Shift Toward the Social Engagement System

The ventral vagal system is involved with most aspects of social contact and pleasure. It guides eye contact, hearing, eating, speech, singing, nursing, kissing, smiling, and some would say, direct heart to heart contact. Because of its role in making contact between different people favorable, the ventral-vagal system is a way of achieving personal safety, but it requires a moderate amount of actual safety to develop or stay employed. That is why prolonged danger or stress, or stress or danger early in life, tends to atrophy or impair the development of, the ventral vagal system.
The Social Engagement System

The social engagement system is a two way interaction system (receptive and expressive) based mainly in the eyes, ears, larynx, and mouth, but incorporating the entire face and the torso above the diaphragm. All twelve cranial nerves participate in the social and expressive functions. However, only four of these nerves have both motor (efferent) and sensory (afferent) functions. They are the trigeminal, facial, glossopharyngeal, and the vagus. Interestingly enough, it is also these four, along with the oculomotor nerve, that carry most of the parasympathetic fibers involved in the cranial nerve system! Cranial nerves are not merely divided by territory, but actually overlap with complementary functions. Here is the system supporting eating, smiling, suckling, kissing, baring the teeth, voice, breathing, and the heart!

The subtlety, interplay, and delicate overlap of the cranial nerve system not only is wondrous to contemplate, but also very little understood. I am not saying it is misunderstood, but rather that it has not been studied in proportion to other structures of the body, despite being known about for more than a hundred years.

Eye contact, smiling, and tone of voice have always been understood to be pivotal in good relationships. Without these sensory and motor connections, it seems that both implicit and explicit understanding of what is happening socially will always remain crude, even with very intelligent people. Without a functioning social engagement situation, any modicum of hostility in a situation will seem exaggerated, and ambiguous or neutral aspects will be perceived as negative--this is a sympathetic shift at work. True empathy surely depends on the social engagement system.

Some of the motor components of the face and throat are under voluntary control and some are not. That is why some behaviors, like a smile, can be only partly simulated. The absence of the involuntary movement (for instance in a 'forced' smile) has always been detectable by discerning people.

Typically, limitations on engaging socially have been attributed to never having cognitively 'learned' or 'developed' social skills, or to losing such skills through brain injury. However, here is an interesting example which does not fit that simple explanation:

The social skills of men and women were tested both before entering medical school and then again after residency training. Almost uniformly, subjects 'lost' social skills. That is they were not only less inclined to be social, but that in an interpersonal situation demanding skill they performed less sociably and effectively. The investigators deplored the results but had no real explanation of why. A simple answer suggests itself, informed by polyvagal theory. Because medical training is an extremely 'doing' oriented undertaking 8-16 hours a day over years, it likely shifts even rather ventral vagally oriented people into a sympathetic shift, which is innately less sociable.

We intuitively understand the idea of 'defensiveness.' Defensiveness is the inability to employ the

social engagement system when a social challenge arises. Instead, a sympathetically-mediated response is evoked that seems overdone and out of place. Defensiveness as a trait is famous for bringing on the very dislike that seems to justify it but which was not there in the first place. Usually defensiveness is viewed as a problem that arises because of a complete misjudgment of the benign as threatening. This can happen. But defensiveness often arises in response to an actual social threat that is just a small part of the overall situation. In a sympathetically-shifted person, the threat becomes of survival significance and activates a fight-or-flight response. Cognitive distortions are just part and parcel of that. But if the social engagement system is available, a phenomenon I would like to call ventral discrimination occurs, in which a finely nuanced response is possible depending on the severity of the threat.

It is said that fashion models are picked for bone structure in the face, because unlike other aspects of attractiveness, they cannot be faked with cosmetics or camera tricks. Facial bones develop guided by the state of the social engagement system, with prominent or forward cheeks seen as most attractive, friendly or approachable.

The currently fashionable concept of emotional intelligence seems to describe simply the relative development of the social engagement system. Since it is not either a fund of knowledge, or even an intellectual skill, emotional intelligence quite notoriously cannot be taught. (Therefore, using the word intelligence here, even metaphorically, seems slightly misleading.)

Autonomic Flexibility

The self-regulation goal for the autonomic system is not any specific point of arousal along the parasympathetic-sympathetic continuum. Rather the goal is flexibility, range, and versatility. Some situations require high parasympathetic tone (digesting), some high sympathetic tone (chopping wood), and some both simultaneously (play, sex). At best, the autonomic system interacts with the environment for best adaptation to present circumstances. Perhaps the hallmark of our culture is that autonomic states of a person tend not to reflect the present situation but reflect, rather invariably, the persistent autonomic set-point of that person. The autonomic state is not adjusted dynamically but rather is durable like a personality trait. Subjectively then, all situations becomes the same except superficially.

The Vagal, or 'Cruising' Brake

The ventral vagal nervous system can act like a very precise intensity controller for arousal and doing. In this function, it affects more than the heart but its effect on the heart is very illustrative. The ventral vagal keeps the heart rate well below its intrinsic rate of the pacemaker. This means that a decrease in the ventral vagal slowing frees up energy for activity in a prompt and precise way. This 'brake' once lifted can be reapplied just as promptly and precisely. This makes for fluid shifting and balance between goal related activity and social activity.

