Sch J Appl Sci Res 2019
Volume 2: 6

Scholar Journal of Applied Sciences and Research

# Light and Velocity

Leonard Van Zanten*

*Independent Researcher, 5428 Bushnell Riverside Ca 92505, USA, 951-314-5012*

## Abstract

This essay covers the nature of light in its particulars, to behold what light is, how it travels, and finds itself upon the index, after which in what manner those waves bring us warmth. But at the same time when we survey the index to refraction it comes to show that the index does not work for velocity as it does not work for lengths of the waves.

And a realistic look why space cannot be empty of substance for waves to pass since these are dependent upon a media, and that all different wavelengths must travel with each their own different velocity in space as anywhere else.

**Keywords:** Light, Velocity, Wave, Refraction.

## What is Light?

To make a quotation: *"The debate has raged for generations amongst the giants of the physics community regarding the nature of light, namely whether it is a particle or an electromagnetic wave. For centuries, this mysterious and elusive phenomenon left scientists baffled because with each experiment conducted to define its nature, it seemed to change the way it behaved."*

And: *"A number of scientists, including Fresnel, Young and Maxwell, are credited with investigating the wave-like properties of light. A wave is a transfer of energy from one point to another without the transfer of material between the two points. Young performed the single-slit experiment, which was instrumental in establishing the wave- like properties of light, such as interference and diffraction. He passed a beam of light through a slit and observed the image it formed on the screen placed behind the slit screen"* [1,2].

I give credit to these above-named persons seeing they came close to it, especially in the words that I underlined in the second quotation. Myself I barely could have said it better. The fact that light cannot be a particle can be shown in various ways most evident however in that it is reflected from a thin sheet of foil, and no material part would do so but pass through that foil without ever knowing it was there.

Light now is one thing, a spiritual affinity, while the phenomena in nature whereby it comes to us is by "movements in contrast." With these words I hit the nail squarely upon its head for that is what waves are, not just those of light but all waves listed in the spectrum. Since then I did not call it electromagnetic spectrum is because that bird has yet to be found. It is either electro, as in electrical, or magnetic for magnetic. That spectrum then is magnetic and has nothing in common with what is called electro.

Electricity does not come in waves, nor do magnets, these come in patterns of -properly termed "coordinates," and are at all times

## Article Information

**Article Type:** Creative review
**Article Number:** SJASR233
**Received Date:** 03 April, 2019
**Accepted Date:** 13 April, 2019
**Published Date:** 22 April, 2019

***Corresponding author:** Leonard Van Zanten, Independent Researcher, 5428 Bushnell Riverside Ca 92505, USA. Tel: 9513145012; Email: lenvanzanten(at)msn.com

**Citation:** Zanten LV (2019) Light and Velocity. Sch J Appl Sci Res Vol: 2, Issu: 6 (01-08).

connected to a source or inhibiting one like magnets. While waves are never at all continues but like a coordinate on the move free of the source from which they were instigated.

And so, comes the question as to what light-waves are? We know what the term "waves" entails, something moving by a linear as well as angular pattern, and right we are. A nut on a bolt then also moves both linear and angular, and so does a bullet, rotating as it goes. Or a coiled spring that is likewise angular as well as linear. Shall we therefore call waves as bullets, or as nuts on a bolt, or resembling a coiled spring? For the waves of the spectrum do indeed move by that fashion, both linear and angular. But that still does not explain just what waves are wherefore the question remains as to what waves really are aside of how they travel.

For this however I must take us down to the second most fundamental entity and force in nature. The whole of nature consists of two basic things, a statement not altogether true, but for what I am allowed it is sufficient. The first is movement noted as 3M, and understood by us as magnetic or magnetism, with the second as tiny points or dots in nature known as atoms. That 3M movement then is everywhere always and it proceeds by what is best known as lines of. And these lines always proceed by a circle, by never ending circles that are laid over by a half wave formation into a pattern that resembles the figure of eight [3].

Conclusively we are speaking of magnetic, be it in general as magnetism, or in force, or field of. And it as such is one of the two most fundamental forces in nature. It then is immaterial, meaning its nature in contrast to what we understand as material -is immaterial. For while we look upon things as material or immaterial, these in all reality are but figures of speech. For while our automobile appears to be material with the air immaterial, the air is as much material as the automobile. And likewise, with the 3M, it also is material, as in existing, having a being, but in relation to the atom for a material something the 3M movement as such is immaterial.

