Embodied Words: Physical Consequences.

Every word was once a poem. Every new relationship is a new word.
Ralph Waldo Emerson

In some traditional quarters cut off from current pedagogic thought, there remains a prevalent assumption that singers are incapable of understanding the components of voice production. The teacher's job then becomes a mystical search to describe those functions. What are the "practical ways" the questioner raises? "Frontal placement," "billowing, rosy clouds," "bubbling fountains," "the mask," "up-and-over," "projection," "head voice," or other imprecise terminology.
Richard Miller "Solutions for Singers" p73

…metaphor is not a decorative turn, applied on top of the serious business of language in order to entertain: all thinking, most obviously philosophical and scientific thinking, is at bottom metaphorical
Iain McGilchrist. "The Divided Brain and the Search for Meaning."

This paper has demonstrated that understanding metaphors…activates motor representations online, which modulate performance on a concurrent motor task (Santana 2011)

…Then I remove my flesh and hang it over a chair.
I slide if off my bones like a silken garment.
I do this so that what I write will be pure,
completely rinsed of the carnal,
uncontaminated by the preoccupations of the body.

Finally I remove each of my organs and arrange them
on a small table near the window.
I do not want to hear their ancient rhythms
when I am trying to tap out my own drumbeat.

Now I sit down at the desk, ready to begin.
I am entirely pure: nothing but a skeleton at a typewriter…
From *Purity* by Billy Collins

Singing Words.

The use of metaphor in vocal pedagogic literature and discourse is sometimes criticised. Scientific language carries authority, bringing apparent clarity and definition to the art of singing: metaphor, in contrast, can seem weak and vague. Is this how it should be? Is metaphor imprecise? Is scientific language clear and neutral?

These questions mirror a vivid debate that is taking place in linguistics. This article presents that debate, and surveys some of the fascinating research results that it has inspired. The results offer much to the singing teacher, as they explore the physical effects that language has on the body.

The Battle Ground.

How do we understand what someone is saying to us?

Some linguists have sought to explain language as a purely *mental* phenomenon, unique to humans. On this view, crudely, words are learnt, analytic symbols, looked up in an internal dictionary, which refers us to their pure and precise meaning. This process is supposed to take place in "cognitive centres" of the brain, largely sealed off from emotion and the influences of the body.

Over the last thirty years, however, views of this sort have been challenged. Extensive scientific research is suggesting that language relies for its comprehension on our lived physical, emotional and social experience. This *embodied* view emphasises the crucial role that the body and its physiological processes play in allowing us to share meaning and understand words. The view has a long philosophical history, and is now finding extensive scientific support.

Critique of Pure Reason.

Left behind more than three decades ago is the old idea that cognition uses the abstract manipulation of disembodied symbols that are meaningless in themselves but that somehow constitute internal "representations of external reality" without serious mediation by the body and brain. (Lakoff 2012)

The view of language as the manipulation of platonic and pure tokens, referring in some way to external reality, and taking place exclusively in the higher parts of the brain responsible for cognition, is being questioned. So too is the idea that human thinking is somehow computational or algorithmic:

Science has changed many of our dearly held and commonsensical (but incorrect) beliefs. For example, few still believe the world is flat, and few still believe the sun orbits the earth. Few still believe humans are unrelated to the rest of the animal kingdom, and soon few will believe human thinking is computer-like. (Glenberg 2013)

The idea that language is an exceptional ability unique to humans, different in kind from anything found in the rest of the animal kingdom, is also under scrutiny:

Another cherished aspect of human exceptionalism is that our thinking is special. As Mahon (2014) has put it, "it is the independence of thought from perception and action that makes human cognition special" One goal of the embodied approach to cognition is to show that this idea, although cherished and seemingly obvious, is also wrong. (Glenberg 2013)

Eager to replace symbolic and computational approaches to thought and language is an *embodied* perspective, that seeks to put us firmly back in our animal and physical boots.

Physical Meaning.

What does it mean for language to be embodied?

Common sense, as well as some formal analyses (e.g., [1,2]), suggests that language and action are distinct mental processes. In contrast, the embodied cognition framework highlights the importance of bodily processes, such as action, for all cognition [3]. According to this framework, cognition is 'grounded' in sensorimotor activity (see, [4-12]). That is, sensorimotor processing underlies and constitutes cognition. (Guan 2013)

In other words, parts of the brain responsible for movement, and that process sense impressions, are engaged when we understand language.

