ESSAY LVIII.

EXPERIMENTS

WITH

DRUGS AS A QUESTION OF

SCIENCE.

A Paper read at the Meeting of the British Association for the Advancement of Science, held in Leeds, September, 1890.

WITH A SUPPLEMENT,

BY

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"The jewel that we find, we stoop and take 't
Because we see it; but what we do not see
We tread upon, and never think of it."

Shakespeare
(Measure for Measure).

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ANALYSIS.

The Paper read before the British Association. The different actions of different doses of the same drug.

Supplement.

I. Rejection of Theories. Dissatisfaction with Empiricism. Adoption of Science.

II. Theories—Empiricism—Science.

III. What is Medical Science?

IV. What are Drugs? Are they governed by laws?

V. The Profession shy of generalizing in Therapeutics.

VI. The condition of Medicine and Surgery. Treatment of cataract.

VII. What is the present fashion in Therapeutics?

VIII. A fallacy in Homœopathy discovered by experimenting with small doses. Antipraxy a truer expression.

IX. The agreements and differences between the old practice and the new; between Homœopathy and Antipraxy; and between some who accept Antipraxy in part and that described in these Essays.

X. The results of forty years of work.
ESSAY LVIII.

EXPERIMENTS WITH DRUGS AS A QUESTION OF SCIENCE.

"There is one sad evil which nothing can overcome—and that is the state of the times, which makes one hopeless, humanly speaking, of doing good; ... and imposes that hard task of human constancy—the doing from a sense of duty what you feel a moral certainty will be unsuccessful."

Hugh James Rose.

At the Meeting of the British Association for the Advancement of Science, held at Nottingham in 1866, a Paper was read "On the Physiological Action of Medicines," the subject being the action of Medicines taken in health.

The experiments already tried were referred to, and suggestions were made relative to further experiments (1) on the object to be pursued, (2) on the mode of proceeding, (3) on the utilization of the results.

As these experiments have been continued by me since the date of that Paper, now twenty-four years ago, it seems to be a duty to make some Report to the Association. On the present occasion this shall be confined to the conclusions arrived at on one part of the question only. To attempt more would occupy too much of the time of this Meeting.

Perhaps the Section may be reminded that the primary object of these experiments is to obtain an answer to a question in Science—What is the action of the substances called Drugs on the living body of man?

It is evident that experiments made in order to discover this action must be made on persons in health.
For when drugs are given to the sick the complication arising from the existing disorder makes it difficult and often impossible to distinguish the action of the drug from the effects of the disease.

Every one is aware that this enquiry is comparatively a new one, and that, as yet, little is known of it.

The conclusions arrived at, which are to be laid before the Meeting to-day, are the results of experiments with different quantities of the same drug. They may be briefly expressed as follows:

1. The smallest doses used in these experiments have power to act upon the living human body.
2. The commonly received opinion that the actions of drugs are simply increased in degree, and not altered in character by increasing the dose, is an error.
3. The actions of doses are sufficiently distinct to admit of classification.
4. This classification has two divisions. The first contains groups of doses arranged as they act upon the same person. The second contains groups of doses arranged as they act upon different persons.
5. Experiments show that several small doses act upon the same person nearly in the same manner—these, therefore, form a group. And there are several larger doses which act differently from the first group, but in regard to themselves nearly in the same manner, these, therefore, form another group. This is the first division.
6. When not only the quantity of the drug but also the person experimented upon is varied, a complication is introduced, owing to the varying sensitiveness of different persons; nevertheless, a succession of groups of doses may still be observed. These groups differ from, and often overlap, those of the first series. This is the second division.
7. Each of the groups of doses in both divisions has characteristic actions either in kind or in degree, which distinguish them from the others.
8. The actions of a group of certain small doses are exactly contrary to the actions of another group of certain larger doses. This conclusion is so clearly established as applicable to all drugs, and is so new, that I have felt it necessary to give it a name, and have called it Antipraxy, i.e. contrary action.
9. There is a group of intermediate doses, between
these contrary-acting groups, which has both actions in succession.

10. There is a group of still larger doses, which doses have the same action as the small ones, but differ from them in degree; they act more violently, and their action is accompanied with more or less serious complication.

11. There are yet larger doses, which again act in the contrary direction.

12. The experiments already tried seem to indicate that between every two single action groups there is a group of intermediate doses having the double action.

13. It would appear, therefore, that four groups of gradually increasing doses form a *cycle*, which is then repeated.

14. These results of experiments are *facts*. Theoretical explanations of them are to be rejected; such explanations being hindrances not helpers in our search after truth. The facts themselves, without any explanations of them, admit of being made practically useful in prescribing medicines for the sick.

