

DRUGS AND DOSES

DR. J. R. RAESIDE

It is an important part of medical training to learn about drugs or medicines, about their effects and uses.

We learn this as medical students before we begin our hospital work, and it is usually taught at the same time as pathology. So that on the one hand we study the diseases, and on the other hand we study the remedies for these diseases. Knowledge about drugs or medicines is gained by the study of:—

1. *The Physical and Chemical Properties of the substance.* That is its taste, smell, colour, appearance molecular weight whether it is acid or alkaline, its chemical composition, and so on. If the substance is a vegetable or animal one, its composition is very complicated. The chief active principle in a vegetable substance apart from oils, *acids* and salts are alkaloids—complex nitrogenous and sugar compounds, and glycosides.
2. The study of the *Pharmacology* and *Toxology* of the drug. That is its physiological effects or its poisonous action on animals or on man.
3. The *Therapeutic* effect, that is its effect on various disease conditions in animals or man.
4. The *Biological* effects of certain substances such as the anti-biotics, the hormones, and vaccine substances.

All this knowledge is gathered together in the *Materia Medica* or *Pharmacopœia*. Today it is a great body of knowledge, but one which is in constant change, for ever being increased and altered as new drugs are created and old ones discarded. What is taught as *Pharmacology* today is not enough to-morrow. Drugs change, and treatments change, and although this has probably always been so, it seems as if today it is especially the case. Almost daily new medicines are being announced. Some of these are really new chemical creations

others are old well-used drugs in a new form. The British National Formulary which is a collection of commonly used medicines is published every few years. This year's edition shows that of 120 new drugs added to the list, over 100 are synthetic.

Ephedrine is a common enough drug but recently it has been "ion-resin-bonded"—whatever that means! This is an example of an attempt by Pharmacy to make the drugs more powerful, more long acting, or less toxic, by special technical methods.

No doubt the modern drugs are the result of great labour, and great energy. It is reported that 100,000 soil specimens were examined in the search which resulted in the discovery of one of the new anti-biotics. For it is from the soil organisms that the organism-killers are fundamentally drawn. All this work is indeed worthy of respect and praise, yet the fact remains that the results of this constant toil—that is the drugs themselves—have often a short-lived spell of popularity. So many drugs appear for a time in the *Materia Medica* and then are seen no more.

If we compare this with the *Materia Medica* of Homœopathy certain striking differences can be seen. The Homœopathic Pharmacopœia or *Materia Medica* is a collection of some 2,000 drugs, slowly growing in number as new drugs are proved and added. But the important drugs which were used by Homœopathic doctors 150 years ago are still used and still effective today. The *Materia Medica* is composed mainly of substances taken from the three kingdoms of Nature—minerals, plants and animal substances. Each drug is described briefly in its physical and chemical properties, and an account is given of its toxicology. But the great bulk of the information given in the Homœopathic *Materia Medica* is derived from drug provings and from their therapeutic use. That is symptoms and signs produced in drug provers and symptoms and signs confirmed by the use of the drug therapeutically.

Certain differences between the *Materia Medica* of ordinary present day medicine and the Homœopathic *Materia Medica*

can perhaps be illustrated by a comparative study of a few drugs.

I. Let us consider firstly the mineral or metal Gold (AURAM).

Gold is a very insoluble metal, therefore it cannot be used as a medicine without some form of preparation.

The British Pharmacopœia lists many salts of gold such as:

Gold and Sodium Thiosulphate
Sodium Chloraurate
Gold Thioglucose
Calcium Auro thiomalate, and
Colloidal suspension of Gold.

Here of course it is quite obvious that it is not the pure substance which is used as a medicine, but compounds of which only 40-50% is actually gold.

The actions of these medicines is uncertain and toxic reactions are both numerous and serious, especially when they are given by injection. 12-50% toxic reactions are reported. The medicines are used mainly in Rheumatoid Arthritis and Lupus Erythematorus, a systemic disease with or without skin manifestations.

It is perhaps a little unfair to use gold as an example, as so little use is made of it by orthodox medicine today, but it is a medicine with a long history of use, so that one cannot but imagine that it has great remedial powers, if use can only be made of these. And what is said of gold could be said equally well of arsenic, phosphorous, lead, silver, mercury and other valuable remedies, which are hardly used today, and then only in mixtures or as external applications.

