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ORIGIN AND EVOLUTION OF DRUG DYNAMISATION

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ABSTRACT

Potentization, also known as drug dynamization, is a unique method of preparing homoeopathic medicines that was first developed by Dr. Hahnemann in 1821. This process separates Homoeopathy from other systems of medicine, and it is also the backbone of the nature of homoeopathic medications and is linked to the homoeopathic philosophy, which drives the dose and repetition regulations. The article gives us knowledge about brief history of dynamisation and how the process evolved over the years along, with different instruments used in the method of potentization.

INTRODUCTION

Dynamization[1]: Homeopathic Dynamisation is process by which the medicinal properties that are latent in natural substance while in their crude state, become aroused and then become enabled to act in an almost spiritual manner on our life, i.e. on our sensible and irritable fibre.[1]

Drugs are potentised by two method:

1. **Trituration**- In case of insoluble substance.
2. **Succussion**- in case of soluble substance.

Similar words found in dictionary

Potentia: Means power; ability; to perform.

Potential: Existing and ready for action.

Potentiate: To strengthen.(make powerful)

Dynamic: Role of energy, force that stimulate change.

Dynamism: To strengthen.

It is quite obvious from the available word meaning mentioned above that both terms Potentisation and dynamization may be used as synonyms it context of homeopathy which is also evidence from the available lecture.

According to Dr. Hahnemann[2]: "Homoeopathic dynamisation are processes by which the medicinal properties, which are latent in natural substances while in their crude state, become aroused and then become enabled to act in our life, i.e., in our sensible and irritable fiber". This development of properties of crude natural substances (dynamisation) takes place in the case of dry drug substances by means of trituration in mortar, but in case of fluid substances by means of shaking or succussion, which is also trituration.

According to stuart close[2]: "Homoeopathic dynamisation is a mathe-matico-mechanical process for the reduction, according to scale, of crude, inert or poisonous medicinal substances to a state of physical solubility, physiological assimilability, and therapeutic activity, and harmlessness, for use as homoeopathic healing remedies".

History of potentisation[2,3,4,5]: Hahnemann explained Potentization in Organon of Medicine (5^{th} & 6^{th} edition)

The Chronic Disease their peculiar nature and their homoeopathic cure, by Dr. Samuel Hahnemann.

Two closely related discoveries brought Hahnemann closer to the principle of dynamization: One was the improved therapeutic effect of reducing the dosage of previously used medicines.

The other finding was that substances such as salt or *Lycopodium*, not previously identified as medicines became therapeutically active on undergoing this process.

So Hahnemann, setting out simply to reduce the quantity of his doses, discovered potentization, an entirely new principle in posology.

This is the principle, which gives life and power to the system of medicine that Hahnemann developed and is the third great step in the evolution of the law of cure.

Evolution of the concept of potentization: Hahnemann's approach to potency was modified in each phase of his medical career. A point worth emphasising is that he was an experimenter and innovator, motivated more by practice than by theory.

These phases can be discussed in detail along with the published works that Hahnemann was involved with at each stage.

1784–1796Pre–Homoeopathic medical career: Before discovering the law of similars, Hahnemann's treatment of his patients differed very slightly from that of other physicians.

His prescriptions corresponded in composition, weight and quantities with those of his contemporaries. “Direction for the cure of old sores and ulcers”(1784).

Hahnemann recommends

Antimony in doses of 5-50 grains (0.25 – 2.5g), and Jalap root in doses of 20-70 grains (1 – 3.5g).

1790 - Hahnemann translated Cullen's Materia Medica - historic discovery relating to Cinchona bark.

Hahnemann wrote – 'Surely toxicity is nothing but the violent manifestation of an extremely powerful agent applied in too high a dose and in the wrong place.'

1796 - Hufeland's journal -*‘Essay on a New Principle For ascertaining the Curative Powers of Drugs and some examination of the previous principles’*.

In this essay he makes reference to the use of ‘small doses’, but does not clarify what he meant by "small".

