
NASA's TRLs, Technoscience and Homoeopathic Therapeutics: What's the Scientific Evidence of Therapeutic Technologies?

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Aim of the Presentation

- This is a conceptual analysis of medicine and homoeopathic therapeutics (Rx), **by comparing them critically** with the philosophy of medicine, and of the sciences, as well as NASA and the Technoscience industries, such as e.g., Airbus Company.
- This is due to...

The Problem of Scientific Evidence!

- Homoeopathic Rx is officially recognised by many Governments: **Why recognised, when...**
- Homoeopathic Rx is **irrelevant** officially – we are not called to treat spinal cord injuries (SCI), cholera, or pneumonia, etc, etc!
- Our results are irrelevant!
- Our results do not represent scientific evidence!
- This, despite.....

The Spread of Homoeopathic-Rx

Paulo Bellavite

Due to their ‘**distinct superiority**’¹ in treating many life-threatening epidemics across Europe and America during the 1800s.

Thus, Worthy Clinical Effectiveness.



One more Example:
Spinal Cord Injury (SCI)

My Patient with a SCI

- **16/12/99:** Head-on collision—**A high velocity injury**, with a fracture-dislocation. His brother died, wife had multiple fractures.
- **SCI Diagnosis: ASIA B L1- L2**
 - Power 0 = motor complete.
 - Anal sensation intact.
- **Guidelines: ASIA B**
 - Recovery limited & predictable.
 - Recovery 2 levels below ZPP rare.



Patient with SCI and his treatment.

- **05/01/2000:** Hypericum 1M in liquid 3 times daily, **3 Weeks Post Injury.**
- **02/03/2000:** **Fully functional in 8 weeks.** Physiotherapy notes.
- **Prof Glasziou, Oxford University:** **Interesting. Provide 100 more cases!**
- **Prof Dunn, University of Cape Town:** **Unscientific, Anecdotes.**



The Problems

Paulo Bellavite says...

- RCT cause the ‘efficacy-effectiveness paradox’, **furthermore...**
- A therapy’s ‘**scientific validity**’ is **not** dependent on its success rate, but...
- It requires a ‘pathophysiological, biochemical, and pharmacological theory, or rationale’.
- This is an **§‘Unhistorical Stereotype’**, i.e., an historical misrepresentation.

