

New Zealand Government Consultation

**Re: Ministry for the Environment. 2018. *Our Climate Your Say:
Consultation on the Zero Carbon Bill***

***Submission of R Z Christensen
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on behalf of

Wild Horses of the Kaimanawas

Whales, Alligators, Monarch Butterflies

Several Species of Bird

Maidens, Babies etc

July 18, 2018

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Preamble

Laws of nature well known by the end of the nineteenth century are fabulously ignored in the common salutations to the 'great' work of the Kyoto Protocols and the Paris Agreement concerning greenhouse gases. As I have outlined already in a submission to the New Zealand Productivity Commission, there is a virtuous, heroic canard on the loose, in the campuses of the world and now in some political circles. That being so, leadership must nevertheless weigh the foreseeable damage if we choose to deal not with the real science but rather with just an illusionists' ersatz. Good on the perpetrators of the canard for rousing the politic to an action stance! Now all we need is some drops of transcendence and sobriety. We must leave behind a stale tale.

Just prior to the last general election in New Zealand, there was an up-and-coming marginal party whose leader, through a trust he ran, employed a certain newly graduated scientist to look into climate change. As it happens the party leader had received a letter from me and had he been the kind of operational leader we look up to in engineering circles, he would have been relishing the opportunity to force the scientist into a debate with me. He would have been replying to my letter with exclamations of glee. "Now I have someone under contract who can be forced to confront the omissions and irreverences! Do come by at your earliest convenience and recite them to us!"

Sadly for his party and biography-to-be, it appeared that the new scientist would instead be employed to assemble ammunition. The party apparently had decided that it would support the drive to reduce our greenhouse gas emissions without first putting on the hat for interpreting laws of nature. It would succour a false friend.

History will bear me out: that party did not cross the 5% thresh-hold and has now lost its wind. The moral of the story might be that if you have a predetermined agenda in approaching a question of science, you are likely to miss the promises. Alternatively the moral of the story could be about a fickle convenience in using horse-muscle evaluations to determine the contents of a horse's saddle-bag.

On page 15 of the Ministry's discussion document, it is stated, "We are fully committed to the emissions reduction goals embodied in the Paris Agreement". While this sentence may have been written in a swelling of pride, it is actually rather a disguised admission of negligence. Moreover the estimates of foreseeable damage due to climate change are more or less indications of the seriousness of that negligence. I have assembled an argument capable of proving that the cause of the climate change lies in the conversion of the energy of tidal motion. Either a predetermined agenda or some inappropriate horse-muscle evaluations could get in the way of examining and developing the argument but such extraneous constraints could be quite terribly counter-productive.

I will address the question of the 2050 target for emission reductions and, of course, my position is that any such target is a folly. The proposal to constrain farming

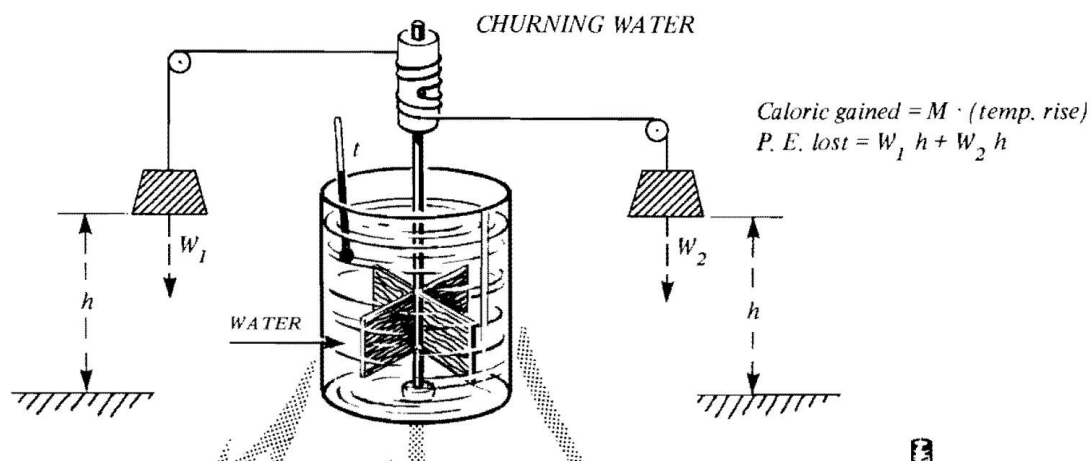
activities by applying such a target, using the law, is particularly offensive. It strikes at the heart of the core values. Real science and evidence cannot be completely ignored simply to appease some Lady-of-Gold official sentiment or some phantom of the Zarathustra ticky-tacky.

The following essay begins with a brief discussion covering some of the science that is being ignored. I then turn to discussing how this will impugn the core values of the law. Finally although it is strictly outside the scope of considerations pertaining to the Zero Carbon bill I discuss a systemic problem that may be giving rise to some inappropriate reliance on horse-muscle evaluations.

This submission is best read in conjunction with my earlier submission to the Productivity Commission¹.

Some Matters of Science

(1) Gravitational Potential Energy



British scientist James Joule used this experimental apparatus in the mid-nineteenth century. Gravitational potential energy is mined from the falling weights and converted into water's thermal energy. Gravitational potential energy therefore appears on the canvas among the energies that are linked through the law of the conservation of energy. Joule's experiments were the inspiration for the discovery of this law of nature. Energy cannot be created or destroyed, only converted.

Joule and other scientists of the nineteenth century were able to calculate the amount of gravitational energy that could be mined from a falling weight by using the work-energy theorem and Newton's law of gravity. This method in science remains of proven utility value even today. It requires the determination of a function for which the first derivative relative to distance is the Newton gravitational force formula. Due to the work-energy theorem, gravitational force can be seen as the first derivative of the gravitational potential with respect to distance.

As the calculus goes, the function we need to find for gravitational energy is not unique. We can add any constant quantity of energy to get another function that also will work according to the criteria. However this lack does not prevent the calculation that we need to do if the motion is given a beginning distance and an ending distance. That neatly applies to the case of the falling weights in the apparatus. In this case, as in many others, the two distances are two values of radius to the centre of the Earth's mass. The constant is canceled out when the pertaining energies are subtracted one from the other.

