The Journal of the American Medical Association

VOL. XVIII.

CHICAGO, MAY 14, 1892.

No. 20.

ORIGINAL ARTICLES.

ON PREVALENT THERAPEUTIC INCONSISTENCIES IN MEDICAL PRACTICE, ILLUSTRATED IN CURRENT MEDICAL LITERATURE AND IN CLINICAL OBSERVATIONS.

Read in the Medical Section of the Michigan State Medical Society,
May 5, 1892.

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To gain a correct knowledge of the morbid processes capable of taking place in the human body and the laws by which they are governed, on the one hand, and an equally correct knowledge of the action of remedial agents, on the other, are the two great leading objects of every thoughtful and conscientious physician. Without the first, he is incapable of seeing clearly what he needs to accomplish in the treatment of any given morbid condition or disease; and without the second, he is equally in doubt as to the particular remedy best adapted to the accomplishment of the changes desired; and in consequence he is obliged to prescribe empirically such remedies as are recommended by his teachers or authors.

For instance, if he regards any given case of fever as simply increase of heat or pyrexia as its chief pathological element, without any definite knowledge as to whether such pyrexia has resulted from increased activity in the processes of heat production or a diminution of those of heat dissipation, he will have no guide as to which of the antipyretic remedies is best adapted to the case before him.

Or, if he has learned to discriminate correctly the special morbid processes by which the pyrexia is sustained but has neglected to study the *modus operandi*, or mode of action of such remedial agents as are known to reduce animal temperature he is equally in doubt and as liable to choose the wrong therapeutic agent as the right one.

The inadequacy of time hitherto devoted to study in the two directions just named, and the consequent incompleteness of knowledge concerning both morbid processes and the action of remedies, has caused our medical literature to be filled with the most confused and even contradictory statements concerning the application of remedies in the treatment of disease; and sometimes even attributing to the same remedy qualities so diverse as to be incapable of rational explanation.

Opium and alcohol furnish striking examples of the latter. Thus, in that well known standard work, the National Dispensatory, we are informed that, "alcohol applied to the roots or stems of plants destroys their life. It is poisonous to every animal, producing local or general anæsthesia, according to

the mode of the employment. Applied to the trunk of a nerve it paralyzes all its branches, and to the brain it impairs sensation and voluntary motion. * * * Taken internally, in small quantities appropriately diluted, it excites a sense of warmth in the stomach, and, if the person is very susceptible, an almost instantaneous glow throughout the body, etc. * * * In larger and intoxicating doses, alcohol occasions such symptoms for a shorter time, but speedily induces a state of impaired perception and motor power, which is followed by one of total insensibility and unconsciousness, in which the phenomena are those of congestion of the brain, and usually of the whole capillary vascular system, although the latter sometimes gives way to coldness and pallor." Yet, on the next page of the same work, the same substance is represented as "stimulating the exhausted nervous system and thereby exciting the distended capillary blood vessels to contract," and as under certain circumstances acting as food. And again that "in the form of distilled spirits, alcohol is the universal and familiar remedy for *debility of every kind*, whether it be due to exhaustion produced by shock or fatigue, or shown by syncope arising from a nervously feeble or an exhausted heart, to wasting chronic disease, or to the tissue destruction of acute febrile affections."

How any material substance can possess such properties as to be capable of diminishing the sensibility of the whole nervous system, of impairing the oxidizing power of the blood-corpuscles, of lessening metabolic changes in all the living structures, and by contact absolutely poisonous or destructive to both vegetable and animal life; and yet be capable of "stimulating the exhausted nervous system," of becoming real food, and of exhibiting such ubiquitous tonic powers as to constitute a universal "remedy for debility of every kind," is certainly beyond the comprehension of an ordinary mind.

One of the most influential causes of confusion and failure in the application of remedies in the treatment of disease, is the long continued custom of classifying or rather grouping of remedies in reference to their influence over some one prominent symptom of disease, instead of on their real mode of action in the system. For instance we group together all remedies capable of efficiently reducing animal heat and call them antipyretics. Hence, we find under that name sponging, packing, and bathing with water, the exhibition of quinine, salicine, antipyrin, acetanilide, phenacetin, digitalis, etc.; and not unfrequently we see nearly all of them given in turn to the same patient during a single run of continued fever. Yet there is no fact within the domain of therapeutics better established than that antipyrin, phenacetin, and all the recently constructed coal-tar series of antipyretics, so modify the hemoglobin of the blood as to lessen its conversion into

oxyhemoglobin, and therefore lessen the conveyance of the oxygen from the pulmonary to the systemic capillaries, and thereby diminish temperature by diminishing tissue metabolism and the sensibility of the cardiac, vaso-motor, and respiratory nerve centers.