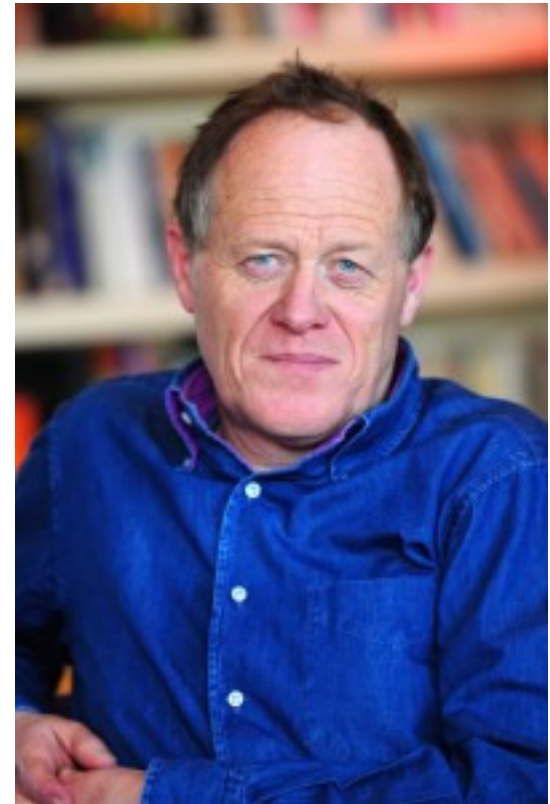


‘Unhistorical Stereotype’²

Cornucopia of Drugs Introduced from 1930s-1960s

James Le Fanu³

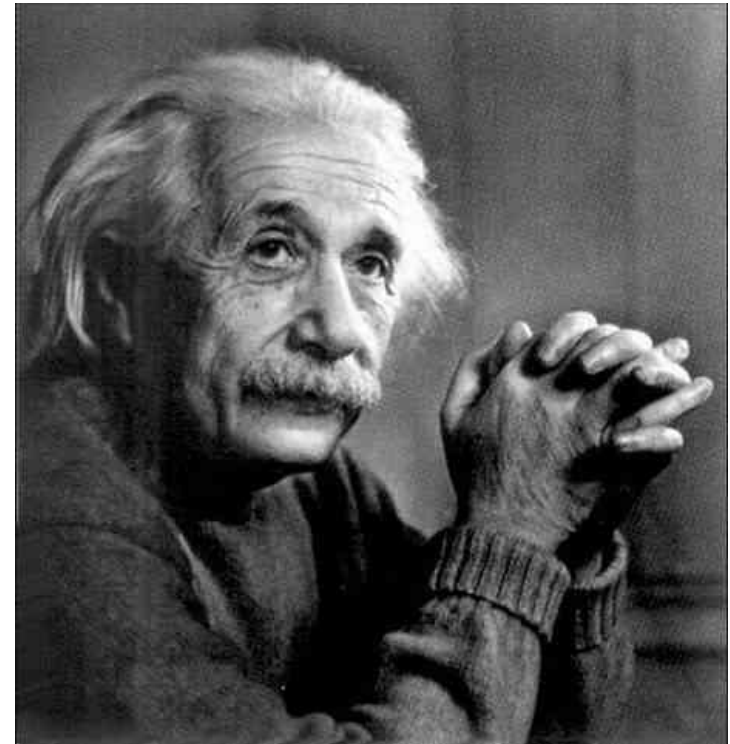
- Originated via a massive game of roulette.
- Via fortuitous discovery.
- Without scientific first principles.
- With rudimentary knowledge of the cell.
- **Without knowledge how drugs worked.**
- **But the drugs worked, and doctors used them uncritically.**
- **Hypocrisy! Homoeopathy is expected to do the opposite!**
- **Science will materialise, when science (men) matures!!!**



How to conceptually analyse the problems?

Albert Einstein says...

- Think outside the box.
- ‘the external conditions...do not permit him to...be too much restricted...to an epistemological system.’
- the scientist should be an ‘epistemological opportunist’.



Thus, Which Benchmarks To Employ?

Required are:

1. ‘Medicine qua Medicine’—What’s the essence of the profession? Otherwise RCT is its essence!
2. Other benchmark institutions, and their principles—the philosophy of science, the sciences, Technoscience, and NASA.
3. This, as medicine gloats about their ‘scientific’ excellence.

Five Cardinal Principles

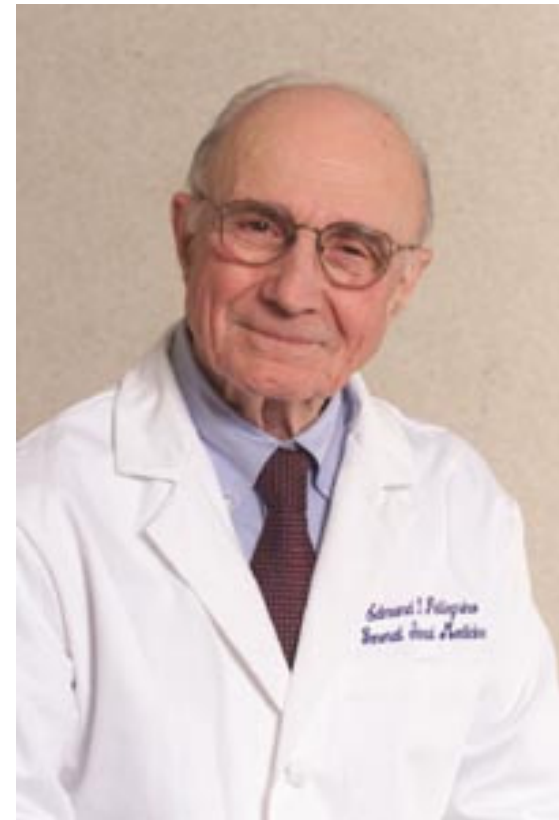
- **Monod:**⁵ Science's Social Acceptance came due to the...
 - 'prodigious powers of performance' of its products on which man became addicted to like an addict on his drugs.
- **Bellavite:** Homoeopathic Rx Spread due to their
 - 'distinct superiority' in epidemics during the 1800s.
- **Kuhn⁶, Feyerabend:**⁷ Medicine is a...
 - 'craft', 'practical art' ... 'akin to engineering'.
 - 'science-based art'. Medicine is not a science!
- **Pellegrino:**⁸
 - 'Medicine qua Medicine' ... See next slide please...
- **Jeggels:** Thus, 'Medicine qua Medicine' qua Technoscience.