For details of many of these experiments I may be permitted to refer to Essay LVII, "A Study of Doses."

Having been a Life Member of the British Association almost from its commencement, I am thankful to have lived to offer this additional tribute of respect.

*July 22, 1890.*
SUPPLEMENT.

The paper read at Leeds was necessarily short. On publishing it a few supplementary paragraphs may be added.

1. "Who shall decide when Doctors disagree?" The disagreements of Doctors are so notorious that they have become a proverb. They will continue to be a proverb until a fundamental change has been accomplished in Therapeutics, that is, in the treatment of the sick by medicines. This fundamental change will have to be made in three great departments.

First. In the rejection of all theories. Hypothetical explanations or theories have been, and still are, the greatest barriers to the progress of true knowledge. The human mind revels in them, but they are the enticing allurements of syrens into false paths.

Second. In dissatisfaction with empiricism. This is already felt by many, but it must be felt by all, and more strongly than it is yet felt by any. Even the philosophical empiricism so eloquently advocated by M. Renouard in his 'History of Medicine' must be rejected, both because, of its insufficiency and instability in practice, and because, as he himself admits, "it does not at all indicate the route to follow for the discovery of curative means."

Third. In the adoption of a foundation in Science. There is no certainty, and therefore no permanence in any branch of knowledge until it is founded on law-facts. These are unerring in the government of natural phenomena, and when we know them we may rely upon them with confidence; as the astronomer, the mechanic, and the chemist do. It is the prevailing opinion that such

law-facts are impossible in Medicine, or, if possible, that they are quite beyond our power to discover them. This is an error. They are not only possible but certainly exist, and the discovery of them is quite within the compass of man's capacity.

It is obvious that these three changes are huge departures from the past and present practice of the Medical Profession. Many will think them "desirable but impossible." That they are desirable none can be so foolish as to deny. That they are not only possible but practicable in the present day will be found by those who, with energy and perseverance, will go in search of them.

An example has been set in these Essays, which, notwithstanding all its imperfections, has been rewarded with the discovery of two of these law-facts, and, doubtless, those who follow will meet with similar rewards.

2. Theories.—All history tells us that the attainment of truth in Medicine has been prevented by Theories—these being nothing more than speculations or fancies of man's brain, generally quite remote from the facts of nature. The oldest known theory in Medicine is thus spoken of by Plato:—"Socrates, I conceive you must allow that the soul is connected with the body; that our body being drawn and balanced by opposite agencies, hot and cold and dry and wet,* our soul is a mixture and mutual relation or harmony of these elements, resulting from their due and suitable combination."

This was an old doctrine in the days of Hippocrates, and was strongly condemned by him. In his treatise 'On Ancient Medicine' he says:—"Whoever having undertaken to speak or write on Medicine, have first laid down for themselves some hypothesis to their argument, such as hot, or cold, or moist, or dry, or whatever else they choose . . . are all clearly mistaken in much that they say . . . wherefore I have not thought that Medicine stood in need of an empty hypothesis.†

To this day physicians boast that Hippocrates is 'The Father of Medicine,' and that what he taught must be orthodox, and yet with one mind they set at naught this condemnation of theories by him.

So there have been theories of Medicine in all ages.

* "υπὸ θερμοῦ καὶ ψυχροῦ καὶ ξηροῦ καὶ νυμφοῦ."—Phædo, 80.
† The genuine works of Hippocrates, by Francis Adams, vol. i, p. 161.
In my early life there were those of Cullen and of Brown in Edinburgh; of Broussais in Paris; of Clutterbuck in London; in Germany there were others; in Italy others. Each for a time was enthusiastically adopted, and soon afterwards neglected or dismissed with contempt.

Men's minds are so strongly bent in this direction that they feel no hesitation in contradicting the plainest truth. In a review of the Life of Charles Darwin it was said that his work is "a wonderful illustration of the importance of hypotheses in science." Whereas Darwin himself says of his greatest book: "I worked on true Baconian principles, and without any theory collected facts on a wholesale scale."*

If Medicine is ever to become a Science theorizing must be finally abandoned. Alas! this sentence reminds me of Dr. Arnold's often-repeated quotation:—"The bitterest of all griefs is to see clearly, and yet to be able to do nothing."†

Empiricism.—There always have been men of strong common sense, who have disliked such flights of the imagination as are represented by theories, and who have been practitioners of empiricism. The basis of this method is believed to be an infallible axiom—namely, *Those remedies which have cured one case of disease will cure all cases analogous to it.* Those who will patiently study the history of Medicine will find that this infallible axiom is a plausible delusion. If the history of Medicine is too hard a task, let them read carefully the volumes of the 'Retrospect' by William Braithwaite—the friend of my youth—wherein the details of the practice of the last half century—like so many insects in amber—have been preserved with unwearied diligence and perseverance, and it will be impossible for them not to see how hopeless it is for physicians ever to attain by this method any settled or unanimous procedure.