In other words, they diminish the internal respiration by which oxygen is carried from the pulmonary to the systemic capillaries and carbon dioxide returned, and in the same proportion they diminish nerve sensibility and natural molecular and secretory action. Therefore, they reduce temperature principally by depressing all the processes by which heat is naturally evolved. On the other hand, the use of water by sponging, packing, or full baths, increases the activity of the nervous centers and of the natural secreting structures and actively reduces the temperature by increasing the processes of heat dissipation. Thus, while both series of remedies are called antipyretic, they produce their antipyretic effects by influencing the cardiac, vaso-motor, and respiratory functions in nearly opposite directions. And yet we have often found the practitioner daily administering both kinds to the same fever patient for one or two weeks in succession.

Another cause of much inconsistent and even contradictory use of remedies in the treatment of diseases, is the failure to maintain a clear line of distinction between tonics, stimulants and anæsthetics. Correctly speaking, a *tonic* is an agent that is capable of increasing the tonicity, strength, and natural efficiency of some one or all of the structures of the body. A *stimulant* is one that simply increases the excitability and rapidity of action. An *anæsthetic* is one that directly diminishes both sensibility and action, either local or general, according to the method of its use. Within certain limits, it is evident that tonics and stimulants may coöperate in their action on the structures and functions of the living body at the same time; while the action of an anæsthetic is directly antagonistic to both. And still, some of the most familiar and extensively used anæsthetics are spoken of and used as stimulants and tonics both in and out of the profession, and often given alternately with the latter, to the same patient from day to day. Both in standard works on practical medicine and in the periodical medical literature we find iron, quinine, mineral acids, cod-liver oil, wines, distilled spirits, ammonia, camphor, etc., enumerated as general tonics and stimulants, adapted for the promotion of strength and nutrition. And in referring to special cardiac tonics and stimulants, strychnine and alcohol almost always head the list, followed by digitalis, strophanthus, convallaria, cactus, musk, oxygen, etc. One eminent teacher and writer on practice of medicine says in regard to lobar pneumonia, the two chief sources of danger are "*heart-insufficiency and high temperature*," and he adds that "alcohol, judiciously used, is the most efficient means for overcoming" the first, and the sulphate of quinine in moderately antipyretic doses, the second. Another writer in the January number of *International Clinics*, 1892, formulates the treatment of catarrhal pneumonia in children under the following heads: 1. Fresh air. 2. Relief of pain. 3. Stimulation. 4. Treatment of complications. Under the first head he very properly insists on the most free and efficient ventilation of the sick room, that the patient may have constant access to *fresh* air. For relieving pain he condemns the use of opiates as dangerous in such cases and

relies on simple emollient poultices to the chest. For *stimulation*, he says: "We stimulate by the constant administration of alcohol; fifteen, twenty, twenty-five drops, or a teaspoonful of whisky, according to age, every two hours." In several very recent numbers of the *British Medical Journal*, correspondents have detailed a number of cases of extreme depression and cyanosis in pneumonia treated with strychnine and oxygen inhalation, and at the same time giving brandy or whisky between the inhalations. Each inhalation revived and improved the aspect of the patient, only to be quickly replaced by the cyanosis and finally the death of the patient. One case came under my own observation, in the treatment of which the attending physician was diligently administering oxygen by inhalation and brandy, both by the mouth and rectum. And very many times during the last ten or fifteen years I have seen patients in the second, third, and even the fourth week of typhoid fever, who were diligently taking day after day, antipyrin, acetanilide or phenacetin to reduce the temperature; strychnine and mineral acids to increase innervation or nerve sensibility; and wine, whisky or brandy as supposed cardiac tonics. If we examine the results of the most reliable investigations concerning the action of the remedies mentioned as used in the cases to which I have just alluded, we quickly learn that the patients were actually using, coincidentally, remedies of decided antagonistic influence on the structures and functions of the human body. For instance, both carefully executed experiments on animals, and abundant clinical observation have shown that antipyrin and the group of antipyretics to which it belongs directly diminish the formation of oxyhemoglobin in the pulmonary capillaries and the conveyance of oxygen to the systemic capillaries, and thereby diminish metabolism, heat production and nerve force. Hence, there are many cases on record, in which their administration was followed by cyanosis and a dangerous degree of depression of the cardiac, vaso-motor and respiratory nerve functions. Still more numerous experiments on animals and almost unlimited clinical observation has shown that alcohol produces a similar effect on the hemoglobin and albuminous constituents of the blood, thereby lessening the tissue metabolism, but more directly diminishing at the same time the sensibility of the whole nervous system in a manner closely analogous to that of chloroform and ether. Therefore, instead of acting as either a stimulant or tonic, it constitutes a true anæsthetic, and has been often used as such, mixed with chloroform and ether. When introduced into the system in any manner, it not only diminishes the sensibility of the cerebral hemispheres and thereby suspends consciousness, but it also lessens the sensibility of the vaso-motor, respiratory and cardiac nerve ganglia, and in direct proportion to the amount used.