The Aim of Medicine?

‘Medicine **qua** Medicine’

Edmund Pellegrino⁸

- ‘Right and good healing action taken in the interests of a particular patient.’
- If not, the ‘profession inauthentic and a lie.’
- Results must never be fortuitous, ‘based on chance, not knowledge.’



Medicine **qua** Technoscience!

Why NASA's TRLs?^{9 10 11 12}

- They provide a common understanding of science and technology exit criteria, as **space is dangerous!**
- **Thus, what is being done, under what conditions,** with a technology, at a given point in time. Thus, are we experimenting, testing, or demonstrating a technology?

TRLs & Technoscience's Procedures.

The Science & Technology ↔ Continuum

Science	Experiment	Testing, Verification	Demonstration
Theories Hypotheses	Can it work? If Yes! Then Testing!	How <i>well</i> does it work? Does it do what it should do?	Yes it does! Scientific Evidence! Marketing!
Relevant NASA's TRLs			
Immature TRL 1 – 2	Experimental TRL 2 – 3	Maturing technology TRL 4 – 7	Mature technology TRL 8 – 9

NASA & Technoscience's Principles

- **Ullman:**¹² To produce a high quality product, a theory to do that is indispensable from the outset – **Input Generation**. The same hold for Individualised Rx.
- **Lakatos:**^{13 14} Theories must provide for...
 - Positive Heuristics i.e., they must solve problems.
 - Theories are mostly confirmed in real life, e.g. Newton, see later.
- **Ullman:**¹² **Experimentation, answers:** Can it work? Is the **Input Working?**

NASA & Technoscience's Principles

- **Collins & Pinch:**¹⁵ produce a **Technology to test**, otherwise we are stuck in 'Experimenter's regress', i.e., we'll quarrel forever about the experiment.
- **Blanchard et al:**¹⁶ **Testing, Input vs. Output**, confirms the...
 - '*true* system characteristics' for the first time
 - '*true*' tests are performed under real-life conditions, not in a laboratory
- **Ullman:**¹² Demonstration confirms that the product...
 - Does What It Must Do; the product's **OUTPUT**
 - And products are for **customers** who must operate it in their **uncontrolled operational environment**.
- **Collins and Pinch:**¹⁵
 - it's important that 'demonstration and display on the one hand, and experiment on the other are not mistaken for one another.'

Thus the following few examples...

A Theory and Methodology From The Outset¹²

Glider Wing

vs.

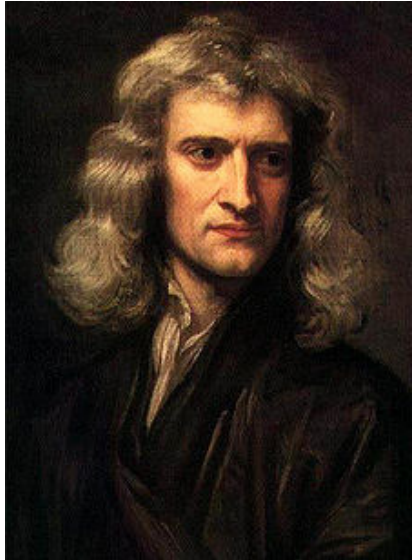
Jet Fighter Wing.



To produce a glider wing, one needs a theory and methodology to produce it. Once it has been produced, this wing will not work like a wing of a jet fighter; the wing will be torn off the jet fighter when flown supersonic. To produce a jet fighter wing one needs a theory and methodology from the outset to design it.

Confirming Instances^{13 14}

Newton



Halley



Halley's Comet



Some theories achieved their victories only after ‘having passed through dramatic confirming instances’, and are ‘shattered by verifications rather than crucial experiments’. For example, Halley applied Newton’s laws, plus all relevant data on a comet, and calculated its return to the same spot in space after 72 years—he was stunningly out by a few minutes. This verification ended the French Academy’s prizes to disprove Newton’s theories.

Failed Science, Experimentation, & Testing

Europa vs. Ariane Rockets¹⁷

- **Left: Europa Rocket;** UK initiated. Launched 1967.
- The **Europa** programme spanned 3 successive projects:
 - **5 Unsuccessful** launches.
 - Rocket was **Cancelled**.
- **Right: Ariane Rocket;** Replaced Europa.
- Failed Science etc, calls for New Scientific Development.



