

# 12.31 - Heat Generated Through Resistance to Compression

**Resistance** in DC circuits is equivalent to **Impedance** in AC circuits.

It is quite clear the concepts of **resistance** in the writings of Keely and Russell are more akin to AC Impedance than DC **Resistance** (as commonly understood).

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## Keely

"..In crystalline structures, *heat*, which expands the atoms, by twisting them produces *striae*, increases the **resistance**, etc." Keely, Law of Vibrating Atomic Substances

"The electric *current* destroys *cohesion* and *chemical tension* directly as square of *current* in amperes, inversely as the **resistance** in ohms, inversely as the *chemical equivalent*, and conversely as the coefficient of the difference between the freezing and volatilizing *temperature* of mass acted upon." Keely, Law of Variation of Atomic Oscillation by Electricity

"Dark radiant *heat* begins at absolute zero *temperature*, and extends through *light*, *chemcial rays*, *actinic rays*, and *infra-violet rays*, up to the *dissociation* of all molecules to the 63rd octave." Keely, Law of Oscillating Atoms

"*Heat* increases the *amplitude* of the oscillations in a direct *ratio* to the *temperature* of the *natural scale*." Keely, Law of Variation of Atomic Oscillation by Temperature

"New thermometers and accurate thermometric tables, on the natural base, wherein doubling the *temperature* doubles the *pitch* of the *transmissive* energy, are required. Such a table of *temperature* will bear natural relations to *atomic weights*, *itches*, **specific heats**, chemical affinities, fusions, solubilities, etc., and will disclose new *laws*. One table for each must be constructed." Keely, Law of Variation of Atomic Oscillation by Temperature

"Diminishes the tensions directly as the quantity of *heat* developed, and in antithetical *proportion* to the *harmonics* absolved." Keely, Law of Variation of Atomic Oscillation by Sono-thermism

"..if the *oscillation* amplitude be augmented by *heat* until the atoms are with the concentric waves of *attraction*, - the atoms will separate." Keely, Law of Chemical Dissociation

## Law of Heat

"Atoms under the tension of chemical combination oscillate with an *amplitude* directly as the *temperature*, inversely as the *pressure*, and as the square of the *specific heat*. Diminishing the *pitch* of *oscillation* inversely as the *square of the distance* of the atoms apart, and simultaneously increasing the vibrating *pitch* of the *atom* by *absorption* of *overtones* and higher *harmonics*." Keely, Law of Heat

## Law of Electric Conductivity

"Electric energy is transmitted through homogeneous bodies with a completeness in direct *proportion* as the *atoms* are more or less perfect *harmonics* of the electric *pitch*, but not at all through *substances* whose *atoms* are *discordant* to the electric *pitch*; also through *molecular substances*, when their *resultant notes* are *harmonics* of the electric *pitch*, - the transmissions being inversely as the *temperature*, directly as the *density* diminished in *proportion* to the amount of *crystallization*, and inversely as the *cube* of the *dyne*, also directly as the reciprocal of the local magnetic *intensity*." Keely, Law of Electric Conductivity

"All moving bodies of visible *matter* produce *heat* as according to their *velocity*. The flow of gases only induces thermal reduction from *molecular friction*. By this term it must not be understood that the molecules actually come in contact, and rub against each other. There is no *pressure*, however great, that can cause *molecular* contact. The area of the volume of the *molecule* can be reduced by enormous *pressure*, and the *tension* thus brought to bear on their *rotating envelopes* induces *heat*. The *heat* thus induced is a positive proof of the wonderful *velocity* of the *Etheric envelope*. If the molecules were dead - which is an infinite impossibility - to *sympathetic vibration*, and without a rotatory *envelope* if all the *pressure* possible to conceive were brought to

bear upon them, it would not induce the slightest thermal change." [Keely and His Discoveries](#)

"The area of the volume of the [molecule](#) can be reduced by enormous [pressure](#), and the [tension](#) thus brought to bear on their [rotating envelopes](#) induces [heat](#)." [Keely, The Snell Manuscript](#) [↗](#)

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## Russell

"[Heat](#) and [cold](#) are opposites. Inwardly bound [light](#) rays (luminiferous [Etheric vibratory Sympathetic Streams](#)) generate [heat](#) from [cold](#) by compressing [cold](#). Outwardly bound [light](#) rays degenerate [heat](#) into [cold](#) by expanding [heat](#) ([radiation](#))." [[Russell, The Secret of Light](#)]