It has been thought to settle the constant so that the energy at an infinite distance away from Earth comes out at zero joules². This provides that all the other values of the function will be negative energies leading possibly to the misconception that gravitational potential energy does not really exist. (Somehow it will spring into life when derived as a difference?) Today the question is of critical importance - whether that way of settling the constant is appropriate - because gravity is a conservative force and we are relying on it to power up the tidal waters from which energy for the grid is being taken.

The focus is on tidal turbines in particular because the tidal cycle lacks an external contributor of energy unlike the water cycle that pertains to the hydro-electric turbines.

As outlined on company website³, it is possible to settle the constant so that the energy at a point inside the Earth comes out at zero joules. The issue is not so much whether the so-called neutronium point is the right distance away from the centre of mass but rather whether the gravitational energies pertaining to points near the Earth's surface should be framed as positive to reflect the view that we have a reserve in the gravitational potential.

Accordingly there is a category of evidence to be considered. We may wish to affirm that the gravitational potential is a limited reserve, a positive quantity of joules from which, and to which, other energies may be converted. Also we may wish to deny that it is infinite in character. As mentioned below, one of the stand-out pieces of evidence is the relative well-mixing of the tropospheric atmosphere.

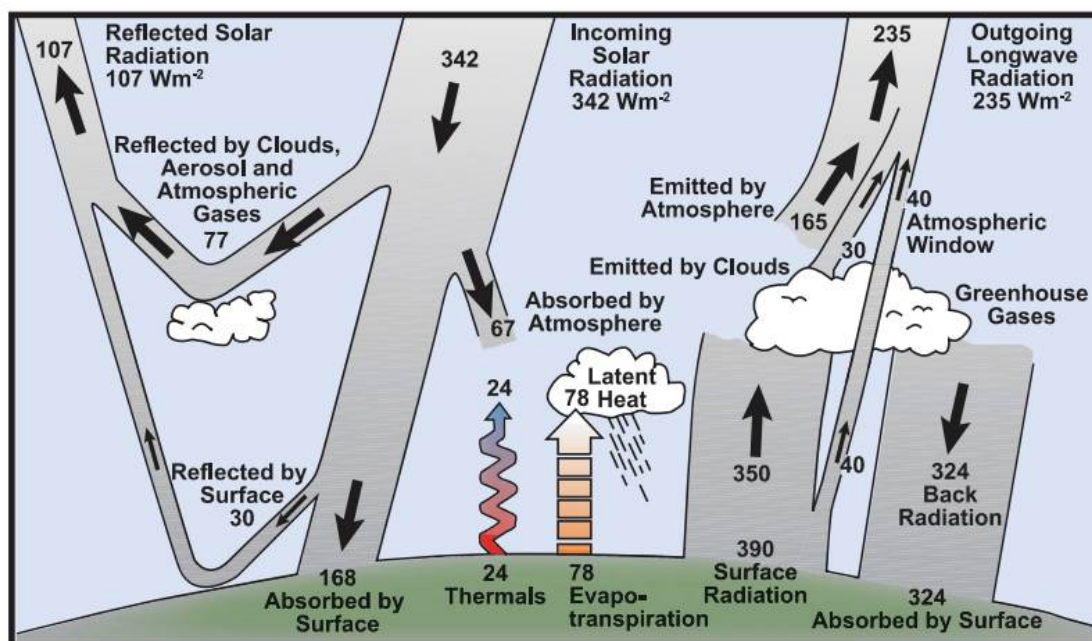
(2) The Surface Equilibrium Equation for our Planet

The greenhouse effect is something that certain models of the atmosphere do predict will occur. These models tend to rely on an assumption about the magnitude of thermal flux given at Earth's surface being the Earth's black-body radiation. That solids and liquids radiate electro-magnetic energy in proportion to the fourth power of absolute temperature is a well-known science⁴. One measures it as a flux coming out of a body, at the body's surface, but there is a factor in the formula that can change from body to body and seems to depend on surface characteristics such as shininess. Possibly it depends on some other influences as well.

One thing scientists could do with the Earth is to divide its surface into types and

by measuring the thermal flux exiting samples of each type we could arrive at an approximate figure for the Earth as a whole. However the models we should question assume that while Earth is in thermal equilibrium, the flux going out of the Earth will match, energy-wise over time, the Earth's received flux of heating energy from the Sun. Instead of measuring the out-going flux, they rely on measurement of the incoming flux. However this equilibrium equation is something that must be rejected unless solid evidence can be found for it.

We may find one example of its application in the diagram on p. 96 of the IPCC's *Climate Change 2007: The Physical Science Basis*. Here the incoming flux has been divided into two components ($324 + 168 = 492 \text{ watts/m}^2$) and the out-going flux has been divided into three components ($390 + 78 + 24 = 492 \text{ watts/m}^2$).



Another example of its application can be found in *An Introduction to Atmospheric Physics* by David G Andrews, published by Cambridge University Press. This textbook was recommended to me by Professor David Frame of the Victoria University of Wellington Climate Change Research Institute. David Andrews is or was a professor at Oxford University in Britain. His account of the theory of the greenhouse effect seems on the surface at least to match the basis on which the IPCC has rallied the world around a greenhouse gas emissions reduction program.

Their rough equilibrium equation must be rejected on at least three grounds. Firstly heat energy received at the surface may be channeled into the Earth eventually finding a repose in such contained internal cauldrons as may occasionally manifest in volcanic activities. Secondly heat energy, especially in a channeling context, may be lost to the energy of chemical bonds by endothermic chemical reactions. Thirdly the distribution of the Earth's mass may be gradually changing over time. Internal heat energy may be driving a slow migration of mass towards the surface whereby for a given rotational speed, in the Earth's spinning,

the rotational kinetic energy will be greater. It is at least plausible.

Good science should then be at pains to rule out the above-mentioned ways for the Earth to act as a giant heat-sink without manifesting any surface temperature rise. However as I suggested in my submission to the Productivity Commission, the intent behind the atmospheric models of the IPCC, as supported by many establishment scientists like the above-mentioned Andrews and Frame, has probably not been a scientific one⁵.