On the other hand, strychnine is conceded by all, to be capable of directly increasing the sensibility and action of the cardiac, vaso-motor, respiratory and cerebro-spinal nerve structures; and therefore, is in direct physiological and therapeutic antagonism with the antipyrin, alcohol and other anæsthetics. Consequently when a patient with typhoid fever is given from day to day antipyrin or phenacetin to control temperature, milk and eggs liberally mixed with alcohol for nourishment; and strychnine, mineral

acids, and fresh air for tonics; the antipyrin and alcohol directly antagonize the influence of the strychnine and fresh air, both on the nervous centres and on the blood and tissue changes. If in such cases, the antipyrin and alcohol, and all other agents of similar action, were entirely omitted, and judicious applications of water to the surface substituted, the treatment would be harmonious and far more beneficial in its results, as I have seen demonstrated many times during the last half century.

In the cases of pneumonia to which I have alluded, the inconsistency of giving whisky or brandy or any other alcoholic freely, alternately with digitalis, strychnia, fresh air or oxygen, is still more apparent. The pneumonic engorgement of the lung has already much diminished the amount of oxyhemoglobin in the blood and thereby checked both tissue metabolism and renal secretion, as well as dulled the nervous sensibilities, voluntary and involuntary. In such a condition, to set the doors and windows open for fresh air, or to give the patient oxygen inhalations, and at the same time liberally of alcoholics, perhaps twice in the twenty-four hours an antipyretic dose of antipyrin or phenacetin, or a hypodermic dose of morphine, would be much like plugging the larynx of a dog, and then trying to keep him alive by practicing artificial respiration without removing the plug.

I am well aware that those who give alcohol in pneumonia, do it in obedience to the teaching that the chief danger in the disease is cardiac weakness and that alcohol is an efficient cardiac tonic. But why does the heart become weak or inefficient in pneumonia? Certainly not from fatty degeneration or any other structural change in the cardiac muscle; but its weakness is either from the diminished oxygenation and decarbonization of the blood through the obstructed parenchyma of the lung, or from the toxic effect of ptomaines or leucomaines, bacteriological or renal, or from all these combined. If it were possible, with the patient in such condition, to simply increase the action of the heart, it would only pump more blood into the already obstructed pulmonary capillaries and still further diminish the natural entrance of oxygen through the air cells of the lungs, and thereby increase the danger of inducing both respiratory and cardiac paralysis. The rational indications for treatment, then, are, to lessen the pressure of blood and inflammatory products upon the pulmonary alveoli, and thereby allow the entrance of more oxygen and the exit of more carbon dioxide, and as far as possible to neutralize or eliminate the toxic ptomaines whether derived from the pneumococcus or from retained elements of urine or bile. Just in proportion as we accomplish these, we restore the natural sensibility and action of the nervous structures, increase the renal and hepatic secretions, and promote natural metabolism throughout the system.