"[Positive electricity](#) pulls inward spirally from within against the opposing [resistance](#) of [negative electricity](#) which thrusts outward spirally from within." [[Russell, Secret of Light](#)], page 148

"In this electric universe, sensation is the strain of [resistance](#) to the separation which exists between all separated masses. All matter is one. Separated particles desire to find that oneness." [[Russell, Secret of Light](#)], page 85-86

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from [Russell's "Notes and Observations of Nature's Processes"](#)

"In nature an electric line of force cannot travel in a straight line because of the curvature of pressure gradients surrounding all masses and because of [resistance](#)."

"[Contraction](#) heats, therefore the degenerating "rays" of sunlight which expand into the cold of space after leaving the sun are reborn through [resistance](#) and arrive here hot."

"Consider the rebirth of the human voice against the cliff side known as the [echo](#)."

"Sound of the voice is an expression of accumulated energy which expands into silence in the surrounding low potential."

"Approaching the cliff side however it impacts against the high pressure gradient of this concentrated energy and the resistance of this impact reverses its radiative expansion into regenerative contraction."

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from [Russell's "The Cyclic Theory as the Cause of Solar Regeneration"](#)

"[Resistance](#) to all motions of condensing bodies headed toward the high pressure at the gravitative centers of maximum density, increases every one of the effects of [gravitation](#) within themselves and within the masses toward which they fall."

"[Resistance](#) to condensation generates [heat](#)."

"The [gravitation](#) action of pulling inward from within meets with its reaction, the [resistance](#) of the force which pushes outward from within. There can be no expression of force without [resistance](#)."

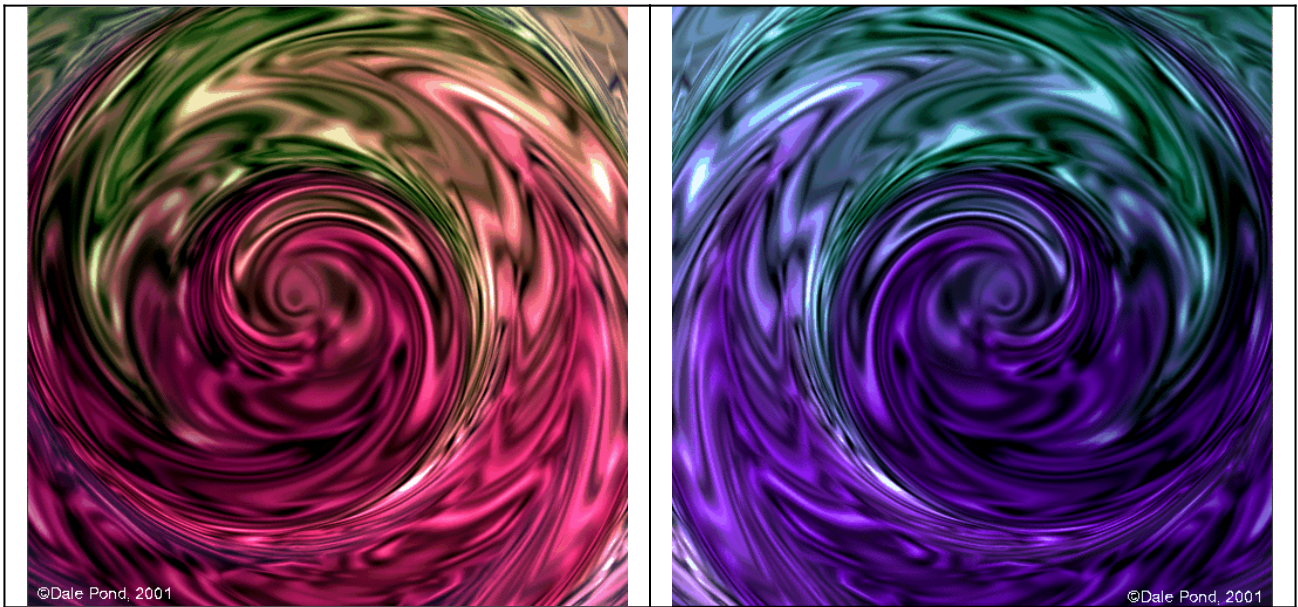
"All energy is transformed in this manner and is repeated by the resistances set up against the effort to transfer."