Successful Science, Experiment & Testing
A380 RR Trent 900 Engine: \$ 21 Million Each.¹⁸



Successful Science, Experiment & Testing Fan-Blade Containment Test¹⁹



In this test an explosive charge is attached to the colourful fan-blade, which is exploded when the engine is at full power. In a successful test, the metal debris do not leave the engine, which, if that would happen, can destroy the aircraft in real-life.



Successful Demonstration

First Flight, 27 April 2005 – *One* A 380 Aircraft



Successful Demonstration

A 380 Cross Wind Landing;²⁰ Competency!



Comparative Analysis:

Official Medicine's Procedures

Individualised Rx?

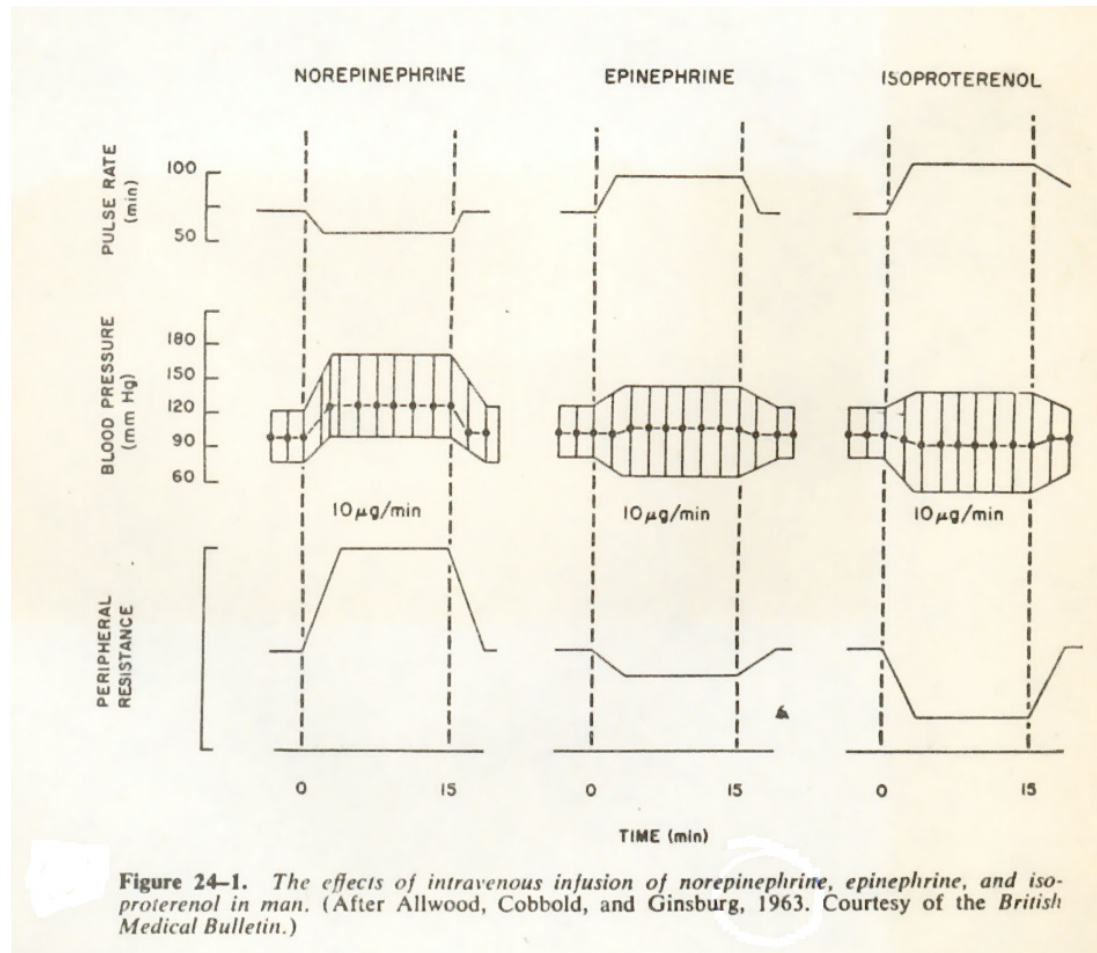
- **Individualised Rx** points to medical therapeutic products and their knowledge base which allow the practitioner to heal in the broadest sense of the word a ‘particular’ patient’s peculiar and unique symptoms and signs which that patient may suffer from at any specific moment in time.
- **Individualised Rx** must provide **therapeutic certainty**:
 - Matching Rx with Disease of Pt—like a pass word or pin code.
 - Age-old problem solved in 1790.

