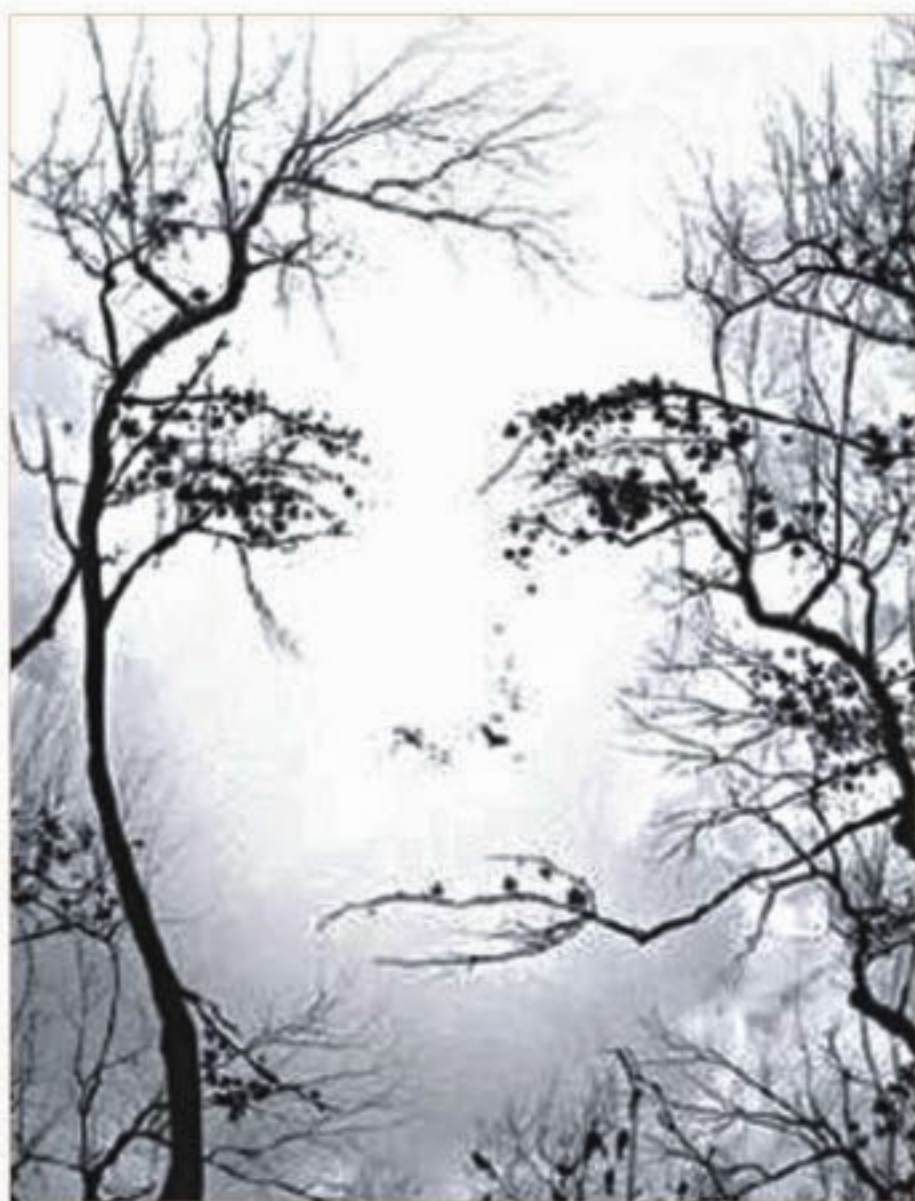


Intuition and the Subconscious

MD. RIAJUL HOSSAIN

THIS has been true for me two times in recent years. In my second year of university, one night I saw in my dream one of my friends was asking me to go to his village with him the next day. On the very next day, he asked me the same thing I heard already!! Believe me or not, it materialized. The second one happened not in my dream; it was an anticipation that became true very fast. Both the incidents indicate what we call intuition.

In my last article, here in Science and Life, I explained the role of genes and environment in shaping the mind which starts very early in the developmental stages and I was emphasizing on conscious state of mind which could make our life better and happier. But, today I will be talking about the other state of mind, the subconscious one. Does it offer any good for us? The answer is affirmative. Subconscious mind, in fact, may play a crucial role in many of the mental facilities we prize as uniquely human, including creativity, memory, learning and language. Our subconscious is not an unthinking autopilot that needs to be subjugated by rationality, but a purposeful, active and independent guide to behavior and what it suggests come as intuition. "Intuition is a subconscious mind-body connection that is with us



Intuition can be prophetic or premonitory

from infancy", says Mona Lisa Schulz, M.D., Ph.D. It can be an instance in which you suddenly know the answer to a question you have been struggling with, or it may come as a message. If you listen to these signals, you will make better decisions about your health, career, and relationships.

