

O Sun God, Savitr!
 Thou dazzling fount of life-persuasive light!
 Sublimest mystery speeding from afar!
 Swift became that burst too potent on the sight!
 This radiant type of strength and youth!
 Glowing eternally!
 He alone shines!
 All luminaries get illuminated by His Illumination!
 The whole Universe is enlightened by His light!
 – Kathopanisad



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VEPACHEDU EDUCATIONAL FOUNDATION

మన సంస్కృతి

Mana Sanskriti (Our Culture)

Chief Editor: Dr. Sreenivasarao Vepachedu, Esq.

May the golden-eyed Savitar come hither!
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 - Rig Veda, vii. 65

ॐ भूर्भुवः स्वः तत्सवितुर्वरेण्यं भर्गो देवस्य धीमहि। धियो यो नः प्रचोदयात्॥

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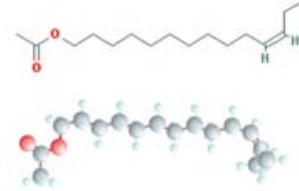
Issue: 236 Dr. Sreenivasarao Vepachedu¹

DIVERSITY, EDUCATION, OUTREACH, AND CULTURE CHANGE



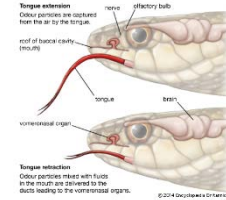
Beauty is actually in the nose of the beholder², if you are an insect, chemical scents called pheromones by to lure in potential mates – not only for insects such as the tobacco budworm moth, but also for humans. Beautiful humans and insects get their mating partners, but not ugly ones. However, mating choice is not as simple as a perfect and entirely binary process. Males make a beeline to the attractive scent, but then apparently miss their target once they get close in.

When accompanied by another attractive female, each female has a 50-50 chance of mating. But with an unattractive pal, the beautiful moth's chances improve similar to that of an attractive woman in a crowd of less attractive women also seems to attract more attention. Pairs of attractive females almost always snagged a mate. Pairs of unattractive females never did. But when an unattractive female was paired with an attractive one, she was able to mate an average 17% of the time.



A pheromone³ is a secreted or excreted airborne chemical factor that triggers a social response through a physical or emotional effect on another member of the same species in members of the same species. Most animals smell or sense pheromones through a specialized half-moon shaped structure located inside the nose called the vomeronasal organ. Pheromone signals picked up by the organ are then relayed through nerves to an area of the brain called the hypothalamus, which is well known for its ability to alter emotions, hormones, reproduction and sexual behavior.

Insect pheromones are essential components of monitoring and management tools targeting pests of agricultural crops. Mating disruption, mass trapping, attract-and-kill, and push-pull are some of the direct pest control strategies that depend on the use of pheromones. In the case of weevil pests, pheromones are produced by males. Insect pheromones are essential components of monitoring and management tools targeting pests of agricultural crops. Mating disruption, mass trapping, attract-and-kill, and push-pull are some of the direct pest control strategies that depend on the use of pheromones. Pheromone traps in stored insect management can be used to detect both the presence and the density of pests. They are useful to define areas of pest infestation, particularly where the overall distribution and life cycle are poorly understood⁴.



MAMMALS: The generalization of the pheromone concept to mammals was popularized by the entomologist Wilson in a 1963⁵. The following molecules are found in mouse. Androstenone is known

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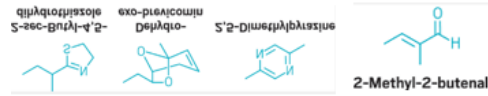
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to be a key mating pheromone for pigs Osmology is the study of odors and the sense of smell. Ordinary, non-pheromone smells such as the scents of food or flowers are recognized by a different part of the nose called the olfactory epithelium.

