

Therapeutic Activities of Non-Toxic Plant Drugs

There has been quite a tendency during the past four or five years toward the presentation of arguments that organic remedies cannot have any active medicinal properties, unless they contain active principles.

It is with great difficulty that any theory can be advanced that will sustain an argument in favor of a dynamic therapeutic influence, specific in character, definite and reliable, invariably present of an absolutely benign, non-toxic, unchangeable character. Such a theory, however, may more readily evolve itself from a perfected knowledge of the *Colloidal character of plant products*, so lucidly presented by Professor Lloyd in the above article, and for the first time incorporated within the pages of any book.

It is a matter of striking moment that notwithstanding much has been known concerning the Colloids for nearly a century, but little has been determined in vegetation. Very little has been written beyond the work done by Professor Lloyd himself, and the truths that are here evolved will well serve as a foundation of principles, which we believe will encourage and justify further study of this momentous subject. It is also a matter of surprise that in no periodical of Pharmacy or Materia Medica has an article yet appeared in the English language that throws much light upon this subject.

We believe that it is due to the cause of Eclectic Medicine evolved through the persistent, continued and laborious research of Professor Lloyd, that we be given credit, for the application of Colloidal principles, and Colloidal compounds to medicine and pharmacy, as our literature antedates that found elsewhere. The superior character of Colloidal Gelsemium, Colloidal Veratrum, Colloidal Sanguinaria, Colloidal Eupatorium, Colloidal Euphrasia, and others that we might name, well represents what will be done in the early future with many of our pharmaceutical preparations.

We are inclined to believe that the truth underlying the statements hereabove made will develop a broader knowledge of this inherent dynamism, in drugs possessing Colloidal properties, and will, in the future, serve as explanation for many influences not at present thoroughly understood. We are now in the early infancy of this subject, which is of the highest scientific importance, and most statements made at this time, will probably need early revision.

In an article read at the last meeting (June, 1918) of the National Eclectic Medical Association Dr. G. Strohbach, of Cincinnati, presented some plausible theories concerning the fact that these remedies taken by the mouth into the stomach sustain an influence through the action of the gastric and gastrointestinal fluids that may change their character, preventing, sometimes, an anticipated influence, and causing results that would produce an entirely different result than that anticipated.

He presented the work of Horowitz, of New York, on this subject, in which there is brought out the fact that medicines administered by injection, intravenously, intramuscularly, or subcutaneously, if they do not possess toxic properties, would exhibit a profound but very sufficient medicinal character that was in every way superior to the influences anticipated through the mouth. The following are some of the essayist's statements: "That plant substances have therapeutic properties has been recognized for thousands of years. Their therapeutic application has been worked out along purely empiric lines. The chemical study made of them in the past has been limited to determining the amount of starches present, or of pectins and other so-called inert substances, on the one hand, and on the other hand of the alkaloids, glucosides, resins, oleoresins, and other so-called active principles. The pharmacologic studies have been purely of a physical character in their influence as excitants or depressants on various organs such as heart, kidneys, liver, intestines, stomach,

lungs, etc. *This concept of the effect of plant drugs has omitted what are now being recognized as the most essential influences of the plant.*"

"Plants are built up by ferment action and the energy of the sun's rays. Chlorophyll is the most important of these ferments, but in addition there are chromoplasts, lipoids and vitamins, which are essentially important. Furthermore, many plants have ferments that, so far as we know, have no special effect in the plant economy. Through the energizing properties of the sun's rays and the action of these ferments, these elements are built up into all the diversified forms of plant life. *They then develop a stored-up energy in the plant, which is now coming to be recognized as the great factor in the therapeutic results produced by drug plants.*

"This field is just opening up, and a beginning has been made in the use of certain non-toxic plants in the treatment of diseases which have hitherto been considered incurable or more or less intractable.

"It seems to be essential in the reproduction of these non-specific proteids, that only non-toxic or non-poisonous plants be employed. If the poisonous plants, or the poisonous group in the intramolecular chain of molecules of innocuous plants, be injected, it would seem to lay a heavy burden on the economy, in addition to that already produced by the disease from which the patient suffers."

"The plant ferments above referred to act biologically in splitting foreign proteins of high molecular weight, within the system. All invading micro-organisms are subject to attack by these ferments. In addition, there are present in all plants, vegetable acids, metalloids and metals, in *Colloid state*.

"Professor John Uri Lloyd, Ph. M., Ph. D., LL. D., has well pointed out the many new principles involved in Colloids. One can, therefore, readily understand that these metals and metalloids which are present in Colloid state, have peculiar activities. Reference here is made particularly to these substances in the dispersoid state. This may well be illustrated by the following example: Place in a glass container, two threads of platinum wire. Conduct through this water an electric current and the platinum wire will disappear. This water containing the platinum does not increase in specific gravity, tension, nor is the freezing point lowered. This water has the same properties after as before it is run through a Berkefeld filter. The platinum has been divided into extremely fine particles, and in this state has a tremendous amount of electric ferment; i. e., it has the property of cleaving or splitting high proteid molecules just as have the organic. However, there is this difference: the platinum in this state, after performing a certain amount of work, loses this electronic energy and gradually returns to its more stable and condensed form."