"It is due to resistances that every action of [free energy](#) expresses itself in curved lines and makes an action in straight lines impossible."

"[Resistance](#) to every action or reaction bends the line of direction of either of the opposed forces away from a straight line into a [centripetal spiral](#)."

"[Resistance](#) reproduces both sexes."

"The degenerative reaction to [radiation](#) is born in the same cradle with its generative action, and [resistance](#) is the [father-mother](#) of both."



**Figure 2.12 - Male-Father and Female-Mother Forces.**

"Resistance of these forces to each other in their efforts to overcome inertia, is the reproductive force which repeats."

"The greater the condensation, the greater the heat generated by the pressure exerted from the opposite direction as resistance to generation."

"The desire for expression of force in the universe is resisted by an opposing desire for an inert universe. The expression of force in overcoming inertia, being resisted, results in the apparent division of the one force into two opposing forces."

from Russell's "Home Study Course"

"Now imagine that the pulling apart of the one into two caused a strain, or tension, as though there were many electric bands which held the two together as the invisible ONE. To pull them apart caused these bands to stretch against a resistance which pulled the other way.

"The effect of two-way tension is the answer to what electricity is. The two-way desire to equalize that tension is the answer to what sex is - and the two-way interchange which is necessary to effect that equalization is what motion is, for when that equalization takes place electric current ceases, sex desire ceases and motion ceases." [Home Study Course, 29 - Unit Four - Lesson 14]

"Desire to manifest the love principle of Nature is manifested by the seeming division of the IDEA of love into its many pairs of opposite expressions. The electric action of GIVING extends radially outward from a center of rest in the universal Light of Mind. The reaction of REGIVING is simultaneously expressed by the outward GIVING of motherhood meeting with the inward pressures of REGIVING of fatherhood which are returning in the opposite radial direction. The resistance to this two-way flow of opposed pressures winds all forms into spheres spirally, and likewise unwinds them." [Home Study Course, 30 - Unit Four - Lesson 15]

"Gravitation and radiation are the opposite ends of the piston which motivates the heartbeat of this eternally living dual body of God, which is our dual body. Its continual giving and regiving manifests the love principle in both the action and reaction - not just in one of them.

Their continual interchange in spiral lanes of opposed directions gives us the incandescent light of hot spheres by the friction of resistance to the interpassings of both in such close quarters as the vortical centers of cube-spheres. Conversely, the release of that resistance in the widening lanes of the outer spiral direction give us the cold and dark of the cube half of the wave-field which encloses every divided body in the universe. To exemplify this effect see the oppositely directed arrows, marked A and B in Fig. 67 on page 499." [Home Study Course,

"The foundation of God's invisible universe of all-knowing is LIGHT - undivided and unchanging LIGHT.

The foundation of God's visible electric thought-wave universe of form and motion is divided, or polarized light.

Polarized light means that two opposed and unbalanced pressure conditions (which strongly resist their division, and multiply that resistance as the division increases) have been established by the extension of two poles from a dividing equator. The two opposing electric pressures thus generated are compression and expansion.

Compression is the result of the 'winding up' of light into centripetal spiral vortices. This generates terrific heat which thrusts spirally outward in resistance to its opposing pressure. Heat thus generated radiates centrifugally. It expands that which has been compressed. Compression polarizes - expansion depolarizes. Each are then reversed and become the other in the following cycle." [Home Study Course, 58 - Unit Ten - Lesson 39.1]

"Matter consists of countless little and big whirlpools of two-way motion. One of these two directions winds up its two intertwining electric opposites into an incandescent fury of explosive resistance which become the suns of stellar, solar and atomic systems. That winding up of motion is what polarization is. That fury of resistance to the winding up process is what compression is. That also is what gravitation is. And all of it is but one piston stroke of the electric heartbeat of the universe of matter. That polarizing piston stroke which generates the hot light of suns electrically records God's concentrative thinking in the forms of Creation which simulate God's knowing. That polarizing piston stroke vitalizes the bodies and makes them 'live' and grow toward strength. That polarized light of suns repolarizes other bodies while the dark of space depolarizes them. But God's concentrative thinking is sequentially repeated in reverse. The intensity of generated resistance to such compression must relax. The wound up whirlpools of motion which simulated one half of life must unwind into the cold dark of space to simulate the other half. Everything which appears must disappear." [Home Study Course, 58 - Unit Ten - Lesson 39.1]