(3) The Water Cycle and the Tidal Cycle

Water is essential to life. Our community of life-forms on planet's surface, in planet's waters, would be lost without it. So the water cycle is a must-have on any respectable curriculum suited to educating a human being. As I remember the teaching, the Sun's heating of the waters produces evaporation and water molecules rise up. As they rise in the atmosphere, energy is donated to the gravitational potential.

The idea that a wholesome unified set of natural laws applies, equally to this case of rising mass in the water molecules as to the case of the rising mass in weights being lifted or stones being thrown, may produce the enchantments leading to many students' alignments in science. One will learn that the water cycle is completed by the raindrop, river and stream, in each case there being a kinetic energy of motion that is derived from the gravitational potential.

In the end, considering the water cycle as many repeats, water molecules rising and falling over and over, the net drain on the gravitational potential is nil. This may be entered as an hypothesis at the secondary school level. Later one may learn to think of it as an upshot of the classification of gravity as a conservative force. When we apply this to the tidal cycle, we find that a tidal turbine represents a net drain on the gravitational potential. This arises because there is no external contributor of energy, like the Sun.

Judging from various responses to letters I have received, the official viewpoint runs that the gravitational potential is effectively infinite so nobody needs to worry. My research suggests this official viewpoint is based only on wishful thinking however⁶.

In a dispute context, such as in the context treated briefly below, in the discussion of a core community value being impugned, it may be that one party has made an allegation that the other has found unsupportable by the evidence. It is proper then for the first party to furnish a rebuttal or a proof. For example, it may be that a supplier's special oil will not sink below the mercury as it should do, thereby rendering a machine kaput. Then in the effort to produce a rebuttal the machine's supplier may discover there was a mistake made in the production. It was not the special oil intended that got inserted, say. The mistake is accordingly to be fixed and the dispute then enters a new, winding-down phase.

One or two officials tried to give me some horse-neighbor rebuttal, but only as parting shot. There was no dispute they could discern, at least none they would confide. In a real dispute context, expectations of some to-ing and fro-ing would have obliged them to weigh my complaints more thoroughly.

If a proceedings of the International Court of Justice were to be confronting the tidal turbine lobby with a proof-of-balancing request, it seems unlikely the lobby would succeed in providing one. There is accordingly a category of scientific evidence. The group appointed under Article 50 of the statute should be capable of weighing it. Of course this is tied up with the matter of the appropriate constant mentioned above. (See section (1).)

(4) Heat and Einstein Symmetry

At the end of the eighteenth century, scientists were ready for the idea that heat is a form of energy. They found it could be produced by mechanical work. As outlined above, this idea eventually led to the experiments of James Joule and the law of the conservation of energy.

In turning to the heat energy in a gas, scientists were able to verify a statistical model in which the mean square speed of the gas molecules, in a certain frame of reference, when multiplied by the gas mass yields a quantity proportional to the gas temperature. Through verifying this model, heat energy in a gas was found to have microscopic components in the kinetic energies of the individual gas molecules. Thus the contribution being made to gravitational potential by a water molecule rising above the Earth's surface, in the first part of water cycle, is now also a lessening of the heat energy in the atmosphere (assuming a wind is not driving it up).

Let us call it 'thermal ground frame'. This nomenclature leaves it open whether the frame for the evaluation of molecular speeds is the atmosphere's centre of mass or whether something else applies. I believe it is a far deeper question than what some writers may have allowed for⁷. At any rate, if there is another frame moving in relation to the thermal ground frame, and should we choose to evaluate the molecular speeds in this other frame, then assuming a random distribution of molecular velocities, more speeds will be increased than decreased by the new frame's relative motion. Therefore in the new frame the atmospheric heat energy will be greater than in the thermal ground frame. If we assume the quantity of atmospheric heat energy is an objective facet of nature then a complementary state is selected for the thermal ground frame, even if we cannot know it precisely. There is no spurious motion belonging to the thermal ground frame, for the purposes of the atmospheric events pertaining.

Let us now consider another entrance for the thermal ground frame. According to the Einstein symmetry principle, considering in general where a light source and an observer are in relative motion, the two possible cases of 'source-receding-from-observer' and 'observer-receding-from-source' are physically identical. In other words, and comparing it to the doppler effect of sound, there is

no medium for the light's propagation.

In sound the medium is air (say) and the doppler effect equation is different as between the two possible cases. In one case, with source receding, the observer is stationary. In the other case, with observer receding, the source is stationary. Armed with the two different equations for the doppler effect, scientists found themselves unable to explain the Ives-Stilwell experiment in which it is light rather than sound being propagated. Einstein symmetry forced them to adopt a kind of in-between equation: one and the same equation for both of the different possible cases.

This has caused much puzzling. Someone soon discovered that you could get the in-between equation from another set of considerations. The Ives-Stilwell experiment features a moving light source and the pre-Einstein or classical viewpoint takes it as a 'source-receding-from-observer' case. If we get out the corresponding equation that applies from wave theory and the experiments in sound waves, we are not yet able to model the exact results from Ives-Stilwell but we're only a factor away, a factor that was dubbed "transverse doppler shift". In other words, one can get to the in-between equation either by applying Einstein symmetry or by assuming the moving light source is subject to an unknown influence that red-shifts its output by the transverse doppler shift factor. This factor is of course dependent on the speed of the source but in what frame should we evaluate this speed? Can we find some additional consideration that would crown the thermal ground frame as the suitable one?

I have found that the Einstein symmetry principle can be dispensed with. For quite a full range of the explanations physicists have been basing on this principle, an alternative paradigm will suffice. An introduction is available through the cartoon of the Permebasin Trust, *Sandy A Gravitational Horse*. Interested readers are directed especially to the note at the end wherein we rustle up an extrinsic classification for the geodesics of General Relativity⁸. This extrinsic classification opens up to a more progressive framework for the law of gravity as found through General Relativity.

To achieve the extrinsic classification, one supposes that the heavens advance in a four-dimensional place. The rate of this advancement is one measure of time. Another measure is provided through General Relativity and the tensor calculus. The GR proper time is now the time of turning or the time of the seasons. Whereas a photon follows null geodesic, there will be no such time of seasons for it but there will still be a rate of advancement in the fourth dimension. Thus we may posit that each geodesic path in space-time, upon its originating empowerment, acquires a geodesic time factor, to wit a rate of using proper time (seasons) in relation to standard time (advancement).

