RF_MH_4_SUDHA

Harmonising Personal and Professional Life.

(A radio talk by the Director of [illegible])

Sress: Opposite of harmony is disharmony- that is stress. It is something that all of us have experienced in life- atleast once in our lives. It is something that all of us felt like running away from the reality of sressfull situation, of a dangerous situation. It is something like that we can imagine of a person who tries to run away at a high speed from a snake or a ferocious [illegible] dog that comes to bite him. During that time what happens to the person concerned? There will be physical, mental (emotional) changes in him. In a stressfull situation there will also be social changes in the person concerned.

Physical : Muscle Changes; muscle become tensed up. There may be pain on his legs, hands, shoulders, neck, eyes, forhead, chest, throat, back etc...
His extremities become cold and there is sweating. Breathing will be fast and a feeling of chocking on his throat.
Pulse becomes rapid; B.P may be elevated.

If it continue for a longer period the kidney wil produce more adrenaline hormone and that will be pumped into the blood stream. The adrenaline in the blood makes the blood vessels to narrow down. As a result there will be high blood pressure, problems of the heart and blood vessels that can create a stroke which paralyses the person partially or completely.

It can also create ulcers in the stomach, and in the intestines which can bleed unto death. The person can also become diabetic, become slowly obesed and get also back pain, and spondilosis. The person feels tired, exhausted, inacive, sleepy and begins to eat more and more and slowly obesity will set in. His way of eating becomes habitual and compulsive. These problems are called psychosomatic problems. The body (soma) is affected due to mental (psyche) problems.
Many people become addicted to alcohol or drugs to get rid of stress. But that creates more stress. It is a vicious circle.

Mental / Emotional Symptoms : The person with stress feels depressed, moody, irritated, angry, hatred, and jealousy towards others. He blames others to cover up his own imbalances. He tells lies to impress others or to protect his own self-image.

His emotions act as a chain system without the person's knowledge and makes the person imprisoned like a cocoon. He may not be aware

of his emotions. He becomes insensitive to others feelings and needs. He finds it difficult to keep up relationship with others. He will be very self-centered. He feels lonely and finds himself alone even in a crowd.

Stress comes always when there is an imbalance in thinking. The person does not accept the reality of life. He has over-expectations and is over ambitious too. There will be over emphasize on family matters or in his professional life. There is no balance in thinking and in doing. Some will have higher expectations of others but they themselves do not take up any responsibility for the common well-being. Such people are ready to find fault with others instead of loking into themselves and make an effort to correct themselves.

What to do ?

1. Look at the problem objectively, preferably write it down.
2. Accept that there is a problem.
3. Share with another person whom you can trust- with your spouse/ relative/ friend.
4. Be honest with yourself and with others.
5. Do not blame yourself or blame others. Blaming oneself or others does not change any situation. It only aggravates your stress.
6. Forgive others. Every person is a human being. Every body can make mistakes. A person who can forgive is a noble person.
7. Be sensitive towards others' needs and feelings. Each one's needs are different from yours. For example, there may be old parents, sick people, and young children in a family. Be sensiti to everybody. Do not force others to fit into your shoes.
8. Work hard and be happy with the efforts that you make. Do not remain in the shade of somebody else's umbrella.
9. Be good and caring, others will care for you.
10. Be grateful towards the care that you receive from others. Do not take anything for granted.
11. a) Pray together and stay together. If family members pray together (see every body's convenience) they will stay together in joys and sorrows.
b) Eat together at the same table - all family members should feel cared for.

c) Share together your happiness and burdens of life. Share together the family burdens too. Husband and children should help in the kitchen work too. Doing things together is fun.

12. Give more than you recieve. Give with out any expectations.

13. Behaviour is an external expression based on one's own thinking ~~and fe~~ and feeling. Therefore, be aware of your thinking and feeling ~~[illegible]~~ pattern and your behaviour pattern. Do not try to justify your own blotches. Probably your loved one can help you to become aware of your and behaviour or habits.

14. Accept yourself with your own strengths and weaknesses. Every body has both. Nobody is perfect in this world. Do not try to be perfect.

15. A desire to become a better person will help the person to become better.

Sr. Marina Kalathil fcc.

Received on K-mail ē Love
Attention: Reena

Reader's Digest

Dear Friend:

When someone is injured or suddenly becomes ill, there is a critical period - before you can get medical help - that is of the utmost importance to the victim. What you do, or what you don't do, in that interval can mean the difference between life and death.

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THE PARENT who never praised but was quick to criticize. The unfair boss who handed out the dismissal notice. The spouse who was unfaithful. These are people who inflicted wounds on us that may take years to overcome, if we ever do. We hold a grudge. We say the worst things to them — or brood over what we wish we'd said. We want revenge.

Actually, the best way to feel better is the opposite of getting revenge. Saying the words "I forgive you" could be the most powerful thing you'll ever do.

To forgive doesn't mean to give in; it means to let go. "Once you forgive, you are no longer emotionally handcuffed to the person who hurt you," explains Robin Casarjian, author of *Forgiveness: A Bold Choice for a Peaceful Heart*, who managed to forgive the man who raped her. One survivor of emotional abuse in childhood says, "Forgiveness extricates you from someone else's nightmare and allows you to live in a state of grace."

If forgiveness feels so good, why do so many people lug around so much resentment? One reason is that it may compensate for the powerlessness they experienced when they were hurt. "People may feel more in charge when they're filled with anger," points out Mary Grunte, co-author with Jacqui Bishop of *How to Forgive When You Don't Know How*. "But forgiving instills a much greater sense of power. A rabbi who lost his family in the Holocaust told us he forgave because he chose not to bring Hitler with him to America. When you forgive, you reclaim your power to choose. It doesn't matter whether someone deserves forgiveness; you deserve to be free."

Another reason we may withhold forgiveness is it can feel like weakness or capitulation. "Some think forgiving means saying they

You can free yourself from the pain and bitterness of a grudge. Here's how

Three Words That Heal

DIANE HALES

MH 4:2

were wrong and someone else was right," says Bishop. But forgiveness isn't about letting the other person off the hook, adds Grunte. "It's about pulling the knife out of your own gut." It can free the ex-wife who remains bitter towards her former spouse, the worker passed over for promotion, the relative not invited to a wedding. "In many cases, the other person isn't even aware of your misery," notes Suzanne Simon, co-author with her husband, Sidney, of *Forgiveness: How to Make Peace With Your Past and Get On With Your Life*. "While you are turning yourself inside out with bitterness, the one who hurt you doesn't feel a thing."

Forgiving is good for the body as well as the soul. "Reliving past hurts over and over again is bad for your health," says Dr Redford Williams, co-author of *Anger Kills*. "Simply remembering an incident that made a person angry has proved to be stressful for the heart." Negative feelings that cause stress have also been linked to high blood pressure, coronary artery disease and increased susceptibility to other illnesses.

While terrible hurts may take only minutes to inflict, forgiving the perpetrator often requires some time. "Initially you experience negative feelings such as anger, sadness and shame," says Michelle Killough Nelson, assistant professor of psychiatry at the Medical College of Virginia in Richmond. "Then you try to make sense of what happened or take mitigating circumstances into account."

"Ultimately you learn to see the person who hurt you through new eyes," adds Maureen Burns, author of *Forgiveness: A Gift You Give Yourself*. "With greater perspective, the hurter becomes one who was flawed, weak, sick or ignorant."

Some people may never reach the final stages of forgiveness. Those hurt in childhood by people they loved and trusted may find the process particularly difficult. Yet, even partial forgiveness can be beneficial.

If you want to move towards a future of forgiving but don't know how to start, follow these suggestions.

• **Practise on small hurts.** Forgiving the slights inflicted by strangers — the clerk who short-changes you or the driver who cuts you off — prepares you for the tougher task of forgiving major hurts, says Casarjian.

• **Free yourself of bad feelings.** Vent your anger or disappointment with a trusted friend or counsellor. "This allows you the strengthening experience of being heard," says Grunte. "You can let go of your feelings without the danger of saying or doing anything you'll regret later."

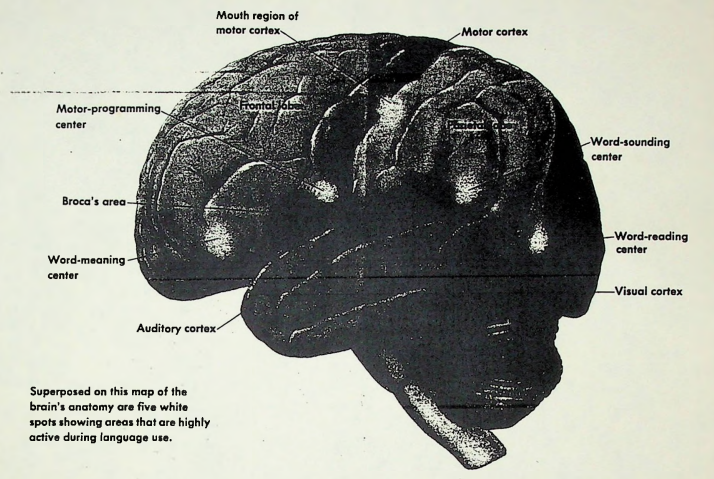
Adds Nelson, "Anger-releasing strategies, such as punching a pillow, can help. If you aren't so much angry as sad, keep a journal." By all means avoid negative expressions of anger such as driving recklessly, slamming doors or breaking things.

• **Write a letter to the person who hurt you.** Spell out the truth of what happened as you experienced it, without blaming or judging. Use "I" statements: "I feel —. I don't understand —." Describe the impact the person's behaviour had on you, and express your desire to hear his or her feelings and get the issue resolved.

• **Should you mail it?** "If there is a chance for good, send it," Burns advises. If the person who caused your hurt is dead, however, or incapable of listening to what you have to say, some counsellors suggest burning the letter, a symbolic way of letting anger go up in smoke.