If it was not for the vagal brake, then an increase in activity or goal related behavior would require an increase in the firing of the sympathetic-adrenal system. The downside of this is that the sympathetic system, partly because it uses the release of 'adrenaline' tends to be an all or none system rather than a finely tuned system. Adrenaline cannot be retrieved promptly once it is released. This makes it hard to shift gears. There are many people who have a hard time shifting gears once they have become alarmed, even if shortly afterwards, information comes that indicates it was a false alarm. This is because chemicals have 'flooded' the body. This state has long been intuitively referred to in psychology as flooded for that reason and it is understood it is impossible to shift quickly.

Bedroom Eyes

The eyelids give an important clue as to autonomic balance. The eyelids are raised by two muscles: the levator palpebrae superioris, and the superior tarsal muscle. The levator is innervated by the third cranial nerve (parasympathetic) and has the main job of keeping the eyes open. The superior tarsal muscle is innervated by the sympathetic system and has the role of scrunching the eyelid up further, as in alarm or surprise. This wide eyed look is rather the norm these days. Where there is good autonomic balance, in a state of relaxation, the eyelid is lower but not closed. After satisfying sex, in the relaxation that ensues, the eyelids are sometimes noted to be lower, hence the term 'bedroom eyes.' Such eyes, whether sex has been recent or not indicate the capacity for pleasure.

'Vagal Reactors'

When autonomic response to interpersonal situations is studied in the lab, cruelty, and attempts to dominate, however ego-syntonic, are accompanied by a strong sympathetic discharge. With a few rare individuals, however, a strong parasympathetic response is seen, along with a disconnect from the left pre-frontal lobe. These individuals are known as vagal reactors (or slangily, "cobras"). It seems that when the social meaning of behavior is disconnected from the autonomic response, any successful behavior or mastery elicits a parasympathetic response. The problem is not with the autonomic system of course, but with the disconnect.

Play

Play physiologically is only possible when both the ventral-vagal (social engagement) system and the sympathetic (doing) system are simultaneously activated. This allows play to be both adventurous and active, and also very social. If someone is say accidentally hit with an elbow during play, they will not get (very) upset if the ventral vagal tone is strong, but they will get very upset, involuntarily, if the ventral vagal tone is weak, even if intellectually, they 'know better.'

Things That Contribute to Ventral Vagal Shift

Contributor	Mechanism
Eye Contact*	The 'truth' of a person's emotional and energy state is conveyed in the eyes.
Touch*	Touch releases oxytocin, and perhaps transfers something person to person.
Human Voice*	The voice of another will be comforting for many, but for others may be experie
Crying	Crying is an outpouring through all ventral vagal outlets--eyes, lips, jaw, voiceb belly.
Listening	Listening is more than taking in the minimum information necessary to neutraliz requires an attunement.
Music	To appreciate music (at least classical)
The Sun	Sunbathing has been practiced for centuries. All energy on earth comes from the
Moderate Exercise	Can discharge tension without inducing a state of struggle.
Warmth	Relaxes muscles and promotes peripheral vaso-dilation
Functional Breathing	This is basically slow, easy abdominal breathing
Closing Eyes	Most threats are perceived by vision. A person that is always vigilant for threats closing the eyes. Also if vestibular function is diminished, the eyes are employe compensating for poor balance.
Lengthening Muscles	tense muscles are both a cause and a result of sympathetic activation. Lengtheni

	seems to be a major method of Hatha yoga
Vomiting or Gagging	This stimulates the vagus directly. This is part of the inducement of bulimia, thr produces relaxation, especially if there is no sickness or nausea causing it. This l traditional bioenergetic exercise.
Screaming or Wailing	Screaming produces vibrations which help relieve the tension. Screaming is a sig others, but it prevents the distress from becoming locked in the body. It is impor 'growl' in low tones. Low tones come from tensing the vocal cords. Low tones a aggression to others and lead to hoarseness. Rather it is preferable to scream in h a fire engine" as Alexander Lowen would say.
Moving Water	Unknown. One unsubstantiated theory is that moving water reduces ions.
Sex and Masturbation	Sexual arousal is dependent on a parasympathetic shift. However, ejaculation an upon the sympathetic, so frequent quickly completed activity may not have muc
Falling Asleep	Falling asleep is a letting go of goals, of doing, and of control. Taking naps at m than a way to get extra hours of sleep--it is a way to double one's opportunities t Sometimes one is too exhausted to fall asleep. That is the muscles are depleted o unable to lengthen and relax. Falling asleep is promoted when the muscles have day but have recovered enough to be relaxed.
Honest Anger	Anger send energy and blood to the face. Anger (not rage) probably involves sim increase in both ventral vagal and sympathetic tone (which is true also of play, a arousal)
Hypnotic Trance	There is a reason that almost all trance induction has in common suggestions abo sleepiness, and heaviness. These are the main feelings of parasympathetic domi
Rhythmic Movement	Dance is the most common example.
Avoiding Deadlines	Schedules and deadlines are a man made threat that make doing something into behavior. Doing things out of direct desire or a sense of readiness allows the bod own pace and rhythm.
Familiar Rituals	This is classical conditioning. If the familiar place or activity has been associate feelings, deliberately doing the activity or going to that place brings good (relax association.

*The starred items in this table can be tricky in that they depend on a certain capacity for social engagement already, in order to have the effect of enhancing that capacity. Where ventral vagal 'tone' is very low, these items tend to promote either sympathetic or dorsal shift.