What indeed is the construction of the standard clock? It turns out that upon its elucidation we can see that some additional hidden properties should apply to the thermal ground frame. We may also be ticking off various encounters with phenomena needing an explanation like the doppler effect of light. Where in the

past Einstein symmetry used to beam up from the physics texts, there may in due course appear a different form of beauty⁹.

There remains the detailed construction of the energy-momentum tensor. I have so far been relying on an heuristic argument that this must succeed. The standard time by the new time-keeper is a variable entirely absent from the GR analysis so far. I reason there must be a way of transforming it whereby a coordinate time for the energy-momentum tensor can be derived. In the process of refreshing the underlying paradigm for the energy-momentum tensor, I do believe scholars will be able to adapt ideas from the theory of the standard clock.

In the end, Einstein symmetry can be completely thrown away. I have become quite certain of this. Among other things, this should allow us to close in on the tidal action at an atomic and sub-atomic level, leading possibly to the invention of a new means of containment for plasma chemistry. Of course we are a long way from this invention yet but if we do not embark with the work of investigation and wonder needed, we may never get to think of it at all.

The various considerations that have made me certain about the ultimate fate of Einstein symmetry do form another category of stuff being ignored. Indeed we could probably continue to ignore this and still win a proceedings at the International Court of Justice aimed to turn off a nation's tidal turbines. However on the other hand, this special category could add to the excitement.

(5) The Conversion of Atmospheric Heat

We have seen that the energy contributed to gravitational potential by a water molecule rising as a gas can be counted as energy coming from the atmospheric heat. Thus it may be quite disconcerting to read even the first chapter of the Andrews text mentioned on p. 6 above. Andrews makes no mention of such impact¹⁰.

Turning to the IPCC, let us search the PDF of the above-mentioned tome, *The Physical Science Basis*, using the term *wind*. We may find that the IPCC has wind's energy coming directly out of the latent heat of evaporation. Supposedly upon release of this energy, in atmospheric condensation events, the wind magically acquires more energy. Poof; and hereby we have something that contradicts the fundamental studies in condensation. Really, the energy of the latent heat of evaporation is sensible heat upon its release. There must be an intermediary process if ultimately it will be energy of wind.

What process? We may rate as fairly obvious the prospect that gravity is involved because atmospheric condensation events likely occur as sprinklings of tiny isolated islands. (See the subject of cloud formation in a suitable reference text.) With each such island in the atmosphere, there will be a heat bubble from the release of some latent heat of evaporation and then a rising of molecules in the bubble, a contribution made to the gravitational potential.

Quite a body of evidence is being ignored that this is the way the common sort of wind energy comes into being in the atmosphere. Gravitational potential is the intermediary between atmospheric heat freckles and an energetic wind as in a motion belonging to the bulked-up parcel of a large number of molecules taken together. In turn, while this evidence is ignored, it is harder to see that the relative well-mixing of the tropospheric atmosphere is a likely consequence of a change in character for the gravitational potential. As we cross over the tropopause, we probably need to compute a change of intension for the distance variable that connects us to the centre of Earth's mass in the formula for potential energy. New potential differences at the new remove will not be in energy that converts but merely in the likes of statistics.

(6) NASA and the Purpose of Gravitational Potential

The magic allocated to *wind* in the above-mentioned IPCC tome, may lead one to a startling conclusion. From the conclusion that a canard has been cooked we may step to the likelihood that the National Aeronautics and Space Administration of the United States of America (NASA) has been involved in the cooking. That carries with it another thought. The men and women involved probably were not able to tell everyone on the NASA staff.

It was to NASA websites that the Complaints Committee of Television New Zealand turned when I complained about a news item¹¹ that was aired on November 14, 2017. Citing a narrative from deep within a long webpage about the carbon cycle, they began with the words *NASA explains*. This indicates their tendency to treat NASA exclusively as a bon patron of good science, to shut out any thought that an element of Big Brother may have gotten in there as well. (The canard itself may have been heroic and virtuous but to stick with it no matter what is slightly ruinous. Possibly this arises due to the organisation's internal dynamics whereas not yet all the staff are on board with it.)

NASA's part in the canard introduces a problem. We must conclude that some of the evidence put forward with NASA's blessing, e.g. the evidence provided from pyrgeometers, is inadmissible. So where exactly is the line that separates out the inadmissible evidence from the evidence we can rely on? Evidence pertaining to the likes of atmospheric pressures aloft and nacreous clouds might be relevant to the case against the tidal turbines but we would need to know that it could be relied upon. Such evidences in particular may relate to the link between the loss of gravitational potential since 1966 (date of the commissioning of La Rance tidal turbine electricity generating facility) and the warming of the planet's surface since 1966.

As I outlined in my submission to the Productivity Commission, laypersons (presumably the members of the TVNZ Complaints Committee are examples) may be happy to rest with the explanation that the services of the force of gravity to the atmospheric heat freckles (see above) have been compromised. Scientists interested in my alternative framework for General Relativity may like to go further however. They may learn to see that the gravitational potential energy has a function that in

some ways is more fundamental than its involvement in the likes of tidal waters and heat-freckle clearings.

In one or two places I have put the fundamental purpose as follows: the gravitational potential energy, as in the global taonga, is necessary for the turning of the planet in the heavens. Ultimately this is an unsatisfactory utterance that attempts to compress several chapters worth of technical showing into a few words. In due course, if such a showing can be brought to bear on the deliberations, we may want to reach for the likes of some of the above-mentioned evidences. I hope that then we can know the reliable from the unreliable.

Cleaning-up should be joyous for all but we may need to start in a spirit of forgiveness. If all else fails, some NASA sinew could have their arm gently twisted by the evidence in geographical skewing. Back radiation from the atmospheric greenhouse gases - the Kings-New-Clothes claim that the TVNZ Complaints Committee swallowed, after some imbibing from a NASA webpage¹² - could not produce the highly skewed global warming that we see developing on our planet, even if it were made from the finest fabric in electromagnetic fields.