• **Don't feel confrontation is necessary.** In cases of incest, assault and other criminal acts, victims may avoid forgiving the perpetrator because a confrontation isn't safe. In fact, you needn't face that person at all. Forgiveness can occur without anyone else's involvement or awareness. "The people you forgive may never realize they wronged you or never know you forgave them," says Casarjian. "They may be alcoholics who cannot hear what you're trying to

The brain speaks in living color: Bright spots generated by positron emission tomography (PET) show three areas in the left brain that are active during language tasks. The spot at the back lights up during reading. The middle area is active during speech. And the area at the front is involved in thinking about a word's meaning. These PET images of brain function have been laid over a magnetic resonance image of the brain's anatomy.



Superposed on this map of the brain's anatomy are five white spots showing areas that are highly active during language use.

programming area lying in parts of the brain halfway between the tip of your left ear and eyebrow. And it is in cortical areas underneath your forehead that operations critical to semantics—the analysis of a word's meaning—take place.

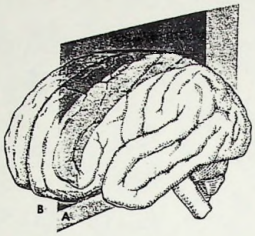
These PET pictures represent only the first foray into the brain areas involved in processing language, yet they are already causing something of a stir. According to conventional neurological wisdom, for example, to understand a word that we read, or to repeat it out loud, our brain must first translate the word's printed, visual form into an auditory form—in other words, we must sound out the words in our head. "But to our surprise," says Marcus Raichle, head of the brain study group at St. Louis, "our images show that this translation isn't necessary." Somehow the visual form of a common word like *screen* can be directly shot forward to the motor areas controlling the mouth, or the semantic areas within the forehead, without being internally sounded out in the auditory cortex.

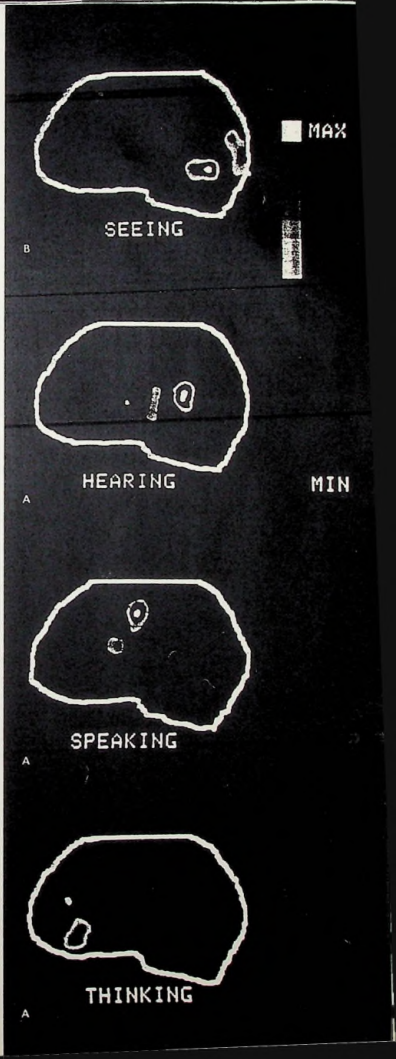
What happens, though, when we read verse and have to consider the way words sound? To return to the lines from Prufrock, suppose a person is shown the word *screen* above a series of other words—*magic, lantern,* and *mean*—and asked to determine which of these words rhyme. "Then we see an area near the auditory cortex become active," says Raichle. This word-sounding region in the auditory cortex appears to come into play, even though the sounds are "only heard in our head." The language system emerging from this data is flexible rather than fixed and linear. It has "a number of component parts that can be added or left out depending on the nature of the task."

The researchers obtain PET images of brain activity by tracing blood flow patterns. The rationale is this: Blood is brain fuel, so to speak. When a particular part of the brain increases its level of activity, more blood is shunted toward the site. The first direct demonstration of this phenomenon in humans came to light in 1928. A man who had been born with a large cluster of abnormal blood vessels at the back of his brain went to a Boston hospital to have the vessels removed. "And this guy told people that whenever he opened his eyes, he heard this *shwih, shwih* sound," Raichle recounts. What this man was hearing—a noise like rustling bursts of wind—was the sound of his own blood being pumped through his visual cortex each time it became stimulated.

In the course of operating upon the patient, however, the Boston doctors decided that the blood vessels couldn't be removed without causing irreparable brain damage. But their attempt at surgery left the patient without any bone over the net of blood vessels; they were just covered by scalp. "So now," continues Raichle, "the doctors could lay this guy down on a couch, and hear this *shwih, shwih* sound with a stethoscope when he was reading a newspaper, and then hear the sound stop when he closed his eyes."

For most of his 25-year career, Raichle has been studying blood flow patterns to glean information about the brain. Initially, he remembers, the techniques that he and others used were rather crude. The traditional method was to inject radioactive xenon into the bloodstream, but the radiation emitted could only tell them if brain activity had increased near the surface of





As we see, hear, speak, and think about words, areas progressively farther forward in the brain become active. The PET images are taken through sections A and B of the left hemisphere. The colors in the images correspond to levels of brain activity. Red areas represent spots of intense activity; blue areas are relatively inactive.

the brain. "We didn't have a lot of credibility in neurobiology—people thought we were the plumbers of the brain," he says, chuckling. "And in all honesty, I don't think I could have envisioned when I started that we would be here taking apart something as complicated as language. But then PET came along—and now all that's changed."

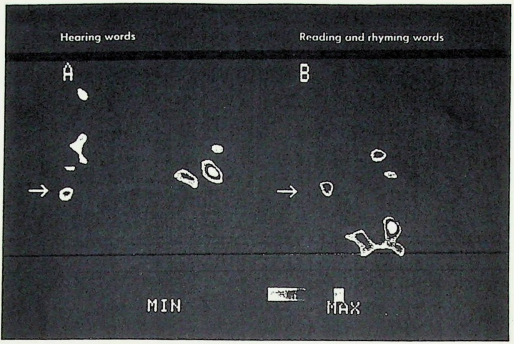
The lights in the PET room have been shut off, signaling that a language experiment is about to begin. In the gloom a human volunteer lies on a table. His head is positioned inside a doughnut-shaped machine, which is surrounded by a ring of radiation-detecting crystals. The man lies still, his arms outstretched, his head cradled inside a mask that has been molded to his contours. Suspended a foot above his face is a computer monitor on which a small white cross is displayed.

"Just relax and keep your eyes fixed on the cross," says Steve Petersen to his subject.

A plastic syringe filled with water containing a radioactive form of oxygen has rocketed up a pneumatic tube from the basement six floors below, where the cyclotron that produces the tagged water is housed. Peter Fox takes the syringe in gloved hands and shoots its contents into the intravenous line feeding into the subject's arm. The tracer then circulates in the man's blood, emitting positrons—particles of antimatter—which collide with electrons in the body. As antimatter and matter meet, they produce a tiny explosion of gamma ray energy.

Within ten seconds the positron-emitting blood has reached the brain, and Fox switches on the PET scanner. Now the ring of radiation detectors starts wobbling around the metal doughnut like a Hula-Hoop, sweeping the space around the subject's head. For the 40 seconds he stares at the cross, radioactive blood continually rushes to his visual cortex, creating streams of gamma rays that are detected by the PET ring. Within minutes a computer nicknamed Rasputin reconstructs them into an image of blood flow within the brain. This first image serves as a

ILLUSTRATION BY TOM MOORE, PHOTOGRAPH COURTESY WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, ST. LOUIS



When we hear words (image A) the word-sounding area (marked with an arrow) in the brain lights up. Normally this area is not activated when adults read familiar words. But if we are asked whether two written words rhyme (image B), this word-sounding area suddenly comes into play. The illustration shows the brain section that produced the images.

control: it highlights the areas of the brain that are active when the subject looks at anything at all, not necessarily a word.

After ten minutes the subject begins his first linguistic task. Petersen instructs him to keep his eyes fixed on the cross on the TV monitor, but tells him that now single words will start flashing below the horizontal line at a rate of one a second.

"Don't repeat the words you see," Petersen instructs him. "Just look at them silently."

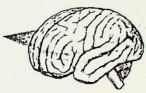
Fox injects the subject with another dose of the radioactive tracer, and another PET scan is taken as the subject silently reads the words flashing on the screen. Minutes later Rasputin has reconstructed the pattern of gamma ray emissions into a second image of blood flow within the brain.

With these two images in hand, Fox and Petersen can now perform the technique that has allowed the St. Louis group to map the living human brain with a precision never before possible. In the computer room across the hall from the PET machine, Petersen runs a program that places the second PET image—showing the areas of the subject's brain that are active when he reads written words—on top of the first image, which shows the areas that are active when he merely looks at a cross. This first image is then subtracted from the second one, producing a third image that isolates the brain areas involved just in reading. In particular it highlights a region of activity at the junction of the occipital and temporal lobes that seems specifically to recognize words.

"There is simply no way to reliably map the visual areas involved in reading without image subtraction," says Mark Mintun, a Washington University nuclear medicine specialist who developed the method. "You have to remember that everybody's an individual—our brains are all a little different. So if you just look at spots of brain activity on a single PET image, you have no way of knowing whether this activity is actually caused by the task the person is doing or by individual variability within that person's brain. But if you subtract a PET image of a person's brain doing task A from an image of the same person doing task A plus B, then you can subtract any individual variability. You can then localize the parts of the brain specifically recruited to do task B—in this case, to read individual words."

Similarly, a subject can be fitted with earphones and, in one scanning period, simply listen to a list of spoken words. Then in a second scanning period the subject can be asked to say aloud the words that he hears. Both tasks must require areas of the auditory cortex; but only the second uses areas of the brain involved in moving the mouth and tongue to speak. By subtracting the first image from the second, these speech-related regions can be clearly highlighted.