Science.—If we were to be guided by the profusion of the words "science" and "scientific" with which we are favoured in the medical books of the present day, we should conclude, to use a familiar country phrase, that scientific facts are "as plenty as blackberries."

† Herodotus, ix, 16.
What an amazing delusion this would be? Scientific facts in medicine are exceedingly rare.

One of the favourite scientific methods just now is the revival of the iatro-chemistry of the last century. Elaborate experiments have been carried on, resulting in the discovery that when the chemical composition of a drug is changed—that is, when the elements composing it are changed; or when its constitution—that is, the elements remaining the same, when their mutual arrangement is altered, then the physiological, or rather the pathogenetic action of such drugs becomes different. This discovery is considered so important that Dr. Lauder Brunton has inferred from it that “the connection between chemical constitution and physiological action is the most important subject in Pharmacology,” and he is zealously attempting to lay the foundation of modern Therapeutics on this connection.

Surely, this is a great mistake. Is it not equally true that mechanical changes in a drug, e.g. its being coarsely or finely powdered, or its being dissolved in water, are also followed by important changes in its action on us? Is it not also true that variations in quantity or dose are followed by changes so great as often to become contrary actions? Such mechanical and quantitative changes as in practice are made in countless numbers daily, and which are followed by visible differences in their action on us, are not chemical changes. Can it be thought that when a fraction of a drop of Castor oil is taken in health and constipation results, or when taken in sickness and diarrhoea is arrested, and that when ten or twenty drops of the same drug are taken in health and the bowels are relaxed, or when taken for constipation and that is relieved—can it, I say, be thought that these opposite effects are the results of chemical contrasts in the two doses? Assuredly, the chemical changes thought so much of are only one kind of change; whereas any kind of change is followed, as might have been expected, by changes in the effects produced by drugs on the living body of man.

Some very able men think that the action of drugs on man can be understood, and the laws which govern them, if such laws exist, can be discovered by the study of them in the chemical laboratory. This seems to me a false
method that must end in failure. The law-facts governing one department of natural phenomena are not the same as those governing another department, and they cannot be applied to it for that purpose. A man may be an astronomer and a chemist, but he cannot get, nor does he seek to get, his practical chemistry through the law-facts of gravitation. Neither can we get our practical therapeutics through the law-facts of chemistry.

Doubtless, in nature there is a connection between the governing forces of one department and those of another; but this connection cannot be traced to any useful purpose until the governing forces of both of them are known, and to be known the forces of each of them must be discovered independently. After this has been done sometimes a correlation of them, or their equivalents, may be observed. But I repeat, the chemical law-facts which govern the composition and constitution of drugs cannot be the same as the therapeutic law-facts which govern the actions of these drugs on man's body. It is of the strictest necessity, therefore, that they be investigated separately.

3. What is Medical Science?—After reading the preceding paragraphs the question may arise—What is meant by the word Science in these Essays? The word Science, as every one knows, is a Latin word Anglicised. The Latin word means knowledge; the English word has a much more restricted meaning. In medical writings it is often used vaguely, which is much to be regretted; in these Essays its meaning is precise and important. What is this meaning? It is twofold—first, the matter to which it is applied is an induction mentally reached by observing a sufficient number of individual facts; inductions thus made being called law-facts. And secondly, deductions made from these law-facts. The observation of individual facts is not science; the inferring from them a universal fact by the intellectual process called induction is a scientific process, and the result deserves to be called "Science." So also the deduction of inferences from theories or speculative hypotheses is not science but only a continuance of conjecture, while a true deduction from a true law-fact has a claim to be called true science.
4. **What are Drugs?** Definitions are difficulties, sometimes great difficulties; but there can be no clear thinking without them, nor can there be any accurate knowledge without clear thinking. In the study of languages definitions of words are necessary to make distinct the resemblances and the differences in their meaning, especially the distinctive meanings of what are called synonymous words. In the study of God's works definitions of words are necessary to make distinct the resemblances and the differences of things, especially of such things as are often classed together.

Viewed in relation to our present subject some substances contribute to the support of the healthy life of man; they admit of being divided into two classes—the first contains such things as supply blood, these are commonly called food; the second consists of beverages, some contain alcohol and are stimulants, others, as tea, coffee, chocolate, are refreshing drinks. Food and beverages are not drugs.

