

FILE: S. Interference Superposition Error REVISED Craigslist 19

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by Jim Olsen: Editor Todd Grigsby

How the mystery of wave particle duality came to be. Also see the last paragraph on the double slit.

The below is from my Michelson interferometer video.

It is currently believed that light undergoes constructive and destructive interference.

Here is one of my proofs that light can have collisions bounce apart redirecting their paths from the dark fringe areas into the bright fringe areas resulting in an intensity of nearly 4 times greater.

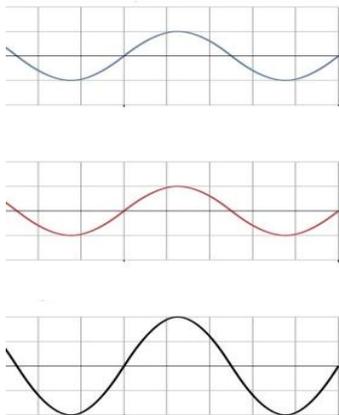
This indicates the words constructive and destructive are misused with light and only applies to the water ripple tank which only doubles in height. Also consider that in a ripple tank the water only undulates up and down. The water does not move forward like that of a shore line ocean wave. Light like radio waves, propagate. This is an essential difference.

Particles suspended in the water of a ripple tank can be viewed from a side window simply moving up and down.

When two *water waves* form a composite wave, the composite wave is the algebraic sum of the two original waves. The lower wave is the sum of adding the two top waves.

The amount of energy in a water wave is equal to the weight of the water in the wave.

The area under the curve is the energy.



THIS IS THE MICHELSON INTERFEROMETER

SHOW THE COMPONENTS

Instead of using a second beam splitter for the second screen, just place a paper card with a small hole to allow the light to exit as shown. It is normal for the light to reflect back to the source if you look at the mirrors that's what will happen. However what is unusual at the second screen is that the fringes are the reverse (negative) of the main screen.

Block off one leg at a time – and show the reflection back to the source.

Professor Shaoul Ezekiel at MIT runs a well-executed precisely aligned Michelson interferometer and attains the condition of ‘total destructive interference’, where the two beams completely cancel out one another, and he asks the question “Where does the light go?” At 4:30 minutes of the video the professor places a second beam splitter Fig 2. Immediately after the laser to find out where the light is going.

When the interferometer is **critically and precisely aligned** only 1 circular spot appears at the main screen 1 as found in the MIT YouTube video “Where did the Light go?”
<https://www.youtube.com/watch?v=RRi4dv9KgCg>

This is the insert for the MIT video.

STOP: INSERT VIDEO HERE

In the MIT video’s case the photons have hit absolutely directly **HEAD ON**. Only in this case only: ‘**ALL**’ the light has managed to bounce directly back to the source and the main output screen 1 becomes totally dark. **THIS PROVES THERE ARE COLLISIONS IN AFFECT.**

This only occurs with absolutely precise alignment which I am unable to attain here. So you will have to watch the MIT YouTube video.

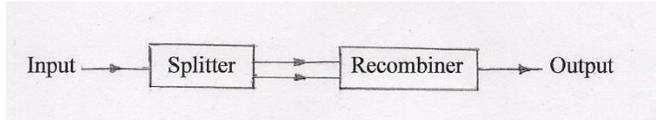
You have to be careful about what to talk about here. The fringes at the output screen are still are nearly 4 times greater than either leg of the split beam. The second screen is not where the destructive light is going, until screen 1 blanks out (goes totally dark).

Originally I stated the light at the second screen was the destructive light from the main screen. This is an error. The second screen is a totally separate screen except that the fringes are a negative of screen 1.

In my setup which is the norm for most experiments used simply to count the fringes The light is still colliding. Here in this case the light is bouncing from the dark fringes into the bright fringe areas. This results in an increase in intensity that is nearly 4 times greater than a single legs intensity. I assume the light bounces from the inner rings to the outer. The equation for Intensity for light interference

$$I_{\text{MAX}} = I_1 + I_2 + 2(I_1)^{1/2}(I_2)^{1/2}$$

Relating light interference to the waves found in a water ripple tank is dead wrong. The amplitude of water waves only doubles.