What is remarkable is that the same neural circuitry used to run our bodies physically also structures our reasoning processes about all events and actions, not just physical ones, but abstract actions and events as well, such as abstract discourse about international economics (Narayanan, 1997a,b). (Lakoff 2012)

The parts of the brain that guide our movement and action in the physical world are also crucially engaged in our reasoning and thought. Even the most abstract of ideas is grounded in this way. It has been found that when we learn words for the first time, as toddlers, their sounds become linked in the brain to those neural networks responsible for movement:

auditory verbal information during the action learning process, also lead to the formation of synaptic connectivity between neurons in specific motor and language areas (Kaduk 2017)

On the embodied view, words are then sounds (or pictorial symbols) which acquire at least part of their meaning by being linked to original, direct sense-impressions, to movements of the body, and to internal perceptions of emotion. When we hear those sounds again, the associated neural networks are reactivated, simulating the original experience, and that simulation is a component of what understanding is:

language comprehension results when the linguistic symbols drive activity in sensorimotor and emotional systems into states that are homologous to the states engendered by literal experience in the situation described by the language. (Guan 2013)

To understand is to re-perceive:

understanding a sentence suggesting a particular perceptual feature for an object calls on the same neural and bodily states involved in real perception of an object. (Horchak 2014)

To comprehend is to simulate:

When applied to language, embodied cognition views claim that when we understand words, the same sensorimotor areas are recruited as for interacting with the objects and entities the words

refer to. Similarly, when we comprehend sentences, we internally simulate the state of the world the sentences describe (Zwaan, 2004). (Jirak 2010)

Words ready us for action, *before* we are conscious of their meaning:

Our results also converge with other results suggesting that motor activation induced by action verbs is an early and automatic process that cannot be explained by conscious processing of task requirements (Andres 2015)

The debate over the nature of language is by no means over (see Goldinger 2016) but the fascinating results of the experimental research into this embodied view of language stand, and offer much that can inform a teacher's use of language in the singing studio.

The Physical Impact of Words

The comprehension of words has a physical effect on us. Here are some fascinating examples of those effects that have been found by researchers:

Just reading the words *lick*, *pick* and *kick* causes the parts of the brain responsible for tongue, finger and foot to prepare for action:

action words referring to face, arm, or leg actions (e.g., to lick, pick, or kick), when presented in a passive reading task, differentially activated areas along the motor strip that either were directly adjacent to or overlapped with areas activated by actual movement of the tongue, fingers, or feet (Hauk 2004)

Hearing words with strong rolled *r*'s in them causes the brain to prepare to move the tongue:

Here, by using transcranial magnetic stimulation (TMS), we demonstrate that, during speech listening, there is an increase of motor-evoked potentials recorded from the listeners' tongue muscles when the presented words strongly involve, when pronounced, tongue movements. Although these data do not prove the motor theory of speech perception, they demonstrate for the first time that word listening produces a phoneme specific activation of speech motor centres. (Luciano Fadiga)

Comprehending the word "smile" involves the physical simulation *of* a smile. The brain prepares to activate the muscles involved (compare this with the Botox example below):

language comprehension (e.g., understanding the verb to smile) leads to physical simulation of the events to be comprehended. In fact, this hypothesis posits that such simulation is necessary for comprehension. We have shown that such simulation occurs during language comprehension and, further, that it shapes people's judgments. (Foroni 2009)

Insulting someone is faster and more effective the more directly their body is insulted:

Previous research has found that more embodied insults (e.g. numbskull) are identified faster and more accurately than less embodied insults (e.g. idiot). (Benau 2017)

Speaking about immoral actions makes people want a wash:

Those who recalled an unethical deed were more likely to take the antiseptic wipe (67%) than were those who recalled an ethical deed (Zhong 2006)

Hearing the name of an object causes a mental preparation to grasp that object.

The results of this experiment clearly indicate that when the names of manipulable objects were presented as auditory primes, action representations corresponding to the functional grasps associated with those objects were evoked, (Masson 2008)

Many of these physical and neurological effects happen *before* conscious comprehension has taken place. We don't understand and then mimic: we mimic, and then understand.

Bodily State affects Understanding.

The research above shows that the comprehension of words exerts a physical impact on our bodies and brains. In its turn, the state of our body affects the way in which we are able to comprehend what we hear or read: there is a two-way street of influence between body and word.