A Theory, Methodology for Individualised Rx's from Outset??

Food & Drug Agency (FDA)²¹

- **Drug entities** are sought for a desired effect on a disease or condition, which functions on **common phenomena**.
- Via understanding body functions, normally and abnormally.
- Surrogate End Points are treated, e.g., blood sugar levels.
- **Official Medicine Fails** – drugs are not developed with the individual patient in mind.

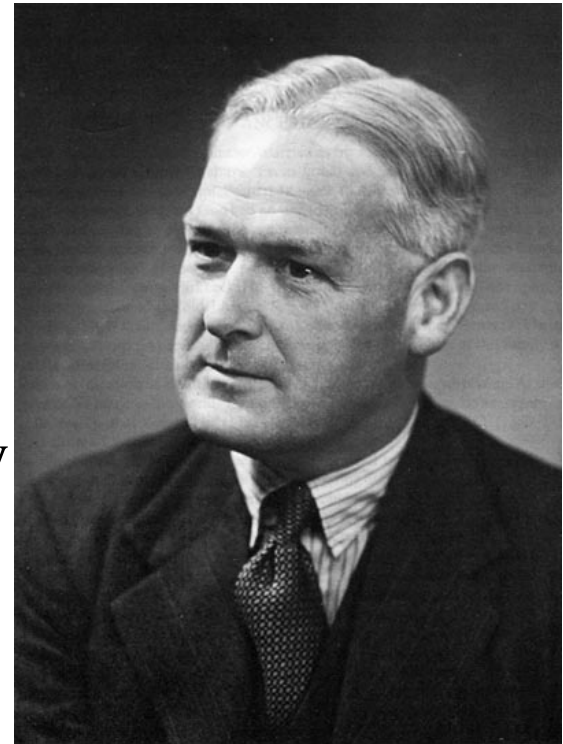
Example of Common Phenomena.²²



A Theory, Methodology for Individualised Rx's from the Outset?

Sir Bradford Hill²³

- Rx A is on average better than Rx B.
- The outcome for the particular patient is achieved purely on chance!
- Sir Hill asked: 'Is there indeed any way of answering that?' **Yes, there is but official medicine rejects it.**
- **Official medicine fails once more.**



Do RCTs Solve Individualised Rx?

Bruce Charlton²⁴

- Group Similarities are studied
- The individual is depersonalised
- Individual differences, peculiarities are excluded
- The patient's story is ignored
- Finally, individualisation **after the fact** is impossible
- **Official medicine fails this too**



Prof Sir M Rawlins

Harveian Oration 2008²⁶



Professor Sir Michael Rawlins
MD FRCP FFPM FMedSci

Prof Sir M Rawlins

Harveian Oration 2008

- ‘The nature of the evidence’ which sanctions the use of a therapeutic is ‘hotly, and sometimes bitterly, argued’. This happens as medicine does not have TRLs, have no concept of testing, or demonstrations? As a consequence, if medicine would run NASA or Airbus, we would have spectacular fatalities.
- ‘Hierarchies is illusionary’; hierarchies ‘place RCTs on an undeserved pedestal’.
- Decision makers have to assess...all available evidence, ‘if reasonable and reliable conclusions are to be drawn.’

No Theory, Methodology for Individualised Rx in Official Medicine

- Official Medicine cannot match a Rx with the disease of particular patient!
- The **input** is **unknown** (Rx & Disease) – thus, the **output** is **unattainable**.
- The outcomes for a patient is fortuitous; **Official Medicine is a Lie!**
- Absence Testing in Official Medicine = Rolls-Royce plc **not** performing a **fan-blade containment test**.
- TRL 3 is legitimated over TRL 9 – this is illegitimate.