If we now turn to the Homœopathic Materia Medica we find that AURUM (Gold) METALICUM, as well as some of the simple salts of gold, were first proved by Hahnemann. By his special method of preparation, namely trituration and dilution, the effects of the drug could be manifested and a proving carried out.

This produced most striking symptoms such as—depres-

sion, melancholy, suicidal thoughts and vivid dreams, various bone pains, palpitation and many other symptoms. This proving, together with certain therapeutic indications from Arabian physicians mentioned by Hahnemann in his book "Chronic Diseases" formed the basis for homœopathic use of potentised gold. Through its use on added to, so that our more recent *Materia Medica* contain a picture of the drug—a drug picture—which has been drawn by the combined efforts of provers and practitioners.

2. Taking an example from the plant kingdom—*RAUWOLFIA SERPENTINA*, here something different can be shown. This is a plant of the *Apocynaceæ* family, to which also belongs the plant *Strophanthus*, one of our heart remedies. *Rauwolfia* grows in India, Burma and Siam, but especially in the Himalayas, and has been used in these parts of the world for many hundreds of years by the traditional Indian system of medicine—*Ayurveda*.

It was first introduced about 1949 to Western medicine when its systematic study and exploitation began. From the dried root some 20 alkaloids, with varying powers, have been extracted. These alkaloids act mainly on the central nervous system producing depression of the senses, low blood pressure, sedation, and a lowering of the bodily activities.

The ordinary *materia medica* now contains a large number of drugs derived from *Rauwolfia*. But since there are some 130 species, and many of these contain similar alkaloids, the drugs listed in the *pharmacopœia* are actually derived from various plants, such as: *Rauwolfia serpentina*, *Rauwolfia canescens*, *Rauwolfia vomitoria*, *Rauwolfia micanthra*, *Rauwolfia densiflora*, (these being the main ones). The process of extraction is a chemical one in which the dried root is mixed with—ether, chloroform, ammonia and sulphuric acid.

One may ask what relationship does this chemical product bear to the original plant *Rauwolfia serpentina*? Needless to say the pharmaceutical companies add to this number of alkaloids their own special extracts. Not only this, but they produce various combinations with other known hypotensive

agents, or with sedatives, and so deepen the doctor's dilemma of drug prescribing.

BLOOD PRESSURE EFFECTS

The various alkaloids are used in a large number of diseases, mainly for high blood pressure, but also in various mental diseases, and psychological conditions as a tranquilliser. The toxic effects are quite numerous and include:—cardiac and respiratory failure, suicidal depression asthma, Parkinson's disease, intestinal hæmorrhage and epilepsy. Some patients have died under treatment with Reserpine which is one of the main alkaloids.

The homœopathic school has not overlooked Rauwolfia. It was first mentioned by Dr. Chatterjee in his book "Drugs of India" published in Calcutta in 1934. Here he mentions the use of the plant in Indian Ayurveda medicine as an antidote to poisonous bites and stings, as a remedy for insomnia, violent insanity, as well as high blood pressure.

Recently it has been proved both in Germany and here in London by Dr. Templeton. A report of the provings conducted by Dr. Templeton during 1954-55 appeared in the British Homœopathic Journal of April 1956. This is an extensive proving carried out with six provers and four controls using 3x and 30c potencies. It produced very many symptoms which bear great resemblance to the less severe side effects of Rauwolfia alkaloids as used in ordinary medicine. The proving symptoms of course clear up soon after the drug in potency is stopped.

The German proving conducted by Dr. Leeser in Stuttgart in 1954 was carried out with a larger number of provers, all of whom were doctors, sixteen men and eight women. Blood pressure readings were taken, and it was clearly evident that the 1x and 3x potencies can induce a fall in blood pressure. The picture which Dr. Leeser describes of the provers' reactions is a clear picture of a hypertensive patient—over active, over anxious, frontal headache, giddiness, red face, congestion of head and various other symptoms. All the main symptoms coincide with Dr. Templeton's proving. These two provings,

together with the toxic effects of the alkaloids now form the basic indications for the homœopathic use of *RAUWOLFIA SERPENTINA*.

Clinical experience will now be required to confirm and to particularise these indications. Eventually the drug picture will emerge. It will be the picture of a plant; not of an extract, not an alkaloid, and not mixed with other substances, but the plant *Rauwolfia serpentina* as it occurs in nature.

3. Our third example can be taken from the animal kingdom. It is again perhaps unfair to chose *snake venoms* because of the relatively little use made of them by the orthodox school, but that is true of most animal remedies used in homœopathy.