But do not both common observation, whether at the bed-side or in the social circle, and the most accurate experimental work show, that alcohol is a true anæsthetic, diminishing nerve sensibility, muscular force, and the efficiency of the blood in carrying oxygen from the pulmonary to the systemic capillaries in direct proportion to the quantity introduced into the system? If any one has doubts concerning the affirmation of this question, let him read carefully the experiments of Sidney Ringer and Prof. Martin

on the action of alcohol on the isolated heart, and those of H. C. Wood, as given in his address on Anæsthesia before the International Medical Congress in Berlin. If we add to the results obtained by these three, those obtained by R. Dubois in 1883, we have the most complete demonstration, not only that ether, chloroform and alcohol are true anæsthetics, each mutually intensifying the action of the others, but that each directly diminishes the sensibility and action of the vaso-motor, respiratory and cardiac nerve ganglia or centers, in direct proportion to the amount introduced into the blood, until either respiratory or cardiac paralysis ensues. And also that there is no stage in their action when the efficiency of the heart is increased. Then why longer be so inconsistent in the use of language as to call either of them a stimulant or tonic? And why continue to give one of them liberally with one hand, while with the other you give to the same patient its most direct physiological antagonists, digitalis, strychnine, or oxygen? Or why cap the climax of inconsistency by giving a patient already dangerously depressed from anæsthetics, hypodermic injections of ether or alcohol as supposed restoratives, as has been done many times both in this country and in Europe? Indeed it is only a few weeks since that a case was reported in the *British Medical Journal*, of a patient whose respiration and circulation had been suddenly suspended during the inhalation of the anæsthetic composed of ether, chloroform, and alcohol combined, and aside from the practice of artificial respiration the most prominent remedy mentioned was hypodermic injections of ether. Of course the patient did not recover. Many years since a man was brought into the hospital partially intoxicated by alcoholic drinks with a dislocation of the head of the humerus. As he was somewhat boisterous the surgeon thought to quiet him and facilitate the reduction of the displaced bone by a cautious inhalation of chloroform. But he had inhaled only a very small quantity before both respiratory and cardiac action suddenly ceased and all efforts to restore them failed. The amount of alcohol already in his blood and nerve tissues rendered the addition of only a very small quantity of chloroform acting in the same direction, sufficient to overwhelm their functions. Another case came under my observation illustrating the danger of giving in quick succession different remedies capable of modifying the functions of the nervous centres in the same direction. The patient was wild and restless from delirium tremens. To quiet the delirium and induce sleep, the attending physician gave him chloral hydrate and potassium bromide every hour until three doses had been taken, forced a moderate amount of inhalation of chloroform, and finally gave half a grain of morphine, which was soon followed by sleep from which he never awoke. The amount given of any one of the four remedies used was not sufficient to endanger the life of the patient, but the coöperation of all certainly and speedily proved fatal.

Such cases show that it is quite as necessary that the physician should know accurately what remedies coincide and mutually intensify their action, as it is those that directly antagonize each other. And this suggests another item of extreme practical importance. It is to avoid giving a remedy to relieve some troublesome symptom without just appreciation of its liability to increase some of the most important pathological conditions involved in the case.

For instance, in many cases of capillary bronchitis and of acute pneumonia, the patient becomes very restless from the oppressed breathing and harassing cough, and at the same time his urine is scanty and his blood surcharged with renal and bacteriological toxic elements with excess of carbon dioxide and deficiency of oxygen. But his physician overlooking these, thinks it necessary to give his patient rest, and for that purpose gives him a fair hypodermic dose of morphine and perhaps an antipyretic dose of phenacetin to control the temperature. In a short time the patient becomes quiet, sleeps some and expresses himself as much better, but is still drowsy, with a soft frequent pulse, frequent and shallow respiration, and moist râles over nearly the whole chest. In from twelve to twenty-four hours, the somnolence instead of disappearing is increasing, the pulse is weaker, the respirations more frequent and less deep, the cutaneous surface is moist and dingy or of a leaden hue, and the physical signs of pulmonary oedema are hourly increasing. Now, if not before, the alcohol in the form of whisky or brandy, is given freely for the alleged purpose of sustaining the failing heart. But, nevertheless, in another twenty-four or thirty-six hours the patient is dead. While the morphine quieted the cough and restlessness, giving the patient an appearance of relief, in the same ratio it diminished the efforts to keep the bronchioles and alveoli free, consequently less oxygen reached the hemoglobin of the blood and carbon-dioxide accumulated still more rapidly, until vaso-motor paralysis and pulmonary oedema completed the fatal process. During the unusual prevalence of pneumonia and other acute pulmonary affections, that have accompanied the influenza epidemics of the last three years, many cases have occurred to which the foregoing description would apply with almost literal accuracy.