We for example are immaterial with only our bodies being material. We are spirits, and a spirit finds no obstructions because it is not material as in not made up of atoms. Yet we are, therefore something that exists need not necessarily be made of atoms, or else we would not be here either. So, it is with movement on the fundamental scale, a true entity in itself not consisting of atoms but forming atoms and inhibiting them.

When an airplane moves in the sky its movement as such is displacement, it is not an entity, nor any energy on its own. The 3M however is a motion and power on its own, an entity in itself. A vehicle on the road has energy or power only when it moves. Here too that motion is as displacement and not an entity other than in conjunction with the vehicle.

The movements of the plane, and of the vehicle, is not something we refer to as immaterial, even though it is altogether immaterial, it being nothing other than displacement. The 3M on the other hand as an entity is rated and thought of as being immaterial. But that immaterial is so in relevance to all that we behold for being material. And while all this in the fundamental scope may be difficult to comprehend, I can go no further, let it thus be as I have said.

## Light's Movement

That fundamental movement best known as magnetic is mostly seen as lines, not that it is at all times exactly like that but it generally appears as lines, especially those of magnetic, and electric. I then could also say of waves, but those of waves are never seen nor can they be affixed on a screen like those of electric, or observed around magnets. A wave then is indeed like a transfer of energy from one point to another, and since all waves are always produced in the angular upon linear lines of magnetic their format is that of a rotating entity - like unto a stretched out coiled spring, or a bullet, or nut on a bolt. Figure 1 illustrates a coiled spring as indeed the pattern by which all waves move, while Figure 2 is to illustrate its length verses its amplitude in real time.

There is more than ample evidence that all waves travel in a rotational manner, also because no wave on a horizontal plane could possible pass through any kind of substance inclusive air and space, nor come to their velocity as known to be. Our further discussion will provide such evidence.

To somehow illustrate a wave of the spectrum near reality it will appear more like a straight line than any wave, yet its angular moment however narrow is real as it encircles the atoms in its path. For the red wave that means it needs to pass about 700 or more atoms for any single turn. And with the atom in air not exceeding 2a, in diameter verses 7000a for length its angular moment rates 3500 to 1.

And how do we account for its particulars its length, width, and velocity? First and foremost, as it moves like a grove along a long bolt its movement is not A to C in Figure 3, but A to B, to C, all because it is a wave, A to C would be a straight line. And since it is driven by the all-time fundamental movement which we rate at 300.000/km/sec

**Figure 1:** Waves are driven in a rotational manner by natures 3M magnetic lines of movement.


**Figure 2:** Half length of the red wave, some 2200 times greater to its diameter.

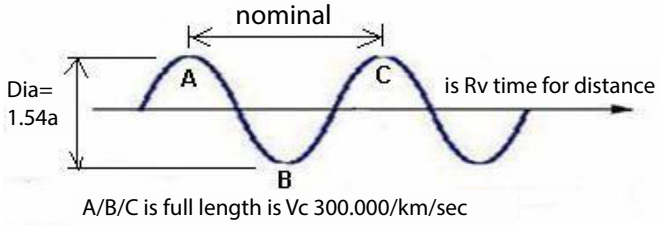


**Figure 3:** Factors of wave to find relative velocity.

so it moves at that constant properly abbreviated Vc. Then for the net outcome by virtue of its angular moment; its forward momentum for distance in time – must always be less, and as such be called; its relative velocity. (Rv) Therefore there are always 2 velocities noted for all waves of the spectrum, and since it is called the "magnetic" spectrum, all these waves are magnetic, that is to say - in the nature of magnetic.

To thus find the velocity of any wave, the constant never needs calculation arbitrarily set at 300.000/km/sec. Also, because these are an intricate part of that second fundamental force in nature, best known as magnetism. But its Rv is - its nominal length plus the circumference into the constant for frequencies, and that times the nominal. So it was that I found the circumference of the red 7000a wave at 4.84a, to wit 7004.84 into 300.000=42.8275etc × 7000=299.792/km/sec. I cannot be in error here unless our reading of light in space is wrong. Radio and all greater than light-waves travel around larger diameter.

In my judgment for the real velocity of larger waves in space or air their amplitude increases by a factor of ten, wherefore a 10/meter wave should come to the amplitude of 4.84/cm that puts it at the relative velocity of 298.554/km/sec. If on the other hand we are determined to have it travel at 299.792/km/sec, its amplitude would come to a little less than 0.7/cm. This in my judgment cannot be right, it should come to about 298.554/km/sec, somewhat slower than light. Only I lack the evidence, something like that would have to be measured first, Or if someone can furnish me with the exact diameter of any radio wave, then I can make a correct analyses, the length of course must also be specified, be it in space or air.