The aggravation or the increase of disease symptoms following the administration of the homoeopathic remedy, induced him gradually to decrease the dose.

But this diminution was not so swift and it was only by experiments and bedside experiences that the necessity was felt by him.

1797 – 1800: First hints of dilution: 1798(Hufeland's journal) – 'Some Kinds of Continued and Remittent Fevers'. Here, he notes using *Ignatia* in doses of 2 to 3 grains; *Opium* in 1/5-1/2 grain doses; *Camphor* 30-40 grains/day; *Ledum* 6-7 grains.

Although these are still 'crude' doses, and rather large by later homoeopathic standards, they represent dramatic reductions from the allopathic doses of his contemporaries.

The first hints of dilutions are found in his 'Apothecaries Lexicon' (1798), where he recommends *Sabina* 'in very small doses; *Stramonium* at 1/100th or 1/1000th part of a grain. Hahnemann's experiments during this time led him to the use of even smaller doses, with those remedies he used commonly.

Serial dilution in the preparation of remedies appears to have been introduced in 1799.
1801 – 1813: Dispersing the substance well through out dilution medium
1801 – 'Cure and Prevention of Scarlet Fever'. He offered exact details of the preparation and administration of Belladonna.

He offers descriptions of mixing such as 'shaking the whole well' and 'intimately mixed by shaking it for a minute' that suggest an interest in dispersing the substance well throughout the dilution medium. He describes these preparations in terms as dilutions, attenuations or reduced doses.

Hahnemann wrote an article *'On the Power of Small Doses of Medicine in General, and of Belladonna in Particular*', in Hufeland's Journal in 1801. It is clear that he still understood the infinitesimal preparations to be dilutions or small doses.

The 1st edition of the organon was published in 1810, referred only to "small doses", Individually determined for each medicine.

1811, The first part of "Materia Medica Pura" appeared without any mention of the size of dose**.**

In 1813, Hahnemann published the dissertation "Sprit of the new Theory of Healing" where he wrote, The spiritual power of the medicine attains its purpose not by quantity but by quality.

Up to 1813, nothing definite was written by Hahnemann. There appeared general remarks about dilution and reduction of size of dose.

1813 - 1819: Seed of dynamization theory

1813-'Spirit of the Homoeopathic Doctrine of Medicine'- Drugs, besides their physico-chemical properties, possess another property by which they alter the qualitative state of the organism. More the materiality of a drug is reduced, by processes of dilution or trituration, greater the specific therapeutic quality lying dormant in the drug seemed to be unveiled.

This is the seed of dynamization theory. So it is dilution plus friction that liberates the pharmacodynamic properties of the drug.

In 1814 article *"treatment of the Typhus or Hospital Fever at present Prevailing"*, where he mentions *Bryonia* and *Rhus tox* in dilutions prepared by serially diluting 1 drop to 6 drams twelve time, shaken for 3 minute at each step, and used a dose of 1 drop of the 12^{th} dilution.
Vol 2 of materia medica pura (1816) has dilution on the Centesimal scale (1:100) as far as 30^{th} potency under arsenicum. As for the method of agitation, he still says: well shaken or accurately shaken.

His observations had demonstrated that – certain substances, ineffective in their natural form, as common salt, charcoal, lycopodium, silica, lime, etc. become available as an efficacious medicine only after prolonged trituration with milk sugar.

The fourth vol. of materia medica pura appeared in 1818. Until then, hahnemann had used gold only in solution.

Here under Aurum, he discusses the first metal to be triturated. From that time onwards no longer designated the different degrees of his dosages as dilutions, but as 'power developments' or 'potencies'.

1820–1828:'Dynamizations'–Importance of friction

1821- Sixth volume of Materia Medica Pura, Hahnemann referred constantly to treating with "the smallest part of a drop".

Hahnemann mentioned for the first time, in the preface: bring down ten times, using the full strength of the arm.

Hahnemann was then adopting the use of globules, whereby a fraction of a drop could be administered easily.