Above laser beam split into two paths results in an intensity of nearly 4 times greater.
“There will be maxima, which exceed the sum of the intensity’s in the beams.”
 Exploring Laser Light T. Kallard pg. 111. Copyright 1977 Optosonic Press.

ANOTHER WAY FOR SOME TO GET FOOLED: If you have not solved the equation above then the human eye errantly assumes the light is simply doubling like that of a water waves. See below.

PUT CARD IN HALF WAY WHICH SHOWS BOTH INTENSITYYS SIMULTANEOUSLY.

Here we see that the human eye is unable to resolve light intensity.

https://telescope-optics.net/eye_intensity_response.htm

The human eye perception of light intensity is logarithmic Weber-Fechner or Steven’s (Power) Laws similar to hearing which uses the Decibel unit. So if one looks at the intensity of the fringes by eye it only looks twice as bright. Actually it is much greater intensity than the human eye has perceived. This is a common error and probably fooled even Newton, and Huygens, as the men at that time had no way to measure intensity. Actually Newton had a corpuscular theory which was rejected.

Lumens and Watts are proportional: meaning if you double 1 unit the others double as well.
 1 lumen = 1/683 Watts.

The equations for the location of the fringes are the same. Instead the photons are bouncing off the edges of the slit and colliding with the photons passing directly through the slit. They are redirected into the interference paths. The evidence is in the single edge interference experiment that that also has interference fringes. See the equations for the location of the fringes are the same. Instead the photons are bouncing off the edges of the slit and colliding with the photons passing directly through the slit. They are redirected into the interference paths. The evidence is in the single edge interference experiment that that also has interference fringes. See Bill Asept’s ‘single edge certainly’ experiment. Why would single knife edge cause interference. It is because photons are bouncing off the knife edge and striking the incoming photon waves. Single Edge Certainty: Bill definitely has a new method to calculate the patterns. This indicates there are other possibilities on what is going on.

<https://singleedgecertainty.files.wordpress.com/2016/07/single-edge-certainty-march-2021-update-pdf.pdf>

So, unlike water, in the case of light, the energy in the fringes has nearly quadrupled. So here we see that a water ripple tank does not represent light interference. They are different and only cause confusion. This error began over 200 years ago and is still carried on today. This

applies to the central edges of the double slit light intensity as well. (The cosign angle is required then however).

The interference of light is not from the addition of waves!

I want to add something:

Currently there is no way to get a force out of a free space electromagnetic wave because it is believed that they only pass through another unaffected. So they cannot transfer a force. This is why there is no force in the general theory of gravity, and why the *mechanism* of magnetism has never been fully explained. BTW: Mathematical terms can be added to Newton's gravity theory which has a force to allow for the bending of light.

It is because of the misconception in the double interference experiment and because water waves are used to describe light.

It is because of Google that all this knowledge can be culminated.

FURTHER:

All the electromagnetic waves are photons. If one looks into microwave theory, you will find that microwaves can be forced to collide and may cancel out when sent down a wave guide where the waves bounce back. Also, microwaves like light can be polarized. You can also use microwaves to make an interferometer.

This collision concept can enable an electromagnetic wave to transmit a force, but only with certain configuration and attributes which I will cover.

Look and see what happens to the foundation of physics if photons of light bounce and redirect. Much More details and theory:
SynodicGravity.com

**MICHELSON INTERFEROMETER ALSO PROOVES LIGHT WAVES BOUNCE see:
<https://synodicgravity.com/>**

This Section is under revision.

The light is reflecting of itself like off a solid object. How a wave may have solid like attributes. Is it a particle or a wave?