Reference 6 refers to an attempt to measure the speed of radio waves that cannot be trusted [4]. To assert that waves travel transverse is completely illogical and in violation of all laws in nature. Even to think that waves could travel that way is against all common sense, wherefore no-one to my knowledge has ever measured the velocity of any radio or larger wave.

## Wavelength verses Velocity

We established light in wavelengths that in the optical length vary from 7000a to 4000a. And the velocity of light in space at 299.792/km/sec only it fails to specify to what wavelength that applies. How therefore can there be only a single velocity for light when it varies according to each respective length - for space as much as anywhere else. When we specify a velocity, it must have a reference to one of some 3000 optical lengths, and we must have the specs for its amplitude or else it cannot be calculated. I then utilized the length of 700/nm at our accepted velocity by which the amplitude for its diameter came to 1.5415/angstroms

Nor is it possible for any wave to have its angular moment on a horizontal plane. To travel by a zig-zag formation requires a stop and go at each point of return that as such slows down the forward momentum far below what we know of light for its velocity.

Moreover - flat on - it would most assuredly be blocked at the first atom. The fact that light is able to pass 600/ft down in the ocean before all its lengths are terminated upon the connecting points of the hydrogen atom joined with the oxygen atom - that all in itself serves as evidence to the rotational format of waves. I could say to - my version of it, - but it is not mine, it is truth to reality**,** the only way to travel. And rather than repeat myself consider all that I am teaching - it confirms waves for their real nature, and not anything that to date is taught of it.

## Waves in space

Space is empty, so we proclaim, and who is to tell us differently? It minds you are the waves themselves, for as a wave refracts itself for a single angstrom greater distance by which to make contact upon the next atom in line - what is there in space for them to have a love scene with? It seems to me their affection for the media not only determines its velocity for distance in time, but how is it to proceed without its partner upon which it fully depends for its angular momentum that as such construes it as a wave? Without its angular momentum a wave is never a wave but no more than a straight line. And a straight line is total darkness to us; it lacks the code to our beholding.

Are we therefore saying that we are receiving total darkness from the sun that by entering upon our atmosphere becomes light? I am not one to entertain fantasies - especially since nature all in itself teaches us the matrimonial affect between waves and the media. Space therefore can never be empty or no wave would have its way to go. Without his woman a man could never have offspring, and she is not an entity in herself but a very part of man. Equally so waves could not possible furnish us with her offspring to our beholding without her man the media.

In how many ways now must I illustrate that we are all wrong about space, as well as our media, and the waves to our beholding? We ourselves by our own index to refraction have given space a density nearly as great as our own atmosphere, yet we do not realize that in fact we have done so, perhaps because to correlate one factor to another is not the best side of us.

Then we came to say that all different lengths in space travel with the same velocity, a statement in direct violation of all the laws in nature. We procure these violations because we had no idea as to how and why waves travel at different velocities. That for one thing their speed in real time is forced upon them by their individual lengths, wherefore it is utterly impossible for any one length to travel at the same speed of any other different length. It's not only against the law, it is completely contrary to nature in the very essence by which waves are produced as well as how and why they come to travel as they do.

## Toy box

Now let us play a little, for I am a child and to me physics is like a toy-box, simple but nonetheless interesting. Figure 4 shows a 6000a ruler upon which a wavelength of 4861a is drawn by a solid line that then is red shifted to 4923a in the dotted line. The Rv of 4861is 299.701/km/sec, that of the 4923 wave is 299.705/km/sec. a difference of 4/km/sec by 62a expansion [5]. Then as we take the 7000a from space

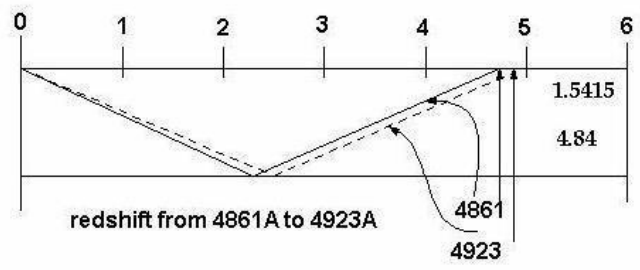


**Figure 4:** Wave in red shift.

into air at the index of 0.0003 it comes to 90/km/sec, down to 299.702/km/sec, while for length the red 7000a at 0.0003 comes to a reduction of 2.1a down to 6997.9a. A 6997.9a wave then travels at 299.792/km/sec, not 299.702/km/sec. In other words - to use the index for wavelength there is no change in velocity even though it came to 62a difference.

