SCIENTIFIC BASES OF HOMOEOPATHY, XENOBIOLOGY, ULTRAMICROXENOPATHY, UNIFIED THERAPEUTICS, AND MORE

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INTRODUCTION

Homoeopathy continues to remain a scientific enigma. Its processes of dynamization, high potency 'micro' doses, and the *law of similars* are unique only to it making it a distinctly separate class by itself, because other therapeutic systems like Allopathy and Ayurveda employ comparatively large 'macro' doses of medicine and operate on the *principle of opposites*. Present-day sciences have no provision in their conceptual schema to negotiate these homoeopathic principles which, otherwise, are backed by a huge mass of persuasive observational evidence. A revision, modification and/or extension of the scientific theories is therefore inescapable.

In order to explain the mechanism of dynamization and the objective nature of high potency medicines, this author in his last paper[1] has introduced new scientific concepts of the *'electronic bases of biological specificity'* and of the *'resonant promotion of lone pair electrons'*. These concepts have implications in physics, chemistry, biology and in medicine. It has been shown[1] that during the processes of triturations and succussions the lone pair electrons of the oxygen atoms in the hydroxyl (OH) groups of the diluent medium (lactose, water, alcohol) are 'resonantly promoted' by the drug molecules so as to acquire the same number of chemically active electrons associated with the same exchangeable energies as available in the original drug molecule. These *plentiful* 'promoted' diluent molecules do thereby approximately mimic the biological properties of the original drug to exercise its action. This theory of dynamization is free from the conceptual impasse created by Avogadro's law, is consistent with wave mechanics and thermodynamics, and is supported by experimental evidence[1].

The present paper would develop a new molecular theory of health, disease, and therapeutic principles to explain the mechanism of action of homoeopathic drugs with the help of the theory of dynamization[1]. It would also freshly deduce the laws and principles of Homoeopathy, Xenobiology[2], Ultramicroxenopathy[3], and of Unified Therapeutics[4]. There are also other important topics to interest a serious reader.

MOLECULAR BASES OF THE STATE OF HEALTH

The functions and activities of the various organs, tissues and cells of

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the body are highly coordinated, interdependent and interlinked through biofeed back and forward regulatory mechanisms to maintain their own intrinsic homoeostasis leading to the profound homoeostasis throughout the whole body. There are a number of physiological planes for this homoeostatic machinery to operate and get regulated from, for the primary cause of the disease to situate on, and for the therapeutic agents to act upon. These include the central nervous system, the peripheral nervous system, the endocrine system, the immune system, the intra-and extra-cellular signals and environments, the enzyme systems, the subcellular organales and units like the mitochondria, the protein synthesising machinery up to the nucleic acids and so on.

All biological functions and phenomena of all biological systems (the body, organs, tissues, cells, subcellular organales, membranes, units etc.) are ultimately mediated through chemical reactions/interactions among appropriate atoms and molecules. The chemical, and hence the biological, properties of any atom or molecule are determined by the number of its chemically active electrons, their associated exchangeable energies and by the ambient electronic environment around every such electron, which includes and arises from the 3-dimensional conformation of the molecule around the active electrons. The primary amino acid sequence of proteins is important because it determines[5] the 3-dimensional structure.

The 'healthy state' is maintained and mediated through 'healthy biochemical reactions' among 'healthy atoms and molecules'. An atom or a molecule remains healthy so long as it has the same number of chemically active electrons in association with the same magnitudes of exchangeable energies and with the same intramolecular location and ambient electronic environment and hence the same 3-dimensional molecular conformation as is characteristic of it in the normal healthy state. Similarly a biochemical reaction is healthy so long as it takes place among the same and healthy reactants and gives rise to the same and healthy products at the same optimum rate(s) and hence catalyzed by the same and healthy enzyme(s) in the same ambient milieu as is characteristic of it in the normal healthy state.