Some substances, even in small quantities, act injuriously on the healthy life of man; and these are called *drugs*. There are a few substances, which in certain quantities are essential to life, but which in other quantities have to be reckoned among drugs—*e.g.* Iron, Lime, Common salt. Again, there are substances, which in the larger quantities are inert or nearly so, but in the smaller quantities are actively injurious—*e.g.* Mercury. These also are drugs.

Perhaps it is now possible to form a tolerably clear idea of a drug. For the purpose of using these drugs as medicines we have to learn their pathogenetic or disease producing action in health, and their curative action in illness. These can be learned best by experiments on ourselves.

It is on the certainty of the action of drugs, and on the uniformity of their action, as seen in these experiments, when the conditions are the same, that the conviction of their government by law arises. We have learned from other branches of knowledge how both very vast and very minute phenomena are certainly governed by fixed laws, and we are not willing to think that there are any phenomena so exceptional as not to be governed in like manner by equally fixed laws.

There are still many educated men who have not yet
seen their way to this conclusion. It may be remembered that Dr. Bristowe expresses himself strongly against it. In his Letter to me he says:—“The subject of the treatment of diseases by medicines is, I admit, one of exceeding difficulty; and in regard to which I am very sceptical whether any general laws of value exist or can be discovered.”*

Again, in Essay LIV, another eminent physician, in his Letter to me, expresses himself still more strongly. He says:—“I never could get myself to believe in the possibility of a scientific Therapeutics.”

Unprejudiced thinking and careful experimenting, will, no doubt, settle this question, so as to forbid the continuance of two opinions upon it.

There are other men who say:—“I don’t care a brass button for science; what I care for is practice.” If they will allow me I will say a few kind words to such thinkers as these:—What is practice? It has been found by experiments on the sick, that certain large doses of Opium stop a diarrhoea, so when a medical man has a case of diarrhoea to treat, he gives these doses of Opium, expecting them to do as they have done before in similar cases. This is the old practice. It has been found by experiments on the healthy, that certain smaller doses of Opium relax the bowels; so when another medical man has to treat a case of constipation he gives these doses of Opium, expecting them to act in illness as they do in health; he finds that they do so and that the constipation is removed. This is the new practice. Among other differences between them, this is one—that serious inconveniences accompany the giving of the larger doses, while the smaller doses of the same drug do nothing but cure. This contrary action of larger and smaller doses of the same drug, both in health and in sickness, is called Antipraxy.

From Hahnemann’s experiments with drugs in health, made nearly a hundred years ago, he learned that drugs cure symptoms similar to those which as poisons they cause. He called this method of cure Homœopathy—like curing like. He did not notice the contrary action of different doses.

From experiments made recently with small doses in health, it has been found that their action is the contrary

of that of larger doses; so that, when diseases are cured with these small doses, it is not like curing like but contrary curing contrary.

It is well known that large doses of Ipecacuanha will make a healthy man vomit, and in the old practice these doses have been very frequently given to produce the same effect in sick persons. From Hahnemann we learned that small doses of Ipecacuanha are often an excellent and speedy remedy for vomiting. This fact is explained by the law-fact called Antipraxy.

It is well known that certain small doses of Tartar Emetic cause perspiration; for thirty years I frequently gave them (\(\frac{1}{10}\) of a grain) for this purpose. For thirty years after this I gave much smaller doses (\(\frac{1}{10,000}\) of a grain) for the purpose of checking excessive sweats, and with success. This is explained in the same manner by Antipraxy.

The practical man, though he hates science as much as he hates Homeopathy, may yet treat his patients after this new method.

5. It is said, "The Profession is shy of generalizing about Therapeutics." Is this to their credit? They are charitably supposed to be desirous of curing their patients in the best possible manner. They confess that their present Therapeutics are a puzzle and a disappointment, and own that they have no guiding principle except what is considered the basis of Empericism, which is found to be no firmer to build upon than a quicksand. Must not this puzzle and disappointment continue as long as they remain unacquainted with the laws that govern the action of the medicines they prescribe? Most certainly they must.

It has been affirmed in these Essays for many years that two of these laws have been discovered. The first, that each drug has a local or organic action peculiar to itself—surely, a very clear guide to its use. The second, that the different doses of each drug can be arranged in groups having different kinds of action, some even the exact contrary of others—surely, this also is a clear guide to their use as medicines.