(7) Some Consequences of Independent Molecular Motion in Gases

Along with elementary studies of the water cycle, one will invariably learn that in gases the molecules or atoms move independently while in solids they do not. Liquids belong to a sort of in-between, in this elementary level account. Actually the molecules in gases do cluster sometimes, typically when electricity is passing, but for most purposes they can be treated as independently moving. Accordingly the question arises as to whether they collide.

The answer to the collision question might be etched on the door to a department of quantum mechanics. It can be a science student's first encounter with numbers that are weird. Given conditions of pressure and temperature around the levels we know near Earth's surface, a molecule of atmospheric gas will collide about five billion times per second. Substitute the conditions at our tropopause and the answer is still weird - about five million times per second. Science has settled on these particular weird answers like it settles most things in quantum mechanics, through testing a statistical model¹³.

The upshot is that an energised molecule of gas is facing a completely different environment than an energised atom in a solid. Can it hold on to its extra energy sufficiently long to sustain the production and release of a photon into electromagnetic radiation? Experiments show that, in a gas parcel at twenty thousand degrees Celcius, the answer is probably in the affirmative. Let us drop the temperature by intervals from some such lofty height and observe how the intensity of the electromagnetic radiation coming out of the parcel falls off. By the time we get the temperature down to the levels we find typical in our atmosphere, an unactivated gas parcel is no longer a radiator of any appreciable strength. It has become instead a target for photo-acoustic spectroscopy, a technique that does not work well at high gas temperatures.

It may be argued indeed that Earth's thermal radiation acts as a kind of activator of the greenhouse gases in the atmosphere. However the lasers used in photo-acoustic spectroscopy must then also be activators. Both produce photons that are absorbed by (say) molecules of the carbon dioxide. The result of an absorption event cannot be much different, comparing the two cases.

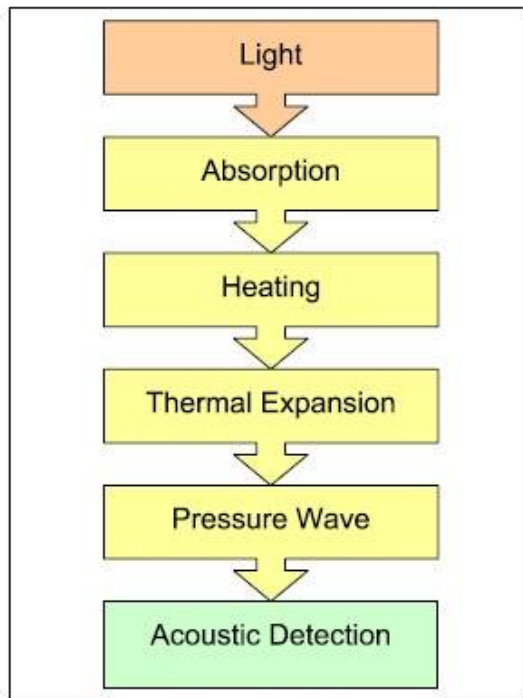


Figure 2. Principle of a photo-acoustic experiment.

This diagram, taken from a paper by C. Haisch and R. Niessner of the Technical University of Munich, indicates that the result is heating. One theory runs that the molecule energised by an absorption event cannot sustain its energetic state while undergoing collisions with its neighbours at the weird rate of the statistical model that applies to its parcel¹⁴. So it loses energy in the collisions and this appears as heat energy.

As the greenhouse gases are only present in trace quantities in the atmosphere, we can assume the absorption events are sufficiently isolated to make the corresponding heat bubbles equivalent to the heat bubbles produced in condensation events. In other words, we may expect the heat energy introduced by these events to be processed through the force of gravity and turned into latent.

The theory of atmospheric back radiation is thus very problematic. (Its influence may be seen in the diagram on p. 6.)

Some observers have attempted to justify the theory of back radiation by attributing a loose meaning to the word *body*. A somewhat many-faceted example appears at the website www.scienceofdoom.com

On the face of it, disregarding omen in domain name, this website is a monumental tribute to the virtue of the crew who have brought the greenhouse effect into the world. The following quote from the conclusion section at the bottom of *Part II of The Amazing Case of Back Radiation* illustrates, as far as I can tell, an underlying foot-put-in-the-mouth.

“Why does the atmosphere radiate? Because it is heated up via convection from the surface, solar radiation and surface radiation. The atmosphere radiates according to its temperature, in accordance with Planck’s law and at wavelengths where gas molecules are able to radiate.”

Planck’s law as it would appear to be construed by the author of the website is

entirely a fish out of water in this context. Gas molecules move independently of each other and this does not apply to the constituent particles of any object to which Planck's law is applicable. It is by means of the order in objects of solid or liquid nature that external surfaces are defined by the objects and Planck's law can be applied to them. It concerns a measurement of the electromagnetic flux appearing at the surfaces, heading away from the body as defined, into the surrounding spaces.

(8) A Most Peculiar Prescription

In 2012, the *Opto-Electronics Review* published an interesting article by A. Rogalski of the Institute of Applied Physics of the Military University of Technology in Warsaw, Poland. Entitled *History of Infrared Detectors*, of course it has many references to bolometers¹⁵. There are many other types of detectors discussed in this article but not one single mention of a pyrgeometer. On this basis, and upon taking into account the novelty of the radiation balance measurement incorporated in the design, the pyrgeometer can be suspected. Putatively it is not a bona fide scientific instrument but something brought into existence for a marshaling of the troops.

The introduction section of the Kipp And Zonen Instruction Manual for their CGR 4 pyrgeometer¹⁶ states as follows:

“According to the World Meteorological Organisation (WMO) a pyrgeometer is the designated type of instrument for the measurement long-wave atmospheric radiation.” (The preposition “of” after the word “measurement” is indeed missing from the Kipp and Zonen statement.)

Possibly it is a result of such designation that the back radiation speil at the above-mentioned www.scienceofdoom.com has one table 8.4 quoted from the illustrious seeming Global Energy Balance Archive. Incoming longwave radiation is tabulated as something measured by “pyrgeometer, upward-facing” and the data volume has been circled in red.