4. Differences between water and light

A ripple tank is under controlled conditions and the waves always pass through another unaffected. However, a water wave can have many heights and velocities and will crash into another when the wave crest begins to break. Conversely a photons height is set by its wavelength and velocity of light, so it is always at maximum height. If water waves were weightless like photons instead of crashing when at maximum height, they would bounce off another and head into new directions. Besides the water ripple tank experiment has standing waves that only go up and down and don't propagate. Two small moving traveling ocean waves can be seen colliding. These are not the same as ripples on a lake which only move up and down as they spread across the water surface. Seems there are two types of propagation. Moving propagation and stationary propagation. Photons have moving traveling propagation, not just up and down like the ripple tank experiment. Photons are nearly massless so can bounce apart if they are monochromatic and coherent and in phase and alignment as described in this paper unlike ocean water waves that have mass, first hit another head on then pass through another seemingly unaffected. Photons propagate.

Could it be that something happened and the wrong decision was made? Now is it is so deeply woven in the textbooks that it can never be changed? I don't know! The physics community at that time, made the huge error by assuming that the pattern was the result of the adding of waves. The interference pattern is not from the addition of waves, but from light wave impingement or collisions when in phase heading into new directions. This forms the light /dark fringe patterns that appears to be superposition but is not. There is a way to answer some further early debated questions such as duality, but not before it is concluded that light waves are actually bouncing. This experiment lays out a visual way to show that light waves bounce off one another giving the appearance of superposition. Something that Young's double pinhole experiment was unable to determine, and was not setup to determine. He was simply trying to determine if light is a wave, or a particle. In the case of the electron a wake in the aether field or an extended electron field could be allowing the passage through both slits. This is incomplete. I will post the update on my web page.

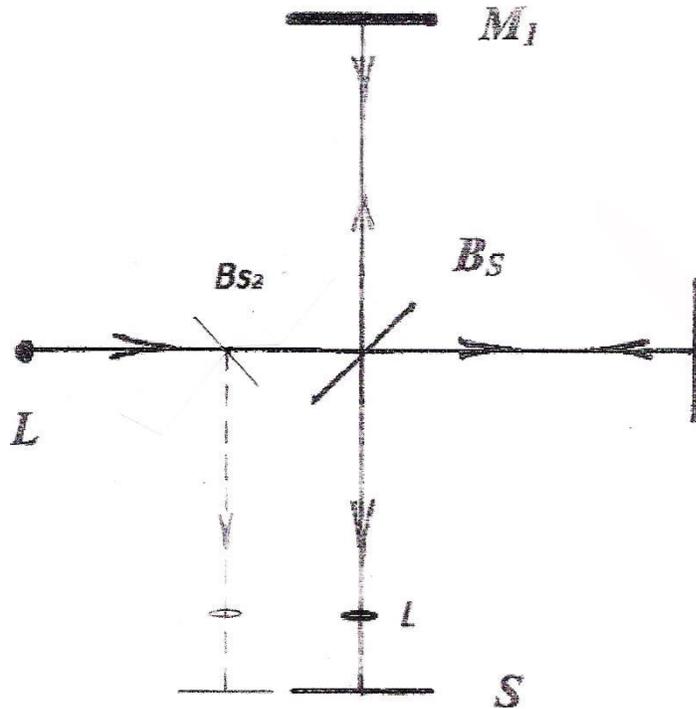


Figure 27: Michelson Interferometer with Optional Beam Splitter

NOTE: The second beam splitter can be replaced by a paper card screen with a hole to allow the beam to pass at the laser output.

* = Laser, Bs = Beam Splitter, M_1 = Mirror, M_2 = Mirror, S = Screen

. CP = **Correction plate**, (Bs_2 = *Optional Beam Splitter* & S_2 See proof 2)

There is something going on with waves and particles that appear to be incorrect.

It gets more complicated than this. You can solve the puzzle with the pieces I present. Look and see what happens to the foundation of physics if photons of light bounce and redirect. Electrons which are more like particles are somewhat different.

Much More details and theory: **SynodicGravity.com**. Look for a green planet.