USE OF SNAKE VENOMS

Snake venoms are used as external applications as a hæmostatic especially in hæmophilia, and by injection in cases of purpura. They have also been tried by injection in rheumatoid arthritis.

The preparations are:—Russell's Viper Venom and the anti-venins or venom anti-sera.

These are prepared by injecting horses with the snake venom and are used in cases of snake bite. Toxic reactions occur not so much from the venom itself as from the serum of the horse. Severe reactions sometimes occur, even death from shock (anaphylaxis). To mention the homœopathic uses of snake venoms is a very big task. It is one group of remedies which is most extensively used in a wide range of maladies, often with startling effects. Their use in homœopathy goes back to Hering not to Hahnemann, but nevertheless, 6 venoms are in common use today: we use them for such conditions as sepsis, fevers, blood and hæmorrhagic diseases, heart and menopause conditions.

In the July edition of the "British Homœopathic Journal" a most comprehensive review of the snake was presented. This goes much further than merely stating the medicinal uses of venoms. In a number of fascinating articles an approach is

made to the snake as a natural phenomenon, and an attempt is made to relate its medicinal use to this phenomenon.

And here we have a most singular approach to healing. An attempt is made, and a most convincing attempt, to understand *morphologically* why a particular remedy is used for a particular disease. In an effort to understand why the snake venoms are used as they are in homœopathy, the snake itself has to be studied. The spider remedies, and SEPIA (the cuttle fish) have been approached in this same way, both here and in America by Dr. Whitmont. I agree that this is not pure homœopathy, but it may be the direction in which homœopathy will evolve in the near future. And surely only a homœopathic doctor is capable of thinking about drugs in this way.

By meditation upon a snake or a spider or even upon a plant remedy, a deeper insight into its use medically may be arrived at. But how long would one need to ponder about the alkaloids and glycosides and steroids of modern pharmacology to understand them and to relate them to the natural world, and then to disease?

PREPARATION OF MEDICINES

By using substances taken from the three kingdoms of nature, and by using substances which are as far as possible pure and simple, the homœopathic doctor can relate himself to the remedy, and can relate the remedy to the disease.

Modern pharmacology seeks more and more to break things down, to analyse the known drugs for their so-called active principles, as I tried to show in the case of RAUWOLFIA SERPENTINA. Following on this it seeks to identify chemically or in their molecular structure the various active principles. Finally, having done this, it seeks to synthesise the isolated active elements, or make from them new drugs. But in this process how far one gets away from natural substances.

A representative of a large pharmaceutical firm told me that there may be forty stages in the preparation of one of the special brands of drugs. Each stage highly technical and requiring a trained chemist. He said, and rightly so, that the doctors

do not want to know anything of the preparation of their medicines, that is the chemist's business. But how can the doctor then relate himself to these medicines? They can surely never be anything more to him than a trade name.

When we turn from drugs to consider doses, the differences between our homœopathic method and the customary dosages used in medicine today, is not so great. It has been pointed out many times in recent years that the medicines used today are given in doses which would have been thought quite ineffective some years ago.

In Hahnemann's time it was one of the main causes of dispute between himself and the "Allopaths". But today surely no one can doubt that minute doses of substances affect living tissues. Without going into details one need only mention the minute doses of *vitamins*, *enzymes*, or *trace elements* which are required or used by the body.

It has been shown by biological experiments recently that colchicine in a dilution of 1 in a billion has an effect on the division of cells (mitosis). This is equivalent to the 9th or 10th D.H. potency of our remedy COLCHICUM.

THE MINUTE DOSE A SCIENTIFIC FACT

Knowledge about minute doses is accepted as scientific fact. Nevertheless there are many drugs in use today where to be effective it is necessary for them to be given in a dose which though small, is very near to the toxic dose, e.g.

The therapeutic dose of morphine is $\frac{1}{8}$ - $\frac{1}{3}$ gr.—toxic dose $\frac{1}{3}$ - $\frac{1}{2}$ gr.

The total initial dose of digitalis is 2.1 gram—yet death occurred from 2.5 gram.

Other drugs develop toxic symptoms after prolonged treatment with apparently safe doses. So that the problem of toxic effects remains. Modern pharmacology is continually faced with the problem of how to give the maximum therapeutic dose and yet to avoid the toxic side effects of the drug. How to heal and yet not poison. For healing and poisons are intimately

connected. Indicative of this is the fact that the national formulary before listing medicines begins by describing the treatment of poisons! Several types of drugs are mentioned including of course the barbitone family, some tranquillisers, and a number of insecticides and fertilizers, for we are poisoned by our foods as well as by our medicines today.