In 1822, 2nd edition of volume 1st of the materia medica pura, dosing recommendation range from the crude tincture for cannabis, to the 9th to 30th centesimal dilution or trituration with the dose consistently specified as the "smallest part of a drop".

From the various volume of the second edition of the materia medica pura.(1824 - 1827), he gradually increased the dilution of remedies.

When he understood the idea of friction as bringing about the remarkable change in the activity of the drug.

This is represented in his article: *'How can Small Doses of such very Attenuated Medicine as Homoeopathy employs still possess great power'* in 1827.

Hahnemann used the terms 'dilution', 'diminish', 'dynamization' / 'dynamic' / 'dynamized', and 'potentization' / 'potency' to describe these various concepts.

The term 'too-strong dose' referred to prescriptions making a too-strong impression on the life force either by to being too large (in a material sense) or of too great a potency.

1829 – 1837 'Standard potency 30C, Olfaction': Hahnemann felt in 1829, the urgent necessity of a limit in potentising and declared the ultimate degree of dilution to be the 30th centesimal potency.

In 1832, Hahnemann began experimenting with olfaction of remedies.
5th edition of the Organon – Hahnemann described the concept of potentization in §269 - §271.

A detailed description of the process of trituration, principally for the first 3 centesimal dilutions of insoluble medicinal substances, was given in part 2 of the 1st edition of chronic diseases (1835).

Hahnemann also began experimenting with giving the dose in solution, rather than as a dry pellet on the tongue.

In 1835 Hahnemann described ‘split doses’ of a medicinal solution produced by dissolving a medicated centesimal pellet in a volume of water. This reduced dose allowed for more frequent repetition.

In the 2nd ed. Of vol. 3 of chronic diseases (1837) he changed his method again, going back to 10 succussion strokes.

In 2nd vol. of chronic diseases gives a further minor change of method.

Hahnemann had found that metals triturated for a total of 3 hrs, exactly 1 hr. per stage, were soluble in water. All dry material – plant minrals metals were triturated upto 3c and then converted into a liquid and potentized.

1838: Final instructions

LM potency scale, which Hahnemann referred to as "medicaments au globule" as distinct from the centesimal ‘medicaments a la goutte’, was developed in 1838. 5 years before his death, with the intention of preparing remedies even better adapted for use in split dose in medicinal solution - 6th edition of the Organon (§270).

Intimately related to these new preparations, were new approaches to the repetition of dose. potentisation was a result of repeated experimentations by Hahnemann.

Dr. Hahnemann took many years (aprox.30-40 yrs) to come to the conclusion of higher dynamisation.

Lot of assumptions, experiments, permutations & combinations were done by him, So the existing form of dynamic medicines today are an out come of hard and extensive labour and is not as simple as it looks.

It passed many hurdles & controversies and now it is in its refined form.

Use of pilules in evolution of the principle of potentization

After 1818 Hahnemann no longer gave the drops as they were, instead patients were given the smallest part of a drop. To divide a drop and obtain its smallest part, he used pilules made from sugar that were 100-300 to a grain.

In the 3rd edition of Organon (1824), he said: "... in so far as one drop of spirits of wine adequately wets about a hundred such pilules".

When Chronic Diseases appeared in 1828, he was using pilules weighing 200 to a grain, and had acquired sufficient skill to wet 300 of these with a single drop.

At first Hahnemann gave drops produced by shaking for minutes at time, varying the number of drops according to the age of the patient. These proved fairly powerful, however, and he soon advanced as far as the 30C. He also felt that there had to be a limit somewhere.

Reducing the dose by wetting pilules, i.e. dividing a drop into between 100 and 300 parts also did not get him nearer to his goal.

Finally, in 1838 the LM potencies make their first appearance. In the sixth edition of Organon of Medicine, he mentions the use of pills, such that 100 of which one grain and 500 such globules can scarcely absorb one drop.

One can therefore conclude that Hahnemann changed his views on potency mainly in the light of clinical experience rather than empty speculations and theories.