FURTHER COMPARASONS:

Voltage and use of oscilloscope.

Two electrical transformers each output 10 volts at 60 Hertz are connected in parallel. If one transformer is 180 degrees out of phase with the other, the result is zero voltage output (flat line) or complete cancellation. No energy whatsoever comes out.

Radio Waves:

A ham radio is emitting 1000 watt 1 kHz sign wave from its antenna. If the antenna coax is suddenly disconnected the sign wave energy hits the end of the coax and reflects (bounces) back into the radio causing overheating. This is the same as the interferometer light during the blackout condition and the Einstein Rosen Paradox.

This is called SWR or sign wave reflection.

With MIT's video only when the photons hit head on do they bounce directly back to the source. When fringes appear instead the energy has bounced to the sides. There is always a negative image that bounces back to the source (unless head on collision) this is simply from the mirrors.

Look and see what happens to the foundation of physics if photons of light bounce and redirects instead of adding as with the double slit.

Here is the reason why no one knows how the mechanism of magnetism or gravity works. It is because of the misconception in the double interference experiment and because water waves are used to describe light.

There are several other proofs using radio and microwaves which are photons which prove light waves can collide under certain circumstances.

This is like entanglement which will be shown to be based on wave to wave collisions, not something mysterious as presently thought. The spin is altered. This will be explained the theory.

Currently there is no way to get a force out of free space electromagnetic waves because it is believed that they only pass through another unaffected. So they cannot transfer a force. All the em waves are photons. Radio, microwaves, light, and x-rays, are all photons. Currently it is believed all these waves pass through another unaffected, until a em waves from two *totally separate sources* become very small like a gamma ray, they are able to crash into another, which makes these small photons began to appear as particles, however their still only photons not particles. Low energy photons from two separate sources pass directly through another. This is like shining two beams of flashlights into another. They simply pass directly through, and no particle like duality appears. It is only when a *single source of light* is split into two interfering beams that the particle attribute appears.

This difference is the concept that can allow an electromagnetic wave to transmission of a force, but only under certain circumstances.

Why a photon appears both wave like and particle like.

Error in superposition:

Why current gravity has no force associated with it, and why the attraction/repulsion force magnetism is still not known.

Separating the below fields of science is what did it.

1. Mechanics (Tangible)
2. Radio or Magnetic Field (invisible, mysterious)

When we get into the radio and electromagnetic field the mechanical description producing the magnetic force 'causality' is left out. There was not enough connection between the two fields. Radio, electricity and magnetism, was a great mystery, it had no mechanical reason or cause for the effect. So how can the two fields of study be unified?

Alternate Reality

An innocent mistake was made in early physics, and the mechanical or physical reality was left behind. The mistake was applied to the double slit experiment, and beyond. Something very simple was overlooked. This is how wave physics got off track, left reality, and came up with the thought experiment "Schrodinger's Cat", where one cannot know whether a cat in the box is dead or alive. This is nonsense and I will show you how it happened.

It all started with simple ripples on water that passed directly through another without interaction. Since light beams also passed directly through another scientists compared light waves to water waves. The ripple tank was and still is used to make comparisons to light waves.

Errors:

Physics has comparing light to sound and water waves which do not have wind. And wave forms seen on the oscilloscope.

Much of physics is designed around the fact that photons pass directly through another unaffected. The errors all came from the double slit. The problem is they assumed that photons pass through another unaffected. This is a simple mistake made many years ago and covered in the Copenhagen Interpretation of Quantum Mechanics.

I will show that photons under special circumstances can bounce off another and be re-directed into paths that make the interference pattern. Light interference pattern is not solely from simple addition of waves.

An interference pattern cannot be made from two different sources of monochromatic light. It must come from one source that has been split in half. Only then will they interfere. However water waves from two different sources will interfere. So something must have been overlooked. By the above reasoning assuming light is like water waves in a ripple tank is a huge mistake. They are not the same. Using this framework water can interfere but light from two different sources cannot.