Comparison NASA's TRLs vs. FDA

Official Medicine's 'Scientific Evidence' - FDA			
Pre-Clinical Research Clinical Studies New Drug Approval		Testing	Demonstrations
Drug Developed. Testing in Animals. Review by Boards.	Phase 1 Trials Phase 2 Trials Phase 3 Trials Drug Licensed for Marketing	NO Testing, Verification Before Marketing.	NO Demonstrations Before Marketing. Post-Marketing Surveillance.
TRL 1-3 Pass		TRL 4-7 Fail	TRL 8-9 Fail

Failed Science, Experimentation, & Testing Diabetic Rx

- The history of type 2 diabetes has been a history of failures – blood sugar levels keep on rising year after year.²⁶
- Diabetic treatment treats blood sugar levels and not the patient; it keeps the patient out of hospital in the short term, yet complications inevitably develop.
- Ultimately, this represents Official Medicine's Diabetic Outcomes Failure.



Official Medicine vs. Benchmark Principles.

Conclusion

Its principles are unworthy as benchmark for individualised therapeutic development and verification.

Comparative Analysis:

Homoeopathic Procedures

A Theory, Methodology for Individualised Rx's from the Outset?

Hahnemann's Unbiased Non-Homeopathic Peers²⁷

- **Eschenmayer: Proving**s are the 'only [way to] obtain specific medicines' for the individual.
- **Kopp: Proving**s 'ascertain [therapies'] specific powers'.
- **Hufeland: Similarity & Proving**s 'calls to attention the necessary individualisation of cases.'

Homoeopathic Rx fulfil 'medicine qua medicine'.
It provides for true individualised Rx.

Therapeutic Certainty Results in Exemplary Confirming Instances^{27 28 29}

	Mortality under Allopathy		Mortality under Homeopathy 19 th century
	19th century	Modern era	
Cholera	40-60%	3.7%	3%
Yellow fever	59%	15-25%	5.7%
Pneumonia	30%	18%	<1-3%

NASA's TRLs vs. Homoeopathic Rx

Homoeopathic Rx's Scientific Activities

Science	Experiment	Testing, Verification	Demonstrations
Rx acquisition, preparation TRL 1 – 2	Provings TRL 2 – 3	Hahnemann: ³⁰ Arnica for Giddiness TRL 4 – 7	Cholera, etc. Scientific Evidence! TRL 8 – 9

Homoeopathic Rx vs. Technology Verification

	Airbus A 380	Homoeopathic Rx
Performance Requirements	<ul style="list-style-type: none"> • Aircraft components • Airbus A 380 aircraft 	<ul style="list-style-type: none"> • Exact therapeutic powers + • Matched patient's diagnosis,
Outcomes Verification	<ul style="list-style-type: none"> • Component verification • A 380-841: MSN 001: 27-04-2005 One Aircraft First Flight! 	<ul style="list-style-type: none"> • Certain Therapeutic Outcome One Patient Required Hypericum for Spinal Cord Injury



NASA's TRLs vs. Hom Rx vs. Medicine

NASA's TRLs			
Least Mature Technology	Experimental Technology	Maturing Technology	Mature Technology. Scientific Evidence. Marketing
TRL 1-2	TRL 2-3	TRL 4-7	TRL 8-9 Pass
Homoeopathic Therapeutics' Scientific Evidence			
Trituration Potentisation	Provings	Arnica For Giddiness	Cholera, 'Anecdotes'. Scientific Evidence.
TRL 1-2 Pass	TRL 2-3 Pass	TRL 4-7 Pass	TRL 8-9 Pass
Medicine's Scientific Evidence – FDA			
Drug Developed Testing in Animals Review by Boards	Phase 1 Trials Phase 2 Trials Phase 3 Trials Drug Licensed Marketing	NO Testing, Verification Before Marketing.	NO Demonstrations Before Marketing. Post-Marketing Surveillance.
TRL 1-2 Pass	TRL 2-3 Pass	TRL 4-7 Fail	TRL 8-9 Fail

“Anecdotes”!

Medicine legitimates experimental results,
rejects demonstrations.

Hypericum for SCI & test flight A 380 are “anecdotes”!
Is this intellectually sensible?



Conclusions

1. A Theory, Methodology must Solve Problems from Outset.
2. Testing is indispensable – thus, Input vs. Output.
3. Scientific Evidence = Demonstrations, Knowledge Based.
4. Mature Technologies; Demonstrated, Not Experimented On.
5. Official Medicine:
 - a. No theory, Methodology for Individualised Rx.
 - b. Results for Individual, Fortuitous! It's Inauthentic, a Lie.
6. Homoeopathic Rx:
 - a. Theoretically, Scientifically, Technologically Valid.
7. Homoeopathic Rx requires Outcomes Verification! Politics!

Thank you for your interest!

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