consider for a moment two illustrations. Suppose we go home and find our window broken and go in search of the cause of the break. It may have been the wind, it may have been a stone, or it may have been any one of a multitude of causes. To discover that it was done with a stone does not in any way help us toward a knowledge of how to mend it. In cases of this kind a knowledge of the cause of the disease or damage does not help us to a knowledge of the remedy required. Now let us change our supposition a little. Instead of a broken window let us choose broken ice on a skating pond. Being anxious to see that pond frozen over we look out upon it from time to time on a cold winter's day and each time discover a huge hole at the same point on its surface. We go out near it in order to discover

the cause and find that it was being pelted with stones. No sooner was new ice formed than it was broken again by a large stone being thrown through it. To discover the cause in this instance is to discover how to remedy the evil. As soon as we stop the stone-throwing the break closes.

Here we have a case of cause and effect exactly like those with which physicians have to deal. The same class of forces can operate to damage organisms as operate to damage ice, and the process of mending, healing or curing is exactly analogous in both instances. Observe here that the mending in the one case and the curing in the other is accomplished by inherent forces. All that we can do in either instance is to remove some continuously operating cause or causes and then nature does the rest. In the case of the broken ice a cure of the evil occurs when we stop the stone-throwing. In the case of our patient the cure occurs when we stop the action of the damaging force. The ice can cure itself by freezing so fast that between the intervals of stone-throwing it becomes thick enough to resist the blow. The body can cure itself if its repairing forces work with sufficient vigor to render nugatory the attacking causes. Both the human body and the ice do their own repairing of damage always. We can only remove the obstruction and overcome the causes that hinder their inherent activities. Whenever any cause interferes with the development of a clear crystal of ice or a pure healthy body that cause must be removed or no cure is possible. Sometimes many causes may be at work simultaneously damaging the ice or damaging the body and then all of the morbid causes must be removed before nature can assert herself by a cure. At other times different damaging causes may succeed each other, the first, second and third having disappeared and a fourth having come in to keep up the mischief. In the case of the ice a succession of stones may have been succeeded by a fire and this again by sulphuric acid. All of these may have done their share toward damaging the ice until finally a mass of salt may have been placed upon it. To cure the damage it will do no good to remove the spent stones, the extinguished fire or the saturated acid. We must know that there is fresh salt there and remove it. Thus it is in the body. The first injurious cause may have gone when we are using remedies for it. It is necessary to know the cause now acting and seek to remove it. If we find a person being burnt we can extinguish the flames. If we find that acid has been thrown upon him we can stay its ravages by removing it or neutralizing it. When there is no longer any fire or acid present we must see that the damaging air does not affect the wound and when this is looked after we turn our attention to the invading bacteria so as to arrest their destructive work.

The kind of microbes that invade the wound may have an important bearing upon the healing of the wound. To successfully treat each case we must know the kinds that invade it. All obstructions to the proper healing of the body must be discovered and a way found for their removal, otherwise we will continually keep failing to cure our patients. Where we do not know the causes we can not hope to be able to always remove them. An accidental discovery may in some cases give us a method, but as a rule we must grope in the dark until the causes have been discovered. In the majority of such cases we leave the matter to nature and then take to ourselves the credit of