Another of the most common therapeutic inconsistencies that mars the pages of our medical literature and leads to most important errors in practice, is the claim that the same medicine or therapeutic agent, may produce directly opposite effects on the living body by simply varying the dose. Examination will show that this claim is limited chiefly to the two important groups of medicinal agents properly called narcotics and anæsthetics. These are universally recognised as exerting their principal influence on the functions of some part or all of the nerve structures of the body, while some of them exert an equally direct influence on the constituents of the blood and through it upon the metabolism of the tissues generally. Concerning nearly all of the members of these two classes, and especially regarding the two representative articles, opium and alcohol, we are constantly assured that in small doses they are stimulating or tonic; in larger doses, anodyne or inebriating; in still larger doses, narcotizing or anæsthetic; and in still larger doses paralyzing or destructive to life. Consequently the very general popular belief, and equally popular practice, is, that their use in small doses is cordial, restorative or tonic and therefore beneficial, and injurious only when taken in larger doses. Unfortunately, however, no one has yet been able to define the limit or dividing line where the small or tonic dose ends and the larger or depressing dose begins. All admit that even in small doses, these remedies diminish the amount of oxygen conveyed from the pulmonary to the sys-

temic capillaries, and thereby diminish the molecular or metabolic tissue changes and the excretion of the products of natural tissue metamorphosis. Indeed, it is on this power to diminish the internal distribution of oxygen and its action on the tissues that one of their chief and most important uses is made to depend, both in health and disease. But while looking in this direction and perhaps admiring the working of this fancifully so-called "savings bank for the tissues," it seems to be forgotten that all nerve sensibility and force depends upon the presence of blood containing the natural amount of oxygen; and that just in proportion as we diminish the proportion of oxygen in the blood distributed to the nerve structure we diminish both nerve sensibility and muscular action. So true is this, that the simple exclusion of oxygen produces a more speedy suspension of all sensibility or profound anæsthesia, than can be produced by the most active anæsthetics known.

Is it not then physiologically impossible that any agent should so far diminish the distribution of oxygen in the arterial blood as to diminish general tissue metabolism and not at the same time diminish the sensibility and action of the nerve structures both voluntary and involuntary? And if so, how can it be at the same time a cardiac tonic and general restorative?

A careful and thorough review of all the facts, social, clinical and experimental, bearing on this subject, will show that the very general belief in the stimulating or tonic properties of small and repeated doses of alcohol and opium is erroneous, being founded on a wrong interpretation of the primary symptoms produced.

Of course no such review of the facts can be given within the proper limits of this paper, but I may trespass upon your patience long enough to suggest the more important conclusions to which it would lead. For instance, the temporary quickening of the pulse or heart beat, the sense of warmth and lightness or exhilaration, that pervades the system, and the greater volubility of speech and less restraint in action, which constitute the only foundation for the popular idea of stimulation, on closer physiological analysis will be found to be evidences of coincident diminution of nerve sensibility (anæsthesia), and retarded tissue metabolism. The nervous apparatus controlling the circulation of the blood embraces both cardiac accelerators and inhibitors, and every well-informed psychologist knows that the mental part of the brain furnishes both accelerators and inhibitors of mental action. Indeed, it is the possession of the latter that gives to the human species one of its most distinctive characteristics, namely: the power of self-control and the sense of propriety. Every true narcotic and anæsthetic makes its first recognizable impression simultaneously on the cerebral hemispheres and the vaso-motor and cardiac nerve structures, lessening their sensibility, partly by direct contact with the nerve cells, and partly from interference with the internal respiration. Such lessened sensibility in the cerebral convolutions, when slight, simply diminishes the mental consciousness of outward impressions, and lessens the balance between mental acceleration and inhibition. Hence they exhibit less consciousness of cold, or heat, or pain, and more mental exhilaration, with less reserve or self-restraint.

Precisely the same kind of influence is exerted on

the nerves regulating the circulation, causing a very transient semblance of increased activity, but which is really lessened efficiency of circulation and molecular change. Now if you duplicate the dose of the same agent, the patient's consciousness of impressions is still less, and while he is under the same impression that he could do a great deal, his mental exhilaration and lack of self-restraint has given place to mental incoherence and incoördination of muscular action. Again duplicate the dose, and your patient soon lies profoundly unconscious, with every voluntary muscle paralyzed, with the cardiac and respiratory functions on the verge of final suspension.

To my mind, it is a clear demonstration that the action of the therapeutic agent was in exactly the same direction from the first and smallest dose to the largest one. And that direction was one of depression, diminished efficiency and paralysis, from the beginning to the end.