A reaction or molecule or chemically active electron becomes 'unhealthy' when it deviates from normalcy in any of its characteristics. For example, a biochemical reaction would be abnormal when the reactant(s) and/or the catalyzing enzyme(s) and/or the ambient milieu become abnormal, qualitatively and/or quantitatively. A qualitatively abnormal/un-natural molecule is called[2] a 'foreign' molecule or a 'xenobiotic'. A natural substance (like H^+ ion, blood sugar, plasma protein, etc.) also may behave xenobiotically when its concentration is below or above the tolerable normal range, or when it itself combines with a xenobiotic. A xenobiotic adversely modifies or inactivates the functional electrons of the native molecules and/or changes the rate(s) and/or the route(s) of the biochemical reactions leading to unhealthy products and thence to unhealthy signs and symptoms, feelings and

sensations—characterising a disease. *Therefore, behind every disease state there are always some unhealthy biochemical reactions resulting from the involvement of some xenobiotics, somewhere.*

Here, as before[2], the term xenobiotic is very general and inclusive. It includes drugs, poisons, allergens, antigens, autoantigens, cancerogens, toxins introduced from outside or produced by pathogenic micro-organisms/parasites or auto-toxins resulting from defective metabolism, from impaired excretion or from an error in absorption, and so on. It also includes the resonantly promoted molecules of the diluent medium (lactose, water, alcohol) through the homoeopathic processes of trituration and succussion with original xenobiotics[1, 2].

MOLECULAR DYNAMICS OF BIOLOGICAL PHENOMENA IN HEALTH & DISEASE

All biological phenomena and functions, objective and subjective are mediated through innumerable biochemical reactions taking place in cascaded series of small steps, catalyzed by enzymes, and inter linked through biofeed back and forward controls. The products of one step serving as the substrates for the next step(s); the products from one type of cells/tissues affecting the activities of others, situated nearby or at remote sites. This is illustrated by the scheme depicted in figure 1.

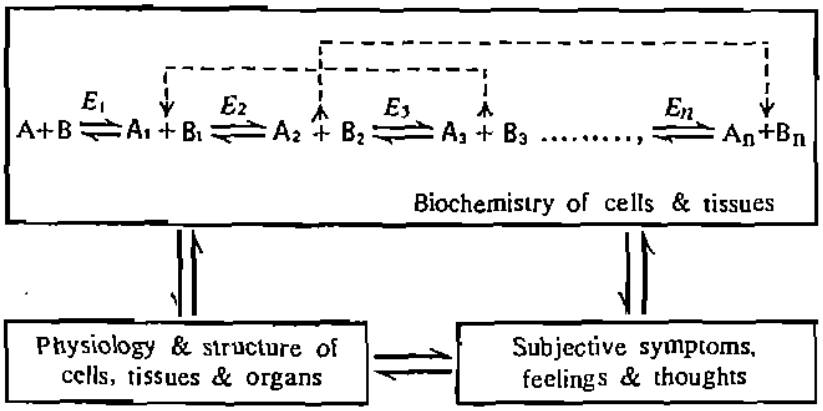

Figure 1. Dynamics of Biological Phenomena

In the scheme of figure 1 the products A_3, B_3 exercise a biofeed back control over the step catalyzed by enzyme E_3; the A_2, B_2 exert a biofeed forward effect on the last step. The kinetics of the various biochemical steps (grouped in upper rectangle), the objective physiology and structure of the various cells, tissues and organs (grouped together in lower left rectangle), and the subjective feelings and sensations of the organism (shown together in lower right rectangle), are interlinked and interdependent to constitute a 'whole' functioning unit. Different steps of the above representative biochemical reaction may take place in different organs/tissues/cells situated

at different/distant sites. The biofeed back and forward controls of this scheme include the regulatory effects exercised by hormones and neurotransmitters.

The healthy state is characterized by healthy biochemical reactions involving healthy molecules of reactants, products and enzymes, healthy physiology and structures of cells, tissues and organs, and healthy feelings and sensations of the organism.

A disease state is described by the subjective symptoms, the objective physiologies and structures, and by the kinetics and products of the biochemical reactions. Various patterns and classes of disease with varying signs and symptoms would be produced by varying the causative phathogenic xenobiotic(s) and the site(s) of action in the general scheme depicted in figure 1.

The primary xenobiotic would be subjected to biodegradation, modification, detoxification, conjugation and elimination. This would be reflected in the production and building up of the disease symptoms followed by amelioration and elimination of the self limiting disease (see also below).

The primary xenobiotic may also be enzymatically converted into more potent pathogenic xenobiotic(s) tending to act on deeper planes, say for example, by binding with ribonucleic acids (RNAs) and deoxyribonucleic acids (DNAs). This would give rise to chronic, malignant and hereditary diseases (see also below).

MOLECULAR BASES OF HOMOEOPATHIC DRUG PROVING

As shown in the last paper[1] the probability of finding a molecule of the crude drug or xenobiotic in the patient dose is less than one for centesimal potency 10c and higher. This probability is zero for the 30c, 200c, 1000c potencies.

