What Vibration Is.

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"To know the mechanics of the wave is to know the entire secret of Nature."
Walter Russell[1]

That Keely, Russell and Tesla knew basic natural laws and principles that we do not is a given. After nineteen years of investigating their works it is obvious that the one single element they understood one way and we another is the nature, structure and dynamics of vibration and oscillation (or "wave" as Russell termed it). All three worked with the same theory of vibratory dynamics which is not the same as our conventional and accepted theory and view. With an understanding of their view of these dynamics much of their work becomes not only understandable but also reproducible. The mystery surrounding their work disappears and new possibilities open up for our own enjoyment and work.

This paper endeavors to explain their combined theories of vibration and oscillation as simply as possible without going into too much detail as to dynamics, etc. which may be presented in a later paper. The term *wave* will be used as a neutral general term since *vibration* and *oscillation* differ in definition from each other.

The single largest discrepancy between orthodox understandings and the SVP understanding is one of cause and effect. Orthodoxy views vibration primarily as a result of *outside* physical forces - a moving to and fro - while SVP views vibration as an effect of primary (causitive) laws creating and governing rhythmic or periodic interexchanges of state, acting from *within*.

Conventional View

The orthodox view of a wave and wave motion is centered around a sine-wave or similar configuration. In general this wave model is a measurement of a quantity and/or polarity of energy or power (amplitude), viewed over time. Empirical measurements have been made of power fluctuations over time and a plotting of these measurements creates the typical sine wave form.

Conventionally are recognized several wave forms: Compression (which acts as a Longitundinal Wave), Transverse Wave (90° to the Longitundinal Wave) and Raleigh Wave (circular motion 90° to the previous two). Other models of wave activity include the use of metaphors

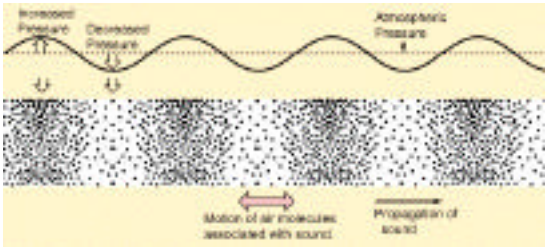

Figure 1. Compression Wave.

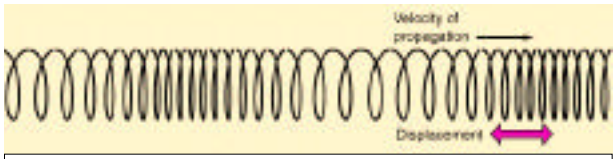

Figure 2. Longitudinal Wave

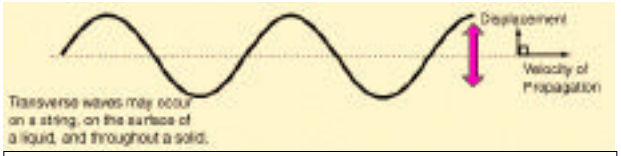

Figure 3. Transverse Wave

such as coiled springs that compress and expand, penduluums swinging to and fro and various oscillating bodies such as seesaws and water waves.

The mathematical models of these perceived motions are descriptions of those motions having little if anything to do with WHAT the wave is; HOW it moves and WHY. These models demonstrate the *effects* of periodic motion while the *cause* goes mostly unnoted if at all.

In the conventional view, there are two aspects or phases of a wave considered merely as positive and negative polar phases. These may be modified as to power, envelope, attack, suspen-

sion (sustain) and decay elements as the waveform becomes more complex. We also know complex waveforms are composite constructs of numerous aliquot parts of partials, harmonics and overtones of the fundamental.These aliquot parts include secondary and tertiary (or more) summation and difference tones resulting in a complex waveform.

Conventionally a sound wave is considered as a compression wave whose activity is usually likened to a periodically compressed and stretched coiled spring and/or swinging penduluum. This is a mechanical *force against force* model. This model is predicated on the idea of an outside sound source *compressing* a medium by molecular bombardment; or as molecules set in motion, striking another molecule repeatively much like billiard balls. After the strike comes an alternate relaxing or expanding of the media to a state of rarefaction - of a less dense or compacted state or condition.

Elements of the SVP Model

SVP recognizes the previously mentioned wave forms but not as *a priori* or causitive factors but as *measurements of effects*.

In the SVP view a wave is more complex, being composed of several seemingly discrete parts or functions acting as one composite complex function. ***A wave is a highly complex continuous reciprocating interexchange from one primary state or condition to an opposite state or condition.*** These two phases are a reciprocating interexchange between integration and disintegration. In short *a wave is a periodic change from a state or condition of harmony (attraction/contraction) to a state or condition of discord (repulsion/expansion).* This periodic change of state is caused by and is the effect of the contained relative and proportional values of the aliquot parts of the vibrating or oscillating body or aggregate.

A *vibration* is the complex motions and states associated with internal rotation, spin and associated rhythmic changes of state. In this discussion vibration is the same as spin or rotation.

An *oscillation* is the complex motions and states associated with external rotation, spin and associated rhythmic changes of state. In this discussion oscillation is the same as orbit or revolution.

These changes of state are dual in nature. For each there is an opposite. An increase in one is a decrease in the other - always reciprocating. As frequency, for instance increases wavelength decreases. This reciprocating attribute is axiomatic. There are several of these attributes or aspects that occur concurrently, phasing in and out of each other during the completion of a wave cycle. A wave then is the combination of all of these interchanges happening all at once.