This is fully corroborated not only by the experiments of Dubois, Sidney Ringer, Martin and Wood, to which I have before referred, and many others, but also by a great variety of facts to be gathered from the mortuary, vital and social statistics of every civilized people. Did time permit, I might point out many more important therapeutic inconsistencies, that are to be found in the daily routine of medical practice, but those to which I have referred are sufficient for my present purpose. For the leading object I had in view in presenting this paper, was to urge upon your attention the importance of a more thorough study of the nature and true physiological action of the articles of our superabundant materia medica, in connection with an equally thorough study of the actual pathological processes that constitute disease.

I would in no wise diminish the activity and zeal that has been, and still is, displayed in studying the causes of disease, whether bacteriological, chemical or meteorological. But I would insist on an equal activity and perseverance in such investigations as will develop more accurate knowledge concerning the action of therapeutic agents in the living body, both in health and in disease. Every living structure has properties, or susceptibilities and affinities, that place it in definite relations to all other substances that may be brought in contact with it, whether as food, medicines or poisons.

And for gaining more exact knowledge of such relations, I would have every medical college laboratory, public hospital and dispensary, furnished with the necessary apparatus and means for such investigations, and with skilled workmen to use them.

A PLEA FOR THE MEDICAL EXPERT.

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Ever since Bacon and Descartes overthrew the deductive method of scientific investigation founded by Aristotle and practiced by the mediæval schoolmen, a more rigid exactness has been demanded by mankind in the statement of scientific facts. "Give us facts and away with theories" is the modern battle-cry of practical science. A mathematical precision only is worthy of its dignity. Mathematics itself and chemistry and astronomy are upheld as the models, and all knowledge that falls short of their exactness is looked upon with a gentle suspicion, and perhaps a sympathetic pity. Civil and mechanical en-

gineering, architecture, steam manufacturing, and all the other arts and sciences based upon geometrical principles have taught us to be so rigid in our demands that we have very little patience left for what cannot be demonstrated by the rule of three or solved by the theorems of Euclid. We want so much to know the precise height and depth of everything, that we are prone to quarrel with mere opinions and to laugh to scorn imaginary theories. Columbus' visions of a western passage and Roger Bacon's dreams of the transmutation of metals would be deemed more than chimerical to-day if their whys and wherefores could not all be first figured upon the written scroll. It is fortunate, perhaps, for the race that science is made to toe the line in this unflinching manner. The darkness of the Middle Ages would long ago have been dispelled had the schoolmen watched, like Newton, an apple fall, instead of arguing how many angels could dance upon the point of a needle; and mankind would ere this have enjoyed the comforts and luxuries of modern civilization had the astrologers employed their vigils studying the measurements of time and space instead of concocting absurd horoscopes for the amusement of superstitious emperors. But at the same time there is a risk in being too exact, or rather in being satisfied with nothing but what is mathematically demonstrable. If we allow such a tendency to overrule us, all art will vanish like the morning mist, and science will go limping like a lame creature on a single crutch. We want precision, as much as we can get of it, but precision cannot always be obtained at once. Nay, more, in some departments of human knowledge it looks as though it were entirely unattainable. Who can round the circle or square the angles of such sciences for instance as sociology, physiology, morphology? Trousseau used to ridicule psychology, which he was wont to call a pseudoscience. When we survey the broad field of science in general, how meagre and stunted the harvest seems to be! Excepting the truths of mathematics we cannot say positively that we know anything. Even the knowledge that we do possess of the exact sciences is only relatively exact. It is so easy to ask questions which it is impossible to answer, and science may be criticised by the smallest child despite its presentation by the most learned savant. It is just here that the unseemly wrangles occur in our courts between the legal and medical talent. I am not referring now to those dishonest methods too often adopted by both the counsel and the medical expert for the purpose of warping known facts to gain an end. I speak of those instances that do occur, though less frequently, in which there is an honest but unsuccessful effort to learn some positive medical facts for the guidance of the court and jury. In such cases it almost always happens that the medical expert is chagrined at his own inability to supply the needed information, and the lawyer turns away with a very natural, but unwarrantable disgust for the boasted truths of medical science. The former is inclined to assume too much, the latter to demand too much. The fault is thus somewhat on both sides, more often on the side of the legal fraternity.

When one of the judges of the supreme court of Maine asserts that if there be any kind of testimony that is not only of no value, but even worse than that it is in his judgment that of medical experts, it is evident something must be radically wrong with the