doing the work. We speak of some remedies as "almost specifics," because they succeed in a large proportion of cases and in a way that leaves no doubt of their efficiency. The writer believes that where such remedies fail other causes than the one thought responsible are at the bottom of the failure. If we knew how to overcome these unknown causes that lead to failure we would be successful every time. When we give quinin in malaria, mercury in syphilis and serums in their respective diseases their failure is due to the presence of causes that they were never intended to treat. All successful medication is preventive medication. Prophylaxis is the very soul of cure in every form of sickness. When we give quinin we kill the plasmodiums and prevent a new attack of the malaria. When we give diphtheria antitoxin we produce conditions unfavorable to the Klebs-Loeffler bacillus and so prevent a continued attack of the diphtheria. When we give a cathartic we force toxic substances out of the body and prevent auto-intoxication. When we can not get at the root of a disease we are content to attack and prevent the evil consequences likely to flow from some dangerous symptom. By thus being able to, as it were, lop off the tentacles of the disease we often cripple or destroy it as a dangerous enemy of the patient. Where sleeplessness is leading toward death, by the use of sulphonal or morphin we prevent this much of the disease from developing. We obviate the serious outcome. The deeper down our prophylactic measures can be carried among the bad symptoms the more likely are we to save our patients. To know how to prevent a tetanic spasm is not as good as to know how to antidote the poison of tetanus but it is well to be able to accomplish the lesser feat when for any reason we can not do the greater. There is no breach in continuity between sanitation and treatment. The aim and method of the one is the aim and method of the other. The method of each is summed up in the one word "prevent." To give drugs for any other purpose than the preventing of untoward effects is foolish. Beneficial symptoms should be let alone or encouraged. It is therefore important for the physician to be able to tell what symptoms of a disease are beneficial and what damaging. Grave blunders are committed by not knowing which to encourage, which to let alone and which to oppose.

The one important duty of the physician always is to fight or remove everything that he is sure is leading his patient toward a disastrous termination of the disease. He must at all times be on the alert for causes of evil and in their succession the deeper he can go the better will be his results in all kinds of cases. Skill in diagnosis is imperative, whether the inquiry relates to a baneful symptom or a specific cause. To give remedies that have been recommended for diphtheria, pneumonia, nephritis, mumps or measles because we have concluded that these are the ailments from which our patients suffer may by a sheer lucky hit be what they need, but the chances are very many against us in the matter. Superficial diagnosis, that knows no more about these diseases than is implied in the ability to give them these names, is wholly inadequate as an aid to proper treatment. Much more must be known, and the idea that disease is an entity, which our present nomenclature fosters, must be destroyed. An examination of the present trend of bacteriologic discovery will help us to a clearer conception of what is here meant and perhaps illuminate the subject in a number of important directions.

Let us for a moment consider the bearings of the fact that adaptation is a fundamental law of life. A study of the distribution of plants and animals throughout the globe shows us that the leading factor in placing them where we find them has been fitness. Water plants and water animals can not live in dry places while plants and animals able to live in dry places can not, as a rule, thrive well in wet places. The same is true for extremes of heat and cold, richness and poverty of soil, sunlight and shade, windiness and calm, with all other extremes of telluric conditions. Between the extremes of adaptation are all possible intermediate degrees. The range, too, of all plants and animals varies widely in extent in every environment. Some have a very wide range and others are restricted. What is true of the gross fauna and flora of the earth is equally true of the microscopic. The latter, like the former, develop vigorously where adapted, not at all where wholly unadapted and with intermediate degrees of vigor amid intermediate degrees of fitness. Microbes that are classed as non-pathogenic are such as are unable to spread to a damaging degree within the tissues of the body or such as are unable to produce poisonous substances within the body to its detriment. Pathogenic microbes produce poisonous substances or multiply within the body in a way that is injurious to it. They bear a similar relation to the body that weeds do to a garden. While there may be parts of the body that can resist their development, other parts are more favorable to them, permitting of their development. A given microbe may be able to develop in the lungs but not in the spleen. Another may find a favorable place of development in certain glands but be unable to multiply in the meninges. To some extent there is certainly reason to believe that most tissues have some degree of protection from some forms of disease germs. To hold, however, as many have done in the past and as some seem to do now, that but one kind of disease microbe is capable of developing in the kidneys, another in the brain, another in the spleen, another in the liver, another in the bones, another in the heart, another in the lungs, etc., seems extremely absurd.