Moreover the processes of dynamization (trituration and succussion) have been shown[1] to induce the molecules of the diluent medium (lactose, water, alcohol), to acquire the same number of chemically active electrons associated with the same exchangeable energies as available in the original xenobiotic molecules, through resonant promotion of the lone pair electrons in their hydroxyl (OH) groups. These promoted diluent molecules are thereby able to mimic the biological properties of the original xenobiotic.

However, the original xenobiotic and the low decimal potencies prepared in lactose are expected to act mostly extra-cellularly and outside the central nervous system (CNS) because of their difficulties in crossing the cell membranes and the blood-brain barrier. The promoted molecules of water and alcohol, on the other hand, could readily cross these membranes to act intracellularly and within the CNS.

It is thus clear that the clinical signs and symptoms elicited by proving low decimal potencies could and would be different from those produced by high centesimal potencies. This explains, and is consistent with, the corres-

ponding observations recorded in Hahnemann's *Materia Medica Pura* and in Allen's *Encyclopaedia of Pure Materia Medica* of ten volumes. The need and practice of proving low, medium, and high potencies of homoeopathic medicines to build the materia medica are therefore justified.

The clinical symptoms elicited by fully proving a 'nosode' in low, medium, and high potencies could and would be immensely extensive but inclusive of the pathology from which the nosode is prepared. This supports and explains the homoeopathic observations and practice in this regard. The same is the case of 'sarcodes'.

XENOBIOLOGY & HOMOEOPATHIC DRUG PROVING

The newly proposed science of Xenobiology[2] is very inclusive and wide in scope. It proposes to study the *total biological response* of the organism to xenobiotics. The 'total biological response' includes subjective symptoms and alterations in behaviour, feelings, sensations etc. which are studied under homoeopathic drug proving but not under other seiences like parasitology, immunology, pathology etc. It also proposes to study the objective alterations in the biochemistry of biological fluids (blood, urine, lymph, etc.), in the histology of tissues/cells and in the subcellular ultrastructures which are not studied in homoeopathic drug proving and materia medica. The Xenobiology thus makes use of the bests in both these divergent approaches. Moreover, the concept of 'xenobiotic' under Xenobiology is very general and inclusive, as mentioned above. The principle of homoeopathic drug proving thus emerges only as a particular case of Xenobiology alongwith the other sciences like toxicology, parasitology, etc. as other particular cases.

According to Xenobiology, the disease, like health, is a physiological state, involving all the cells, tissues and organs to varying extents, but resulting from the action of pathogenic xenobiotic(s). The clinical symptoms of a parasitic disease are here regarded as being elicited by the pathogenic xenobiotics and/or nutritional deficieneies produced by the parasite.

The information collected by drug proving is utilized for homoeopathic materia medica and therapy with the help of the homoeopathic law of similars. Likewise the totality of biological information under Xenobiology is proposed to be utilized for therapeutic purposes, according to the law of similars, under Ultramicroxenopathy[3] (see also below). Gupta congratulates[5] this author for initiating the foundation of new science of Ultramicroxenopathy but does not appreciate[4] its base Xenobiology, obviously because of his miscomprehensions (vide Sharma's reply[6]). Kanjilal's comments[8] are noncontributory. This paper has elaborated the basic points further.

'COMPETITIVE EXCHANGE' AS THE BASIS OF THE ACTION OF HOMOEOPATHIC HIGH POTENCY DRUGS

(a) *Theory*: In a key biochemical reaction, let a phathogenic xenobiotic

molecule X act on the key molecule M of biological importance, according to eqn. (1):

$$M + X \rightleftharpoons MX \qquad (1)$$

We propose to call eqn. I as 'pathogenic equation' because it represents a 'pathogenic biochemical reaction'.

This is a reversible reaetion. On its right the molecule M is bound with the xenobiotic X which further gives rise to unhealthy products, other unhealthy biochemical reactions, pathological changes in cells and tissues, and to the subjective clinieal symptoms.