Logically there is something not quite right here, for if the index is called the index of refraction, it most certainly does not adhere to what causes refraction but seems to work only for velocity, and velocity is not refraction, to refract is to bend, velocity does not bend. Taking the 7000a from space at 299.792 down to 299.702 what would be the new length of that wave? It will come to 4870a - since only that length can travel at 299.702/km/sec, and why then are we not seeing blue for red? That mind you is a reduction in length of 2,130a; not 2.1a. Obviously the index is worthless when it comes to wavelength, and yet refraction is caused by wavelength.

If then I quote "*Refractive index, also called index of refraction, measure of the bending of a ray of light when passing from one medium into another. the refractive index* n *is defined as the ratio of the sine of the angle of incidence to the sine of the angle of refraction. Refractive index is also equal to the velocity of light* c *of a given wavelength in empty space divided by its velocity* v *in a substance, or* n = c/v" [1].

We will have to come back at the last sentence involving velocity, that will also show itself to be in grave error. But for the first part if indeed the index works for angle to angle I have not verified that aspect of it. But this is an absolute fact that in order for us to see the red sky in the morning the original length of that red wave must have been some 9130a. (That is 7000 plus 2130 for the 90 km reduction.) Its space velocity then was 299.841/km/sec**.** That confirmed speed then also contradicts our space velocity.

Then for the evidence that a 90/km reduction comes to a wave shift of 2130a, - a red wave must slow down by 155/km/sec for it to appear blue. Meaning, the change in velocity for the entire octave of light from high to low is no more than 155/km/sec, over the span of 3000 angstroms. (4000 to 7000) As than the 90/km took 2130 of it that leaves 870 for the remaining 65/km/sec. The color as they appear to our eyes must therefore be different in space or in within any prism where their lengths are either greater or smaller. Unless of course color is not really in wavelengths, but what else shall it be in? And if one does not trust my figures, check them out, mathematics is the same for everyone.

But this we can take to the bank; - that every different length always travels at its own velocity different from any other length no matter where that wave is or came from. We do have the evidence, and why then shall we ignore that clear evidence?

Are we so poor in correlation, and the realization that to us 2 plus 2 does not come to 4? Perhaps an illustration will be helpful. By Figure 5 from 0 to 7 is the length of a red 7000a wavelet (solid line) that when reduced by a velocity of 90/km/sec comes to a full length of 4870a, (Broken line) with the half-length to 2435a. When therefore it shows an angle to refraction, it is never more than what it shows at its half-length, no angle in refraction can ever be shown by any full length.

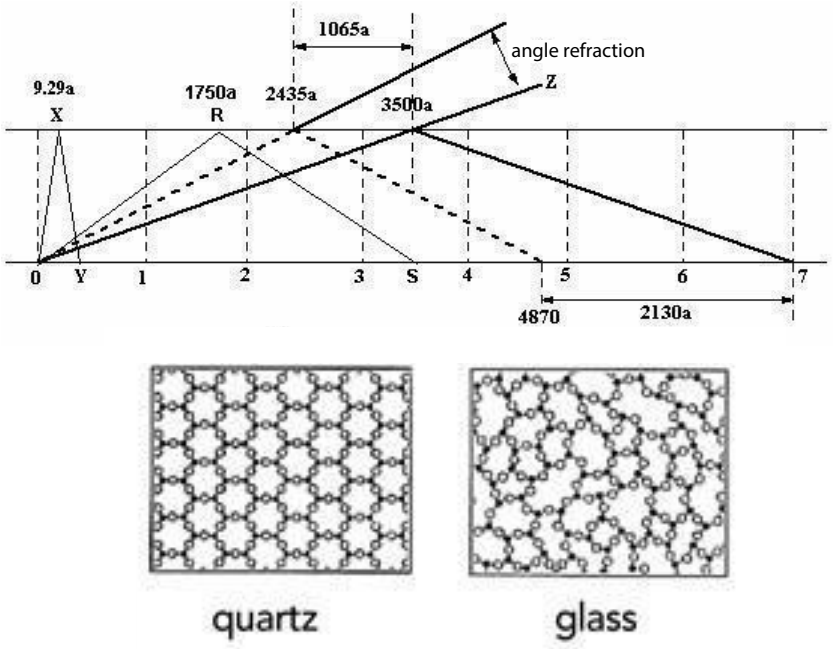


**Figure 5:** Wavelength reduction by 90/km/sec.

Full lengths are only found in the realm of mathematics, not in reality, all because a wave is an angular moment, an indent or code by an angular deviation. The physical length also of any wavelet need not be what it shows mathematically, it can be no more than a quarter of it - because it is an angular moment on the move. Nor is it self-sufficient but driven by the ever-fundamental movement in nature at the tune of 300.000/km/sec, never more, never less.