The final settlement of the question regarding which microbes are capable of developing to a dangerous extent in the lungs and which in the liver or other organ must be arrived at by actual experiment. Analogy and probability seem now to lead to the conclusion that there are many pathogenic microbes capable of development in dangerous numbers in any one of all the tissues and organs of the body if they can only gain access to the same in any manner. It does not seem reasonable to think that nature should have given a monopoly of the lungs to some one kind of coccus, of Peyer's patches to a single kind of bacillus or of the liver or intestines to a single kind of spirillum. It is much more reasonable to believe that soil that will grow one kind of plant is likely to be able to grow many kinds. It would, indeed, be a singular plot of ground that, while containing many patches of differing soils, could only grow one solitary kind of plant on each kind of soil. Imagine if you can such a plot. In it the potato corner could grow neither peas, onions, weeds nor other plants, the pea patch could grow nothing but peas, and the onion region would be an inhospitable home for anything but onions. Is not such a supposition absurd on its face, and yet it is no more absurd

than the assumption that meningitis is due to but one kind of microbe which by diligent search is going to be discovered some day. Is it not much more reasonable to think that there are twenty or more kinds of germs capable of producing meningitis? To us it would not be at all surprising if future investigation should show that there are twenty or more kinds of pneumonia, hepatitis, meningitis, cystitis, enteritis, tonsillitis, carditis, gastritis, nephritis, etc. Is it not also quite reasonable to suppose that the cause of the pathologic condition in any one of these may be the cause in many of them? In other words, may not the nephritis of one patient have the same specific cause as the meningitis of another, the pneumonia of another and the carditis of another? If more than one kind can develop in the same region at the same time may not two or more kinds of microbes combine at various times to produce conditions of disease very like those produced by only one? Again, as microbes are known to have a sort of succession among themselves, may it not be possible that in some diseases the latter symptoms are due to a different set of germs from those at the beginning? All of these questions can only be finally answered by an appeal to nature.

Now let us inquire about the facts in the case as developed by bacteriologic investigation up to the present time. Dr. Kanthack, the pathologist of St. Bartholomew's Hospital, London, in Allbutt's System of Medicine says that "undoubtedly the same morbid lesion may be produced by several different micro-organisms." "Strictly speaking, then, there is no specific organism of infective endocarditis; any one of a number of cocci may produce a disease, bacteriologically different from, but anatomically, pathologically and clinically identical with that produced by another member of the same group of organisms. Similarly, suppuration may be produced by any one of a large number of bacteria; and in the malady clinically recognized as erysipelas, instead of the streptococcus of erysipelas, other organisms may often be found. Septicemia and pyemia, again, may be produced by more than one kind of bacterium, and the same applies to pneumonia."<sup>3</sup> To these words there is no uncertain sound, although the author of them still clings to the belief that some kinds of germs are specific. It is always in regions of ignorance that old expiring notions take their final refuge. There are diseases of which we know little that may appear to possess the old quality known as specific and that we will have to consider such till we know more about them. Phthisis pulmonalis was at one time deemed a specific disease, but Koch's discovery of the tubercle bacillus showed it to be but a single form of tuberculosis. We now know that there is tuberculosis of the lungs, tuberculosis of the brain, tuberculosis of the skin, tuberculosis of the bones, and tuberculosis of almost every part of the body. If we consider the group of symptoms, including the lesions, as the disease then there can be no such specific disease as tuberculosis. It is only by claiming that the presence of the bacillus gives it a specific character that we are able to maintain such a position, but that would make every disease specific in a similar sense.

Dr. S. Flexner tells us that phthisis pulmonalis, or a disease with all of its symptoms, exists, in which there are no tubercle bacilli. In it we find a streptothrix instead.<sup>4</sup> Prof. Edgar M. Crookshank has