Fatal Flaw in Physics

Water waves were used as a model for understanding the behavior of light waves. A water wave is a pulse of energy through water. It has a crest and a trough. The distance from crest to crest is known as the wavelength. Scientists study waves with a device called a "ripple tank". A ripple tank is used to understand the interference of light waves which causes the rainbow colors on a soap bubble or a film of oil. The foundation of physics was designed around the belief that water waves are like light waves and pass directly through another unaffected.

Two Types of Simple Waves:

Early ideas about light and water fooled men of physics and the theory or mechanism of magnetism and gravity have never been explained properly.

How the wave types differ. Ripple tank water waves are like sound waves in air. Sound waves do not produce a wind. They only have pressure waves. If a pebble is dropped into water it makes a wave like sound waves. They do not flow. This type of wave can be seen on a rope that is attached on both ends. They have made comparisons with sound waves, and waves seen on an oscilloscope. None of these examples used to explain the double slit are correct.

That is the error. The correct type of wave to study is one that travels, like that of an ocean waves which carries its water with it. A floating object placed on the surface of this type of moving wave will be carried along with the wave. Conversely if a floating object is placed on the water of the waves of a ripple tank it will only undulate or just go up and down, going back to their original position not traveling forward any distance.

Traveling water waves carry their mass with the wave. This difference between the two wave types is essential when studying light. The ripple tank scientists study does not portray light which propagates. Knowing this, a force can be put back in gravity, and magnetism can be explained, which to this day is not fully understood.

When the early pioneers of science saw light beams passing directly through each other and dropped pebbles into a pool of still water they looked similar. However this is not the case. Light cannot be compared to ripple tank waves that just move up and down or sound waves that have no wind. Light travels like moving ocean water waves. Ocean water waves that bring water along with its wave crash into another while passing through another. When two ocean water waves pass through another they crash into each other first then pass through. This mistake is shocking and still carried on today. If you Google this you will find that the theory of magnetism has never been explained properly, and general relativity's theory of gravity has no force associated with it. It can be shown that light waves under more refined and defined experiments crash like ocean waves. Knowing this simple difference a force can be placed back into gravity and magnetism can be fully explained. This is such a simple error it is hard to believe it ever happened.

Gravity and magnetism are em waves.

Here is the reason why no one knows how the mechanism of magnetism works. It is because of the misconception in the double interference experiment and because water waves are used to describe light. There are several other proofs using radio and microwaves which are photons which prove light waves can collide under certain circumstances.

This is like entanglement which will be shown to be based on wave to wave collisions, not something mysterious as presently thought. The spin is altered. This will be explained the theory.

A very simple mistake led to a huge mess. These arguments went on for years all because light waves were compared to water waves. See example excerpt from Stanford. They got so twisted up in the philosophy of math they overlooked the fact that water waves when moving crash into another first, then pass over and under another all while passing through another. After that it appears as everyone else just carried on what they were taught. After wave to wave collisions is recognized the Stanford argument falls apart.

Look what happened. This argument happened because they thought light waves passed directly through another. Instead light waves are from multi angle collisions, phase changes, and spin orientations which allow or not allow collisions.

Nikola Tesla, the father of modern electricity, and the inventor of the radio said;
“Today’s scientists have substituted mathematics for experiments, and they wander off through equation after equation, and eventually build a structure which has no relation to reality”.

**See Stanford Encyclopedia of Philosophy:
Copenhagen Interpretation of Quantum Mechanics**

<https://plato.stanford.edu/entries/qm-copenhagen/>

Read paragraph 4. Complementarity

“Heisenberg managed to formulate a consistent quantum mechanics in 1925; both he and Bohr began their struggle to find a coherent interpretation for the mathematical formalism. Heisenberg and Bohr followed somewhat different approaches. Where Heisenberg looked to the formalism and developed his famous uncertainty principle or indeterminacy relation, Bohr chose to analyze concrete experimental arrangements, especially the **double-slit experiment**.”