It is also clear that he was moving higher and higher and that in his later phase he settled both on olfaction and the LM potencies as being especially gentle and effective methods of drug administration.

He regarded them as superior for practical reasons, not out of any preconceived notions.

Although Hahnemann spoke only of medicines that were attenuated to the 30th centesimal, he did question how far the sub-division of the substance could be carried before it failed to produce an effect.

Within Hahnemann's lifetime, the drugs became more attenuated. Boenninghausen and Lehrmann, a pupil of Hahnemann, produced preparations made by hand in the Hahnemannian manner up to the 200th attenuation.

Post-hahnemannian era

Decimal Scale- Dr. C. Hering[2]

Introduced in the 1830s by the American homeopath Dr.Constantine Hering Denoted by (D or X), diluting the substance to ten times its original volume each stage. It has a dilution factor of 1:10 meaning that one part of the drug substance or potency is diluted in 9 parts of a Vehicle. The D or X scale dilution is therefore half that of the same value of the C scale; for example, "12X" is the same level of dilution as "6C".

Decimal potencies are easy to use and can be dispensed as pilules, tablets or liquids.

Being “low potency” remedies, they can be repeated frequently with little risk of producing proving symptoms.

For this reason they are commonly sold by retail outlets for self-treatment of simple acute problems.

The Schuessler Tissue Salts are one such example. They are less commonly prescribed by homeopathic practitioners as they have limited use in the treatment of deep-seated chronic conditions.

Von korsakoff[2]**:** Von Korsakoff, a Russian, introduced the concept of using a single vial in the potentization process; the amount of liquid adhering to the emptied vial would be considered as one part of the next attenuation. Ninety-nine parts of menstrua were then added to produce the 1:100 centesimal ratio. Hahnemann entered into correspondence with Korsakoff as early as 1829. He did not speak against the method or against the higher attenuations but only suggested that, for the sake of 'uniform results' it would be best to stay with the 30th attenuation. He is quoted, in a letter to Dr Schreeter (1829) that 'there must be a limit to the thing, it cannot go on to infinity.

Another early experimenter, **Julius Caspar Jenichen** was introduced to homoeopathy by *Gustav Wilhelm Gross*, another of Hahnemann's pupils. The methodology Jenichen used to produce his potencies is a topic for another time. Suffice to say that Jenichen believed that it was the succussion of the drug that gave its strength. He began with a vial of the 29th liquid dilution, which was allowed to evaporate completely. The empty vial was then filled with alcohol and succussed, every twelve shakes increasing the potency by one degree. It was Jenichen who introduced to homoeopathy the concept of potency rather than simply dilution.

After Hahnemann's death in 1843, further work began in an effort to explore the 'edges of the envelope' of potentization. W. W. Robinson describes the time as an era when the physical and chemical sciences were beginning to take a more definite form, the concept of high potency thrived in what might be termed an atmosphere of "gentle philosophy.

Carroll dunham[2]: Carroll Dunham One of the first people to attempt to mechanize the potentization process was Carroll Dunham. Upon returning from a visit with Boenninghausen, he decided to produce some 200th potencies. He was assisted in the task by his father. The job, using the single vial Korsakoff method, took one week.

Francis edmund boericke[6]: The Boericke machine is unknown, save one woodcut that appeared in The Organon. The tube on the top drew water into a pump.

At the first revolution of the wheel, the pump drew 100 drops of water into the pump housing. The second revolution of the wheel pushed the water out into the potentizing vial on the left. The continued motion of the wheel converted the rotary movement into a reciprocating vertical motion that shook the vial. The potentizing vial had a narrow-necked opening at the bottom. After it had been given five full shakes, all the liquid in the vial had been shaken out of it. It was then ready to receive another hundred drops from the pump. It was calculated that the machine could make 100 potencies per minute.