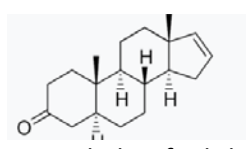
Jacobson's organ⁶, also called vomeronasal organ, an organ of chemoreception that is part of the olfactory system of amphibians, reptiles, and mammals, although it does not occur in all tetrapod groups. It is a patch of sensory cells within the main nasal chamber that detects



heavy moisture-borne odor particles. Airborne odors, in contrast, are detected by the olfactory sensory cells located in the main nasal chambers. Some groups of mammals also initiate a behavior known as the **Flehmen response**, in which the animal facilitates the exposure of the vomeronasal organ to a scent or pheromone by opening the mouth and curling the upper lip during inhalation – grimacing -- weird face animals make where they pull their top lip up and expose their teeth-the response of dairy bulls to the urine of cows in various stages of the reproductive cycle⁷-behavior in bull in response to body fluids of cows in various stages of the estrous cycle.

Molecules that serve as signals to members of a different species are called kairomones⁸. Chemoreception, process by which organisms respond to chemical stimuli in their environments that depends primarily on the senses of taste and smell. Chemoreception relies on chemicals that act as signals to regulate cell function, without the chemical necessarily being taken into the cell for metabolic purposes.

HUMANS: Despite decades of research into chemical communication, scientists are no closer to determining whether a human pheromone exists⁹. However, androstenone can induce many reactions in humans depending on who is on the receiving end - for some it smells sweet like flowers or vanilla, to others it is foul like sweat or urine, and then there are those who can't smell it at all, depending upon the gene variation called OR7D4. People with two copies of the most common OR7D4 variant tended to find the smell of androstenone stronger and describe it as sickening¹⁰.



Finally, scientists have figured out that the brains of men and women respond differently to the hormones. Woman's hypothalamus are activated when they smell the chemical similar to testosterone but not to the estrogen-like substance, whereas man's hypothalamus have the opposite response: They are turned on only by the estrogen-like chemical and not the testosterone-like one. There is also sexual disparity between the specific sub-regions of hypothalamus that are activated. However, researchers as well as fragrance companies have been hoping to find a human sex pheromone for decades, but so far the search has failed. The search for human pheromones¹¹ has been hampered by two obstacles confounded by other sensory inputs like sight and sound, past experiences, learning, context and laws.

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SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM): The biological differences between male and female animals, including human, are well documented as explained above, and cannot be avoided. Both men and women can forge careers in technology by following their passions, but only when the current cultural and organizational concepts are changed to accommodate both men and women with their unique biological functions, abilities, and needs thereof.

Many people focus on leadership and career as a measure of success. It is a flawed measure because success depends on one's goals and achieving them. Another measure the society uses to define success is money and material wealth. What is needed is a kinder, gentler philosophy of success. Unfortunately, the current idea of meritocracy leads to a situation where there has to be a loser and a winner, as a direct result of their meritorious qualification. This idea of meritocracy does not recognize the randomness of events and opportunities that knock on the doors of lucky people, leaving out the unlucky ones to be treated as losers. To mitigate the burden of the losers who are enslaved in this conundrum, societies have come with solutions such as quotas aka affirmative action, resulting in new groups of people discriminated. It is inevitable to find oneself in one or the other group randomly placed by the events that conspire against or in favor of an individual. What we can do is to level the playing field by providing all a certain level of education and accommodating their drawbacks and exploiting their abilities. One has to persist through CRAP (criticism, rejection, assholes, and pressure) with grit and perseverance to get to success¹².

The downtrodden (male, female, or other) in this world have been forced into such positions by such a conspiracy of events, which can only be mitigated by accommodation and by providing resources to assist them in thriving in the modern meritocratic societies, by encouraging both boys and girls to choose STEM curricula in their undergraduate and graduate courses, without diminishing the value of liberal arts.



To the Margaret Dayhoff, With best wishes, Sarah Weddington

PHOTO: Reception at the White House (Washington DC, USA) to nine American women scientists, dated on February the 14th, 1960. Left to right: Dr. Mary Good, Dr. Chien Shiang Wu, Dr. Janet Barry, Dr. Anil Kalingasped, Sarah Weddington (assistant to President Carter), Dr. Mildred Dresselhaus, Dr. Elizabeth Crosby, Dr. Margaret O. Dayhoff, Dr. Mary Calderone and Dr. Charlotte Friend. The picture is dedicated "To Margaret Dayhoff, With best wishes, Sarah Weddington 2-14-80"

Although human brains can be distinguished between male and female, just like the bodies of males and females distinguishable by the sheer presence of distinctions that are essential to each sex. These distinctions cannot be removed, instead they should be accommodated and respected, along with providing equal opportunity to thrive in the modern society.