No doubt the index to refraction is set for half-lengths by which the angles are known that then by Figure 5 comes to only one half of the reduction in velocity, from 90 down to 45/km/sec. (Another reason why the index does not work for wavelengths) But it cannot be calculated that way - reality is always in half-lengths - mathematics comes to full lengths.

But we are not home yet for now let us go to the index for crown glass at 1.52. Since then the index appears to works only for velocity and not at all for lengths, - 299.792 into that index of 1.52 comes to 197.231/km/sec. And to what wavelength would that velocity apply?

We must keep our amplitude into the circumference at 4.84a or else the wave could not pass around the atoms in its path. Or they would enter into the atoms whereby to remit to us the particular coordinate for color and vision as all larger atoms do. Since then they do pass through crown glass it consist of atoms by which it can pass, Many of these wavelets then will be terminated upon the connecting points of atom to atom within that glass, like in the ocean where the hydrogen atoms connected to the oxygen atoms come to terminate all of them by the time they reach some 600 ft down. But our glass is never that thick to block all wavelets, and thus most of them will pass.

The reduction in velocity - as we have it - came to 102.561/km/sec, and that is quite a lot. As therefore a mere 90/km/sec comes to reduce wavelength by more than half of the optical range, with 155/km/sec the entire optical range - how far will that come for 102.561 reduction? That velocity of 197.231/km/sec then comes very near to a wavelength of no more than 9.29a as illustrated by Figure 5, 0 to X to Y. ((9.29+4.84 =14.13 in 300.000 × 9.29=197.239/km/sec)) How thus can the angle of refraction from 0 to X compare with 0 to Z in Figure 5? I have never seen the red to change its angle in refraction by that much. Nor can a 10a wave travel by a 4.84a circumference, wherefore our velocity by the index is completely in error.

So, thus what is the answer? Are we all wrong in the reduction of velocity to that extend? Did we ever physically measure that velocity in glass? Before that red length came upon the glass it went once around the circumference, In its reduced state (as illustrated) it would has to pass more than 700 times in the circumference. Instead of 4.84a for each rotation it became 3644.52a and that comes to no more than 26.040/km/sec, not anywhere near the 197.231/kn/sec.

I thus have my sincere doubts about our index, that while it does not work for wavelength it neither works for velocity, wherefore that last sentence in our previous quotation is dead wrong. It may work for angles that I have not gotten into. And so again**;** what is the answer? One thing we can be sure of is that my calculation to relative velocity is correct. It's too simple to be in error, nor is our amplitude in error, both of which are confirmed by our own readings of velocity, that in air and space.

Our findings may be in need of an overhaul, and if we find our readings to be in error, I will have to update my calcs as well. If on the other hand I may estimate what the velocity of light would be in glass utilizing atomic spacing. If in the air the spacing between atoms is 10a center to center, that amounts to700 atoms for the 7000a wave, and compacted in glass to 5a, the 7000a length over 700 compacted atoms would be a reduction to 3500a, half the length as before. The relative velocity would then be near 299.585/km/sec, a reduction **of** 117/km/sec from that of air or 207/km/sec from space. In Figure 5 that would be from 0 to R and S. That then is a far cry from more than 105 thousand kilometers/sec.

Who now came closer to the truth? Definitely not the index, and what further reason can I present for that? My reasoning is: Velocity of any wave is determined by length, and length only, and length once established is compromised by atomic spacing. In air these atoms are spaced further apart than in any compact structure. But just how compact is that structure in relevance to the movement of light? A piece of glass looks solid to us, but only because it consists of a molecular formation in which all the atoms lock unto one another, while in air the individuals are free to move around. Nor do the atoms in glass lay tight up against one another, there is a spacing between them, along with openings as illustrated.

If then 5a in glass is too much and we reduce it to 2a that would still come to a compression down to 1400a length, that for its Rv would be 298.966. km/sec, a reduction of 736/km/sec from air and not anywhere near to what the index of 1.52 specifies.

Conclusively the index of refraction does not work for velocity nor for wavelength. Its only use is for "angles" of refraction that I may take to study one day.