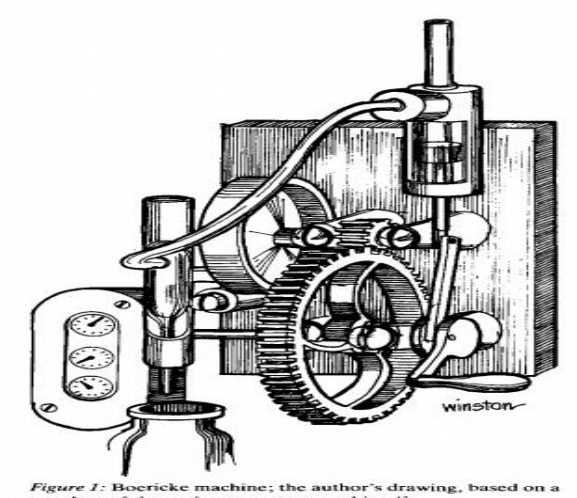

Figure 1: Boericke machine; the author's drawing, based on a woodcut of the no longer extant machine.[13]

(The machine first pictured in vol.1st of the Organon(1878, page 420 in an article by thomos skinner, MD)

Dr Skinner writes, in 1879, of having seen the machine in operation. He was critical of its operation in that it took a person to work the machine, and he believed that the inhalation of high potencies was injurious to the health. At the time of that writing, Skinner reports that the machine was not being used. The fate of the machine, and the possible potencies that were made by it, remains unknown.

Bernhardt fincke[6]: In 1865, Fincke wrote a small volume titled On High Potencies, published by A. J. Tafel in Philadelphia. This book presents cases that were cured with high potencies, some made by hand, some dry-grafted in the Korsakovian manner. Fincke had experimented with several methods of making the higher potencies. His original potencies (up to a 30c) were made by hand with alcohol in the Korsakovian manner. He succussed each potency 180 times in a 'dactylus rhythm' (one, two, three).

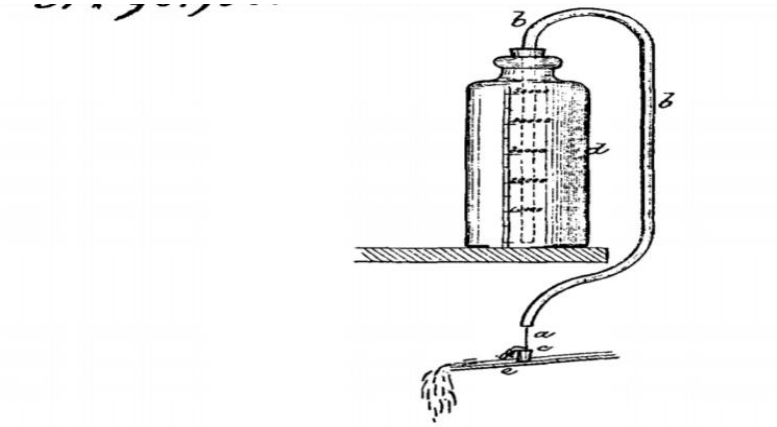

Figure 2: Variation 1 of the Fincke apparatus.[19]

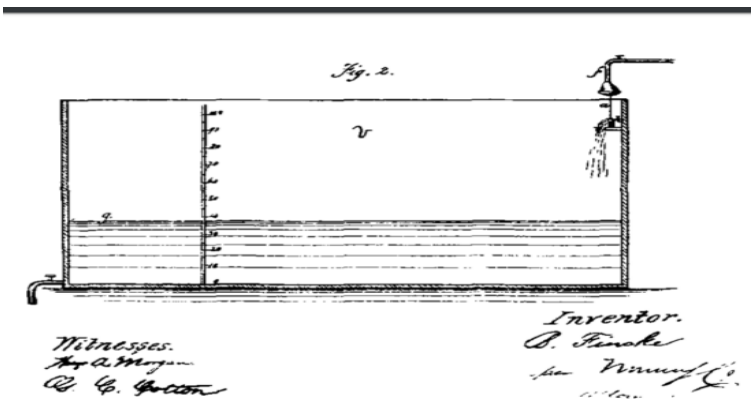

Figure 3: Variation 2 of the Fincke Apparatus.[19]