Here are the some of the results of research into how our bodily state affects our comprehension.

Left or Right.

Body posture influences quantitative estimates. We predicted that people would make smaller estimates while leaning slightly to the left than they would while leaning slightly to the right, and this prediction was borne out by our results. Remarkably, our manipulations of posture influenced participants' estimations even though participants were unaware of their true posture. (Eerland 2011)

Because we tend to learn our numbers on a left-to-right line, if an observer is tilted imperceptibly to the left, they, on average, guess the Eiffel Tower to be smaller than those who guess whilst leaning slightly right.

Concepts of *time* also acquire some of their meaning through reference to sides of the body. The past is felt to be on the left, the future on the right. This physical foundation for time then materially affects how we hear and value words, depending through which ear we hear them:

participants judged future words to be louder on the right channel more often than past related words.(Lakens 2011)

Words played at equal volume to both ears through stereo headsets were perceived more loudly on the right channel if they related to the future, even though there was no difference in volume. More startlingly, perhaps, *all* words heard in the right ear are understood more effectively than those in the left, perhaps because we think about the future with more urgency and importance than the past:

verbal information presented to the right ear has been shown to be processed more efficiently than verbal information presented to the left ear (Belin et al., 1998; Kimura, 1961). (Lakens 2011)

Perhaps it is worth ensuring that students always listen to you predominantly through their right ears.

Up or Down

As well as number and time, our physical experience of space seems to ground our understanding of other apparently abstract domains of meaning. Our sense of "up" and "down" provides a reference for a wide variety of abstract terms. Status is an obvious one:

when participants were asked to judge which one was the more powerful of two groups (e.g., master or servant), their response was faster if the word for the powerful group was in the upper part of the screen than if it was in the lower part. (Santana 2011)

There was an interference effect, slowing comprehension, if the "up" or "down" metaphorical basis of the word was at odds with its vertical location on a screen.

A number of other apparently abstract concepts have been shown to rely to some extent on a physical meaning founded on our spatial awareness:

our findings converge with the growing number of psychological experiments that suggest mental representations of physical space underlie our conceptualizations of abstract domains, including time, number, and social status (Casasanto)

For singers, "up" and "down" is the metaphoric basis for musical pitch. This can have unhelpful physical consequences. Replacing vertical metaphors with horizontal ones (line, say) can improve performance.

Warm Drink, Warm Heart.

Holding a warm drink increases the likelihood of generous behaviour:

participants who briefly held a cup of hot (versus iced) coffee judged a target person as having a "warmer" personality (generous, caring); in study 2, participants holding a hot (versus cold) therapeutic pad were more likely to choose a gift for a friend instead of for themselves. (Williams 2008)

Carrying Weight.

A sense of physical weight is linked to a sense of importance. Simply holding a heavier clipboard when completing a questionnaire increased the priority given to *value* and *complex thought*:

Holding a heavy clipboard increased judgments of monetary value (Study 1) and made participants consider fair decision-making procedures to be more important (Study 2). It also caused more elaborate thinking, as indicated by higher consistency between related judgments (Study 3) and by greater polarization of agreement ratings for strong versus weak arguments (Study 4). In line with an embodied perspective on cognition, these findings suggest that, much as weight makes people invest more physical effort in dealing with concrete objects, it also makes people invest more cognitive effort in dealing with abstract issues. (Jostmann 2009)

Holding weight also increases judgements of distance, importance as well as, surprisingly, improving our ability to learn:

Carrying weight makes hills seem steeper and distances seem greater (Bhalla and Proffitt, 1999; Proffitt et al., 2003). Additionally it influences judgments about observed weight lifting in others (Hamilton et al., 2004); but also estimates of a topic's importance (Jostmann et al., 2009; Chandler et al., 2012), of one's guilt (Kouchaki et al., 2014), and of one's success in learning (Alban and Kelley, 2013). (Loersch 2011)

Singing from a quality, weighty score, rather than from photocopies or a screen, may enhance the way we learn music.