## Relevance of Wavelength to Velocity

Now we ought to come to a real surprise that in part explains how and why an increase or decrease in wavelength does not effect a propotional change in velocity by all wavelengths. It is greater for the longer waves and less for the shorter waves, the cause for which lies in how each and every wave is produced (Not anything of what is currently taught.). Waves are at all times produced by an angular momentum into and upon natures linear lines of movement [3-5] (Figure 7). This may be compared to a moving belt upon which boxes are placed going down the line, the slower the boxes are placed so much the longer the wave.

That in plain terms comes to the protractor, Figure 6. The impulse to an angular moment proceeds from point X straight downward to the zero-degree mark, but with the linear flow of natures fundamental movement passing at 300.000/km/sec to the right, no impulse can be driven to the zero-degree mark, it as such would never become a

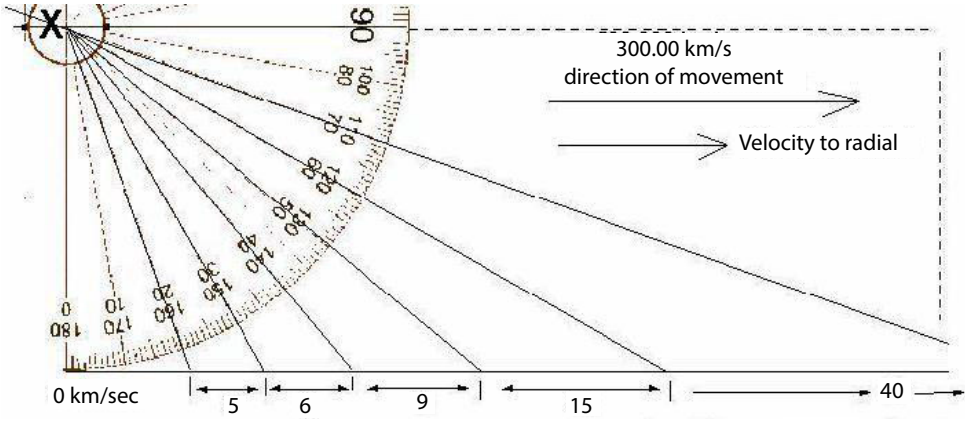


**Figure 6:** Wavelength increases proportionally relevant to velocity.

wave. Nor could it become a wave at the 90-degree mark since that is no more than a straight line. But when the pulse in its attempt towards the zero mark is simultaneously taken to the 50 degree mark it has become a wave, an impulse appearing as a single wavelet with the linear velocity of 300.000/km/sec, and its angular relevant to the 50 mark slows its distance in time down to a Rv. Since then all atoms have rotation with and upon which we by resonance are hammering our indents, these wavelets come to travel in a rotational manner.

So far so good, we now have our waves as impulses or codes that we with the use of mathematics can turn into full lengths, namely full turns around the circumference. And again, mathematically by events in time (frequency) discover real lengths as well as velocity. Or we can factually measure half lengths, that then again with the use of mathematics and our known constant turn into full lengths as well as velocity and frequency.

But now comes the sticky part when wavelengths are compressed or expanded by either an object in radial velocity, and/or change in density - that in turn affect velocity. If/when a wave produced at the 30-degree mark and traveling as such comes to a change in density whereby its length is expanded by 10 degrees, its length as show in Figure 6 is greater by a factor of 6. If then for the example a factor of 6 amounts to 60/km, its Rv increased by 60/km/sec. If then we view a longer length that was generated at the 40-degree mark, and it has a red shift also equal to 10 degrees, the factor by which that velocity will be increased is by a factor of 9, meaning its Rv will increase by 90/km/sec. And still another 10 degrees will increase its velocity by a factor of 16 to 160/km/sec.

The longer the wavelength the greater the velocity for equal change in wavelengths. Or in reverse it takes a greater velocity to pull a wavelength 10 degrees from 60 to 50, than from 50 to 40 [6]. Obviously, there is no straight-line comparison (index) for velocity verses wavelength, our best bet is to use the three-dimensional calculation for Rv illustrated by Figure 3.

For another quotation: *"The refractive index of X-rays is slightly less than 1.0, which means that an X-ray entering a piece of glass from air will be bent away from the normal, unlike a ray of light, which will be bent toward the normal. The equation* n = c/v *in this case indicates, correctly, that the velocity of X-rays in glass and in other materials is greater than its velocity in empty space*" [1].

Did we take notice of the fact that X-rays are not called waves? Therefore, also these do not apply to what waves apply to. X-rays are just that - rays, not waves; these do not and cannot travel in an angular pattern around atoms. Therefore, also these travel at higher velocities since their angular moment is very small, and lengths very short. I do not have physical figures, but these are not coordinates in the general term thereof like odor that travels by a coordinate, nor like the pattern by which magnetic and electric are known. I cannot furnish us with more information on X-rays since I have not taken a study on it.