For the past 100 years



ideas about language organization have been based almost entirely on the study of people with brain lesions. Certain brain areas damaged by stroke or injury, it was found, resulted in certain types of linguistic deficits. One critical discovery was that use of language was nearly always disrupted when areas in the left hemisphere of the brain were damaged—that is, that language is primarily a function of the brain's left half. Patients with pure "alexia," for instance, who could see quite well but had great difficulty reading words, were generally found to have a left-hemisphere lesion at the junction of the occipital and temporal lobes, precisely the area that PET studies now show are active during reading.

Not all the St. Louis group's findings, however, have supported earlier theory. Indeed, they have come into conflict with the first and most famous of all language-lesion studies. In 1861 Paul Broca performed autopsies on the brains of patients with aphasia, a speech disorder that left them unable to articulate words in sentencelike sequences. He found that many had damage to an area in the left hemisphere between the eyebrow and the temple—"Broca's area," as it is now called. Until the early 1980s, in fact, many neurologists believed that this area was used only for speech; such great neurologists as the late Norman Geschwind of Harvard implied that our knowl-

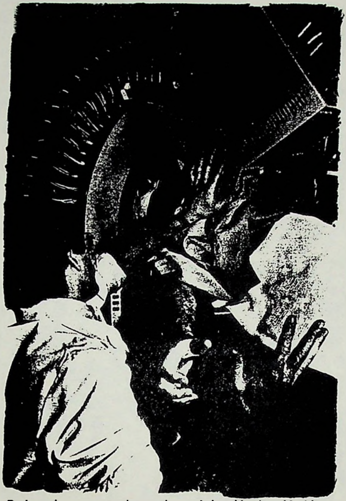
PHOTOGRAPH COURTESY WALLACE KIRKPATRICK INSTITUTE OF RADIOLOGY; ILLUSTRATION BY TOM MOORE

edge of grammar itself was stored in Broca's area.

"But a lot of other neurologists had noted that, to get the ungrammatical speech associated with Broca's aphasia, you had to knock out not only Broca's area but big chunks farther forward in the frontal cortex, as well," says University of Oregon cognitive psychologist Michael Posner, who has collaborated on the PET language studies. What's more, patients with so-called Broca's lesions have difficulty performing many other motor tasks besides speaking.

PET studies have shown that in fact this brain region doesn't just process language. "We now think of Broca's area as a general motor-programming region that controls a variety of coordinated movements," says Fox.

The critical experiment involved comparisons of brain activity as subjects performed four different exercises. First they were shown words and asked to repeat them. The tongue and mouth areas lit up in the primary motor cortex—which contains areas corresponding to all the movable parts of the body—as did the motor-programming region near Broca's area. Next subjects were asked simply to move their tongues. Contrary to the classical Broca-Geschwind view, the Broca-related motor-programming area again lit up, as well as the tongue segment of the primary motor cortex. Similar results were obtained when subjects were asked to move their hands—except, of course, now the hand area of the primary motor cortex was active. Finally subjects were asked to imagine moving their hands. Since there



During a language study, a volunteer's head is placed inside a PET machine while words are flashed on a computer screen.

was no actual movement, there was no activity in the primary motor cortex. "But we did see activity in the motor-programming region around Broca's area," says Fox.

To imagine movements, then, we use areas of the brain controlling actual movement. Similarly, the St. Louis group has found, when we silently sound out a word—as in the rhyming experiment—we use a phonological coding area near our auditory cortex.

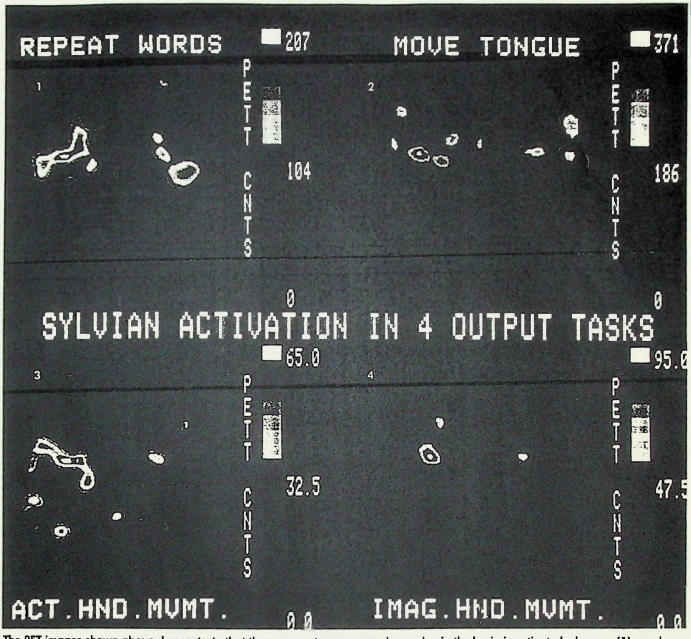
This internal sounding-out process, as we saw earlier, isn't necessary when adults read simple, commonly used words. Yet what is true of adult readers may not be true of children. "As I remember," says Raichle, "when learning to read in first grade, I had to learn to sound out the words on the page." During this learning experience, he speculates, these phonological coding areas are active. But when one becomes a proficient reader they're no longer necessary. Raichle hypothesizes, however, that if PET subjects were shown a foreign or more complicated word—*perestroika*, for example—"then you might well see components of this phonological system recruited back into the process."

Now, this is the really fun part of our work," says Raichle. "We finally have the PET technology working and we have these language-related areas to focus on. And now we can make up these great experiments to try to clarify fundamental questions about language and the brain."

According to medical textbooks, the path language takes in the brain resembles a relay race. When we read a word and speak it out loud, our visual system must pass a baton of information to our auditory system, which in turn must pass the baton to motor areas controlling speech. Yet the PET studies indicate that this relay race need not be linear. Instead the visual system can somehow toss its baton directly to the speech area, bypassing the auditory system. When people rhyme words, however, the auditory system does receive the baton. Rather than only one route to the finish line, there exist multiple routes, and the particular road we take depends on the task we face.

This multiple-route view agrees quite well with ingenious models of language-processing devised by cognitive psychologists. Yet they have generally viewed the brain as a black box; their computer models are abstract flowcharts of the operations underlying language use. With PET, however, the operations within the black box can be pictured in living color. "One way of looking at what PET is offering with these language experiments," says Fox, "is as a bridge between two camps that had no bridge before."

PET has also begun to explore another bridge, that between words and the things they symbolize. It is, after all, through language that we construct our perceptions of the social and natural world. Where in our brains do we attach meanings to words? What brain structures allow us to weave



The PET images shown above demonstrate that the same motor-programming region in the brain is activated when we (1) speak, (2) move the tongue without speaking, (3) move a hand, and (4) merely imagine moving a hand.

sounds into a description of the things we see, hear, and think?

The setup for the researchers' word-association experiments is essentially the same as for the word-reading one. Except now, as nouns are flashed on the monitor, the PET subject is asked to give uses for the nouns. "So if *car* flashes up," says Fox, "you can say *drive, ride,* or, if you're a car salesman, *sell.*"

Classical neurology places the brain center for meaning and comprehension near the auditory cortex. But this area fails to light up during the PET experiments. Instead three major brain areas show up on the images: the right cerebellum; a cluster of areas in the left frontal cortex; and a region in the middle of the frontal cortex called the anterior cingulate. Because the nouns flash by at the speed of one a second, a high degree of attention is required just to keep pace and give a meaningful use for each noun. One notion of the relationship between these areas is that the right cerebellum serves to inhibit an incorrect response—merely to repeat the noun displayed, for instance—while the anterior cingulate acts as a gate that lets the appropriate verb obtained by the left frontal cortex pass through.

To test such ideas the researchers are planning experiments to see whether these areas are active in tasks other than normal speech. Does, for instance, the left frontal cortex light up when users of American Sign Language employ hand signals to generate verbs associated with nouns? Might this frontal region be a general symbol-processing area, active during mathematical reasoning, or when a musician reads a score? Fox and Petersen think the answer to these questions may well be yes.

Human language has other aspects, of course. Eliot's "Love Song of J. Alfred Prufrock" begins with the famous words: "Let us go then, you and I,/When the evening is spread out against the sky/Like a patient etherised upon a table. . . ."

PHOTOGRAPH COURTESY WILLIAM JAMES INSTITUTE OF PSYCHOLOGY

One would predict that the reading aloud of these words—which depend on vivid visual imagery, on rhymes and complex semantic associations, on sound as well as sense—would activate all the language-related regions of the brain. And yet the words have powerful emotional resonances as well. The pleasure conveyed by the first two lyrical lines is then followed by a disorienting anxiety, as the stillness of the evening sky is compared to a patient laid out for surgery.

"One can come away from a lot of contemporary neuroscience with the conception of the brain being just a cold, hard, calculating machine," says Raichle. "But there's no question that our emotions are absolutely critical to our use of language." Anxiety, pleasure, the full range of human emotion "have to be part of the equation—and we think they're now an approachable part."

On the blackboard in the conference room adjoining his office, Raichle has drawn a diagram with two perpendicular axes. He has labeled the vertical axis SPACE; it describes the group's efforts to map the functional structures within the "space of the brain." The horizontal axis is labeled TIME, and it describes experiments that may help define how these structures are successively activated during language use. This TIME axis leads to an entity that Raichle has labeled MIND. At the upper right corner, where lines extending from the mind and brain axes converge, Raichle has written, in a joking way, THE ANSWER?

Raichle has left for the evening, and a visitor asks Fox and Petersen why, in Raichle's diagram, the brain is associated with space, the mind with time.