However, on the L.H.S. of eqn. 1, tbe biological molecule M is free to bind with the molecule D_x of the diluent medium in the homoeopathic medicine which has already been resonantly promoted[1] by the xenobiotic X to aequire the same number of chemically active electrons and associated with the same exchangeable energy as available in X. This is shown in eqn. (2)

$$M + D_x \rightleftharpoons MD_x \qquad (2)$$

As D_x is also to approximately mimic the biological properties of X, it would compete with X to bind with M. As a eombined result of eqn. (1) and eqn. (2) we have:

$$MX + D_x \rightleftharpoons MD_x + X \qquad (3a)$$

$$MD_x \rightleftharpoons M + D_x \qquad (3b)$$

$$X \rightarrow \text{biologically eliminated} \qquad (3c)$$

$$D_x \xrightarrow{\text{de-promoted}} D \rightarrow \text{metabolized} \qquad (3d)$$

The D_x molecule is less xenobiotic or toxic than X because it lacks the Kernel of X. The complex MD_x is therefore less unhealthy than MX. The freed xenobiotic ultimately gets eliminated through biological processes. The D_x can be reused for 3a reaction but on de-promotion to the ordinary molecule D of the diluent medium it is metabolized as such. We propose to call the set of equations 3a, 3b, 3c and 3d as 'Curative equations' because they jointly represent the processes of cure. If the diluent medium happens to be water then D_x on de-promotion can remain associated with M as water of hydration.

The discussions on the concept of 'competitive exchange' are continued in the next sectiou. But before that we would first consider the experimental evidence in its support.

(b) *Supportive experimental evidence*: *In vitro* experiments are being planned to collect direct information on tlus point. But tlie following experimental results may be cited in support of the above theory:

(i) Sankaran[1] cites Wurmser[4] as having demonstrated that the 4c, 5c and

7c centesimal potencies of Arsenic and Bismuth definitely increased the elimination of these minerals previously fixed to the animal tissues.

(ii) This author gave Arsenic alb. 200c to a suspected case of arsenic poisoning on clinical symptoms, namely, restlessness, frequent thirst for cold water, loss of appetite, disturbed sleep, fear of death, palpitation. The arsenic content of her nails and hair came down from 38 μg/g to about 4 μg/g after a week when she also became free from clinical symptoms. Similarly a case of opium toxicity was treated with Opium 1M.

(iii) This author has treated Alloxan induced *diabetes mellitus* in rats with dynamized 30c Alloxan. These experiments were referred to in the last paper[1] and would be published separately, but see also below.

(iv) The technique of labelling organic compounds with tritium—a radioisotope of hydrogen, by exposing the compound to multi-currie radioactivity of H_3 gas is well established. The H_3 atom exchanges with non-radioactive hydrogen H atom in the organic compound. The same '*molecular exchange process*' is invoked here in the above theory.

MOLECULAR BASES OF THE LAW OF SIMILARS

This section extends and continues the discussions on the concept of competitive exchange from the previous section.

It is known that an enzyme can act on more than one substrate and a substance can be acted upon by more than one enzyme. Similarly an electrophilic specie can bind more than one nucleophilic species and vice versa. Likewise a biological molecule can bind more than one xenobiotic and every xenobiotic can bind to more than one biological molecule. However, in all these cases the efficiency of reaction and the affinity of binding would vary in every case.

As an extension of the arguments of the previous sections, let us therefore consider a disease state in which the biological molecules M_1, M_2, M_3, —, M_n situated in different organs, tissues and cells of the body are acted upon by the pathogenic xenobiotics X_1, X_2, X_3, —, X_n to produce the unhealthy products M_1X_1, M_2X_2, M_3X_3, —, M_nX_n and the corresponding changes in the corresponding tissues and cells and to elicit the corresponding subjective clinical symptoms.

It may be possible and also expected that X_1 may bind to some but not to other remaining biological molecules M_2, M_3, —, M_n. Same is the case with X_2, X_3 etc. But it is possible to find some xenobiotic X from somewhere which could bind to all or nearly all of the above biological molecules M_1, M_2 — etc. This xenobiotic X, if and when administered in the healthy state, would produce clinical symptoms very similar to those of the above disease under consideration, through the formation of the unhealthy complexes. But the X-induced disease, as in the case of homoeopathic drug proving, would be short lived and the xenobiotic X may/would eventually be eliminated through biological processes.