With regard to the first—the action on individual organs—does not every medical man know that Opium acts on the brain and bowels? that Nux vomica attacks
the spinal cord? That Arsenic goes to the stomach and acts upon it however introduced into the body? That the bladder is sensitive to Cantharides? The heart to Aconite and Digitalis? The septum of the nose to the Bichromate of Potash? And so of numberless other drugs. When, therefore, experiments prove that this is a law-fact governing all drugs, why do they refuse to be benefited by its guidance? If they doubt the fact it is their duty to repeat the experiments; the statement cannot be refuted by argument. If they say it has been known from time immemorial, they must be told that it has not been recognised as a law requiring to be always obeyed. Yet this is what it is, and what it demands.

The second law-fact—that applicable to doses—has not been known, and is still rejected with contempt. This is little creditable to men supposed to be in earnest in learning the duties of their calling.

The Royal College of Physicians has an Oration delivered in their halls every year in remembrance of William Harvey's discovery of the circulation of the blood. How was Harvey himself treated by his contemporaries after he had made this discovery? "He fell mightily in his practice, and all the physicians were against him."

6. I mourn over the condition of both Medicine and Surgery. The condition of Medicine—that is, of the treatment of the sick by medicines—appears to me to be a matter for deep sorrow. If we go back to the days of Hippocrates, more than two thousand years ago, and enquire into the treatment of the sick by medicines during the generations which have followed him, we shall find many changes but little improvement. The right method of using drugs as medicines has not been known in any of these ages.

The present condition of Surgery also is to me an exceedingly painful one. This is on account of the intolerable boldness of its enterprise. Physicians are content to hand over cases they ought to seek to cure by medicines; surgeons are forward to engage in all manner of frightful operations; and the public like to have it so.

The department of Surgery is the mechanical treatment of mechanical injuries, and there are always plenty of

* Aubrey.
these. Diseases belong to Medicine; none should be called incurable, but physicians should labour night and day to find remedies for them. The object of these Essays is improvement in medical practice, and, therefore, Cases have been given in them all. With this view one shall be given now, as an example of how medicines ought to supplant the instruments of Surgery.

**Case.**

_Cataract._

In July, 1886, when I was eighty-one years old, slight loss of sight was noticed in the left eye. I went to Leeds and requested my friend Dr. Henry Ramsbotham to examine it. He could not detect any opacity. _Silica_ 3x (decimal) taken.

Oct. 7. Dr. Ramsbotham saw the eye again, and said the lens was entirely opaque and sight lost. That the sight was lost I was quite conscious, and that I was rapidly becoming quite blind. _Silica_ in a smaller dose taken.

Oct. 11. At my request my neighbour Dr. Simpson (one of the Medical Officers of the Rugby Hospital) saw me and examined the eyes very carefully. He said—"Cataract in left eye fully formed; cataract in right eye visibly commenced." _Silica_ continued.

Oct. 16. The _Silica_ discontinued.

Oct. 20. _Titanium_ 2 commenced; twice a day for two days, once a day afterwards till Nov. 4; then the 3rd triturations.

Nov. 12. Dr. Simpson saw me, and he thinks there has been no further progress. I do not perceive any increase of blindness. _Titanium_ 3 continued once a day.

Dec. 3. About ten days ago the Titanium was discontinued on account of an attack of giddiness followed by vomiting, which kept me in bed a week; it was relieved by _Carbo vegetabilis_ 3x. My daughter thinks the opaque spot in the right eye is rather thicker, but has not extended.

_Sanguinaria Canadensis_ 1, one drop daily.

Dec. 10th. Dr. Simpson called. He thinks there is no increase. _Sanguinaria_ 1 continued.

On the 16th went to Hastings.
1887, Feb. 17. Returned from Hastings. The *Sanguinaria* has been continued with intervals. Bronchial catarrh has been troublesome, and has confined me for some time to the house. *Iodide of Potassium* was taken for this. The winter has been an unusually severe one, and much damage done in Rugby both to houses and gardens by the snow, which was wet and heavy.

March 4. Dr. Simpson called, and examined the eyes again very carefully. He said—“I think the right eye is a little better, certainly not any worse.” The *Sanguinaria* could not be taken on account of the catarrh, but it was applied topically round the eyes, and contracted pupil was observed.

April 12. The outward application has been continued for about a month. It is now again taken internally, three drops for a dose, but not every day.

April 18. Dr. Simpson called—“Certainly not worse, perhaps the opacity is less.” I told him that I was beginning to see a little with the left eye, the best proof that the right eye must have been benefited. I enquired if the cataracts were lenticular or capsular? He replied, lenticular. Are they hard or soft? His reply is, hard.

May 20. Dr. Simpson’s visit. Improvement continues. One dose of the Sanguinaria I taken twice a week.

June 29. Dr. Simpson’s visit. He is certain that there is a little further improvement.