Thomas skinner[6]: In 1878, Dr Skinner had developed the 'Skinner Fluxion Centesimal Attenuator‘. This device was designed to mount above a sma|l sink in the office or home. The

motive power was water pressure. The device consisted of a water wheel which turned a shaft to which was attached two small cradles. These cradles each held a small glass vial. The main shaft had a counter attached which measured how many times the machine cycled. Over each cradle was a small-diameter down-spout. All of the water lines were fitted with stop-cocks, so the flow of water could be easily regulated. Skinner believed that his preparations, made in the 1:100 ratio of the Hahnemann centesimal, were the equivalent of a true centesimal potency. It was his desire to place all the potencies on the same scale of attenuation and notation 'without cavil or doubt' and that notation should be the centesimal or Hahnemannian scale. About his machine, he said: It makes 50 centesimal potencies per minute, 3,000 per hour, 72,000 per day, 100,000 in about thirty-three hours, and the MM, or millionth, in three hundred and thirty hours, or about fourteen days and a half, running night and day; and there is no doubt whatever that it is the millionth centesimal potency of Hahnemann.

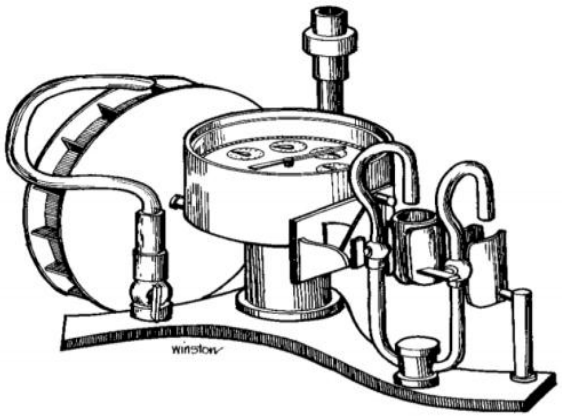

Figure 4: The Skinner Fluxion Centesimal Attenuator. Drawing by the author.

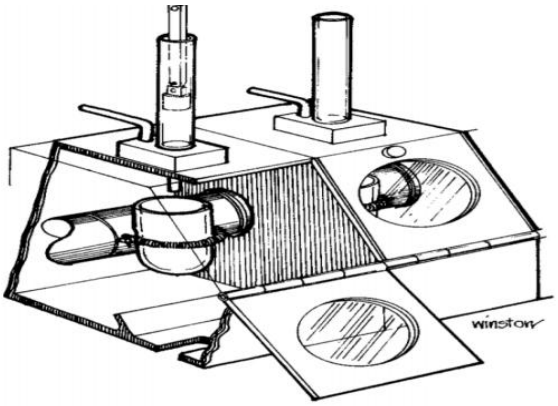

Figure 5: Skinner potentizer currently in use at Boericke and Tafel in Philadelphia. Drawing by the author.

S. P. Burdick[6]: This machine was discussed in an article that appeared in the May 1879 edition of the North American Journal of Homaeopathy.

Martin Deschere, MD, concerning the exact calibration of the fluxion potencies on the centesimal scale. He describes this potentizer as 'the first correct and truly centesimal potentizer.'

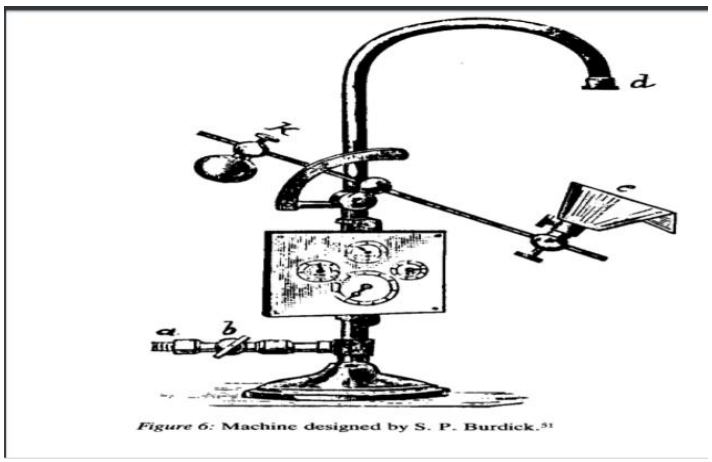

Figure 6: Machine designed by S. P. Burdick.[51]