When ultramicro quantities of the xenobiotic X are administered in the disease state, the curative process will be represented by the following equations:

$$(M_1X_1,\ M_2X_2\ ----,\ M_nX_n)+X \rightleftharpoons (M_1X,\ M_2X,\ ---,\ M_nX)+(X_1,\ X_2,\ ---,\ X_n) \quad (4a)$$

$$(M_1X,\ M_2X,\ ----,\ M_nX) \rightleftharpoons (M_1,\ M_2,\ ---,\ M_n)+X \quad (4b)$$

$$(X,\ X_1,\ X_2,\ ----,\ X_n) \rightarrow \text{biologically eliminated} \quad (4c)$$

The curative process, under the action of the resonantly promoted diluent molecules D_x of the high potency dynamized medicines prepared with X would be represented by the following equations:

$$(M_1X_1,\ M_2X_2,\ ---,\ M_nX_n)+D_x \rightleftharpoons (M_1D_x,\ M_2D_x,\ ---,\ M_nD_x)+(X_1,\ X_2,\ ---X_n) \quad (5a)$$

$$M_1D_x,\ M_2D_x,\ ---M_nD_x) \rightleftharpoons (M_1,\ M_2,\ ---M_n)+D_x \quad (5b)$$

$$(X_1,\ X_2,\ ---X_n) \rightarrow \text{biologically eliminated} \quad (5c)$$

$$D_x \xrightarrow{\text{de-promoted}} D \rightarrow \text{metabolized} \quad (5d)$$

This section therefore envisages that the X-induced disease, mediated through the unhealthy complexes (M_1X, M_2X, —, M_nX) would be similar to the natural disease mediated through (M_1X_1, M_2X_2, —, M_nX_n) because in both these cases the same set of molecules of biological importance (M_1, M_2, —, M_n) are involved. The equations (4a, 4b, 4c) and (5a, 5b, 5c, 5d) represent the principles and processes of cure on the law of similars, for the low decimal and high centesimal potencies respectively. This is because the probability of finding one molecule of X in 10c and higher potencies has been found to be less than one[1]. The low decimal potencies, therefore, predominantly contain the original drug molecules and high centesimal potencies, the promoted diluent molecules.

It is clear from above that in agreement with the homoeopathic philosophy and practice, the most efficient homoeopathic medicine D_x would be the one which covers the maximum number of the diseased molecules M_1, M_2, M_3.... M_n and hence most of the clinical symptoms, objective plus subjective, that is the one which is *most similar* to the disease state of the 'whole' patient.

SIGNIFICANCE OF THE ULTIMATE PATHOGENIC XENOBIOTIC

It is known that all xenobiotics are subject to the action of the drug metabolizing enzymes present mostly in the liver but also in other tissues. During this process some xenobiotics are so modified that their conjugation

and/or subsequent elimination becomes easy. In some other cases the xenobiotic, which itself is not pathogenic, is activated to a pathogenic form or is converted into a metabolite product which is pathogenic. These pathogenic species are herein referred to as the *'ultimate pathogenic xenobiotics'*; the initial non-pathogenic species is called the *'potential pathogenic xenobiotic'*. For example, out of nearly forty possible metabolites of benzo (a) pyrene only few (like 9 hydroxy-benzo (a) pyrene-4, 5-Oxide; 7, 8-dihydro-7, 8-dihydroxy-benzo (a) pyrene-9, 10-Oxide) bind to the DNA (deoxy-ribonucleic acid)[8-11].

In general, let a xenobiotic X be convertible into a number of metabolites X_1, X_2, X_3, —, X_n of which only say, X_3 is pathogenic. From the discussions of the last two sections on the principle of 'competitive exchange' it follows that the dynamized high potency diluent molecules D_{x3}, resonantly promoted by the ultimate pathogenic xenobiotic X_3, would exercise a curative action, whereas D_x, D_{x1}, D_{x2}, D_{x4}, — D_{xn} promoted by initial xenobiotic X and other metabolites X_1, X_2, X_4, —, —X_n would all be ineffective: The mixture of all the metabolites (X, X_1, X_2, X_3, —X_n) could, however, be 'blindly' used to raise high potencies with possibilities of curative power because the pathogenic metabolite X_3 is included in it.

Things become easy and simple when the initial xenobiotic itself is pathogenic. For example, this is the case with diabetogenic Alloxan. That is why this author has been able to cure Alloxan induced diabetes mellitus in rats with potentized 30c Alloxan (see above).

This raises new hopes and possibilities for the treatment and management of a host of allopathic drug induced diseases and of chemically induced cancers, and so on. It may be mentioned here that some lung cancers are known to be caused by tobacco smoking and also that benzo (a) pyrene is the cancerogen component of tobacco smoke. Therefore, dynamized potencies raised from the mixture of the benzo (a) pyrene metabolites prepared by enzymatic action of liver homogenate on the benzo (a) pyrene, might act curatively.