Both uncertainty principle and double-slit interference are the most important contents in Quantum mechanics.

<https://www.physicsforums.com/threads/uncertainty-principle-and-double-slit-interference.222893/>

Photons are electromagnetic waves.

<https://www.quora.com/Are-all-electromagnetic-waves-photons/>

Light is an electromagnetic wave.

<https://www.mvorganizing.org/is-light-is-an-electromagnetic-wave/>

“Radio waves, visible light, are electromagnetic radiation. Electromagnetic radiation is described as a stream of mass-less particles, called photons”

Correspondence Principle

https://en.wikipedia.org/wiki/Correspondence_principle

Here we find an example of radio waves that bounce off another. A photon is similar to a radio wave only of a different wavelength.

<https://q-track.com/do-radio-waves-bounce-off-each-other/>

Hans G. Schantz states while describing radio waves emitted from a special antenna.

“In the case of mirror-image waves with identical waveforms, all the energy associated with the two waves comes to a rest and then changes direction. If the interaction is a purely destructive interference, the electric field goes to zero, the impedance goes to zero, and the energy associated with each wave bounces off the virtual short created by the superposition. If the reaction is a purely constructive interference, the magnetic field goes to zero, the impedance becomes infinite, and the energy associated with each wave bounces off the virtual open created by the superposition. “

Below good reference on Page 1-2

“On the Superposition and Elastic Recoil of Electromagnetic Waves” By Hans G. Schantz Q-Track Corporation. FERMAT, Vol. 4, No. 2, July-August 2014 [ART-2014-Vol4-Jul_Aug-002].

<http://arxiv.org/abs/1407.1800/>

“I. INTRODUCTION This implies that the energy from each incident wave reflects, rebounds, or recoils elastically off the other.”

“II. DISCOVERY OF THE SUPERPOSITION PRINCIPLE”

Traveling ocean Waves crashing into another

<https://www.youtube.com/watch?v=6EKZKaWhufl/>

Note unlike ripple tank waves that only pass through another without transferring a force, these ocean waves crash with a force.

In 1923 Louis de Broglie held his Ph.D. thesis on what then was known as the de Broglie’s hypothesis, assuming that particles of matter also behave like a wave, with a wavelength associated.

The equations for the location of the fringes are the same. Instead the photons are bouncing off the edges of the slit and colliding with the photons passing directly through the slit. They are

redirected into the interference paths. The evidence is in the single edge interference experiment that that also has interference fringes. See Bill Alsept's single edge certainly experiment. Why does single knife edge cause interference? It is because photons are bouncing off the knife edge and striking the incoming photon waves. No one or very few cover the interference from a single knife edge. Water ripple tank waves do not produce this interference pattern from a single obstacle blocking only 1 side of the incoming waves.

We need to get off the ripple water tank and take a better look at interference starting with a firmer foundation. Bill has a way to solve the interference pattern from a completely different aspect. Bill can solve patterns from multiple slits as many as 4 or more.

Single Edge Certainty:

<https://singleedgecertainty.files.wordpress.com/2016/07/single-edge-certainty-march-2021-update-pdf.pdf>

Bill discovered the single edge interference from the interference pattern of star light passing by the moon similar to a single knife edge.

Diffraction pattern using the moon as a single knife edge.

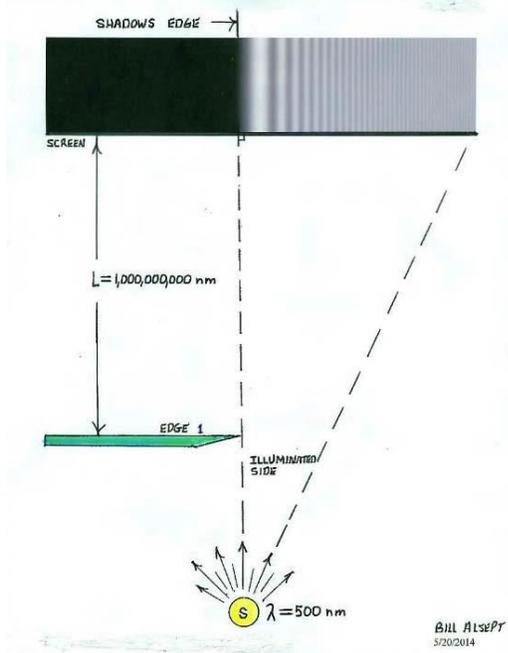
<http://spiff.rit.edu/richmond/occult/bessel/bessel.html>