"Because the brain is a physical structure," says Fox. "The brain exists in space. But now the mind—the mind operates in time alone."

"Some of us don't really believe that though," says Petersen.

"Why not?" says Fox. "You can only deal with the mind as an entity in time. What other dimension does it operate in?"

"You're a dualist," says Petersen, laughing.

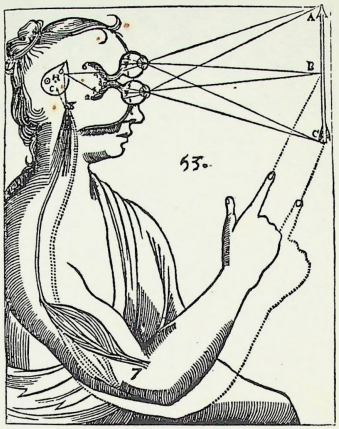
Dualism, the metaphysical separation between body and mind, is a concept that stems from the great seventeenth-century philosopher René Descartes. Descartes proposed that the human body, including the brain, was essentially a machine whose functioning could be described by the mathematical laws of physics. Yet Descartes left one loophole. He noted that all structures of the brain exist in double form, except the pineal gland. For Descartes, then, the pineal gland became the seat of consciousness and the soul—the site of the pure, immaterial mind that guides us as we read, write, and talk.

Today, of course, there is hardly a respectable neuroscientist alive who thinks the mind exists apart from the functions of the physical brain and body. Yet what philosophers have called the "ghost in the machine"—Descartes's dualistic mind—continues to haunt efforts to scientifically describe human cognitive functions like language.

Even Fox and Petersen come close to falling into this trap when they discuss the anterior cingulate, an area that not only lights up during language-meaning tasks but may also be crucial to our very ability to act. "Patients with lesions to the cingulate are essentially creatures without a will," says Fox. "Their brain can work perfectly well—they can understand you, talk to you. But they have lost all volition. You can ask them a question and they may answer you the next day. Or they may just still be sitting there, inert."

"The cingulate is a very tricky area," says Petersen. "Because when you start to describe it, you find yourself describing the very thing that guides consciousness, more or less." Take this far enough, and you've put the ghost back in the machine. Petersen and Fox prefer to think of the anterior cingulate not as the executive director of language and consciousness, but perhaps as one gatekeeper among many. The brain regions needed for language, they theorize, must form a complex, interacting system in which perceptions, meanings, and emotions become organized into coherent form.

"There's this tendency now among scientists to snigger when you talk about these 'romantic' questions relating to language and cognition," says Petersen. "But these really are the most interesting questions—at least to me." He pauses, smiling. "So you try to be careful in your interpretations. You try to balance the science with the romance. But you still want some of the romance to come through." ❑



Descartes thought of the body as a machine—with one exception. The teardrop-shaped pineal gland, he believed, was the seat of consciousness and the soul.

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Geoffrey Montgomery wrote December's cover story on color perception.

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THE DRUG MENACE ON MAIN STREET U.S.A.

U.S.News & WORLD REPORT

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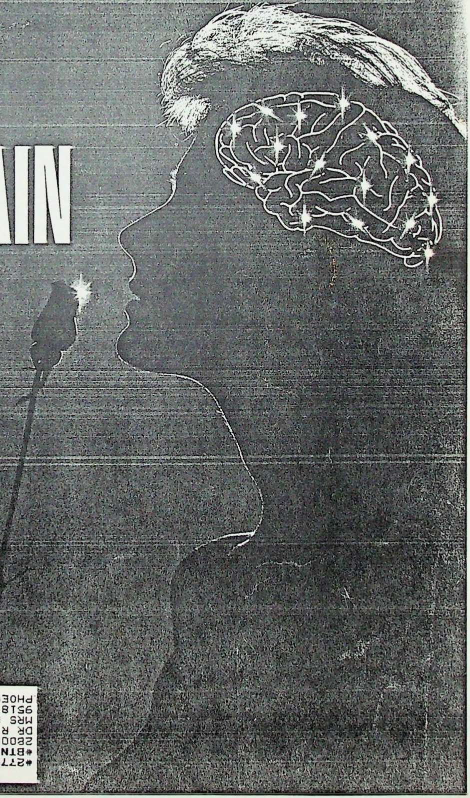
HOW THE BRAIN REALLY WORKS

The new science of memory, thought and emotion



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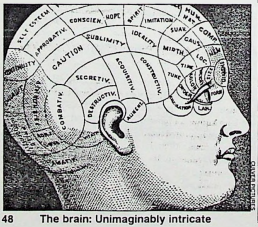

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How the brain really

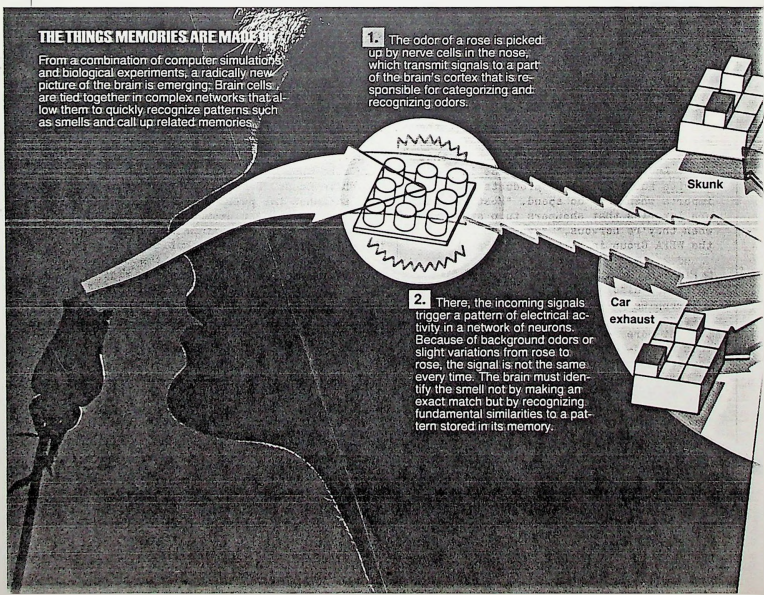
A new model of the brain is beginning to explain how it can do things the most powerful computers cannot—recognize faces, recall distant memories, make intuitive leaps. The key: Intricate networks that link together the brain's billions of nerve cells

"Imagine a block of wax. . . ." So wrote the Greek philosopher Plato more than 2,000 years ago to describe memory. Since then, scholars have invoked clocks, telephone switchboards, computers—and even a cow's stomach—in equally futile attempts to explain the mysterious workings of the brain.

But an explosion of recent findings in brain science—aided by new computer programs that can simulate brain cells in action—is now revealing that the brain is far more intricate than any mechanical device imaginable. For the first time, brain researchers are beginning to explain how the brain can call up distant memories from a vast storehouse of recollections and instantly recognize faces, odors and other complex patterns—tasks that even the most powerful electronic computers stumble over.

"For physicists, the most exciting time was during the birth of quantum mechanics earlier this century," says Christof Koch, a brain researcher at the California Institute of Technology. "We are seeing the same excitement now in neuroscience—we are beginning to get an understanding of how the brain really works."

Scientists are now coming to regard the brain as far from some kind of orderly, computerlike machine that methodically plods through calculations step by step. Instead, the new image of our "engine of thought" is more like a beehive or a busy marketplace, a seething swarm of densely interconnected nerve cells—called neurons—that are continually sending electrochemical signals back and forth to each other and altering their lines of communication with every new experience. It is in this vast network of neurons that our thoughts, memories and perceptions are generated in a cellular version of a New England town meeting.



works its wonders

This new view of the brain has burst into every corner of science where researchers think about thinking. Brain scientists are hoping that a comprehensive new theory of how the mind works will lead to ways to control afflictions such as epilepsy and Alzheimer's disease. Computer researchers are looking at how the brain computes in an attempt to give robots eyesight, hearing and memory and to build brainlike machines that can learn by themselves. The new model of the mind even has philosophers dusting off hoary questions about the nature of rationality and consciousness.

A meeting of minds

The revolution in understanding the brain has come about because of a marriage of two widely different fields—neurobiology and computer science—that would have been impossible a decade ago. For years, computer researchers attempting to create machines with humanlike intelligence all but ignored the complex details of the brain's anatomy. Instead, they tried to understand the mind at the more theoretical level of psychology—that is, in terms of the brain's behavior.

Neuroscientists, meanwhile, were focusing on the brain's biology, using microscopic probes to sample electrical pulses from the 100 billion neurons that make up the brain and trying to unravel the chemistry of how those neurons communicate with one another. Many neuroscientists, however, are now beginning to realize that the brain is far more than the sum of its parts. "Suppose you wanted to know how a computer worked," says Koch. "You could sample the signals at all the transistors, and you could crush some up and see what they're made of, but when you were finished you still wouldn't know how the computer operated. For that, you need an understanding of how all the components work together."