Think about your childhood. You used to take decisions very quick without judging what was good for you, not judging what was bad for you either. Rather, you only used to focus on what you wanted. That is the exclusive use of intuition. But, as grownups, you use logic, rationality and consequences as you become more

conscious about everything, relying on common sense and advice to make important decisions. Nonetheless, grownups too, should not ignore their intuition. Should they follow their heart then? Should they do what their gut tells? It can be suggested that they should not, at least, ignore them. "Our minds process vast amounts of information outside of consciousness and beyond language. Within a quarter-second of seeing anything, we evaluate it." This process is exceedingly correct in most of the cases. In a study done at Harvard University, a group of observers were shown 30-second video clips of graduate students

teaching a class and were asked to fill out an evaluation of the teacher based on their first impressions. Amazingly, their assessments of the teachers accurately predicted those made by the students who had been in the class for an entire semester. The observers' snap judgments were almost always correct.

Importantly, the other side of the coin should also be taken into consideration. Like our mental abilities, intuition is not perfect in every case. The key to successful decision making is, therefore, realizing when to trust your intuition and when to be wary of it. Some intuitions are stubbornly

resistant to analysis, and it is exactly those intuitions that we should not trust. "I am a gut player. I rely on my intuitions", President George W. Bush explained to Bob Woodward of the Washington Post regarding his decision to launch the Iraq war. See, how dangerous it can be.

At the end, it is all about making a balance. As over-thinkers become stuck in a cycle of endless reasoning and ultimately decide nothing, while the speedy types feel remorse and go into damage-control mode for not thinking through the consequences, balance of these two could be the savior. Microsoft's Bill Gates said in a 2010 interview with CNN, "If I think something is going to catch on, I trust my own intuition." Crucially, he also acknowledged that intuition can be "often wrong, but my batting record is good enough that I keep swinging every time the ball is thrown".

What you need to find is a happy medium where you make sound decisions without regrets. This can be done by trusting intuitions coming from your subconscious while applying some logics and reasoning. This is a holistic way showing you the bigger picture. So, listen to your heart, follow your gut and, at the same time, do not forget to do some logical analysis.

The writer is a Lecturer in Biotechnology at BRAC University



SCIENCE & RABINDRANATH

Culture as shared experience

In this column Dr. Ali Asgar's article titled "*Scientific thoughts of Rabindranath Tagore*" will be published in instalments, each having a separate heading- Editor, Science & Life

DR. ALI ASGAR

THIS broad based meaning of culture, which is inclusive of science, can be appreciated when we take the definition of culture as a shared experience which acts as a medium through which human mind interact.

Science as a public knowledge is shared by the scientists working in the field of knowledge we are referring to, and having the potential of being comprehended by any person who cares to learn the subject, satisfy the criterion of culture as a shared experience. Again technology which includes techniques, its methodologies and knowledge, devices and products of technical innovation for material necessity which are shared or have the potential of being shared must also be a part of the culture. We will see that Rabindranath played a vital role in creating this unified view of culture by bridging the gap between what are put in opposition as literary culture and scientific culture.

We can see Rabindranath's life is a real example of all encompassing concepts of culture. In this article we will try to explore how Rabindranath was induced into this scientific component of total culture and how he has contributed to the unification of science and arts through his work.

It is always a mystery how the education, environment and social circumstances with all their forces influence a genius. In fact a genius or any creative person instead of being molded by the external environment entirely, brings about changes in the environment itself by his novelty.

It is true that no person is independent of the influence of the total environment but the mechanism by which a genius grows up as distinct and unique in character is quite indeterminate. The causal relation is probabilistic, rather than deterministic. The reason is that the creative aspects of the genius interact with the environment in such a way that he himself becomes a part of the environment. To illustrate this point we can take the example of measuring an electric field by bringing a test charge. Normally the experienced force will give the measure of the external field. But if the test charge is possessed with a high value, the field it will experience is not the preexisting field but a new field where the contribution of the test charge itself is to be taken into account. In social interaction the role of great personalities is much more complicated. To extend the analogy we might think of the spring of the test charge, which has a magnetic component and the associated complications.