Hypothesis: The photon also leaves a wake as it travels through the aether field.

Although our theories are different, no one covers the subject quite like Bill does. This part of light wave interference seems to have been overlooked quite a bit. There does not seem to be a good explanation for it. Bill got it from moon occultation diffraction pattern.

The single edge diffraction pattern is not the same as a single slit; however Bill has developed it further. He has simplified the calculations and has managed to combine 2 single edges and bring them closer and closer until they combine into a single slit. From there he can calculate double, triple, and quadruple slits and arrive at the correct answers for the patterns. This seems to be quite an accomplishment. I am not sure whether Bill's analogy will work with a Michelson interferometer where the beams hit directly head on.

See the below for Bill's interference pattern from a single edge. Bill states that when the photons strike the knife edge they become **polarized parallel at a slit**. This I agree with only I describe it as bunch up and allign parallel to the slit, which is the same thing.



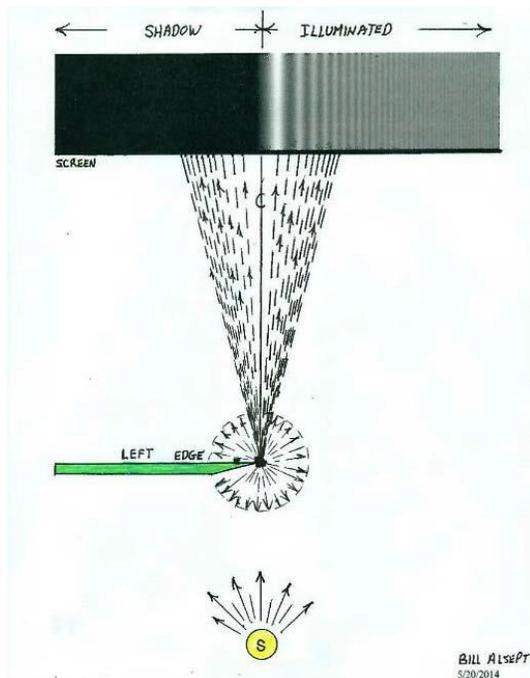
Interference Pattern from a Single Edge.
Also called: Diffraction at a Straight Edge.

The experiment requires a lens. It does not show up well without one.

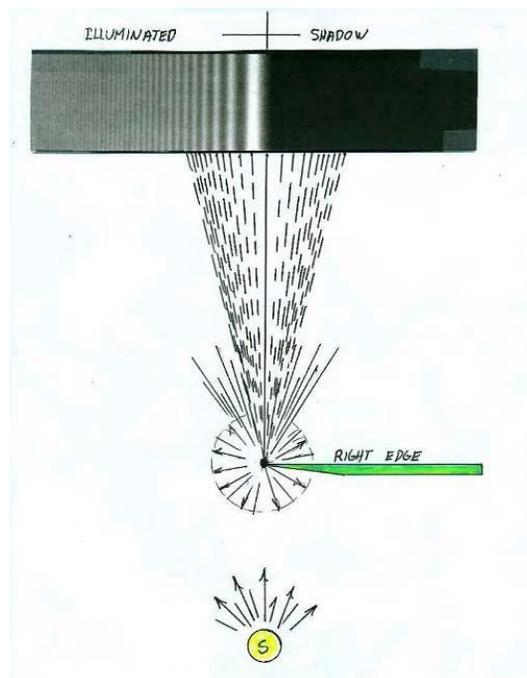
Reference:

<https://sciencedemonstrations.fas.harvard.edu/presentations/edge-diffraction>

Note the diffraction pattern from a razor blade shadow. This seems to be where the interference pattern first occurs at. It only occurs at the razor blade, the image at the screen proves that the interference only occurs at the blade. If you look very close at the blade you will see the light waves building up. The blade causes the photons phase to line up so that collisions can occur.