With the recent development of inexpensive, powerful computers and the expansion of knowledge about the details of the brain's anatomy, researchers are finally teaming up with computer scientists to simulate the way neurons might join together in the vast networks that make up our mind. No one is suggesting this new approach will explain, neuron by neuron, how we fall in love or laugh at the Marx Brothers. Nor is it yet clear whether different types of neural networks are responsible for producing all

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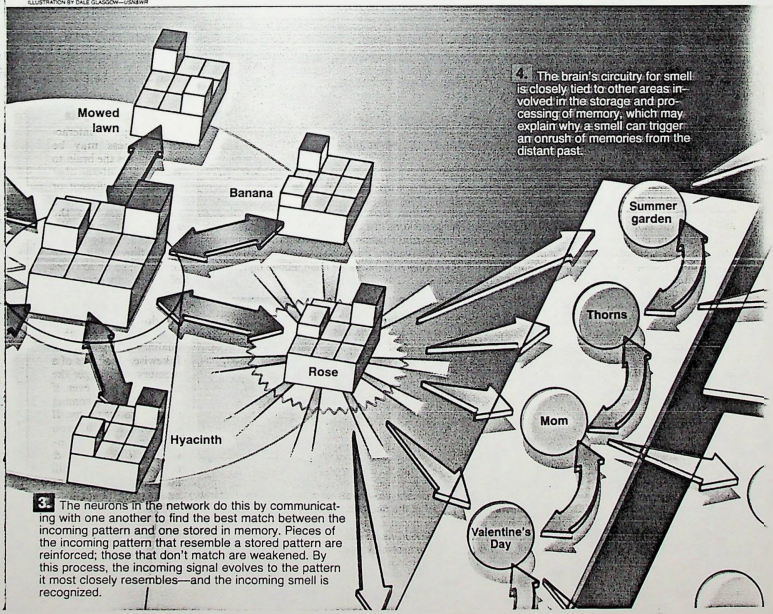


the remarkable things the brain can do. But researchers are beginning to see the outlines of the brain's remarkable organization, which allows it to learn new skills, remember old events, see and hear and adapt itself to new situations.

Laboratory models of the brain—called neural networks—consist of a dozen to several hundred artificial neurons whose actions are simulated on a conventional digital computer, just as modern computers can simulate the way millions of particles of air flow around a fighter jet's wings. Just as a single neuron in the brain is connected to as many as 10,000 other neurons, each artificial neuron in a neural network is connected to many others, so that all the neurons can send signals to each other. Simple rules that mimic how actual neurons alter their communication pathways in the brain are programed into the simulations as well.

The result is a device that shares some properties with the real thing but is far easier for scientists to take apart, examine and run experiments on. "These things aren't toys," says Richard Granger, a brain researcher at the University of California at Irvine who uses neural networks to model how the brain processes smell. "These are from real brain. We put data from the lab into our model, and then we run our model to get predictions that we go back and test in the lab."

Researchers are creating neural networks that show how the brain makes general categories of odors such as cheese or fruit and distinguishes between specific odors such as Swiss or cheddar. Others are modeling the way a casual mention of a particular place or event can evoke a memory of a long-lost friend, how the brain organizes incoming signals from the eyes to give us vision and how neurons rearrange their connections to restore operations after a damaging stroke or in response to a new task.

The models are also giving researchers new insights into the dynamic process by which the brain does all these things. A neuron takes a million times longer to send a signal than a typical computer switch, yet the brain can recognize a familiar face in less than a second—a feat beyond the ability of the most powerful computers. The brain achieves this speed because, unlike the step-by-step computer, its billions of neurons can all attack the problem simultaneously.

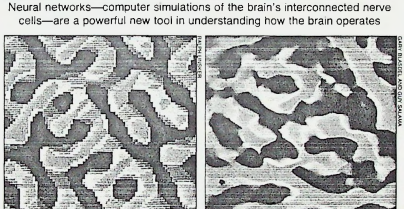
This massive collection of neurons acting all at once makes decisions more in the manner of a New England town meeting than of a highly structured bureaucracy. The brain's freewheeling, collective style of processing information may explain why it has trouble doing mathematical computations that are easily done by a $5 calculator. But it may also be what gives the brain its enormous flexibility and the power to match patterns that are similar but not exact, draw scattered bits of visual data into a cohesive picture and make intuitive leaps.

Consider what the brain must do to recognize a smell, for example. It's unlikely that one barbecued-rib dinner will smell exactly like another or that the strength of the odor will be the same each time it is encountered. But a neural network doesn't simply check if the pattern of nerve signals coming from the ribs exactly matches any of the patterns stored in memory: Comparing patterns one by one would take far too long.

Instead, the network goes through a process analogous to a group of people debating evidence. Neurons that are highly activated by the odor signal strongly to other neurons, which in turn activate—or in some cases deactivate—others in the group, and those neurons will influence still others and feed back to the original senders. As the neurons signal back and forth, varying their levels of activity, the group as a whole evolves toward a pattern that most closely matches one in memory, a pattern that reflects fundamental similarities among the many variations of how barbecued ribs smell.

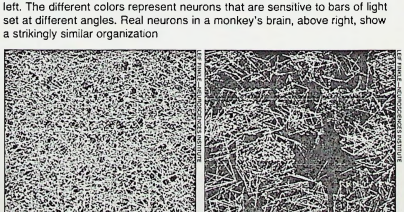
SIMULATING THE BRAIN

Neural networks—computer simulations of the brain's interconnected nerve cells—are a powerful new tool in understanding how the brain operates



COURTESY RICHARD GRANGER, UNIVERSITY OF CALIFORNIA, IRVINE

Theory vs. experiment: Artificial neurons in a computer model spontaneously organized themselves into specialized clusters for processing vision, above left. The different colors represent neurons that are sensitive to bars of light set at different angles. Real neurons in a monkey's brain, above right, show a strikingly similar organization



COURTESY CHARLES GROSS, PRINCETON UNIVERSITY

Adapting to experience: A model of the neurons that sense touch shows how the brain can rewire itself—for example, when a stroke victim regains use of a limb. The randomly connected neurons, at left, were stimulated with signals from a "hand"; they organized themselves into specialized groups, right

Completing thoughts

This type of interactive process may be what allows the brain to recognize patterns that are slightly different or incomplete as nonetheless belonging to the same overall group. We are able to recognize all the different kinds of things we sit on as types of chairs, for example, even though we might have a hard time writing down exactly what it is about them that qualifies them as such. Likewise, small bits of a memory can trigger the whole memory, even if some of the incoming information is faulty: If someone asks if you have read the latest issue of *U.S. News & Global Report,* you still know which magazine he is talking about.

This kind of memory is possible because, just as some members of a town meeting outshout

others, some neurons in a network have stronger communications pathways to their neighbors. These "rabble-rousing" neurons can have a strong influence on the way other neurons behave, and so even when only a few of them are activated, they can nudge the network in the right direction.

By simulating these processes in the lab, researchers are gaining surprising insights into how neural networks—and thus perhaps the brain itself—can perform these tasks. Granger and his colleague at the University of California at Irvine, neuroscientist Gary Lynch, used data from their lab experiments on neurons in a rat's olfactory system to create a neural-network simulation of smell recognition. The 500-neuron network was presented with groups of simulated odors, each containing variations of a general pattern such as cheese or flowers.

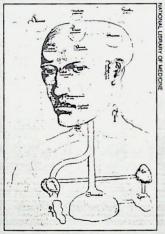
At first, the network responded with a unique pattern of activity for each odor. But as it processed more and more odors that were similar, those neurons that were repeatedly activated became stronger and stronger, eventually dampening the activity of other neurons that were less active. Eventually, these highly activated neurons became representatives of each category of smells: After a half-dozen samplings of the group, says Granger, the artificial brain circuit responded with the same pattern of neurons on the first sniff of any of several smells within one category. On subsequent sniffs, however, the neural network did something totally unexpected. The old pattern disappeared, and new neurons fired, creating a different pattern for each particular smell. "We're thrilled with it," says Granger. "With the first sniff, it recognizes the overall pattern and says: 'It's a cheese.' With the next sniffs, it distinguishes the pattern and says: 'It's Jarlsberg.' "

Studies of actual brain tissue are continually refining the ground rules that scientists program into these models—thus making them more realistic. One recently confirmed rule—that two neurons communicate more strongly if both have been active at the same time—has been incorporated into many neural network simulations. Often, such simple rules are enough to produce the striking result that a network will organize itself to perform a task such as smell recognition when given repeated stimuli.

Biological studies have also given some exciting confirmation that neural network models are on the right track. Recent experiments with neural networks that model vision in monkeys have also shown a surprising match with the actual biology of the brain. They may also explain how the growing brain of a fetus lays down its neural circuitry. Nearly two

The mind misconstrued, through history

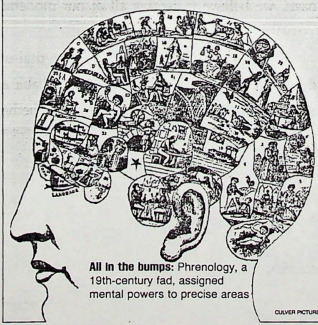
Since the ancient Greeks, scholars have struggled to find analogies to explain the machinery of the mind, invoking everything from pumps to computers



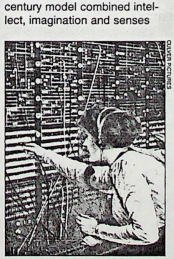
Brain as radiator: To Aristotle, thinking was in the heart; the brain cooled the blood

Spheres of thought: A 17th-century model combined intellect, imagination and senses

Rational soul: Descartes viewed the mind as a machine, in which nerves were likened to the plumbing of fountains



All in the bumps: Phrenology, a 19th-century fad, assigned mental powers to precise areas



Electronic stand-ins: The brain has often been compared to the latest complex machines. But even a switchboard or a supercomputer—two 20th century models of the mind—fall short of the real thing

CULVER PICTURES

decades ago, Harvard University brain researchers Torsten Wiesel and David Hubel discovered that a monkey's brain has neurons that respond to very specific types of visual scenes such as spots of light or dark bars set at different angles. Yet these neurons are developed before birth—and before any light signals can influence the way they are organized.

Ralph Linsker, at the IBM Thomas J. Watson Research Center in Yorktown Heights, N.Y., has created a neural-network model of the brain's visual system that shows how the brain might be able to wire itself up spontaneously to do such tasks. Linsker's network consists of several sheets of neurons arranged in layers, with groups of neurons in one sheet connected to various individual neurons in the sheet above it. To make his network evolve, Linsker uses the same neuroscientific rules that govern how synapses in the brain increase their communication strength when the neurons they connect to are active at the same time.