pointed out that many of the lesions of actinomycosis and those of tuberculosis are alike.<sup>5</sup> Dr. Karowski of Berlin says the early stages of actinomycosis and of tuberculous phthisis require a bacteriologic examination to be sure of their difference.<sup>6</sup> Dr. A. Gouget reports a pseudo-tuberculosis of the spleen, liver, kidneys and other organs due to a streptobacillus and not to Koch's bacillus.<sup>7</sup> On the other hand, Dr. J. W. Moore tells us that the tubercle bacillus can cause pneumonia.<sup>8</sup> With this last-named, so-called disease we have abundant evidence to show that it has a multitude of causes. In the paper of Dr. Moore we learn that pneumonia is caused by the microbes of erysipelas, influenza, typhoid fever, tuberculosis, diphtheria and anthrax. Dr. Peter of Paris sustains this claim of there being an erysipelas of the lungs that we class as pneumonia.<sup>9</sup> Drs. Flexner and Anderson have also shown that diphtheria of the lungs is a pneumonia.<sup>10</sup> Wright and Stokes reported that in nineteen cases of bronchopneumonia the diphtheria bacillus was present.<sup>11</sup> Constanzo Zenoni reports cases of pneumonia due to a streptococcus.<sup>12</sup> Flügge gives Friedlander's bacillus as a common cause of pneumonia.<sup>13</sup> Dr. Moore gives evidence that typhoid fever of the lungs is pneumonia. He holds that in such cases the bacillus of Eberth gains entrance through the lungs as the initial lesion of the disease.<sup>14</sup> Whitelegge tells us that Friedlander's micrococcus, Fraenkel's diplococcus and Klein's bacillus have all been, on apparently conclusive evidence, established as causes of pneumonia.<sup>15</sup> Palamidessi of Florence reports cases of pneumonia from a micro-organism resembling those of fowl cholera and which was imported with parrots.<sup>16</sup>

It is apparent from the evidence now in our possession that typhoid fever is as protean in its forms as is tuberculosis or pneumonia. A number of cases have been studied that give evidence of the power of the typhoid germ to attack the body through various channels when there are no evidences of intestinal lesions. Dr. Keen reports cases of meningitis, pleurisy, goiter, hepatitis, pneumonia, and other affections occurring as sequels of typhoid fever, and others as occurring when there were no typhoid lesions in the intestines, but the typhoid germs were present in the organs affected.<sup>17</sup> An editorial note in the *Medical Press* reports five cases of typhoid infection without typhoid lesions.<sup>18</sup> Dr. Taty describes a case of melancholia with mental alienation of a double form due to typhoid germs.<sup>19</sup> Drs. Flexner and Harris describe experiments and cases of typhoid infection without typhoid lesions.<sup>20</sup> These authors also quote the evidence of DuCazal,<sup>21</sup> Kühnau,<sup>22</sup> Guinon,<sup>23</sup> Pick,<sup>24</sup> and especially Chiari and Krous,<sup>25</sup> as bearing in the same direction. Keen mentions the fact that pure typhoid cultures have been prepared from points of suppuration in many parts of the body.<sup>26</sup> The same author refers to cases of mumps as due to the typhoid infection<sup>27</sup> and of diseases of the bones as having the same cause.<sup>28</sup> Gasser describes a case of orchitis due to typhoid infection,<sup>29</sup> and Girode gives evidence of epididymitis having occurred from the same cause.<sup>30</sup> DuCazal and others have secured pure cultures of the typhoid bacillus from the spleen when there were no intestinal lesions.<sup>31</sup> In this connection it is interesting to learn that in a case of Dr. R. D. Mason's where the patient had swallowed some lemon seeds and they had sprouted in the intestines, the symptoms produced were like those of typhoid fever.<sup>32</sup> We thus learn that other things than the typhoid germs produce the

characteristic symptoms of typhoid fever, and that the typhoid germs sometimes produce symptoms not at all characteristic of typhoid fever as usually recognized.

If we turn next to as apparently specific a disease as gonorrhea, every physician knows the danger to the eyes of the newborn by infection with the coccus of this filthy affection, and now Dr. F. R. Hagner tells us that he has found cases of arthritis and tenosynovitis giving cultures of gonococcus.<sup>33</sup> In catarrhal conjunctivitis Dr. Gifford found that in an epidemic in Omaha, Neb., and surrounding country Fraenkel's pneumococcus was the cause, while in another in New York which he had had experience with a wholly different microbe was the cause.<sup>34</sup>

The discovery of the Klebs-Löffler bacillus and the study of its characteristics have within a short time completely altered our conceptions concerning diphtheria. Now there are cases, which a few years ago would not have been considered as even related to diphtheria, that are classed with that disease, and a number of anginal affections that we called diphtheria are now excluded from such recognition.<sup>35</sup> Dr. W. P. Herringham of St. Bartholomew's Hospital, London, says that "it must be remembered that membranes, produced by other bacteria besides the diphtheria bacilli, may appear in the throat, and that in many cases the clinical phenomena prove to be of but little assistance; a careful bacteriologic examination is therefore required."<sup>36</sup> Anders tells us that "diphtheria may exhibit a number of variations as regards the seat of attack and the severity of the poisoning." He mentions nasal diphtheria, wound diphtheria of lips, tongue, vulva or glans penis, laryngeal diphtheria, etc.<sup>37</sup> S. Gee refers to latent diphtheria, in which the poisoning occurs without the appearance of a membrane of any kind.<sup>38</sup>