Future research work on the lines suggested above is being planned on experimental animals and in human situations.

MECHANISM OF ACTION OF HOMOEOPATHIC DRUGS IN MICROBIOL DISEASES

Homoeopathic medicines are known to act curatively in viral infections (like measles, hepatitis, common cold, etc.), in bacterial infections (like tonsillitis, cholera, boils, erysipelas, etc.), and in parasitic diseases (like malaria, giardiasis, etc.). As a result of the homoeopathic treatment the host is cured of the pathologic effects of the xenobiotics produced by the pathogenic microbes, and at the same time the microbe is also eliminated from the system.

Obviously the homoeopathic medicine acts on the host curatively and on the microbe as a toxicant. The mode of curative action on the host is

according to the principle of 'competitive exchange' enunciated earlier in this paper, because the homoeopathic medicines are prescribed on the law of similars. The toxic effect on the microbes is expected to be induced as in homoeopathic drug proving because the promoted molecules of water and alcohol in high potencies can easily cross the cell membranes of the microbes to act intracellularly. Probably due to this toxic result the microbes get easily eliminated by the already stimulated immune mechanisms of the host. *In vitro* experiments are being planned to collect information on this point.

Potencies raised from the pathogenic xenobiotics produced by the pathogenic microbes are expected to exercise curative action on the principle of competitive exchange.

ULTRAMICROXENOPATHY VERSUS HOMOEOPATHY

The newly proposed science of Ultramicroxenopathy[3] does not, in any way, undermine the value of Homoeopathy but envisages to strengthen and qualitatively improve the homoeopathic materia medica by incorporating objective biochemistry and morphology of tissues and cells. In addition, it enlarges the operational scope of the law of similars by enlarging, the concept of xenobiotics and, the scope of drug proving to that of the new science of Xenobiology[2]. It is gratifying to note that some homoeopaths[5] have congratulated this author for founding Ultramicroxenopathy.

BASES OF UNIFIED THERAPEUTICS

A reference to fig. 1 will be most helpful here. Let the primary cause of disease (*prima causa morbi*)[12] namely the pathogenic action of the ultimate xenobiotic, be situated within the cell or even nucleus on the deepest physiological plane on the first biochemical step catalyzed by the enzyme E_1. Let the chemical biochemistry laboratory report an abnormal concentration of the products A_n, B_n in the body fluid(s) or in other accessible compartments and the histopathology laboratory detect pathological changes in the tissues. Let the patient also give some subjective clinical symptoms.

The surgeon would like to remove and the radiotherapist destroy the abnormal tissues (lower left rectangle in fig. 1) but cannot prevent recurrence or spread of the pathology because the primary cause still persists at deeper planes. The allopathic physician working on the principle of opposites would administer drugs to normalize the concentration of A_n, B_n in the appropriate accessible compartments like plasma and to control the subjective symptoms but cannot cure this 'chronic disease' howsoever long the treatment is continued because these opposite drugs cannot reach and remove the primary cause from step I within the cell. The homoeopathic medicines prescribed on the law of similars would 'cure' the disease by removing the *prima causa morbi* through the mechanism of competitive exchange because the dynamized high potency medicines can reach the innermost step 1 within the cell or nucleus. The mental and physical yoga would act on the higher centres

to control the thoughts, feelings, emotions etc. (lower right rectangle in fig. 1). A judicious combination of all these therapeutic means would ensure a quick, safe and comfortable cure of the patient. In this Unified Therapeutics[4] the amount and duration of the opposite (allopathic) drugs required to be used would be drastically reduced—just sufficient to control clinical symptoms and not enough to create adverse side effects—because the treatment is primarily based on the law of similars. The criticism of Unified Therapeutics by some homoeopaths[6,13] is thus based on miscomprehensions of the new concepts and on misapprehensions about its impact on the future of Homoeopathy[5]. In fact, Navayurveda[4] would definitely help patients. It would also help popularize Homoeopathy among the practitioners of 'opposite' medicines, converting traditional 'opponents' into its admirers!

CONCLUDING REMARK

This comprehensive paper updates the molecular theories of the earlier papers to make homoeopathic phenomena consistent with other sciences. It has necessitated introduction of several new scientific concepts.

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