Linsker starts his model off with random connections between neurons and feeds in a random pattern of stimulation to the neurons at the bottom layer. Just as with Granger's smell model, the network's simple reinforcement rules cause the neurons to organize themselves into groups for specific tasks. By the time the input pattern has worked its way up through the network, the neurons in the top layer have formed into specialized clusters that respond the most when bars of light with specific orientations are presented—just like the specialized neurons in the monkey's brain.

The network organizes itself because each neuron in one layer gets information from a committee of neurons in the layer below it. Those neurons that "vote" with the majority get reinforced while lone dissenters lose their influence. "As the group develops a consensus," explains Linsker, "the mavericks get kicked out."

New connections

New studies have shown that, even though much of the brain's wiring is laid down in the womb, the connections between neurons can also be rearranged during adulthood. It is likely, in fact, that your brain has made subtle changes in its wiring since you began reading this article. More-substantial rearrangements are believed to occur in stroke victims who lose and then regain control of a limb. Michael Merzenich of the University of California at San Francisco first mapped the specific areas in a monkey's brain that were activated when different fingers on the monkey's hand were touched, then trained the monkey to use one finger predominantly in a task that earned it food. When Merzenich remapped the touch-activated areas of the

Accounting for emotion

Fear, happiness and love are all part of the mind's machinery

The brain does a lot more than think. At the very moment you're deciding which chess piece to move or whether to invest in stocks or mutual funds, your brain is regulating your body temperature, making sure you're standing upright, telling you if you're hungry or thirsty and reacting to the attractive man or woman in the next room.

And when it comes to fear, anger, love, sadness or any of the complicated mixtures of feeling and physical response we label emotions, a loose network of lower-brain structures and nerve pathways called the limbic system appears to be key. Researchers stimulating various parts of this system with an electrode can produce strong responses of pleasure, pain or aggression. A cat, for example, will hiss, spit and growl when an electrical probe is inserted at a specific spot in the hypothalamus—a part of the limbic system that is also involved in regulating appetite and other bodily functions. An electrode in another region of the hypothalamus triggers pleasure so intense that a rat will press a bar thousands of times to receive it—and die from starvation in the process.

The most recent research, however, indicates that the experience of emotion has less to do with specific locations in the brain and more to do with the complicated circuitry that

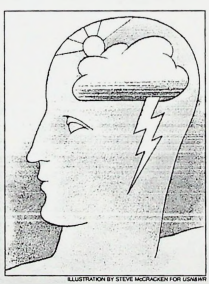


ILLUSTRATION BY STEVE McCRACKEN FOR USN&WR

interconnects them and the patterns of nerve impulses that travel among them. "It's a little like your television set," says neuroscientist Dr. Floyd Bloom of the Scripps Clinic and Research Foundation. "There are individual tubes, and you can say what they do, but if you take even one tube out, the television doesn't work."

A mugger or a cat? Researchers have been able to find out the most about primitive emotions like fear. Seeing a shadow flit across your path in a dimly lit parking lot will trigger a complex series of events. First, sensory receptors in the retina of your eye detect the shadow and instantly translate it into chemical signals that race to your brain. Different parts of the limbic system and higher-brain centers debate the shadow's importance. What is it? Have we encountered something like this before? Is it dangerous? Meanwhile, signals sent by the hypothalamus to the pituitary gland trigger a flood of hormones alerting various parts of your body to the possibility of danger, and producing the response called "fight or flight": Rapid pulse, rising blood pressure, dilated pupils and other physiological shifts that prepare you for action. Hormone signals are carried through the blood, a much slower route than nerve pathways. So even after the danger is past—when your brain decides that the shadow is a cat's, not a mugger's—it takes a few minutes for everything to return to normal.

Fear is a relatively uncomplicated emotion, however. Sophisticated sentiments—sadness or joy, for example—are much harder to trace. And even primitive feelings such as fear or rage involve complex interactions with the higher parts of the brain—witness our ability to become fearful or angry about an abstract idea. The mechanics of these interactions are still out of reach, but the same computer models scientists are using now to understand thinking may someday shed light on emotions as well.

by Erica E. Goode

monkey's brain, he found that the area responding to signals from that finger had expanded by nearly 600 percent. Merzenich found a similar rearrangement of processing areas when he simulated brain damage caused by a stroke.

Researchers Leif Finkel and Gerald M. Edelman of Rockefeller University were able to duplicate these overall phenomena in a neural network when they applied a simple rule to the behavior of small groups of neurons. Groups of neurons were set up to "compete" for connections to the sensory nerves. The researchers found that when they gave one group an excessive input—analogous to training the monkey to use a particular finger—that patch grew in size. When that input was stopped, the patch grew smaller.

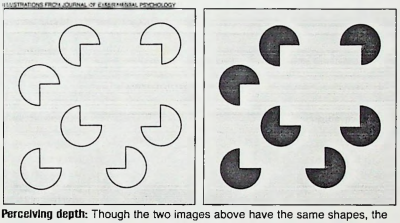
Working in concert

The biggest impact of neural networks may be in helping researchers explore how the brain does sophisticated information processing. Even though scientists can record signals from the individual neurons in the brain that might be involved in such a task as tracking an object with the eyes, they still don't know how the brain puts those millions of signals together to perform the computation. But because a neural network can adapt its connections in response to its experiences, it can be trained to learn sophisticated brainlike tasks—and then researchers can examine the artificial brain in detail to get clues to how a real brain might be doing it.

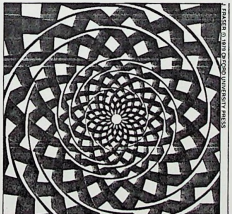
In one study, for example, a neural network helped researchers explain how the brain is able to judge the position of an object from signals sent by neurons connected to the eyes. Brain scientists Richard Andersen of the Massachusetts Institute of Technology and David Zipser of the University of California at San Diego trained a neural network to do the task by giving it data recorded from a monkey's neurons as the animal tracked an object moving in front of it. Since the researchers already knew the position of the object that the nerve signals corresponded to, they were able to "train" the network to do the task: They gave the network a series of recorded input signals and let the network adjust itself until it consistently was able to give the right answer. The researchers then examined the network to reveal the complex calculations it uses to forge all the data into the correct answer.

These experiments suggest that some extremely complex feats of perception can, at least in theory, be explained by the interaction of many neurons, each of which performs a seemingly quite simple task. Terrence Sejnowski of Johns Hopkins University, for example, created a neural network that learned to judge how much a spherical object was curved by the way a beam of light cast a shadow on it. Much to his surprise, Sejnowski found that even though the network was trained to compute the object's shape from its shading, individual neurons within the network actually responded with the most activity when he later tested the network not with curved surfaces but with bars of light. In fact, the neurons responded just like the specialized neurons in the monkey's brain discovered years ago by Hubel and Wiesel—neurons that had long been assumed to be involved in helping the brain detect the straight edges of objects, not their curvature. "My network doesn't prove that those cells in the monkey's brain are actually there to compute curvature and not edges," says Sejnowski. "But it does mean that you can't make quick assumptions about what the entire brain is doing simply by sampling what individual neurons are doing. You need to look at the system as a whole." Several neuroscientists, inspired by Sejnowski's study, plan to investigate whether such curvature-computing cells actually exist in the brain.

The ability of neural networks to learn to simulate these brainlike tasks has also inspired researchers who are interested in creating machines that act more like real brains. While conventional computers can perform powerful feats of number crunching, they are dismal failures at doing more-brainlike operations such as seeing, hearing, and understanding speech—things we usually take for granted but that are extremely complex computationally. "The things that distinguish us from monkeys—playing chess, for example—are easy for computers to do," says Caltech's Koch. "But when it comes to doing things we share with the animal kingdom, computers are awful. In computing vision or movement, for example, no computer comes even close to matching the abilities of a fly." Engineers at the National Aeronautics and Space Administration, the Defense Department and computer companies around the world are all busily scrambling to find the best ways to implement neural networks on computer chips.



Perceiving depth: Though the two images above have the same shapes, the right one is perceived by the brain as two overlapping squares—evidence that the brain uses multiple visual clues simultaneously to judge depth



Spiral or circle? Try tracing it with your finger. Given conflicting cues, the brain chooses one interpretation over another

It may be a long time, however, before anybody is able to build a machine that actually works like a brain. After all, nature has had a 7-million-year head start on engineers, and researchers have never encountered anything as complex and ingeniously designed as the 3-pound lump of tissue inside your skull.

Meanwhile, the first steps at understanding how the brain really works have already been taken. Many brain researchers now believe that the bigger mysteries of how we make choices and use language—or why some memories last forever while others fade—will inevitably yield their secrets. Even the nature of the brain's creativity, attention and consciousness may someday be revealed. "Basically, the brain is a neural network—however complicated," says Andersen. "It will take time, but we will solve it." ■

by William F. Allman

CONVERSATION ■ Patricia Churchland of the University of California at San Diego is attempting to blend the findings of brain science with philosophy. She is the author of *Neurophilosophy*

Philosophy in the age of neuroscience

For a long, long time, people have puzzled about what makes us the way we are: How it is possible for us to be aware of things, to be conscious, to learn and perceive. We have this rather time-honored and ancient feeling about ourselves that we have a will that is free and that we make choices that emanate from our free will. But in the end, all of that has to come from the brain.

What is exciting about the new era is that real inroads are being made into what used to be thought of as philosophical questions that would never, ever be answered by science. It looks possible now that we are going to understand some very basic things about the nature of how our brains work. And my hunch is that we are in for some real surprises. We are going to come to think of ourselves very differently—and I think that is immensely exciting.

There is already psychological data showing that the conventional wisdom on rationality—that it's pretty much deduction—is clearly not right. It's much more complicated and messy and sophisticated—and, if you like, powerful—than logic.