## Index to Density

When from space to air the density is 1 to 0.0003 it amounts to 90/km/sec. As thus a 7000a length is reduced to 4807a to account for the mere 90/km verses the 299.792/km it is a minor affair. As then in the air the atoms are spaced by 16a - a single wavelength is spaced over 437 atoms, what would the spacing have to be for a mere 90/km faster? The division from 7000 to 4807 is 1.46, and 437 in 1.46 comes to 299 atoms in so called empty space. Space then is never empty or light nor any other wave would not be able to pass through it. And we by our index to refraction when utilized for velocity are giving space a density that is not much less than our own air.

## Waves to Warmth

Then to go into how waves serve us for warmth and help vegetation to develop, as well as generate electricity, the secret lies in their type of movement verses that movement found in all media, that then spells "Rotation." How for example does a turbine wheel come to turn faster and faster, if not by more and more atoms impinging upon it as well as coming at it by greater and greater velocities. And so now we have the answer but it does not as yet register upon us.

Warmth is a rate of movement, mostly in the speed of rotation of the atoms, like in water when it is heated we are increasing the rotational velocity of its atoms that then for their magnetic nature come to expand their magnetic field driving themselves from each other that to us comes

to appear as steam. Light then for its nature is likewise a rotating entity at very high rotational velocity that when it strikes upon any atom of earth's surface comes to drive the rotational movement of those atoms at a higher and higher speed of rotation that to us is felt like warmth. Not so much different by which we come to turn a turbine. Each wavelet as it impinges upon the atoms is but minor, but for the sheer volume of wavelets arriving each second the atomic movement is increased.

In the same way as the waves of the sun strike upon vegetation it brings these atoms and molecular structures to life. If then we construct specific elements together to make for solar panels, the light in much the same way as we drive turbines comes to drive an electrical potential from and by the atoms of those elements. The electrical potential is none other than a rotating magnetic force, or field of force, while the coordinate of those elements are likewise magnetic, as are its atoms magnetic entities. The elements by themselves produce a coordinate like that of any magnet, the light impinging upon that coordinate then causes it to rotate, and presto we have our electricity.

Nor are we in need of light to create an electrical potential, we can do the same thing by scuffing our feet upon a carpet to create rolling motions by/and of natures all-pervading fundamental movement the nature of which is always magnetic. That then without a proper guide in free air utilizes our body, which comes to a shocking experience when discharged upon any metal like a doorknob.

## Wave production

Quote: *"Light is produced through a phenomenon known as electromagnetic radiation, which is composed of both a magnetic and an electrical component." -- A charged particle produces an electric field. This electric field exerts a force on other charged particles*. -- An accelerating charged particle produces an Electromagnetic (EM) wave. -- Accelerating charges produce changing electric and magnetic fields" [7].

What is radiation? Usually some little particle, and how does that produce a wave that requires hundreds of atoms along which to have its being? A mouse does not hurl an elephant 10 miles down the road. If a charged particle produces an electric field, - tell us first - what a charge is - and - how such a particle gets to be charged - and with what - to produce something a thousand times larger to itself.

I hate to be educating children that to accelerate is forever to go faster; never coming to a stop. If it started a year ago by now it must be going a million times the speed of light. Or if it accelerated to a fixed speed, that electricity lasted only for a fraction, and then what? And why create magnetic fields when all of nature already shows itself magnetic? Our magnetic waves – as they are classified magnetic of the spectrum, once magnetic need no other magnetism. Nor does a bullet out of a barrel produce electricity, nor any arrow shot from a bow. Common sense alone invokes that it takes a lot more to produce electricity than a particle, and to coin the word "accelerating" with no end to it - in my book - shows man's inability to simple language.

I now am going to show just one version by which light is produced upon the tungsten element of a regular light-bulb, the principle of which holds true in the production of all magnetic waves of the spectrum.

By Figure 7, I show just 4 atoms of a tungsten element that when it is caused to conduct an electrical potential becomes subject to the magnetic polarities of that electrical circuit.

That circuit as a wave-like formation consists of magnetic lines that are twisted over one-another by the rotating armature of the generator. When any electrical wire is held next to a magnet it will move back and forth to that magnet since each twist is and acts just like any magnet having a north and south polarity [4].

Upon that tungsten element therefore that current comes to push and pulls on its atoms, In principle therefore when atom 4 is pushed into atoms 1 and 2 (4a) with the always fundamental movement at full velocity passing - atom 4 drives a curve into that line. That curve thus is driven around the circular of atom 1 and backed by atom 2. As then atom 4 recoils back the process starts all over again.