Aug. 5. Dr. Simpson again called. I have been a month at Bridlington Quay. Soon after his previous visit I was rather shocked to find that my best eye was blinded by a black appearance in the middle of any object I looked at, especially in the early morning and in the evening. It prevented me seeing my watch sufficiently to learn the time. In bright light it passed away. I took this to mean that I had taken the *Sanguinaria* too long, and I left off taking it. During the last few days the black spot has not troubled me; this seems to confirm my suspicion as to the drug being the cause. Dr. Simpson agrees with me. He says the eyes look much the same as when he saw them last.

Sept. 16. Dr. Simpson’s visit; eyes the same.

1888, April 4. My daughter thinks the right eye is now clear, and the left not so opaque. Certainly, I can see very well with the right eye, and indistinctly with the left.
April 16. Dr. Simpson called. He thinks there are "slight striae in the right eye, in the left the pupil is clearing all round."

May 24. Dr. Simpson says, "much the same." After this time he occasionally looked at the eyes and said that the right eye was clear, the other perhaps slightly improving. I had, however, now regained perfect sight in my right eye, and was so content and thankful that I did not care to take any more medicine.

1890, Nov. 14. I am now writing this with only increased contentment and thankfulness. In daylight I can read Hebrew, Greek, and English as well as before the blindness began, and what can I wish for more? Only to be increasingly thankful to God.

7. What is the present fashion in Therapeutics? Fashions prevail in Medicine as much as in dress. Is not this discreditable? And ought not the Profession to be ashamed of it? In my early practice great confidence in medicines was felt; since then there has been great scepticism as to their value; this reached its height a few years ago in a Paper in the 'Practitioner,' which declared that medicines are of no use, but as patients will have them, prescriptions are to be given to amuse, while nature cures them. The fashion is now again changing, and vigorous efforts are being made to restore confidence in medicines. Another sprightly and interesting Paper in the same journal* is loud in the praise of this restoration. It begins by disparaging the practice of fifty years ago. "Let us go back," it says, "half a century and bring to memory (if possible) our medical poverty in about 1840. Crying sufferers entreated us, and we could only confess our impotence to help them. Diseases were called incurable simply because we had no means of curing them. There were whole domains of work in which we seemed no better off than Scott's north country doctor, who boasted of his 'twa simples of calamy and laudamy.'"

In 1840, the year referred to, I had been fourteen years a qualified practitioner, and my intimate knowledge of that period obliges me to mar this fanciful picture. Diseases are quite as much called "incurable" now as they were then; and—which is the crucial test—

* By Dr. Kent Spender in The Practitioner for October, 1890.
patients recover and die in much the same proportion now that they did then.

The use of drugs as medicines directed by this writer, is as much empirical as in any former period of practice, and prevailing fashions are testified to in this manner—"Compare the positions of salicin and of phosphorus in 1874. Phosphorus was pushed and praised until we were almost forced to use it; and where is phosphorus now? Has it ever been proved to allay the smallest ache, to undo a pernicious anæmia, to promote the tiniest piece of nutrition? Now look at salicin. The bare word salicin connotes a new chapter in the history of Therapeutics!"

The Paper does not hesitate to put science in the background; it says—"Many practitioners value the combination of Aconite, Belladonna, and Opium. If it be contended that the union of three potent medicines offends the canon of scientific simplicity, we reply that the healthy human organism is complex, and that disease is often more complex still." This reply is astonishingly wide of the mark. How is it that the writer does not see that all natural phenomena appear complex until the laws which govern them are known? Even the motions of a single body like the moon were intricate and perplexing to the last degree, until we knew how they are governed by the law of gravitation. The actions of a drug, when it is taken singly, are as regular and orderly as the moon's motions.

During my lifetime there have been great changes of treatment and opposite extremes have been reached; but there is nothing in the character of these changes to prevent similar alternations of them being again repeated in the future. The reason is, there is no certainty—no science—in them, and therefore no stability.

If the mortality of the population of England is slightly diminished during this half century, it is owing to better food and improved sanitary conditions, rather than to improved medical treatment, except what we are indebted to Homœopathy for.