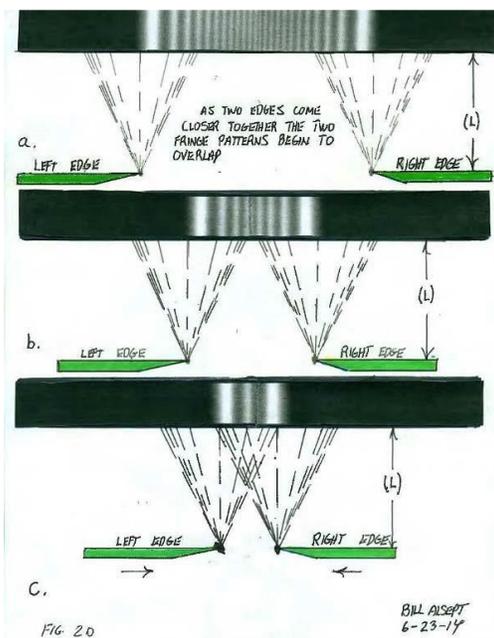


Left knife edge pattern

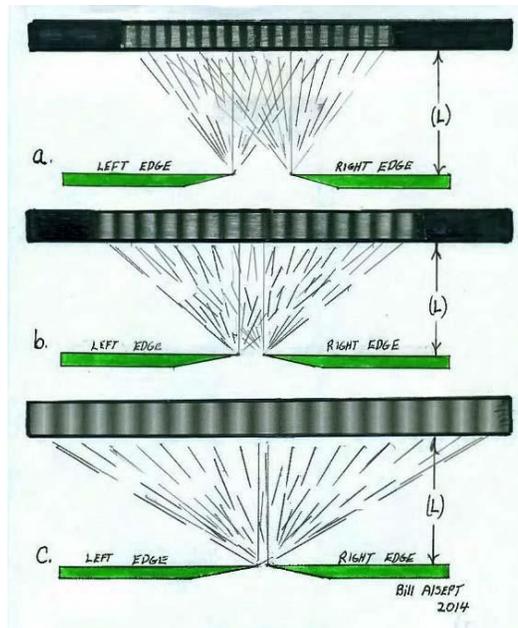


Right knife edge pattern

NOTE: If the light source is a laser it must have a lense to spread the light out



Now slowly the left and right edges are moved closer together to form a slit. Eventually the two single edge patterns overlap enough to begin something new as the spacing becomes even. The result is of course the pattern from a single slit. Shown below.



In my theory unlike Bills, the missing light from the dark regions is being redirected into the bright regions. Both light and dark fringe intensity is graduated. Taken as a whole the dark area intensity should equal the bright area intensity. In this type of experiment there is no way to measure the 4 times greater intensity that can be found with the interferometer which first splits the beam into 2 parts. This means that part of the understanding is lost when only considering the single slit experiment.

DOUBLE SLIT:

When a single photon strikes the edges of a slit it forms a wake much like a torpedo projectile passing through water. This allows the photon to split and pass through both slits at the same time. The collision with the slits forms the wave which extends in all directions. The medium which it passes through is like a net. The net is deformed near large planetary gravity sources. This deformation of the net causes gravitational lensing or bending of light. Gravity helix waves form the field, and the field is pulled inward compressing the elastic field by the inverse square to the distance rule. The resulting deformation of the net causes light to be bent toward the gravity source.

They got the Pilot wave theory reversed. The photon makes a wave within the ether field as it passes through it. The rotating Sagnac interferometer has proved the existence of the ether field. Need Reference:

There is more.