

## The philosophy of sound-induced transition to turbulence

Water (H<sub>2</sub>O) consists of quite small molecules ( $d = 0.000000279$  mm). A colloid particle, 2.79 microns in diameter (0.00279 mm) is 10,000 times its diameter. The volume (and thus, the mass) of an object varies as the cube of the diameter. Thus, the colloid particle is one trillion times the mass of a water molecule. If Newton learned that modern scientists believe random motion of water molecules causes zigzag Brownian particle movement segments, he would roll over in his grave. Such Brownian particle movement requires even greater excursions of water molecules that impact them to cause the motion. This precludes laminar flow at ultramicroscopic dimensions.

If molecular kinesis were secondary to simple harmonic (SH) oscillation of atoms around their centres of mass, the oscillations secondarily affecting the molecules would result in adjacent molecules continually impacting neighboring molecules, jostling each other out of position. Such jostling would result in "random walk" diffusion of any added molecules.

If elastic SH atomic oscillation frequency is mass-dependent, then each element on the periodic table would have an element-specific oscillation frequency. There would be similar oscillation of each element's electron rings and nuclear protons that might produce electromagnetic radiation flux specific for each element. Heating to incandescence produces such an element-specific photon emission spectrum.

Molecular kinesis based on atomic-molecular oscillation should permit ultramicroscopic laminar flow. One of the major points cited by the JFM reviewer in rejecting a 1975 paper I submitted (*Patterns in Fluid Flow*) was that I considered laminar flow at ultramicroscopic dimensions, which he termed "a mathematical abstraction based on the continuum model".

As a youth I believed scientists were keenly open-minded, eager to examine new ideas, accepting those that explained findings better, until something even better comes along. Max Planck, a philosophizing realist, expressed two quotations that might be relevant to my work:

- 1) "New scientific ideas never spring from a communal body, however organized, but rather from the head of an individually inspired researcher who struggles with his problems in lonely thought and unites all his thoughts on one single point which is his whole world for the moment."

- 2) A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.

Consider these personal instances:

1. Sound-induced laminar interlocking as the cause of transition to turbulence (1972-80 and 2005 to the present)
2. Unrecognized worldwide contamination of injections by toxic and allergenic MBT (1983-present), a leachate from pharmaceutical rubber (*The Nurses are Innocent – The Digoxin Poisoning Fallacy*, Dundurn Press 2011), that health authorities knowingly allow to continue even today (Edwards, Uppsala Reports, April 2013).

The transverse oscillation of boundary layer molecules transmitting SH sound, generated by fluid shear during transition, reaches a critical amplitude at which longitudinal flow of molecules as laminae is inhibited (laminar interlocking), first in spots

("turbulent spots") and shortly thereafter as many turbulent spots as the widespread phenomenon of turbulence onsets, explaining the high resistance of generalized laminar interlocking transferring the resistance to the boundary (e.g., the flattening of the parabolic isovelocity profile in cylinders as turbulence onsets abruptly).

There is no competing theory.

My work will remain accessible to researchers through my website until my 100th birthday. It represents a part of my teaching legacy, currently (June 2017) experiencing an average of 53 visits per day.