Free or Fixed

A variety of evidence suggests that when our bodies are physically free, we are more able to assess and understand meaning. A particularly famous experiment showed that Botox, which effectively freezes the muscles used to frown, slows the comprehension of sentences containing negative emotions:

Subcutaneous injections of botulinum toxin-A (BTX) were used to temporarily paralyze the facial muscle used in frowning. We found that BTX selectively slowed the reading of sentences with content that normally requires the paralyzed muscle for expression of a congruent emotion. (Havas 2010)

This seems to suggest that understanding the emotional content of sentences requires a certain degree of simulation of the physical manifestations (are there others?) of that emotion.

There is also evidence that the freedom to gesture plays a profound role in allowing us to comprehend meaning. One experiment found that those *prevented from gesturing* when describing spatial concepts had more difficulty describing them:

Participants who were prevented from gesturing produced more verbal disfluencies when describing literal and metaphorical spatial concepts than those who were allowed to gesture freely. (Casasanto 2007)

Conversely, another study showed that *freedom of movement*, imagined or real, improved understanding:

*These studies demonstrate that performing an action, or merely imagining performing an action, facilitates comprehension of metaphorical phrases related to those actions (*Wilson 2007*)*

These findings suggest that a more relaxed teaching environment, which encourages movement and response, could aid learning. If language is understood through the mediation of the body, it makes sense that the freedom and responsiveness of the body will impact upon our receptiveness to the meaning of words. One can imagine the benefits and uses of gesture for the *teacher*, in explaining key concepts in pedagogy, for the *student*, in implementing them, and for the *singer*, in successful sung communication with an audience.

All these findings hint at the deep role the body plays in allowing us to understand what people are saying to us, and provide useful clues for the singing teacher in how to inspire positive change.

If language is embodied, it is metaphorical

The word metaphor originates from the Greek, *meta* (across) and *pherein* (to carry or bear (from a root which means *to bear children*)). Metaphor should perhaps be a verb: *to carry across*. "To metaphor" would be to bring meaning from one, known domain to a new, unknown one. We know "up" and "down" from our own experience. We can then "metaphor" this meaning to a new domain: status, importance, competition, morality or pitch. Our physical knowledge of "up" combines with our experiences of social power, customs or singing high, to give meaning to new, "abstract" words.

Metaphor is the process of birthing new words, which are all related via an extensive family tree, to their great-great-grandparents, rooted in the soil of lived experience. In this, very real, sense, *all* language is metaphorical.

It is the metaphors which provide the 'something else' which we know more intimately from our embodied, preconceptual experience, and to which we are, in every word we use, properly understood, making a comparison. It is metaphors that carry us across (that is what the word 'metaphor' means) the implied gap between language and the world, and make what would otherwise be a hermetically sealed system of signs capable of meaning something in terms of embodied experience. They are how we understand everything (McGilchrist, 2012)

Contemporary research within cognitive linguistics even suggests that metaphor has its foundation in neural and bodily processes, and is not, as the traditional view argues, primarily a specific linguistic device (Feldman, 2006; Gibbs, 2006a,b,c; Lakoff, in press; Lakoff and Johnson, 1999). (Tendahl 2008)

We can classify new things only in terms of old things, combined and reimagined, but still known only through direct experience. We don't understand through reference to abstract concepts, or through the supposed mechanisms of pure reason or logic. We understand by comparison with what we already know: events, experiences, emotions, proprioceptions and sense-impressions.

We often grasp the meaning of an unknown term (i.e. a term about which we do not have, or even cannot have, direct experience) when, passing from word to word, we eventually connect the unknown term with some clusters of previous actual experiences (Buccino 2016)

Words are the sounds of our lives. This view of language restores power to metaphor. It is not misty, but vitally affecting. Not vague, but a clarion call of inspiration. It might be the only means by which complex communication is possible at all.

If language is fundamentally metaphoric, we can ask: in which metaphors is the language of science and anatomy steeped? And what might be the physical effects on the body, during the process of comprehension?

Scientific Metaphor.

…metaphor is not a decorative turn, applied on top of the serious business of language in order to entertain: all thinking, most obviously philosophical and scientific thinking, is at bottom metaphorical in nature, though we are so familiar with the metaphors that we don't notice their existence. (McGilchrist 2012)

I know of no book that is couched exclusively in purely technical and scientific language. Some research papers are, but they serve a different purpose. However, there are a significant number of passages and excerpts from the pedagogic literature that *do* utilise the language of science.

What might be the primary metaphors of this kind of language?