Dr. Kent Spender is by no means alone in comparing unfavourably the medical practice of fifty years ago with that of the present time. Very boastful descriptions of the victorious progress now being made are common, but they are great exaggerations.
8. A fallacy in Homœopathy. Hahnemann's Homœopathy is this:—Drugs taken in health cause symptoms of disorder. They are the best remedies for similar symptoms arising from other causes—likes are to be cured by likes. The practice founded on this principle has surpassed in its success all other methods of treating the sick by medicines. Again and again has it been insisted on by homœopathists that this principle is independent of the dose, and so long as this was believed, the proposition appeared to be supported by facts. It was not till experiments had been made with different doses of the same drug, for the purpose of comparing them together, that a fallacy in the proposition was perceived. When the actions of different doses of the same drug were found to vary as described in the Paper printed in this Essay, the principle of Homœopathy was seen to be untrue. The cures that have been effected by treatment with small doses of drugs have been done by a contrary, not by a similar, action; while, when larger doses of the same drugs have been given, the disease instead of being cured has been made worse. Experiments in health with drugs led us to Homœopathy. Experiments in health with doses led us to Antipraxy. The first experiments were a ladder by which we reached a platform of great success; the second were another ladder by which we ascended to a higher platform of greater success. My own experience for more than twenty years testified to the truth of the first statement; and for nearly another twenty years it has borne witness to the truth of the second. Hahnemann's Homœopathy—experiments in health with drugs—has served its turn, and we may well be grateful to him for it. Antipraxy—experiments in health with doses—has now superseded it, and if we are wise we shall pursue these experiments, and be guided by them in our practice. Should another ladder be found, by all means let us climb up to a still higher platform, and be blest with still greater success.

The fallacy in Hahnemann's principle is not yet seen by homœopathists; and probably I cannot make them see it, but it is very plain. Let me give one illustration:—Belladonna causes inflammation of the eyes in health, and cures it when arising from another cause, and so like cures like. The flaw in the logic of this reasoning the experiments with doses makes manifest.
We have now learned that Belladonna in large doses causes ophthalmia, and if it cured ophthalmia in the same doses, that would be Homœopathy—like curing like—but it does not, on the contrary it makes the inflammation worse. To get the cure the premisses are changed, and the proposition becomes this, Belladonna in small doses cures the inflammation. These are two distinct propositions and do not admit the conclusion that like cures like. The experiments with doses show that it is by a contrary, not by a similar action that the cure is wrought. It is only by experiments that new truth can be discovered, and advances be made in our knowledge, and these experiments with different doses of the same drug are now a wide and open field.

It has been suggested by some homeœopathists that drugs act one way in health and the contrary way in illness; and in this manner they would appear to avoid the seeming absurdity of like curing like. The experiments with doses show that this hypothesis is false, so that nothing more need be said about it. What drugs in their various doses do in health, that they do, or aim to do, in disease.

When the symptoms attributed to a drug taken in health have been caused by large doses, and when similar symptoms in disease are treated with small doses of this drug, then a cure will often follow. But when the symptoms have been caused by small doses taken in health, and when these small doses are given for similar symptoms in illness, failure and disappointment follow. Surely this points to imperfection in the principle of Homœopathy, and raises a cry for improvement. Anti-praxy is that improvement. The more doses are experimented with the more Homœopathy will wane and Anti-praxy advance. The defects of Homœopathy have been found out by discovering something more true, and which makes the subject brighter and clearer, and will make the treatment of the sick still more successful.

The Profession has been wonderfully unwise in rejecting Homœopathy, and in being annoyed by its success. If it rejects Anti-praxy it will be still more unwise, and still more annoyed by its greater success.

My attitude towards Homœopathy has not changed. An independent investigation of it was begun in 1850, and it has been carried on ever since. A statement of
what it professes to be is given in the first Essay; the succeeding numbers abridge more and more Hahnemann's pretensions respecting it.

The word *Homoeopathy* means "like the disease;" that is, the remedy taken in health causes symptoms similar to those it cures; the small dose is the remedy. But the small dose taken in health does not cause similar but contrary symptoms to those it cures. *Homoeopathy*, therefore, does not say that which is true; *Antipraxy* does. Experiments with drugs and with doses in health have gradually brought me to this conclusion.

If we now look at the subject in connection with the facts concerning doses described in the Paper at the beginning of this Essay, we find that doses of drugs, from the largest to the smallest appreciable, are included; that they are divided into groups having different actions; and that four of these groups form a cycle. The groups of smallest doses act in one direction only; the next group has two actions in succession in opposite directions; the next has again only one action, this is contrary to that of the smallest doses; the next has again both actions—this is the cycle; and as the doses increase there seems to be a repetition of this cycle.

Now, it is obvious that the proposition expressed in the word *Homoeopathy* is not consistent with these facts. The actions of the different doses of a drug are too varied to admit of such a summary expression. They do admit of the arrangement intended by the word *Organopathy*, for every group has a local or organic action; but the notion which the word *Homoeopathy* is intended to convey, is dissipated.