Turning now to meningitis, we learn from the last report of the Massachusetts State Board of Health that in ten cases examined they found it due to the pneumococcus, in eight cases to streptococcus, in twelve cases to tubercle bacilli and in one case to anthrax.<sup>39</sup> Dr. J. A. Ormerod says that in some cases of purulent meningitis there has been found a micrococcus, in others the ordinary streptococcus pyogenes, and where the meningitis occurs "in connection with some acute infectious disease, such as typhoid, the organism proper to that disease."<sup>40</sup> If we next consider endocarditis we find the same state of affairs. Dr. Julius Dreschfeld, Professor of Medicine in Owens College, Victoria University, tells us that in most cases of this disease only one kind of organism was found in each case, but that they vary in kind for different cases. The organisms that have been found in this disease have been in some cases streptococcus pyogenes, in others streptococcus of erysipelas, in still others staphylococcus pyogenes aureus, and thus through different cases were found the pneumococcus of Fraenkel, the pneumobacillus of Friedlander, the typhoid bacillus, the bacillus of tuberculosis, the bacillus of diphtheria, the gonococcus, the bacillus endocarditis griseus, the micrococcus endocarditis rugatus, the bacillus endocarditis capsulatus, the bacillus immobilis et foetidus, the bacillus of Gilbert and Lion, and a few other microbes with less definite character.<sup>41</sup>

Some of the names in this formidable list indicate the discoverer's idea that there was but one microbe of endocarditis. This antiquated notion is a vestige

of demonology, which taught that every disease was an entity due to one simple cause, and that cause a demon or ghost obsessing the patient. The deeper we study the more clear the evidence becomes that no absolute specific character belongs to any disease. Many causes can produce symptoms in common, and as the sums of symptoms constitute the disease, we may expect to find no lines of demarcation in which disease does not merge with disease. There are specific causes for every diseased condition and the knowledge of these causes is what we need, to be able to treat them successfully. Dr. Stephen Mackenzie, in his presidential address in the Section of Medicine of the British Medical Association, at its Montreal meeting, expressed this idea in the following words: "Until the exact nature of disease is fully understood, a truly scientific treatment is manifestly impossible."<sup>42</sup> But now the question arises as to how we are going to reach an exact knowledge of diseases as long as we continue using a nomenclature that is a source of daily deception and misunderstanding? Nomenclature is the mental tool of every diagnosis. Imagine our trying to study botany without our present nomenclature. Professor Allbutt of the University of Cambridge in the introduction to his "System of Medicine" has, we are quite certain, made the one error of that ably edited set of volumes when he throws the weight of his great influence against the naming of diseases by a system of nomenclature analagous to that used in botany and zoology.<sup>43</sup> Does he propose to have us forever remain without names to indicate those "groups of certain degrees of constancy" among symptoms? If the grouping and exciting causes are united in a double or triple name all of Professor Allbutt's objections disappear at once. We are already drifting naturally toward it. We can not avoid it if we desire to. No man is strong enough to stay the current for very long. Any system of naming diseases by a single name will perpetuate the wholly false notion that a disease is a something like an entity. The single name and the demon notion were conceived together and will by association always suggest something of each other. A new system that would not only do away with that suggestive association, but that would also force the mind toward a knowledge of the congeries of symptoms would check the very tendency which Dr. Allbutt fears. In the names "typhoid pneumonia" and "tuberculous meningitis" we have already developed the germ of a truly scientific nomenclature. Let us agree to make the existing cause or causes, as soon as known, the generic name of the disease and the lesion or primary seat of the infection the specific name. As our knowledge grows more profound we will be able to group the causes into families if we desire to do so, but at present it is unnecessary.