Just because the attestation of substantial atmospheric back radiation, by the IPCC and by other mysterious benefactors, is an extraordinary thing, going against the grain of other knowledge, it does not mean that the attestation is untrue. However if good scientific method is followed, the measurement and detection of the radiation will be performed not just by one type of instrument but by all the types that have been determined to be competent. The designation of one type of instrument by the WMO is a very confounding thing. It lends weight to the idea that the WMO and the IPCC have cooperated in stitching together a canard.

That the designated type of instrument does not appear in a good history of infrared detectors is then a whiff of confirmation that we have a canard, rather than keen good science, in the position of the IPCC.

It surely cannot be too difficult to put a military-grade bolometer to the plough

whence to add to the excitement that may now attend. However if the remedy discussed below can be accepted more or less in its fullness, then the junking of the pyrgometers can play second fiddle and its sound may be lost.

A Core Value in Dignity Being Impugned

In paragraph (1) of my submission to the Productivity Commission I somewhat compressed what now I will endeavour to explain more clearly. For convenience sake, let me first repeat the paragraph.

(1) It is fair and sometimes necessary in commerce to withdraw from a contract if one discovers that one has been induced to enter into it by a material misrepresentation of the facts. The first maxim of equity involves a balancing of wrongs and remedies and there is no reason why New Zealand's involvement in greenhouse gas emissions reductions should not be reviewed in the light of the principles of equity.

In an imaginary case pertaining to misrepresentation, a shipbuilding company orders and receives a ship component from a supplier. The boss at the shipbuilding company is married to a salaried high-flyer, a riser-of-the-ranks in the supplier company. The component is received at the shipyard and inspected by engineers who declare it to be junk. Does the shipyard manager reject the device for want of a performance warranted or do they spare the boss from being torn by conflicting affections, i.e. do they pretend that it is fit for service, say nought and cross fingers?

It can be quite critical in engineering, construction and medicine at least, to drive certain contracts into a state of dispute. In recent times the President of the United States of America has joined with Professor William Happer of Princeton University and certain United States Supreme Court judges to declare that there is no truth in the theory of the greenhouse effect. Accordingly every nation, including New Zealand, should be now driving the Paris Agreement and the relevant Emissions Trading regimes into appropriate states of dispute. However it appears we intend to deal with this by applying an exotic form of hysteria instead.

Will the boss of said shipbuilding company handle the dispute that is dealt to him by raving madly at his wife?

The fortunate thing about New Zealand's position is that it can, rather affordably, have to hand a key to some global calming-down. Surely that key lies in the proof that tidal turbines need to be disempowered and dispensed with¹⁷. Through the argument one can arrive at an wholistic scientific understanding of the globe's climate problem and then more easily side with Happer and Trump on emission reductions. By blocking the come-uppance of the argument, by promoting a wooden-headed pursuit to Zero Carbon instead, the government may be like the wretched partner in cards who though they do have the winning card in their hand refuse to play it and win the game for the team.

People are turned into statistics by the crunches of an hysteria. The more this

happens, the more the law may need to have a momentous referral in the offing to the first maxim of equity. Some statistics that were once productive and happy souls are so-many wrongs done, in a sense.

So let's to the remedy chest because the viability of communities is at stake.

Article 50 of the statute that governs the International Court of Justice seems tailor-made for the dispute we have on our hands concerning the probable cause of global climate change. Only a nation state can take a proceedings to the International Court but that just means that the government has a role to play. It cannot in all fairness to the citizens simply close its official mind.

If the government arbitrarily rejects its role in the remedy then surely we cannot pass muster in the matter of the law's alignment with human dignity. Surely there is a surrender of the human dignity in a wooden-headed pursuit that has no time for careful scientific analysis and hence no time for the offences' remedy.

An Underlying Systemic Problem

In an Australian National Press Club Debate of 2011, between economist Richard Denniss and the British Lord Christopher Monckton, the economist proffered an analogy. A person with an unknown illness is taken around to various doctors of medicine. They all concur on the one diagnosis. What can a poor nation like Australia do, except to go along with such a diagnosis? Reading the illness as climate change and the patient as the planet, Australia's leaders must surely copy the diagnosis of countless experts in atmospheric physics. This was the message of Richard Denniss. Hence of course, according to his way of thinking, it would be immoral for Australia not to join the rest of the nations and aim for some reductions in greenhouse gas emissions¹⁸.

In this analogy the physicists are portrayed as people practising a known art of cure but the planet has not had the global warming problem before. There is no art per se. There are merely thinkers and researchers.

In a thinking that seeks to apply the laws of nature to some unresolved matter, calculus is an important tool. However there are two ways to teach and learn calculus and they are somewhat fundamentally different. Unfortunately the popular school curriculum, going back to the late 1960s or so, has dallied in a way that introduces a profound problem. More or less, there may exist a background conflict between a giant gymnasium expansion project and the wider interests of a community.

The gymnasium expansion project is (whimsically) a community's educational game from which doctorate students do emerge. It houses experts in various academic disciplines but will sometimes fall short of answering to the core community values because such disciplines will have a way of growing from internal types of impetus.

In relation to the teaching of calculus, the way that preserves and relies upon the intensional qualities of the core symbols is much more likely to yield a student informed about the laws of nature as known through calculus. The other way involves using a derivational axiom system to provide the connections. In its adherence to this second way, the modern curriculum typically produces a scholar who, while they may warrant an office in the gymnasium, is not necessarily well-equipped to think broadly.

Of course, laws of nature do abound when the topic on which we must think is a practical one, like the global warming problem. Hence it would very appropriate if university departments of mathematics and physics were to acknowledge the value of generalists on the staff. In concept a generalist is a person who does not have a silo of speciality. They should be sufficiently competent to prepare and teach courses at first-year or second-year level in a wide range of relevant topics. The elementary calculus as known through fully intensional symbolism and with *reductio-ad-absurdum* proofs could be something to be taught by such a person. Possibly they could go back to some nineteenth-century textbooks to connect. However such calculus is inherently simple enough that one could well be giving it to third, fourth and fifth form students at secondary school.