I would like to suggest that a genius is a rare and unique person who is the expression of a very rare probability that is inherent in the complex of the social system in which the genius is born. Because of the rarity of such probability, not the impossibility, the number of geniuses in the world is so few and far between.



NEW TWIST

Screwy symmetry

PHYSICISTS have put a new twist on the humble corkscrew. Just as a butterfly appears identical to its mirror image, objects made of structures that tilt, twist or spiral possess a symmetry now recognized for the first time.

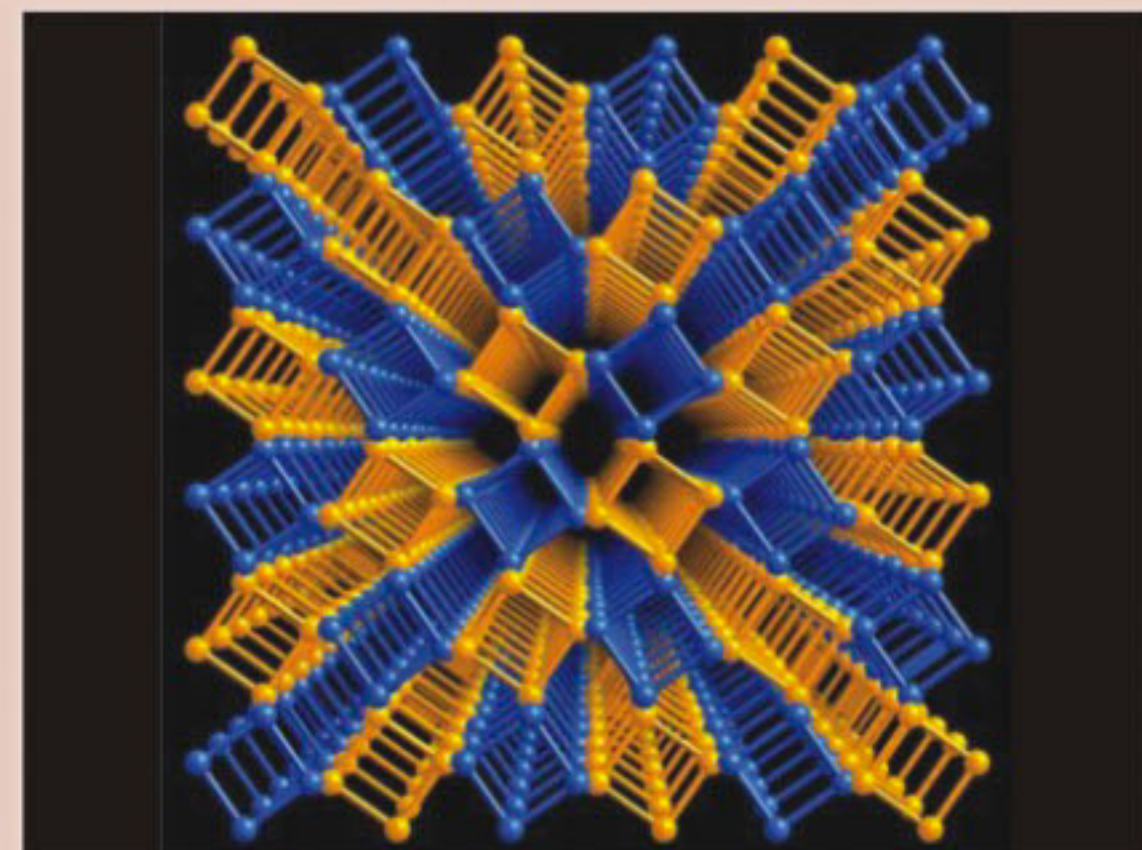
The new discovery is based on a mathematical operation that transforms a clockwise helix into a counter-clockwise one, or vice versa.

"Normally, a helix flips when you put a mirror up to it," says Venkatraman Gopalan, a materials scientist at Pennsylvania State University in University Park. "We've developed a special kind of mirror with this math woven into it." Seen in this mirror, an object with a spiral shape will look just like itself.

This symmetry joins a list of other, long-known ways to move or manipulate an object and leave it looking the same afterwards. A snowflake has what's called rotation symmetry: Turn it 60 degrees, and its appearance doesn't change. A piece of wallpaper with a repeating pattern looks identical when moved a bit to the right or left, demonstrating translational symmetry.