It is a pity that our bacteriologists have not yet discovered the specific causes of such common diseases as measles, scarlet fever and smallpox. They should have been among the first properly named, but as it is they could only be named provisionally. As soon as we hear of diphtheria pneumonitis, typhoid pneumonitis, erysipelous pneumonitis, streptococcus pneumonitis, diplococcus pneumonitis, etc., we naturally form a mental image of an inflammation of the lungs due to the general cause which the generic title indicates.

With a pliable nomenclature such as this we can have not only diphtheria or diphtheritic pneumonitis,



but we can have diphtheritic meningitis, diphtheritic hepatitis, diphtheritic cystitis, diphtheritic nephritis, diphtheritic carditis, diphtheritic enteritis, etc. In the same manner we can have with typhoid pneumonitis all such combinations as typhoid meningitis, typhoid cystitis, typhoid enteritis, typhoid hepatitis, typhoid gastritis, typhoid carditis, typhoid nephritis, etc. Should we discover that in some form of typhoid infection the skin was the chief lesion, we would call it typhoid dermatitis, and if the blood should be found the chief seat of the disease we could call it typhoid hemocytolysis. In case there is no particular localization of the damage, a general name could be supplied to express this idea, and where two, three or more distinct points of infection exist simultaneously this too could be expressed in a name. Where the specific microbe has a double or triple name these would have to be united and shortened, about as chemists shorten long organic chemic names. *Amœba coli* enteritis might be shortened into the name amcol enteritis. In this way the binominal system could be maintained for all ordinary affections and a trinominal kept for varieties. We already know that there are varieties of cholera answering to various kinds of spirilla and varieties of malarial affections due to different kinds of plasmodia. In such cases a triple naming would be a better means of telling the cause. As soon as such a system of naming diseases has become current it is but a short step to a corresponding system of analysis as applied to symptoms for the discovery of causes.

No effort has ever yet been made to classify symptoms in a scientific manner so as to aid the physician in making his inductions. As there is really but one disease, varying with the cause or causes and with the extent and location of the lesions, symptoms naturally arrange themselves in interblending groups. There are symptoms common to every disease, symptoms common to large groups of related diseases, symptoms common to small groups of diseases, and symptoms that belong to a single disease. Without a proper system of naming diseases their proper groupings is impossible. Correct the former and we can soon have the latter. With a proper nomenclature we can soon tabulate the symptoms as they appear. First we can find the most general ones that every form of disease manifests as soon as it has reached a certain degree of intensity. Next we can get a list of the symptoms common to the large groups, then to the small ones and finally to the single ones. The last-named symptoms, if correctly gathered, will tell the exciting cause, and when it is found, treatment is simplified to its utmost.

## BIBLIOGRAPHY.

- 1 Columbian Encyclopedia, Vol. xxiv, Pons Asinorum.
- 2 In Catilinam, i. 4.
- 3 Allbutt's System of Medicine, Vol. i, p. 533.
- 4 Johns Hopkins Hospital Bulletin, June, 1897, p. 128.
- 5 American Medico-Surgical Bulletin, 1897, p. 139.
- 6 London Lancet, March 26, 1898, p. 902.
- 7 Medical Week, 1897, p. 104.
- 8 British Medical Journal, Jan. 1, 1898.
- 9 Dictionnaire Encyclopedique des Sci. Méd., tome iv, p. 720, word "Angines."
- 10 Johns Hopkins Hospital Bulletin, April, 1898, pp. 72-80.
- 11 Boston Medical and Surgical Journal, March 21, 28; April 4, 1895.
- 12 Chl. f. Bakt. Parasit. u. Inf., Jan. 9, 1897.
- 13 Cheyne's transl. of Flügge's "Micro-Organisms" 1890, p. 259.
- 14 Pneumonia. Irish Royal Academy of Medicine lecture. American Medico-Surgical Bulletin, Feb. 25, 1898, p. 156.
- 15 Allbutt's System of Medicine, Vol. i, p. 658.
- 16 Il Policlinico, Nov. 15, 1895.
- 17 Surgical Complications and Sequels of Typhoid Fever, pp. 45-49.
- 18 Medical Press and Circular, March, 23, 1898, p. 315.
- 19 Lyons Médicale, No. 45, 1897.
- 20 Johns Hopkins Hospital Bulletin, Dec., 1897, pp. 259-261.
- 21 Bullet. et Mem. Soc. Méd. d. Hôp. de Paris, 1897, p. 243.
- 22 Berliner Klin. Wochenschrift, 1896, No. 30.
- 23 Le Bull. Méd., 1897, p. 313.
- 24 Wiener Klin. Wochenschrift, 1897, No. 4.
- 25 Zeitschrift f. Heilkunde, 1897, Heft. v, u. vi, p. 471.