The conflict between the gymnasium project and the community interest centres around this question of whether a sprinkling of the intensional calculus in the low and middle years of secondary school must be sacrificed, ruled out, because the gymnasium prefers rather to covet its calculus and draft the students as a neophytic corps. If we suppose for the sake of argument that the third, fourth and fifth-formers do have the calculus, then the plebiscite will shape up as better prepared to thumb nose at a loose assumption behind the Richard Denniss analogy.

If there is no prior art, then let us all have a little think but Denniss assumes we are not capable and need the experts to do it all.

Turning back to New Zealand, in a book called *Get Off the Grass* by our late physicist Sir Paul Callaghan and his co-author Shaun Hendy, there are four imperatives distilled, applying to the prudent way forward, from around 2012. Imperative number three is “connect, collaborate and open up” (quote). If we are to take this imperative seriously then, if the heart of a matter is a community problem needing careful thought, our experts in the field should be focusing first on elucidation and only second on thinking the problem through. We surely cannot believe that sufficient elucidation is done on the basis of some humming piped through the walls of an information silo. The experts will have a party and dream?

On page 15 of the discussion document, it is stated that (quote) “Greenhouse gases trap warmth from the sun and make life on Earth possible. Without them, the surface of the planet would freeze.” Is this a humming sound piped? It will be sad refrain to put with this if we go forward unseeing on the wave to reduce the world’s greenhouse gas emissions whence to think there has been a best-practice cure done.

Notes

1. The URL for submission to Productivity Commission follows:

<https://www.productivity.govt.nz/sites/default/files/sub-low-emissions-185-the-permebasin-trust-346Kb.pdf>

A quick way to get the submission into a browser may be to search in Google (say) for *canard of pyrgeometer*.

2. Physics Parts I and II, Wiley International Edition, Robert Resnick and David Halliday (Library of Congress Catalog Card Number: 66-11527) section 16-9, pp. 406 - 409

3. The elementary picture we paint on our website, in checkpoints 3 and 4, two pages, disregarding the cartoon of the Permebasin Trust, could easily have been a hypothetical notion to many scientists at the turn of the nineteenth century into the twentieth. Our neutronium point may not have been given that name, of course. In this picture, the gravitational potential energy of a rocket (say) is set to rise and rise as the rocket heads away from Earth, but only up to a point where it undergoes a change of identity and is then effectively left behind. The underlying premise is that, for a rocket in general, the convertibility of the gravitational potential energy will relate only to the calculations pertaining to its fuel supply. It is an empirical question whether or not fuel energy must continue to be supplied at all times when gravity is meant to be doing negative work on the rocket. (See <http://www.skybicycle.biz/chkpoint3.html>)

4. Physics Parts I and II (as before) sections 47-2 and 47-3. In 1900 Max Planck found a better formula for the spectral radiancy of a cavity radiator. Later this formula was applied to a body more generally speaking, in particular to its external surfaces, in association with a surface property called emissivity. If we integrate the formula between two points in the wavelength spectrum, after factoring in the emissivity coefficient, we obtain a quantity denominated as power per square area - in flux units. Where is the area in a gas? It would be rather a wild leap to assume without an investigation that any abstract plane in space will do.

5. Paragraphs (14) and (15) of my submission to the Productivity Commission are especially relevant. If we imagine an historian of the future - there has been a canard overcoming, say, and it is some years in the rear-vision mirror - can we not see a person who has concluded (with a sigh, possibly) that Mankind would have been lost without the canard? Therefore the more deliberate and cunning the canard was, the more medal-worthy it was? The historian may still be thanking their lucky stars, however, that the canard was eventually seen through so that a win for the team, so to speak, was able to be scored.

6. Invariably people point to tidal friction in order to justify the view that tidal energy is effectively infinite. However zero officials have shown me any willingness to consider that the energy of tidal friction comes exclusively from a planet's rotational kinetic energy. Actually gravitational potential can be perfectly conserved except when tidal motion energy changes from being translational to being in the form of rotational kinetic energy (as by turbine, for example). The alternative account of tidal friction seems to fit the evidence well.

7. There is a very interesting paragraph in the middle of page 580 of the Physics text quoted above. It begins by explaining that (to quote) "the temperature of a gas is related to the total

translational kinetic energy measured with respect to the centre of mass of the gas". The author then goes on to offer something of a lame defence for leaning on the centre of mass. True, the temperature of a gas in a container does not increase when we put the container on a moving vehicle. Nevertheless someone with an alternative derivation for the thermal ground frame can demand that we separate out a molecule's energy due to the velocity of its container. Heat is only a contributor to the kinetic energy of molecules once their container puts another contribution in.

8. The cartoon can be read from <http://www.skybicycle.biz/sandy.pl>

9. The new paradigm covers the gravitational red shift and the doppler effect by means of a model for photon generation in which an appeal is made to the idea that the photon's energy will exist in motion in the atom (supposedly in the electron cloud) for the term of a shaping session before it is dropped. Relativistic mass follows out of the theory of the standard clock, as does the mass-energy equivalence formula. Schrödinger's famous variation problem is spared its squeezing into a shape for Lorentz transformation invariance. The wave from this problem emerges as a real number related to the fundamental purpose I have discovered for the gravitational potential energy (see p. 11). This list still leaves off one or two items like time dilation but I see nothing yet to threaten the paradigm. Rather to the contrary, it seems to reverberate very strongly with some of the recent frontier discoveries.

10. See *An Introduction to Atmospheric Physics* by David G Andrews, Cambridge University Press, ISBN 978-0-521-87220-1. The model outlined in chapter one is rendered very abstract by its failure to incorporate the gravitational potential energy of the atmospheric molecules. It also suffers from the roughness, pertaining to the equilibrium equation for the planet's surface, that I have discussed above. (See p. 5) Later in the book, Andrews uses a simplified view of the radiation that he proposes is generated in the atmosphere. He sees the quantisation of a molecule's excited states as prefaced on a vibrational incapacity rather than upon the incapacity of the photon generating system. What makes the subject matter of heat capacity in gases so complex is that energy can probably be coming and going a bit from molecular kinetic energy into molecular vibrational energy. (See notes 14.3 and 14.4 below.)