"This new symmetry we're playing around with has not been taken into account up to now," says Daniel Litvin, a physicist at Penn State Berks in Reading and coauthor with Gopalan of an April 3 paper in Nature Materials. "It gives you a finer classification of materials."

Source: Science News



Molecular structures that tilt clockwise (orange) or counterclockwise (blue) have revealed a new kind of symmetry

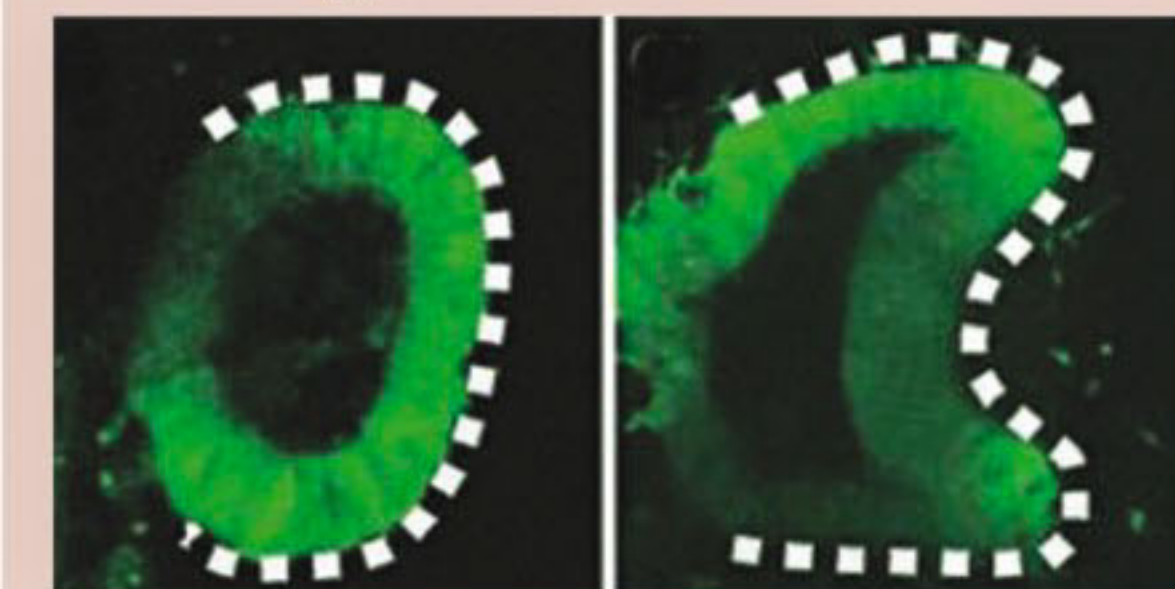


MADE TO ORDER



GIVEAWAY GLINTS

Retina grown from stem cell



The stem cells formed a sac that then folded in half a couple days later forming the optic cup

GIVE a blob of cells the right environmentdots of nutrients, special chemical signals, and a comfy gel cushionand they just might grow you a body part. In a feat of bioengineering, scientists at the RIKEN Center for Developmental Biology in Japan have grown a retina from mouse embryonic stem cells. Remarkably, much of the development happened spontaneously, indicating that even undifferentiated cells have a blueprint in mind. Researchers hope the work will someday yield transplantable retinas for people with diseases like retinitis pigmentosa.

"When I received the manuscript, I was stunned, I really was," commented human molecular geneticist Robin Ali (via Nature News). "I never though I'd see the day where you have recapitulation of development in a dish."

Supported by a gel that mimics cells' natural environment, the stem cells were immersed in a bath of chemicals that directed their growth into retinal cells. Just as in normal embryonic development, over the course of about a week the cells organized themselves into a small sac that spontaneously folded itself in half to form the optic cup, a structure that consists of the retina and its supporting layer.

Researchers have been working on retina replacement for some time: transplants of retinal stem cells alone have also been studied as treatments for malfunctioning retinas.

Source: Discover magazines

Forests' signal spans galaxies!

FREE-LIKE" life forms might be detectable even from across the vast spaces that separate us from planets in other solar systems, two scientists propose.

But any test of the claim will have to wait until humans are able to photograph Earth-like planets outside our solar system, an achievement that NASA scientists say they're working toward.

Assuming this does become possible, past research has already suggested ways to indirectly detect living things on such planets. For example, hordes of breathing creatures can lead an atmosphere to have distinctive characteristics; these could be detectable in the light that atmosphere sends our way. Liquid oceans, with their ready potential to host life, might give away their presence through a distinctive "glint."