James tyler kent after 1903, when he wrote the letter praising the Skinner potencies, Dr Kent developed his own potentizing machine. It is not known who built it, or the extent of Kent's involvement in its construction. It was used by Ehrhardt and Karl to make high potencies above 1M, and was mentioned in their 1915 catalogue.

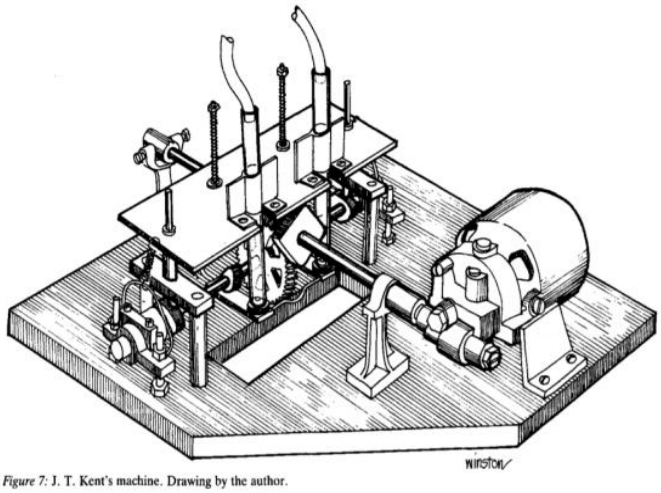

Figure 7: J. T. Kent's machine. Drawing by the author.

Scales of potentization:[1,2] In the preparation of potencies of liquid drug substances three scales are used

1. Centesimal
2. Decimal
3. Fifty Millesimal

Centesimal scale: This scale was introduced by ***hahnemann in 5th edition of organon of medicine,*** aphorism 270 and is more commonly used.Centesimal scale of potentization is based on the principle that the first potency must contain the one-hundredth part of the original drug and each following the one hundredth part of the preceding one.

Decimal scale: Introduced ***by Dr. C. Hering***.Decimal scale of Potentization is based on the principle that the first potency should contain one-tenth part of the original drug and each succeding potency should contain one-tenth part of the potency preceding it.

Fifty millesimal scale: These "fifty millesimal potencies" are based on the principle enunciated by ***Dr. Hahnemann*** in ***sixth edition of Organon of Medicine***. Hahnemann was not completely satisfied with the medicinal solution of centesimal potencies, especially in weak sensitive constitutions with chronic miasmic disease. He found in certain cases that the-

- Lower potencies were not able to stimulate a healing reaction.
- Yet at the same time, the higher potencies caused serious aggravations.

Although similar processes like Potentisation are not present in any other system, but like wise are seen in Isopathy, Ayurveda Unani all are based on different principles.

REFERENCES

1. Goel S. Art and science of Homoeopathic Pharmacy. New Delhi: Indian Books & Periodicals Publishers, 2014; 3.
2. Mandal PP, Mandal B, A Textbook of Homoeopathic Paharmacy. New Central Book Agency (P) Ltd.
3. Tafel LH, Hughes R, Dudley P. The Chronic Disease their peculiar nature and their homoeopathic cure, by Dr. Samuel Hahnemann. New Delhi: B. jain Publishers Pvt. Ltd, 1995.
4. Hanhnemann S, Organon of Medicine: Sixth edition.
5. Siddhu BS, Singhal MP. Ashok Advanced Illustrated Medical Dictionary. NEW DELHI:Ashok prakashan, 2010.
6. Winston J. A Brief History of potentizing machines. British homoeopathic Journal, 1989; 78: 59-68.