- 26 Surgical Complications and Seq. of Typh. Fever, p. 37.
- 27 Ibid. pp. 183-187.
- 28 Ibid. pp. 111-146.
- 29 Archiv. de Méd. et de Pharm. Milit., 1895, No. 3, p. 228.
- 30 Archiv. Gén., 1892, clxix, p. 43.
- 31 Bull. et Mem. Soc. Méd. des Hôp. de Paris, 1893, p. 243.
- 32 Medical Record, Feb. 19, 1898, p. 282.
- 33 Johns Hopkins Hospital Bulletin, June, 1897, pp. 121-124.
- 34 Archives of Ophthalmology, xxv, No. 3.
- 35 Allbutt's System of Medicine, Vol. i, p. 717.
- 36 Ibid. Vol. i, p. 720.
- 37 Anders' Practice of Medicine, pp. 184-187.
- 38 Allbutt's System of Medicine, Vol. i, p. 754.
- 39 Epidemic Cerebro-Spinal Meningitis and Its Relations to Other Forms of Meningitis. Report of the State Board of Health of Massachusetts, 1898, pp. 166-173.
- 40 Allbutt's System of Medicine, Vol. i, p. 674.
- 41 Ibid. Vol. i, p. 629.
- 42 Montreal Medical Journal, Oct. 1897, p. 263.
- 43 Allbutt's System of Medicine, Vol. i, p. 26.

## POTASSIUM IODID IN CEREBRO-SPINAL MENINGITIS.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY H. A. MOODY M.D.

MOBILE, ALA.

The object of this brief paper is to emphasize the value of potassium iodid in meningitis, especially in that severe and fatal form known as cerebro-spinal meningitis.

Since deciding to present this subject I have looked through quite a number of the authorities most frequently consulted by the general practitioner, to form an approximate estimate of the appreciation in which this drug is held in the treatment of meningitis. I find that its use is recommended by many of them, but seldom during the stage in which I have found it most efficient. Biddle does not mention it in this connection; neither does Hare in his shorter work, the one most frequently consulted. Potter recommends a longer course of it during convalescence. Wood does not recommend it; neither does Stillé. Bartholow recommends it to remove adventitious products after the acute attack has subsided. Skinner reports Dr. Valtin as asserting that it acts almost as a specific in epidemic cerebro-spinal meningitis. Flint says that symptoms of oppression call for potassium iodid. Von Ziemssen states that in a later period of the disease it is of great service. Osler merely remarks that iodid of potassium is warmly recommended by some authors. Aitken says, "no real proof of its utility has yet been brought forward." From the above it will be seen that we are not much encouraged to employ it by those authors most frequently consulted by the general practitioner.

Thirty years ago Tanner said: "With regard to medicines directly modifying the morbid action I know only of one in which the least reliance can be placed—the iodid of potassium." My own experience in the treatment of meningitis leads me to endorse the position of Dr. Tanner. I have witnessed two epidemics of cerebro-spinal meningitis, in the first of which the iodid was not used to any efficient extent, while in the second it was the principal element in the treatment.

In the first epidemic the treatment was purgation, morphin, chloral, the bromids, ergot, blistering and venesection. Nearly all the patients died; some in a few hours, others after many weeks of suffering. Venesection received the credit of saving a few lives, but as a rule both doctor and patient lacked the courage to employ it with sufficient boldness for efficiency. In the protracted cases the iodid was used to promote absorption, but seldom proved effectual.