To answer this question, we need examples with which to work. Below are some passages, a random sample from a variety of books. The passages are absolutely not representative of any of their author's approaches to teaching. For this reason, they are presented anonymously. They are taken from books that are courageous examples of singing teachers committing their ideas to print for the benefit of many singers. They serve only as real examples of how *any* teacher might, from time to time, find themselves thinking about singing, and as real examples of the use of the language of science in the pedagogic literature.

Here they are:

A skilful singer remains in the inspiratory position for as long as possible, maintaining a relatively high sternal position… retarding these movements depends on an acquired, disciplined breath-management technique

Or:

The act of breathing for singing involves a dynamic interplay between postural muscles and those of respiration. There is a pattern of movement and balance which allows the singer the freedom of his instrument. A very short time (200-300 milliseconds, Wilder 1979) before the act of singing a phrase, a pattern of coordinated activity is initiated in the muscles of respiration to ensure proper subglottic pressure. The singer's ability to initiate this complex process automatically can only come after desirable patterns have been practised until they have become habitual and unconscious.

Or:
According to pedagogical experience, respiration is immensely important to the function of the voice organ. A phonatory problem can often be solved by changing the habits of respiration. Viewed acoustically, the importance of respiration to phonation is something of a mystery.

Or:
The voice simply has to be supported from somewhere

Or:
Having ensured that the tongue is in the correct position and that the larynx is able to rise, it is most important that, as it does so, it also tilts.

The language of the quotes seems clear, precise and unambiguous. There is no obvious use of metaphor and no vague language calling on "inspiration" or "feeling". Rather, the physical basis of the voice is described, drawing on anatomic information, and is presented in a way that is not open to misinterpretation. The hope is that with this impartial and neutral information to hand, one could learn to sing better, aided by the clear facts of the matter.

Here are some of the key verbs and nouns in these passages:

Remains
Maintains
Retarding
Act
Instrument
Pressure
Initiate
Process
Function
The voice organ
The voice
Supported
Correct position
Tilts

The Richard Miller quote at the top of this article further gives us:

Components
Function
Production.

When seen together like this, one could imagine that list comes from a manual for some sort of mechanical steam engine.

Is that a problem?

If this kind of language were used sparingly, to explain the reasoning behind certain exercises or to gain the deserved trust of the singer, then, no. If however, it were used regularly through a long course of lessons, presented as "the way things actually are", the truth behind singing, and so imbibed more deeply, then perhaps yes.

Why?

We can consider some of the verbs in the above list, and ask what sort of physical response they suggest.

What might the physiological simulations of *remaining, maintaining, retarding* or *supporting* be? What sort of muscular state might they inspire? Do they correspond to the physicality for responsive, expressive and communicative singing?

What about *initiate, process,* and *function*? What sort of mindset do they create? What relationship do they imply between the singer and their singing? Where will the point of focus be?

What does the phrase *correct position* suggest to the singer? Flexibility or fixity?

What about *components, instrument, organ*: are these real things, objects found in the world, or are they in fact as metaphoric as billowing clouds? Where is the instrument? Is it separable? What about the organ? Could it be lifted from the

human body for display? What is its function? Of what components is it made? What its motivation? If, in fact, these nouns *are* metaphors, are they any more accurate or more helpful than ones such as "in the mask" or "up and over"?

What about *the voice* or *the voice organ*? What is this voice? Is it also an object? A thing? Do we play it? How much of our responsibility do we cede to its unchangeable nature? If singing is difficult, do we blame it? Is it always there, even when we are silent?

It should be emphasised again that these quotes do *not* represent the viewpoint of any particular pedagogue. They serve only as real examples of this kind of language. This language *is* encountered in discourse on vocal pedagogy, and can be persuasive and authoritative. It can also be claimed that it is metaphor-free. Even putting aside the possibility that *all* language might work on a metaphorical basis, it appears that scientific language above is not metaphor-free. It takes a human ability, singing, and from it creates "a voice", relying on "processes", "functions" and "productions", which, taken together, sound like metaphors from the industrial revolution.

Metaphorical framing.

Does this matter? One has to communicate somehow after all.

Aside from some potentially unhelpful physiological consequences suggested by scientific language (fixity, mechanical tendencies, and an odd relationship between the "singer" and their "instrument"), there is the issue of *metaphorical framing*.

Metaphorical framing is the process by which the base metaphor chosen (the *voice organ*, say, or *components* or *function*) to some extent determines and directs thoughts about everything that relates to a subject.