We think of ourselves as mulling over a decision such as "Should I do this?" or "Should I maybe not do that?" It may very well turn out that decision making and problem solving will look much more like the way neural networks function. The neurons in the networks are interacting and interacting—and finally they relax into a stable configuration, and that's your answer. Then, introspectively, we say to ourselves, "Ah, I've decided I will, after all, go to Hawaii."

PHOTOGRAPH: PICTURE GROUP/REUTERS

That isn't how we're accustomed to thinking about how we make decisions. We'll have to think of choice and responsibility in a very different way. Like all new ideas, it's a little bit frightening. The old ideas are especially near and dear to us because, after all, this isn't a theory about whether the earth is flat or whether the sun goes around the earth; this is about us—about what we are and how we work and what makes us the way we are. And people sometimes find it rather upsetting.

Ignoring science

I was inspired by a comment made by [the late physicist] Richard Feynman in an interview in *Playboy* magazine, of all things. He made this very intemperate—but very accurate—remark that if philosophers are going to ignore the science of their day, they can't hope to understand the things they want to understand.

Philosophers used to speculate and think about memory—laying down the boundary conditions for what they thought would be a useful answer and so forth—but it was always in terms of behavior. By and large, philosophers didn't pay any real attention to the meat itself. Neuroscience was not interesting. Now, the puzzle of memory is being solved scientifically by neuroscientists and neural-network modelers. They've got us to the point where the metaphors we used to have as a kind of crutch we can now throw away and say, "Let's understand the brain itself."

Philosophers have to admit that they were wrong about certain things. We thought memory was a single kind of process, but we now see that there are probably four or five kinds of ways that memories get stored. It seemed to me that the traditional style of doing philosophy was not going anywhere, and that I really had to look at the brain.

Philosophers traditionally have been the ones who try to introduce some order and organization into areas that have not yet become sciences. Now that physics, chemistry and biology are sciences, philosophy has mostly to do with the nature of the mind. And my feeling is that as the mind/brain becomes more and more understood scientifically, philosophers will have less and less to think of as uniquely their own.

A model of the world

The critical question, and one that both philosophers and neuroscientists can collaborate on, is how you can represent a model of the world in your brain—not only the world of space and time and other people and objects and trees and mountains but your own internal world, too: Your model of yourself as a being that is extended through time, that has a certain personality, that has certain desires and a memory store that can be tapped.

Immanuel Kant made the argument that perception is not likely to be just a passive process—that, in some sense, the brain *builds* the model of the world; it doesn't just passively receive an image in the way that a piece of film just passively receives an image. So the big questions are: How do brains use representations to make these models of the external and the internal worlds? And what does that mean for how we think of ourselves?

The whole field of ethics is something that philosophers may need to rethink quite thoroughly in the light of developments in both neuroscience and psychology. You don't want to say that what is right is simply what most people think is right. The norms in ethics in a sense come from us because of the kind of evolutionary history we have and because of the kinds of brains we have. It's not that a child has it imprinted on his brain that certain things are right and certain things aren't; somehow or other, we generate these conceptions of what is right and what is not right. And we probably do that in the same way we learn everything else, the way that neural networks often learn things—and that is by being presented with examples.

And all those conceptions are always evolving. At my ripe old age, I am still presumably evolving my understanding of how to interact with other humans.

Conversation with William F. Allman

MYERS-BRIGGS TYPE INDICATOR

FORM F

by Katharine C. Briggs and Isabel Briggs Myers

DIRECTIONS:

There are no "right" or "wrong" answers to these questions. Your answers will help show how you like to look at things and how you like to go about deciding things. Knowing your own preferences and learning about other people's can help you understand where your special strengths are, what kinds of work you might enjoy and be successful doing, and how people with different preferences can relate to each other and be valuable to society.

Read each question carefully and mark your answer on the separate answer sheet. *Make no marks on the question booklet.* Do not think too long about any question. If you cannot decide on a question, skip it but be careful that the *next* space you mark on the answer sheet has the same number as the question you are then answering.

Read the directions on your answer sheet, fill in your name and any other facts asked for, and work through until you have answered all the questions.

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TEXTS PRINTING, 1985

Which answer comes closest to telling how you usually feel or act?

1. Does following a schedule
   (A) appeal to you, or
   (B) cramp you?

2. Do you usually get along better with
   (A) imaginative people, or
   (B) realistic people?

3. If strangers are staring at you in a crowd, do you
   (A) often become aware of it, or
   (B) seldom notice it?

4. Are you more careful about
   (A) people's feelings, or
   (B) their rights?

5. Are you
   (A) inclined to enjoy deciding things, or
   (B) just as glad to have circumstances decide a matter for you?

6. When you are with a group of people, would you usually rather
   (A) join in the talk of the group, or
   (B) talk individually with people you know well?

7. When you have more knowledge or skill in something than the people around you, is it more satisfying
   (A) to guard your superior knowledge, or
   (B) to share it with those who want to learn?

8. When you have done all you can to remedy a troublesome situation, are you
   (A) able to stop worrying about it, or
   (B) still more or less haunted by it?

9. If you were asked on a Saturday morning what you were going to do that day, would you
   (A) be able to tell pretty well, or
   (B) list twice too many things, or
   (C) have to wait and see?

10. Do you think on the whole that
    (A) children have the best of it, or
    (B) life is more interesting for grown-ups?

11. In doing something that many other people do, does it appeal to you more to
    (A) do it in the accepted way, or
    (B) invent a way of your own?

12. When you were small, did you
    (A) feel sure of your parents' love and devotion to you, or
    (B) feel that they admired and approved of some other child more than they did of you?

13. Do you
    (A) rather prefer to do things at the last minute, or
    (B) find that hard on the nerves?

14. If a breakdown or mix-up halted a job on which you and a lot of others were working, would your impulse be to
    (A) enjoy the breathing spell, or
    (B) look for some part of the work where you could still make progress, or
    (C) join the "trouble-shooters" who were wrestling with the difficulty?

15. Do you usually
    (A) show your feelings freely, or
    (B) keep your feelings to yourself?

16. When you have decided upon a course of action, do you
    (A) reconsider it if unforeseen disadvantages are pointed out to you, or
    (B) usually put it through to a finish, however it may inconvenience yourself and others?

17. In reading for pleasure, do you
    (A) enjoy odd or original ways of saying things, or
    (B) like writers to say exactly what they mean?

18. In any of the ordinary emergencies of everyday life, do you prefer to
    (A) take orders and be helpful, or
    (B) give orders and be responsible?

19. At parties, do you
    (A) sometimes get bored, or
    (B) always have fun?

20. Is it harder for you to adapt to
    (A) routine, or
    (B) constant change?

21. Would you be more willing to take on a heavy load of extra work for the sake of
    (A) extra comforts and luxuries, or
    (B) a chance to achieve something important?

22. Are the things you plan or undertake
    (A) almost always things you can finish, or
    (B) often things that prove too difficult to carry through?

23. Are you more attracted to
    (A) a person with a quick and brilliant mind, or
    (B) a practical person with a lot of common sense?

24. Do you find people in general
    (A) slow to appreciate and accept ideas not their own, or
    (B) reasonably open-minded?

25. When you have to meet strangers, do you find it
    (A) pleasant, or at least easy, or
    (B) something that takes a good deal of effort?

26. Are you inclined to
    (A) value sentiment more than logic, or
    (B) value logic more than sentiment?

27. Do you prefer to
    (A) arrange dates, parties, etc. well in advance, or
    (B) be free to do whatever looks like fun when the time comes?

28. In making plans which concern other people, do you prefer to
    (A) take them into your confidence, or
    (B) keep them in the dark until the last possible moment?

29. Is it a higher compliment to be called
    (A) a person of real feeling, or
    (B) a consistently reasonable person?

30. When you have a decision to make, do you usually
    (A) make it right away, or
    (B) wait as long as you reasonably can before deciding?

31. When you run into an unexpected difficulty in something you are doing, do you feel it to be
    (A) a piece of bad luck, or
    (B) a nuisance, or
    (C) all in the day's work?

32. Do you almost always
    (A) enjoy the present moment and make the most of it, or
    (B) feel that something just ahead is more important?

33. Are you
    (A) easy to get to know, or
    (B) hard to get to know?

34. With most of the people you know, do you
    (A) feel that they mean what they say, or
    (B) feel you must watch for a hidden meaning?

35. When you start a big project that is due in a week, do you
    (A) take time to list the separate things to be done and the order of doing them, or
    (B) plunge in?

36. In solving a personal problem, do you
    (A) feel more confident about it if you have asked other people's advice, or
    (B) feel that nobody else is in as good a position to judge as you are?

37. Do you admire more the people who are
    (A) conventional enough never to make themselves conspicuous, or
    (B) too original and individual to care whether they are conspicuous or not?

38. Which mistake would be more natural for you:
    (A) to drift from one thing to another all your life, or
    (B) to stay in a rut that didn't suit you?

Go on to the next page.

39. When you run across people who are mistaken in their beliefs, do you feel that
(A) it is your duty to set them right, or
(B) it is their privilege to be wrong?

40. When an attractive chance for leadership comes to you, do you
(A) accept it if it is something you can really swing, or
(B) sometimes let it slip because you are too modest about your own abilities,
(C) or doesn't leadership ever attract you?

41. Among your friends, are you
(A) one of the last to hear what is going on, or
(B) full of news about everybody?

42. Are you at your best
(A) when dealing with the unexpected, or
(B) when following a carefully worked-out plan?

43. Does the importance of doing well on a test make it generally
(A) easier for you to concentrate and do your best, or
(B) harder for you to concentrate and do yourself justice?

44. In your free hours, do you
(A) very much enjoy stopping somewhere for refreshments, or
(B) usually want to use the time and money another way?

45. At the time in your life when things piled up on you the worst, did you find
(A) that you had gotten into an impossible situation, or
(B) that by doing only the necessary things you could work your way out?