"Likewise, both ends will repel and attract equally. But what is it they repel? Neither repels the iron filings, or the nails for they fairly jump at either pole and cling so hard that you can feel their reluctance to leave by their resistance to being pulled away from either pole." [Home Study Course, 60 - Unit Ten - Lesson 40]

"The current runs both ways to interchange. You call it an electric current if the equalization process is sent through a small gage wire conduit, or a short circuit if you send it through a large wire. In a short circuit the resistance to each other's passing causes a burst of flame. In a small gage wire the resistance is not so great so the "short circuit" takes a long time to equalize both cells into what is known as a dead battery." [Home Study Course, 60 - Unit Ten - Lesson 40]

"As each of these forces have to pass through the other one on their outward or inward journeys"like a stone falling to earth or vapor rising from it"each must give way to the other's resistance by bending around each other." [Home Study Course, 61 - Unit Eleven - Lesson 41]

"Figures 117 and 118 illustrate this principle. Two opposing forces cannot meet head on, as in 117, so they intertwine as they pass through each other. Figure 118 illustrates that bending of the two opposing forces passing through each other radially. If you examine the wood of an old tree which has lost its bark you will see the effect of that resistance by the spiral growth in the wood from ground to the top of the tree. The slow growth of the tree lengthens the spiral whereas more quickly timed explosions than those of tree growth shorten the spirals." [Home Study Course, 61 - Unit Eleven - Lesson 41]

"Figure 119 illustrates the same principle as 117 except that six pairs of oppositely directioned forces are meeting in a wave-field. Note the beginnings of spiral twistings resulting from resistance by each for the passing of the other as illustrated in Figure 120.

If the outward explosive effect of radiation met with no resistance its effects would dissipate radially, but it is opposed by gravitation. Opposition between the two is repeated throughout the universe within wave-fields of opposing pressures, but all opposition is voided at wave-field boundaries where all motion seeks rest and balance." [Home Study Course, 61 - Unit Eleven - Lesson 41]

"You will note by Figure 122 that eight spheres formed by eight harmonics would not fill all space when they met

together in six places upon cube boundaries. The empty space between the spheres must also be filled. For this reason the pressures of the outward thrust of radiation meet with greater resistance at cube diameters than they do at diagonals, which are much longer.

"Because of the much lesser resistance at diagonals than at diameters, radiation seeks the lines of least resistance to its outward pressure and spirals toward the corners of cubes with increasing speed as centripetal force multiplies in the apices of the vortices thus formed.

"You will comprehend this much better if you imagine the spheres in figure 122 to be rubber balls being inflated within cube enclosures. If the inflation is continued sufficiently the spherical shapes of the rubber balls would disappear into the cubes within which they are compressed as shown in Figure 123. This is not an exact analogy because the inflation of rubber balls would form true spheres until they met at six points, but the outward thrust of radiation would not be spherically equal in pressures because of the greater resistance met with in these six directions than in the eight diagonal ones." [[Home Study Course](#), 61 - Unit Eleven - Lesson 41]

"At the center of the cube is the point of desire for outward giving. It is marked zero. From that point of extension the desire reaches outward, radially, like an outward explosion, such as you see in Figure 121, meeting with the resistance which spirals its effect of polarity, such as you see in Figure 124." [[Home Study Course](#), 61 - Unit Eleven - Lesson 41]

"You manufacture incandescence when you turn on your electric switch which polarizes the equilibrium of a tungsten filament. You create two tremendously resistant forces which explode that tungsten in two opposite directionsâ€”inwards and outwards. Heat appears where there was no heat. Friction likewise appears as a product of resistance where it was not heretofore present. Likewise incandescence appears where there has been no incandescence." [[Home Study Course](#), 62 - Unit Eleven - Lesson 42.1]

"We must forever remember that this is a zero universe of rest which evidences its resistance to divided motion in what we term pressure. The measure of that pressure resistance is what man calls weight." [[Home Study Course](#), 66 - Unit Eleven - Lesson 43.1]

See Also

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[Attenuation](#)

[Conductivity](#)

[Heat](#)

[Impedance](#)

[Law of Cycles](#)

[Law of Electric Conductivity](#)

[Law of Vibrating Atomic Substances](#)

[Neutral Center](#)

[Power](#)

[Resistance](#)

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