"It was thought at first, that this property of platinum in the Colloid state was due to the fact that this metal is in the radio-active group, such as is uranium, cadmium and thallium. But further experimentation determined that the same properties are obtained under similar conditions with copper, iron, manganese, and other heavy metals. *These metals and metalloids in colloidal state, therefore, act essentially as do the organized ferments.*"

"It is obvious, therefore, that there are present in plants, biochemic and biologic principles that act specifically in various diseases."

"It may be stated that the tendency in teaching circles of the dominant school of medicine today, is to use toxic plants only, as therapeutic agents. For a drug to be accepted at the present time, it must have a mean lethal dose to the guinea pig or rabbit. This may be in a measure justified if drugs are to be given entirely by the mouth, or if results are to be obtained only by rapid massive action."

"The best results, however, are found to be obtained by using non-toxic

plant products, by the parenteral route. They can be injected into muscles or into veins direct. When introduced in this manner, they are not subjected to the destructive action of the ferments of the alimentary canal. While it is true that pepsin, trypsin and other organic ferments are present in muscle and other tissue, they do not have the same properties as in the stomach or intestine, owing to the absence of activating substances."

"Horowitz early recognized the non-specificity of animal serums and the possibility of anaphylaxis causing more or less serious damage. He began the study of plant proteids to be employed parenterally. He soon realized that the *less toxic or poisonous the plants were to man, the more effective they were in therapy*. The toxic principles must always be counteracted by the defensive powers of the body, and to that extent but add to the difficulties of the patient. He soon perceived that a simple chemical reaction was not the proper means of obtaining results."

"By increasing the elimination of waste products, cell metabolism tends to resume the normal, and appetite, digestion and assimilation are improved. In addition these substances attack directly the invading micro-organisms, splitting or cleaving them, thereby leaving them no longer active in the production of disease symptoms."

"As micro-organisms are destroyed, the rapid destruction of blood in hemolysis ceases. With the less rapid destruction of blood and the more rapid production of all of the defensive powers, the economy is soon brought to a high point."

In the development of the above theory, how much of a deleterious effect is exercised by the destructive action of the ferments of the alimentary tract, upon the medicinal elements of those non-toxic plants which are used in medicine *per os*, cannot be as yet known. There is no doubt that certain of the drugs of this character will act more satisfactorily if used by a parenteral route. This we have proven in the case of Lobelia, but we have yet to learn that detrimental effects are always produced when these remedies are so taken. The many subtle influences, the characteristic dynamism so observed by all our careful observers of these drugs, prove quite conclusively the potent influence of many non-toxic drugs. They also prove the truth, in part at least, of these theories.

While we are rapidly learning that hypodermic injections, or intramuscular injections of very important remedies, are producing different results, and in some cases, more satisfactory results than when the remedy is used by the mouth, there is no doubt that with some of these agents, there were almost equally satisfactory results secured when these agents were given as infusions, or decoctions.

Another view, however, must be taken of the problem of therapeutic remedial agents taken into the stomach. As yet the chain of reactions that follows with the majority of plants, is absolutely unknown. A substance innocuous in character may possibly, by the action of digestive ferments, become energetic, when assimilation finally takes place. Very small amounts may, therefore, produce an influence by reason of the materials *created* by the digestive processes, from which the original material has practically disappeared.

In other words, the gastric juice may perform a very essential function in creating from a remedy a new substance of much service therapeutically. Probably many physicians are acquainted with the therapeutic action of innocuous remedial agents that, hypodermically injected, may have an opposite, or at least a very different influence, than when administered by the mouth. We must not be too hasty, then, in generalizing that because toxic drugs are very pronounced hypodermically, and many of them, as for example morphine, more

desirable in that way, all remedies are likewise hypodermically desirable as contrasted with the same remedies taken into the mouth.

In the development of their specific properties by superior vegetable pharmacy, their influence has been greatly broadened and has been made more accurate and invariable.

With all these we are hoping that before another issue of this work is sent out, Professor Lloyd will have further evolved other great truths concerning the Colloids, and that new fields of investigation will have developed elucidating the definite therapeutic influence of the Colloids.

In the meantime, we shall continue to use our medicines by the mouth in those cases in which the observation and experiences of the past have proven their superior influence by this method, and by parenteral methods also when evolved and confirmed, underlying truths in the therapeutic or physiologic action of drugs, which will be found to exist because of, or within the Colloidal character of both organic and inorganic remedies.