Meanwhile that so-called curve has become an angular momentum passing around all atoms in its path like a wave. The faster the impulse of the atoms so much the shorter the wave (angular moment) will become for its length. The electricity push/pulls at it's set voltage, no faster no slower, but as it works upon the atoms of the element these being agitated come to rotate faster by which shorter impulses can and are produced. Low heat is red light; high heat becomes white; and still higher to the blue.

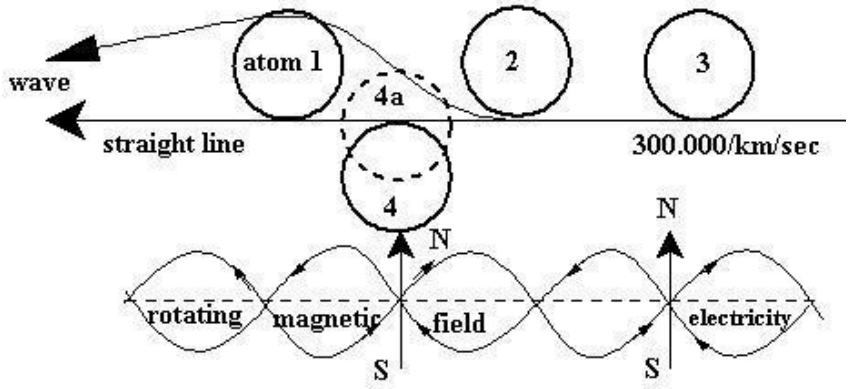


**Figure 7:** Principle production of light in incandescent lamp.

So, it is by the speed of the impulse that waves come to their original length. And as illustrated here it took the effort of a large power source and no less than three full atoms to form a single wavelet that is never continuous, but no more than a single wavelet on the move. The rate then at which atom 4 is driven into its neighbors determines frequency. Each different length then travels with its own relative velocity - since it can do no different - as defined earlier. A straight line is darkness to us, like at night with no sun-light the magnetic lines of mother earth receives no impulses, no angular's. If then we receive but one single impulse (wavelet) at each kilometer, that is 300.000 in a single second enough to blind us if that arrived at each possible line of light, about as powerful as a magnifying lens. Or with our electricity at 120 rotations (volts) there will be 2500 kilometers between wavelets, and by as few as 120 each second, we can still perceive light.

The electricity working upon the atoms of the tungsten element then varies in position and relation to one another wherefore and whereby the oscillations or vibrations, or resonance if you will come to produce a range of different lengths, resulting into white light. This is unlike a laser wherein only a few single fixed lengths are produced; the type of substance makes the difference. The sun likewise for all its heat does not produce single fixed lengths, but all lengths by and in the differences within the source.

It does not take much to produce blue from red since there is but 155/km/sec difference in the entire octave of light. Accordingly, a minor velocity difference in the impulse, not only for its linear aspect but coupled with the rotational speed of the atoms creates waves of different lengths. If then longer lengths are somehow deposited on the same line with a shorter length, it can indeed bypass it, or by collision cancel each other out. That however I judge to be rare, most prominently they are on different lines.

Then because the atoms of the element are situated by their specific coordinate, and the electrical encompassing the whole of them - wavelet are driven into all directions, their source being the base or backbone from which their movement is always away from it. The deeper fundamentals to that secret will however not be of me in this day and age.

This being so much different from what is currently taught, it is not in the least fanciful but each one of us must make his or her own judgment. I can lead a horse to water but not make him drink.

## Conclusion

In my judgment it is time for us to smell the daisies, to be educated in reality. There are a number of surprises in this essay and wills we be educated by it or not depends on the individual. As for me I relish knowledge and wisdom, the more the better even as it is equally painful to have an unquenchable thirst for knowledge. It may not put food on the table, as in fact it is costly, but it's riches cannot be compared to any monetary item. And thank God I do not have the love of money, but I am always curious as to what is over the next hill.

### References


1. The Editors of Encyclopaedia Britannica. Refractive index.
2. Pradhan R (2016) What Is Light? Matter or Energy?
3. Leonard Van Zanten (2019) Magnetic and Electric. Int J Recent Sci Res 10: 31201-31210.
4. Physclips. Speed of Radio Waves. UNSW, Sydney, Australia.
5. Richmond M. A connection between radial velocity and distance.
6. Leonard Van Zanten (2015) Wave Nature. Journal of Advances in Physics 11: 3050-3080.
7. The Production of EM waves.