In 1941, the United States Civil Commission opined that feminine aptitudes might be well adapted to engineering design, testing, and inspection, research, preparation of plans and maps, and computation. However, many women scientists were in lower level jobs and always as subordinates in the research teams performing research projects during the War. However, it started the steady and progressive improvement in opportunities that opened up to women and minorities. Today, girl students are more than equal to boys in their scholastic

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achievements. Girls are more attentive, more organized, and perform better socially and academically, according to recent research published by the Third Way¹³, [while boys distracted by the girls¹⁴ are in trouble¹⁵ and need blinders.](#)

NOTES AND REFERENCES¹⁶

¹Dr. Rao Vepachedu is the founder and president of [Vepachedu Educational Foundation Inc.](#), a 501(c) (3) educational foundation, and the Law Offices of Dr. Vepachedu and co-founder of Exciva. For more information visit: www.linkedin.com/in/vepachedu; <http://www.avvo.com/attorneys/60201-il-sreenivasarao-vepachedu-764535.html>, and <http://www.crm-ip.com/vepachedu.html>. Contact: svepachedu@yahoo.com.

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² Beauty is in the nose of the beholder <https://www.newscientist.com/article/dn7668-beauty-is-in-the-nose-of-the-beholder/>

³ What Are Pheromones? Do Humans Have Pheromones?<http://www.medicalnewstoday.com/articles/232635.php>
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<https://www.scientificamerican.com/article/are-human-pheromones-real/>
 Sniffing out human pheromones <https://www.sciencenews.org/blog/scicurious/sniffing-out-human-pheromones>
 Do human pheromones actually exist? <http://www.sciencemag.org/news/2017/03/do-human-pheromones-actually-exist>

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<https://www.theverge.com/2016/3/26/11306624/burying-beetle-sex-pheromone-deterrent-parenting>

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<http://www.nytimes.com/books/first/w/watson-organ.html>

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⁷ Why Do Dogs, Cats, Camels, and Llamas Make That Weird Face?

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https://www.ted.com/talks/richard_st_john_s_8_secrets_of_success/transcript?language=en

¹³ Girls lead boys in academic achievement globally:

<https://www.sciencedaily.com/releases/2015/01/150126125015.htm>; How do we help boys close the academic gender gap? <http://www.pbs.org/newshour/updates/classroom-rigged-boys/>

¹⁴ YOGA PANTS, THE EMPEROR'S NEW CLOTHES <https://www.linkedin.com/pulse/yoga-pants-emperors-new-clothes-rao-vepachedu>

¹⁵ America's boys are in trouble. RAISING CAIN, hosted by child psychologist Michael Thompson, PhD, explores the emotional development of boys in America today. This two-hour documentary provides surprising new research about boys' inner workings, dispelling a number of commonly held misconceptions, and highlights innovative programs that are bringing out the best in boys.

¹⁶ In addition to the primary sources cited above, additional references include:

New York Times, Washington Post, Mercury News, Bayarea.com, Deccan Chronicle, the Hindu, Hindustan Times, Times of India, AP, Reuters, AFP, The Guardian, Pravda, Spiegel, Connexion, etc.

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“Where the mind is without fear and the head is held high, Where knowledge is free, Where the world has not been broken up into fragments, By narrow domestic walls.” -- Rabindranath Tagore (1861-1941), Gitanjali, 1912.

One World One Family

AUM! SWASTI!

Om! Asatoma Sadgamaya, Tamasoma Jyotirgamaya, Mrityorma Amritamgamaya, Om Shantih, Shantih, Shantih!

(Aum! Lead the world from wrong path to the right path, from ignorance to knowledge, from mortality to immortality, and peace!)

SWASTI! AUM!



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