The base metaphor flowers into a full metaphorical scheme, influencing all related thoughts and activities.

The base of the metaphor framed how people thought about the problem and the solutions they favored (Jamrozik 2016)

If the base metaphor of "instrument" and "operation" is absorbed by a singer, it could have far-reaching, and possibly negative, consequences. Humans are not mechanical, in the same way that brains are not computer-like. These are simply metaphors that suggest certain responses, and promote certain solutions:

This result supports the strong argument that metaphors are not just "nice sentences" but rather expressions of a deeper conceptual organization that not only underlies metaphorical utterances but also penetrates literal language. (Santana 2011)

Care could be taken that the "conceptual organisation" of our thoughts on singing corresponds to a bigger picture of what we think singing *is*. Scientific metaphor should be used in an appropriate dose, in balance with those that frame artistry, expression, communication and suggest an appropriate relationship between the singer and their singing. Otherwise, threads of thought may get caught in mechanical cogs.

Concepts are rarely represented in a vacuum. When the concept for car becomes active, it is not represented in isolation, floating in space, but is instead represented in a meaningful background situation (Wilson-Mendenhall 2011)

The concepts of science and anatomy do not exist in a vacuum, offering pure and unsullied meaning. They are richly metaphoric, and those metaphors have physical consequences. The base metaphors they contain promote certain paths and close off others:

As a result, sensations or actions are facilitated if they are congruent with the simulated sensations or actions, while incompatible sensations or actions are hampered (Loersch 2011)

The fundamental metaphorical scheme with which we frame our singing and our teaching can have deep effects on our thoughts, our encountered problems and our proposed solutions. We might then examine the habitual way we in which we talk about singing, and consider what the embodied consequences could be. We may wish to find base metaphors that both improve physical performance whilst also allowing and inspiring expressive and communicative singing.

The positive use of embodied, metaphoric language.

The possible negative consequences of the excessive use of scientific language are only a small part of the story of embodiment for singers. This understanding of language provides us with a tool to assess the likely *positive* impact of words as well, showing ways in which they might be used to best advantage.

Many writers on singing already avoid the terminologies of science completely, and many singing teachers find elegant and sophisticated ways to inspire the change they want, without the need for the vocabulary of anatomy or physiology.

In addition to a fundamental assessment of the consequences of one's metaphoric frame, the research into embodied language offers us some small and subtle ways in which we may aid our singers. For example:

we only found evidence for embodied language comprehension with the second-person pronoun (You are . . .). (Brunye 2008)

Using "you" when discussing singing (rather than perhaps "your voice" or "I think"), could increase the physical understanding of what is being said.

Research into embodiment also reminds us that we communicate not just through our spoken words, but with every aspect of our physical presence:

comprehension of spoken language is not merely based on what is said, but also on how it is said - namely the affective facial expression coinciding with speech production. Speech comprehension is therefore an integrated process that benefits from the affective expressions that modulate how we say what we say. If speakers smile or frown while talking, then the audible effects of these affective cues influence our comprehension of spoken words. (Quené 2012)

Ensuring appropriate embodiment whilst delivering a message (perhaps good posture, positive communicative expression, vital diction) will allow clearer communication. The cumulative effect of multiple small changes of this nature could be significant.

An understanding of embodiment can complement and enhance approaches to vocal pedagogy. Metaphors of lengthening, broadening or energisation might replace those of fixity and control. Ideas of process and action (singing, communicating, expressing) could replace those of objectification (voice, organ, instrument). A direct sense of responsibility for sound, word or communication could replace the indirect machinations of voice, function or process. This is too rich a subject to take on here, and will depend greatly on an individual's view of singing and its technique. Whatever the aim, a consideration of the embodied nature of language might help achieve it more effectively.

Conclusions

Words have physiological effects on us, and grasping their meaning calls on our lived experience: physical, social, emotional.

The language of science, anatomy and physiology is authoritative and persuasive, but perhaps has hidden consequences. It may be laden with unseen and potentially unhelpful metaphors, provoking unwanted physical effects. Conversely, a deliberate and precise use of overtly "metaphoric" language may be more powerful to effect real physical change than is sometimes realised.

Word-sounds alter our state, and are understood through that alteration. Metaphors are not misty, but rooted deep within us. Used with art, they can turn words into song.

Alex Ashworth

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