The methods used by pharmacy to overcome toxic reactions have been mentioned, namely purification by extraction of the active principle, or by combination with other corrective drugs, or delaying absorption by various gelatinous capsules, and so on.

For Hahnemann to have evolved the method of *potentisation*, i.e. repeated trituration and dilution of harmful or inactive drugs, so liberating their healing power without their being poisonous, was an act of great genius. Of this method he says in "Chronic Diseases"—"By further trituration and dilutions the virtue of gold is still more developed and spiritualized so that I now need for such curative effects but a very small part of a grain of the decillionth attenuation".

VITAL OR LIFE ACTION

Hahnemann found a method by which the power of stimulation within a substance could be brought forth and present itself in such a way that poisonous effects are virtually impossible. For a medicine to poison in the ordinary sense of the word, it must have material substance. And after the 10th centesimal potency no demonstrable substance is present. The substance has been raised out of the realm of matter into the realm of life, and its action on living-tissues is a *Vital or Life* action.

The problem of *proving that* potentised medicines are effective and active is not an easy one in these days of statistical analysis. Graphs and figures are increasingly common in our medical journals and any medical experiments which can possibly be recorded in numerical form are presented statistically.

All the more credit is therefore due to the late Dr. W. F. Boyd of Glasgow who, knowing well all these conditions, was able to present the results of his great work in a highly academic

form. Every last detail of his exhaustive experiments is described and explained as demanded by present day scientific practice.

The results, independently examined by accountants proved to be, in their language—"very highly significant". Great praise indeed from mathematicians!

These experiments conducted over a number of years from 1940-1952, were to demonstrate the effect of MERCURIC CHLORIDE in dilutions corresponding to the 30th C.H. potencies, upon the hydrolysis of starch with diastase (an enzyme reaction).

Any unprejudiced reader would surely consider that these results clearly prove the fact that potentised substances *do* effect a response from living tissue or living substance (for an enzyme is the product of living cells).

Other experiments have been carried out using different methods, to show the effect of the potencies, and those by Kolisko in Germany are in a way complementary to Dr. Boyd's experiments.

The Kolisko experiments are described in the book "Agriculture of Tomorrow" and in a new book shortly to be published. They were conducted between 1924-39, but similar experiments are still being conducted in Germany, Switzerland and here in England by Mme. Kolisko.

The experiments of special significance are those on wheat seeds, and on hyacinth bulbs, where potencies of MERCURIC CHLORIDE were again used besides potencies of iron, silver, potassium and sodium salts.

Investigations were done in such a way that what seeds were watered daily with varying potencies from 1x to 60x of the mercuric chloride or other mineral, and then at a definite time the seeds were measured, both the shoot and the root.

EFFECT ON SEED GERMINATION

Results showed that the potencies not only had an effect upon the seed germination, as compared with the watered control seeds, but that this effect varied according to the potency used, so that a graph could be drawn to show how each substance affected the growth rhythmically. The lower potencies

tend to inhibit growth and the higher ones stimulate growth in a curve which reached a maximum about the 30th and again about the 60th potency.

Experiments have been carried out on wheat seeds by Schwenk in Stuttgart, and some of his results have recently been published in a book on potentisation. In this book the author attempts to demonstrate that the act of potentising, since it is a rhythmical process, is connected with certain rhythms in nature. Life expresses itself in rhythms, and it is through the rhythmical process i.e. potentisation—that the medicinal substance is able to have an effect upon life processes.

Hahnemann recognized that the effects of his medicines were dynamic effects, and spoke often of the *vital force*, e.g. in paragraph 16 of his "Organon of Medicine", where he says:—
". . . . so that it is only by their dynamic action on the vital force that remedies are able to re-establish health and vital harmony"

The scientific experiments which I have quoted stand as confirmation of this statement of Hahnemann.

Homœopathic remedies do affect the body in a vital way, they act on the life principle, and they act because they are rhythmically potentised.

I have tried to show two important points about our drugs and doses as compared with orthodox medicines: firstly that homœopathic drugs have a real and a lasting value because they are taken from the three natural kingdoms; and secondly that homœopathic remedies act not poisonously but vitally upon the life forces of the patient because they are potentised.

—*Homœopathy, Jan.-Feb. & March '59.*