Plant-like organisms would probably sustain themselves by taking in light from the host star, scientists say. Certain colors of light would be absorbed more than others, leading the light reflected by the "plants" to have distinctive, and measurable, characteristics.

But this method doesn't reveal the structure of the plant, and thus can't tell apart, say, trees and algae.

Now, researchers Christopher E. Doughty and Adam Wolf of the Carnegie Institution in Stanford, California, propose an additional technique that could reveal whether plants are "tree-like" in structure.

For plants on Earth, "competition for light and the need to transport water and nutrients has led to a tree-



An aerial view of pine forest in the United States' Yellowstone National Park

like body plan characterized by hierarchic branching networks," the pair wrote, setting forth their proposal in the Dec. 1 issue of the research journalAstrobiology.

These tree-like forms cast shadows, they noted. The large-scale pattern of shadows would lead the light reflected off the vegetation to take on specific brightness and color characteristics. For a viewer on a distant planet, Doughty and Wolf wrote, these characteristics would depend on the angles at which the viewer, the planet and its sun lie with respect to each other; but these characteristics would change in a predictable way over time, producing detectable pattern.

"The presence of tree-like structures is clearly distinguishable" from, say, flat ground with the same color, wrote the

researchers, who developed a computer simulation to work out this special pattern of reflectance characteristics.

If this vegetation were widespread enough, it would affect the reflectance properties of the whole planet, they added. Clouds would be a problem, they noted, but could potentially be taken into account.

Most interestingly, they added, the reflectance pattern due to widespread tree-like structures is distinctive enough that it can be observed even if a planet is barely visible, appearing as a single point of light in our telescopes. The changes in this dot's brightness and color at different "sun/view geometries," they explained, should be the giveaway.

Source: World Science.



GALAXY FINDER



DO YOU KNOW?

Seeing planets beyond Solar System



This artist's concept illustrates a young, red dwarf star surrounded by three planets

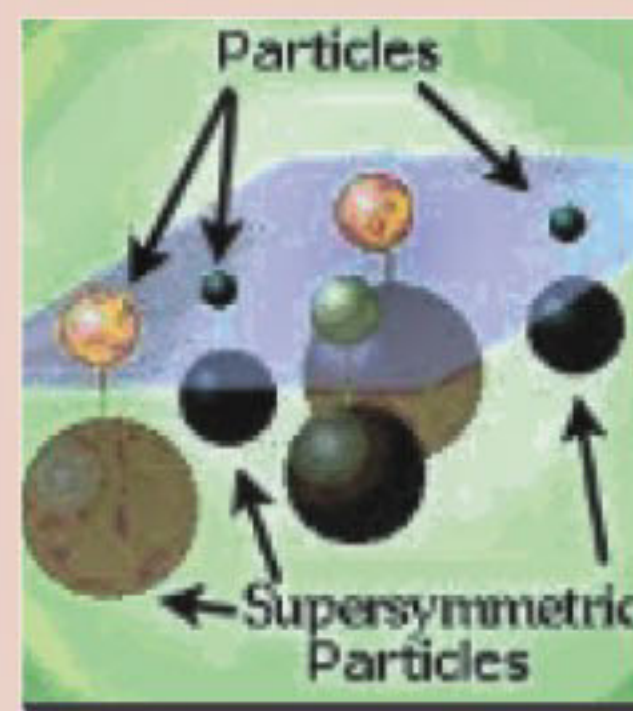
Astronomers have come up with a new way of identifying close, faint stars with NASA's Galaxy Evolution Explorer satellite. The technique should help in the hunt for planets that lie beyond our solar system, because nearby, hard-to-see stars could very well be home to the easiest-to-see alien planets.

The glare of bright, shining stars has frustrated most efforts at visualizing distant worlds. So far, only a handful of distant planets, or exoplanets, have been directly imaged. Small, newborn stars are less blinding, making the planets easier to see, but the fact that these stars are dim means they are hard to find in the first place.

Fortunately, the young stars emit more ultraviolet light than their older counterparts, which makes them conspicuous to the ultraviolet-detecting Galaxy Evolution Explorer

Source: Science Daily

What are superpartner of particles?



superpartner is a portmanteau of the words supersymmetry and partner (particle is a portmanteau of supersymmetry and particle).

In particle physics, a superpartner (also sparticle) is a hypothetical elementary particle. Supersymmetry is one of the synergistic bleeding-edge theories in current high-energy physics which predicts the existence of these "shadow" particles. The word