9. In the hope—Alas! I fear a vain one—of preventing some misunderstandings, one more paragraph shall be added. The object being to point out, as plainly as words can be found to express them:—The agreements and the differences between what is taught and practised in the common methods, and what is taught and practised in these Essays—The agreements and the differences between Hahnemann's *Homoeopathy* and these Essays—And the differences between the *Antipraxy* accepted by some homoeopaths and that of the Essays.

In what way do the Essays agree with the old school, and in what do they differ from it? They agree in
accepting the facts of Anatomy, of Physiology, of
Pathology, and of Materia Medica, and in making not
only as good but a better use of them. The differences
do not appear, except on the subject of experiments with
animals, until Therapeutics are reached.

The differences in Therapeutics are fundamental and
complete. They consist in the belief, (1). That Therapeu-
tics can become a science, i.e. that the phenomena
of disease, and those of the action of drugs, are, like all
other phenomena of nature, under the government of
laws; that these laws may be discovered; and that it is
the duty of physicians to discover them. (2). That two
of these laws have been discovered, namely:—The local
or organic action of all the common causes of disease,
of which drugs are one, so that there are no "general"
diseases nor "constitutional" remedies; and the contrary
actions of different doses of the same drug. (3). That
when Therapeutic laws are found it is the bounden duty
of medical men to obey them, there being no option in
such cases. (4). That, in practice, experience proves
that it is the action belonging to small doses that is
most successful, and, therefore, that they, and not the
larger doses, ought to be prescribed. (5). That the
action of these smaller doses when rightly chosen, is
sufficiently expressed by saying that it is contrary to the
morbid action going on in the diseased organ.

In what do the Essays agree with Hahnemann’s
Homœopathy, and in what do they differ from it? They agree in learning, as much as possible, the action
of drugs from the experiments made with them in health
by homœopatliists. In experimenting with, and in pre-
scribing, only one drug at a time. In adopting Hahnem-
mann’s simple Pharmacy. And in profiting to the utter-
most from the past experience of homœopathists.

They differ (1). In rejecting the axiom similia, and
adopting that of contraria. (2). In substituting the
laws of Organopathy and Antipraxy for that of Homœo-
pathy. (3). In rejecting the wide application of any
law of Therapeutics, as Hahnemann and homœopathists
have done to Electricity, Magnetism, &c. &c., and con-
fining it to drugs. (4). In rejecting the limitation of
observation to symptoms. (5). In protesting against
Hahnemann’s hypotheses and his dogmatism.

What is the Antipraxy accepted by some homœo-
pathists, and in what does that of the Essays differ from it? It is accepted as an explanation of Homœopathy, but as having no influence on practice. The Antipraxy of the Essays differs from this. (1). On not being an explanation of Homœopathy, but a contradiction of it; it does explain the success of the treatment by small doses, but small doses are not Homœopathy, as has been abundantly shown by homœopathists. (2). In Antipraxy not being compatible with Homœopathy, but requiring to be substituted for it. (3). In its influence on practice. This is already considerable, and will become very great, and in this manner the success which attends the use of small doses will be very much increased. As an illustration of this influence it may be mentioned that my success in prescribing Opium, Wild Chamomile, Castor Oil, and some other drugs, has been much greater since the discovery of Antipraxy than it was before.

It is impossible for a law-fact to be known, and no practical benefits arise from it. In addition to what has just now been said, the subject of experimenting with drugs in health must not be forgotten. The repugnance felt against these experiments arises very much from the sufferings they occasion. Antipraxy teaches us that it is the action of small doses that we want to know, and that experiments with these alone will often suffice, so that the objection on account of sufferings is much diminished, if not taken away. When experiments with small doses in health are tried, we have to remember that the object is to find out their use as medicines not as similars but as contraries. For example, small doses of Castor oil are found, when taken in health, to constipate the bowels; what are we to learn from this? Homœopathy says, give them for constipation; Antipraxy says, give them for diarrhoea. Experience proves that Homœopathy makes the patient worse, and that Antipraxy cures him. Small doses of Opium excite the brain; what then? Similia says, give them for wakefulness, and they fail to relieve it; contraria says, give them for sopor, and they succeed. And the same will be found to be true of all other drugs.

10. Experiments with drugs on myself in health and in illness have been persevered with for forty years. The finding of two inductions or law-facts—the organic
actions of drugs, and the contrary actions of doses—is my reward. I trust in God that my fellow-creatures in coming generations, when suffering from loss of health, will reap the fruits, and be more intelligently and successfully treated by their medical advisers than their forefathers have been.

Horton House, Rugby;  
November 28, 1890.

BY THE SAME AUTHOR.

ESSAYS ON MEDICINE.

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