Perhaps the easiest way to visualize this complex interchange is to conceive of a primary duality as a planet in elliptical orbit or revolution about a center, its primary point of focus. This orbital revolution should be seen as two distinct condition changes completing a single orbit. At its point of furthest distance the planet is orbiting at its slowest speed and spinning at its fastest speed. At its point of closest approximation the planet is orbiting at its fastest speed and spinning at slowest speed. Russell refers to this complex change of state as “winding speed into power”.

All particles, in whatever vibrating or oscillating medium, are performing the exact same polar interexchanges however their rates of interexchange may differ. These swappings of speed for power are not the only interexchanges. Below is a list of dual experiences, states or conditions. All of which are periodic and reciprocal interexchanges. Some of these are from Russell’s book *Genero-Radiative Concept* and a few synonyms I’ve added in that reflect more of Keely’s vocabulary.

Polar States List

Point	Circumference
Gravitation	Radiation
Centralizing	Decentralizing
Center seeking	Center fleeing
Concordant	Discordant
Harmonic	Enharmonic
Assimilation	Dispersion

Tight	Loose
Polar	Depolar
Male	Female
Red	Blue
Attractive	Repulsive
Terrestrial	Celestial
Earth	Heaven
Order	Chaos
Association	Dissociation
Appearance	Disappearance
Positive	Negative
Decreasing volume	Increasing volume
Generating	Degenerating
Inhalation	Exhalation
Genero-active	Radio-active
Endothermic	Exothermic
Integrating	Disintegrating
Distinctness	Nebulousness
Composing	Decomposing
Induction	Conduction
Accumulating	Dissipating
Charging	Discharging
Assembling	Distributing
Attracting	Repulsing
Absorbing	Emanating
High melting point	Low melting point
Contracting	Expanding
Rising potential	Lowering potential
Condensation	Ionization
Cooling	Heating
High pressure	Low pressure
Centripetal	Centrifugal
Plus	Minus
Freezing	Melting
Hardness	Softness
Solidity	Tenuosity
Slow rotation	Fast rotation
Slow spin	Fast spin
Fast revolution	Slow revolution
Fast orbit	Slow orbit
Density	Evaporization
Massive	Tenuous
Storing	Leaking
Solution	Dissolution

While orthodox waveform models demonstrate the *effects* of periodic motion *as a measurement* they convey little if anything about WHAT a wave is, WHY it is what it is - and HOW it does what it does. SVP deals with *causes* which bring about periodic rhythmic motions, being themselves effects of more primitive causes.

Polar States

It has been known since the late 1800s that bodies or aggregates in periodic harmonic motion are mutually attracted to one another. Conversely, bodies in aperiodic or discordant motion are mutually repelled. Bjerknes[2] demonstrated this phenomena at the Paris Electrical Exhibition in 1881. Keely, a few years later in 1894, published his laws[3] describing this phenomena with the Laws of Attraction and Repulsion.

Attraction

Law of Attraction: *"Juxtaposed coherent aggregates vibrating in unison, or harmonic ratio, are mutually attracted."*

Bodies or aggregates vibrating in unison or simple multiples of unison are said to be harmonic or *sympathetic* to one another. Bodies vibrating or oscillating in harmony will aggregate thus forming larger bodies. This mutual aggregation, accumulation or gathering together is caused by action of Keely's *law of sympathetic association(qv) or simply the Law of Affinity(ies).* The greater the degree of harmony the greater will be the attraction (affinity) between bodies or aggregates.

In a complex molecular structure and its vibration signature are many diverse discrete frequencies (aliquot parts) originating from its constituent atoms and their subatomic components. Each discrete entity will have its own fundamental frequency and signature. The more of these discrete signature frequencies harmonize with those of another molecule and its constituent parts the stronger will be the attraction and bonds between molecules and their constituent parts.

Molecules may not at times have unison or multiples of unison relations between fundamentals but may have harmony between frequencies of their constitutent atoms. In such a case there will be atomic attraction and perhaps bonding but not molecular attraction and bonding. This same interstitual bonding may occur on other levels of the molecule’s atoms and sub-components. In this event the attraction will be between atoms (atomic attraction) and/or between subatomic particles being a *quantum attraction* or as Keely called it - “interatomic attraction”. This same principle holds for sub-quantum centers which Keely called etheric attraction or etheric sympathy.

During the contraction and attraction phase energy increases, range of orbital motion decreases, spin decreases and density of the medium increases, among other attributes. See left-hand column in *Polar States List.*

Repulsion

Law of Repulsion: *"Juxtaposed coherent aggregates vibrating in discord are mutually repelled."*

When discord exists between vibrations of bodies or aggregates a mutual expansion or repulsion occurs whether on the molecular, atomic, subatomic or etheric levels. Repulsion may occur on molecular, atomic or subatomic levels just as attraction as related above.

During the expansion and repulsion phase energy decreases, range of orbital motion increases, spin increases and density of the medium decreases, among other attributes. See right-hand column in *Polar States List.*

Vibration then is a periodic change from a state or condition of concord (contraction) to a state or condition of discord (expansion). These two states or conditions are 1) contraction or attraction (to a center) and 2) expansion or repulsion (away from a center) *caused by relative harmony or discord from within the vibrating aggregate.*

A “body” is a tightly bound aggregate of its constituent parts just as a gas is a loosely bound aggregate composed of particles or bodies maintained in a tenuous manner. The only difference between a “solid” body and a tenuous gas is the degree of harmonic coherence or attraction/repulsion between the discrete bodies of that gas. There is a preponderance of harmonic attraction in a “solid” body while there is a preponderance of inharmonic repulsion in a tenuous gas.

A more comprehensive paper is being prepared to further illustrate the essence of the wave.

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