11. The One News bulletin of 14 November, 2017, discussed the effect of an expanding Chinese economy on global CO₂ levels. In the story from the BBC, the BBC reporter said *'this new research finds that more and more carbon dioxide is being released from power stations, factories and different forms of transport and this matters because the gas traps heat in the atmosphere'*. Probably the Complaints Committee read my *Open Letter to Our Childrens' Trust*, (available from the Morepork's Newsroom, www.skybicycle.biz) discussing the application of the knowledge of photo-acoustic spectroscopy. In the end they focussed on the claim of back-radiation. Indeed who would know? Such Kings New Clothes would not be visible to the unassisted ordinary human being, whether real or not. I was disappointed they could not look at the strong geographic skewing of the global warming whence to decide they were backing a sick horse.

12. The article cited by TVNZ was derived from the domain earthobservatory.nasa.gov. The complaints committee quoted two very strident and unwavering paragraphs, including a lauding of the greenhouse gases with (quote) *'Without the greenhouse gases, the Earth would be a frozen -18 degrees Celcius'*. The proof is in the pyrgeometer, one supposes. How else was it ruled out that conduction and wind might do the trick of the warming blanket? Is there

a bit of crowing going on, and has the sound been distracting to the author of the webpage? Could they have forgotten something in balancing?

13. See, for example, *Introduction to Atomic Physics*, by S Tolansky, 1942, Longmans, Green and Co. In discussing the cluster formation that occurs when electricity is passing in a gas, the author remarks that ‘at normal pressure a single molecule can make as many as 10^{10} collisions during the two seconds’. The calculations behind such figures are treated in the textbook mentioned at note (2) above. The treatment in section 24.1 begins with the question of molecule’s mean free path.

14. The Haisch and Niessner article was published in *Spectroscopy Europe* 14/5 (2002), pp. 10 - 15. Near the end of the introduction section, the authors state ‘*lasers are the preferred excitation source nowadays for two reasons: (i) the PT (photothermal) signal, to a first approximation, is proportional to the temperature rise in the sample and thus proportional to the absorbed energy ...*’ In moving so quickly from the temperature rise to the absorbed energy, the authors have confirmed the impression I gained from the Physics text mentioned at note (2) above, to wit: In so far as there might be a statistics of war-by-battering it predicts that only very few molecules can survive with their vibrational excitation intact at room temperature and ordinary pressure. The introduction section of another paper, as cited below, deals with this competition in an excited molecule between the process of fluorescence and the process of state depopulation via molecular collision. There is a process of fluorescence, but it will take time, like the shaping session mentioned at note (9) above.

14.1 *Photo-Acoustic Spectroscopy in Trace Gas Monitoring* - paper by Frans J.M. Harren, Gina Cotti, Jos Oomens, and Sacco te Lintel Hekkert in *Encyclopaedia of Analytical Chemistry* R.A. Meyers (Ed.) pp. 2203–2226, copyright John Wiley & Sons Ltd, Chichester, 2000.

14.2 The authors of the encyclopaedia article indicate a time-taking in the order of one hundredth of a second for the process of fluorescence. (They note the length of time may vary with environmental conditions.) Given such molecular collision rates as are widely accepted to apply, the could-be-fluorescing molecule must sustain a very large number of collisions, even though the time-taking to us humans may seem quite short.

14.3 With reference to note (10) above, one may indeed wonder: is the quantisation in molecular radiation due to the molecule’s vibrational incapacity or instead to a constraint on the photon-dropping mechanism? If the latter then a very significant portion of the collisions at low temperature will likely take some of the excited molecule’s vibration energy away. This makes it easier to understand how photo-acoustic spectroscopy works. However to be fair, one must entertain the idea that only a portion, less than one hundred per cent, of the excited gas molecules have their vibrational energies sucked away into heat. Possibly there is a remaining portion that give up their vibrational energies to radiation. If we have true vibrational quantisation in an excited molecule, there could be a statistics of war wherein the battered have an odds of surviving.

14.4 The shaping session mentioned at note (9) above in the case of an

emission associated with change of an electron's energy level in the atom must deal with a quantity of energy that has been determined by the atomic system. In the case of molecular fluorescence one may posit instead that the frequency of molecular vibration exerts a dominating influence, preventing the dropping system from developing any other beat. The dropper must wait until the energy builds because its beat development is defeated.

14.5 Use of 'military-grade' instruments should be standard practice in fluorescence studies. Have there been any that might shed light? I am working on an hypothesis that atmospheric back-radiation was unheard of before (say) 1984, the reason being that studies of earlier times were thought settling of some of the basic questions about the statistics of the battering war on excited gas molecules. My thinking is that modern Man suffered from an information overload. Into that groaning there was an obstinate, unfounded doctrine inserted. Those in the know found themselves forced to the outside. Feelings of resignation were mixed with a new enthusiasm. Campuses were down-converted. Possibly I have not yet assembled enough evidence for this hypothesis but surely I have made a case that science is not yet being open with the general public. Possibly it is not being open with itself. Science may be metamorphosing.

15. Opto-Electronics Review, **20**, no. 3, 2012, pp. 279 - 308

16. On the subject of pyrgeometer innards, both Apogee Instruments and Kipp & Zonen have recently had pyrgeometers for sale. The relevant owners' manuals could recently be procured online. The explanations found in these manuals do not satisfy me that the instrument is sound in concept. The concept of a difference between two signals seems to have been imported from the realm of electronics and voltages into the realm of radiant energies and thermal detectors without sufficient basis.

17. There are some indications available from searching online that, globally speaking, the tidal turbine lobby will be caught holding on to flimsy straws. Of course this is the sort of portent that could well be firmed up by some state-level enquiry prior to the launching of a proceedings. Among the indications I found was the EDF Group's web page on tidal power.

<https://www.edf.fr/en/the-edf-group/industrial-provider/renewable-energies/marine-energy/tidal-power>

17.1 The stated EDF posture (on web page) in relation to energy balance accounting was - "tides are a perfectly predicable phenomenon (unique for a renewable energy source), they are inexhaustible and carbon-free, and they have low environmental impact" (Quote)

17.2 We should be careful to distinguish between tidal recurrence (it is predictable that tides will recur) and the fitness of the energy extraction (it is not predictable that the extraction can be done without ill effects).

18. Thanks to YouTube