46. Do most of the people you know
(A) take their fair share of praise and blame, or
(B) grab all the credit they can but shift any blame on to someone else?

47. When you are in an embarrassing spot, do you usually
(A) change the subject, or
(B) turn it into a joke, or
(C) days later, think of what you should have said?

48. Are such emotional "ups and downs" as you may feel
(A) very marked, or
(B) rather moderate?

49. Do you think that having a daily routine is
(A) a comfortable way to get things done, or
(B) painful even when necessary?

50. Are you usually
(A) a "good mixer", or
(B) rather quiet and reserved?

51. In your early childhood (at six or eight), did you
(A) feel your parents were very wise people who should be obeyed, or
(B) find their authority irksome and escape it when possible?

52. When you have a suggestion that ought to be made at a meeting, do you
(A) stand up and make it as a matter of course, or
(B) hesitate to do so?

53. Do you get more annoyed at
(A) fancy theories, or
(B) people who don't like theories?

54. When you are helping in a group undertaking, are you more often struck by
(A) the cooperation, or
(B) the inefficiency,
(C) or don't you get involved in group undertakings?

55. When you go somewhere for the day, would you rather
(A) plan what you will do and when, or
(B) just go?

56. Are the things you worry about
(A) often really not worth it, or
(B) always more or less serious?

57. In deciding something important, do you
(A) find you can trust your feeling about what is best to do, or
(B) think you should do the *logical* thing, no matter how you feel about it?

8. Do you tend to have
   (A) deep friendships with a very few people, or
   (B) broad friendships with many different people?

). Do you think your friends
   (A) feel you are open to suggestions, or
   (B) know better than to try to talk you out of anything you've decided to do?

). Does the idea of making a list of what you should get done over a week-end
   (A) appeal to you, or
   (B) leave you cold, or
   (C) positively depress you?

. In traveling, would you rather go
   (A) with a companion who had made the trip before and "knew the ropes", or
   (B) alone or with someone greener at it than yourself?

. Would you rather have
   (A) an opportunity that may lead to bigger things, or
   (B) an experience that you are sure to enjoy?

Among your personal beliefs, are there
   (A) some things that cannot be proved, or
   (B) only things than *can* be proved?

Would you rather
   (A) support the established methods of doing good, or
   (B) analyze what is still wrong and attack unsolved problems?

Has it been your experience that you
   (A) often fall in love with a notion or project that turns out to be a disappointment—so that you "go up like a rocket and come down like the stick", or do you
   (B) use enough judgment on your enthusiasms so that they do not let you down?

66. Do you think you get
   (A) more enthusiastic about things than the average person, or
   (B) less enthusiastic about things than the average person?

67. If you divided all the people you know into those you like, those you dislike, and those toward whom you feel indifferent, would there be more of
   (A) those you like, or
   (B) those you dislike?

[On this next question *only*, if two answers are true, mark both.]

68. In your daily work, do you
   (A) rather enjoy an emergency that makes you work against time, or
   (B) hate to work under pressure, or
   (C) usually plan your work so you won't *need* to work under pressure?

69. Are you more likely to speak up in
   (A) praise, or
   (B) blame?

70. Is it higher praise to say someone has
   (A) vision, or
   (B) common sense?

71. When playing cards, do you enjoy most
   (A) the sociability,
   (B) the excitement of winning,
   (C) the problem of getting the most out of each hand,
   (D) the risk of playing for stakes,
   (E) or don't you enjoy playing cards?

Go on to the next page.

Which word in each pair appeals to you more?

72.	(A) firm-minded	warm-hearted	(B)
73.	(A) imaginative	matter-of-fact	(B)
74.	(A) systematic	spontaneous	(B)
75.	(A) congenial	effective	(B)
76.	(A) theory	certainty	(B)
77.	(A) party	theater	(B)
78.	(A) build	invent	(B)
79.	(A) analyze	sympathize	(B)
80.	(A) popular	intimate	(B)
81.	(A) benefits	blessings	(B)
82.	(A) casual	correct	(B)
83.	(A) active	intellectual	(B)
84.	(A) uncritical	critical	(B)
85.	(A) scheduled	unplanned	(B)
86.	(A) convincing	touching	(B)
87.	(A) reserved	talkative	(B)
88.	(A) statement	concept	(B)
89.	(A) soft	hard	(B)
90.	(A) production	design	(B)
91.	(A) forgive	tolerate	(B)
92.	(A) hearty	quiet	(B)
93.	(A) who	what	(B)
94.	(A) impulse	decision	(B)
95.	(A) speak	write	(B)
96.	(A) affection	tenderness	(B)
97.	(A) punctual	leisurely	(B)
98.	(A) sensible	fascinating	(B)
99.	(A) changing	permanent	(B)
100.	(A) determined	devoted	(B)
101.	(A) system	zest	(B)
102.	(A) facts	ideas	(B)
103.	(A) compassion	foresight	(B)
104.	(A) concrete	abstract	(B)
105.	(A) justice	mercy	(B)
106.	(A) calm	lively	(B)
107.	(A) make	create	(B)
108.	(A) wary	trustful	(B)
109.	(A) orderly	easy-going	(B)
110.	(A) approve	question	(B)
111.	(A) gentle	firm	(B)
112.	(A) foundation	spire	(B)
113.	(A) quick	careful	(B)
114.	(A) thinking	feeling	(B)
115.	(A) theory	experience	(B)
116.	(A) sociable	detached	(B)
117.	(A) sign	symbol	(B)
118.	(A) systematic	casual	(B)
119.	(A) literal	figurative	(B)
120.	(A) peacemaker	judge	(B)
121.	(A) accept	change	(B)
122.	(A) agree	discuss	(B)
123.	(A) executive	scholar	(B)

Which answer comes closest to telling how you usually feel or act?

124. Do you find the more routine parts of your day
(A) restful, or
(B) boring?

125. If you think you are not getting a square deal in a club or team to which you belong, is it better to
(A) shut up and take it, or
(B) use the threat of resigning if necessary to get your rights?

126. Can you
(A) talk easily to almost anyone for as long as you have to, or
(B) find a lot to say only to certain people or under certain conditions?

127. When strangers notice you, does it
(A) make you uncomfortable, or
(B) not bother you at all?

128. If you were a teacher, would you rather teach
(A) fact courses, or
(B) courses involving theory?

129. When something starts to be the fashion, are you usually
(A) one of the first to try it, or
(B) not much interested?

130. In solving a difficult personal problem, do you
(A) tend to do more worrying than is useful in reaching a decision, or
(B) feel no more anxiety than the situation requires?

131. If people seem to slight you, do you
(A) tell yourself they didn't mean anything by it, or
(B) distrust their good will and stay on guard with them thereafter?

132. When you have a special job to do, do you like to
(A) organize it carefully before you start, or
(B) find out what is necessary as you go along?

133. Do you feel it is a worse fault
(A) to show too much warmth, or
(B) not to have warmth enough?

134. When you are at a party, do you like to
(A) help get things going, or
(B) let the others have fun in their own way?

135. When a new opportunity comes up, do you
(A) decide about it fairly quickly, or
(B) sometimes miss out through taking too long to make up your mind?

136. In managing your life, do you tend to
(A) undertake too much and get into a tight spot, or
(B) hold yourself down to what you can comfortably handle?

137. When you find yourself definitely in the wrong, would you rather
(A) admit you are wrong, or
(B) not admit it, though everyone knows it,
(C) or don't you ever find yourself in the wrong?

138. Can the new people you meet tell what you are interested in
(A) right away, or
(B) only after they really get to know you?

139. In your home life, when you come to the end of some undertaking, are you
(A) clear as to what comes next and ready to tackle it, or
(B) glad to relax until the next inspiration hits you?

140. Do you think it more important to
(A) be able to see the possibilities in a situation, or
(B) be able to adjust to the facts as they are?

141. Do you feel that the people whom you know personally owe their successes more to
(A) ability and hard work, or
(B) luck, or
(C) bluff, pull and shoving themselves ahead of others?

142. In getting a job done, do you depend upon
(A) starting early, so as to finish with time to spare, or
(B) the extra speed you develop at the last minute?

143. After associating with superstitious people, have you
(A) found yourself slightly affected by their superstitions, or
(B) remained entirely unaffected?

Go on to the next page.

144. When you don't agree with what has just been said, do you usually
(A) let it go, or
(B) put up an argument?

145. Would you rather be considered
(A) a practical person, or
(B) an ingenious person?

146. Out of all the good resolutions you may have made, are there
(A) some you have kept to this day, or
(B) none that have really lasted?

147. Would you rather work under someone who is
(A) always kind, or
(B) always fair?

148. In a large group, do you more often
(A) introduce others, or
(B) get introduced?

149. Would you rather have as a friend someone who
(A) is always coming up with new ideas, or
(B) has both feet on the ground?

150. When you have to do business with strangers, do you feel
(A) confident and at ease, or
(B) a little fussed or afraid that they won't want to bother with you?

151. When it is settled well in advance that you will do a certain thing at a certain time, do you find it
(A) nice to be able to plan accordingly, or
(B) a little unpleasant to be tied down?

152. Do you feel that sarcasm
(A) should never be used where it can hurt people's feelings, or
(B) is too effective a form of speech to be discarded for such a reason?

153. When you think of some little thing you should do or buy, do you
(A) often forget it till much later, or
(B) usually get it down on paper to remind yourself, or
(C) always carry through on it without reminders?

154. Do you more often let
(A) your heart rule your head, or
(B) your head rule your heart?

155. In listening to a new idea, are you more anxious to
(A) find out all about it, or
(B) judge whether it is right or wrong?

156. Are you oppressed by
(A) many different worries, or
(B) comparatively few?

157. When you don't approve of the way a friend is acting, do you
(A) wait and see what happens, or
(B) do or say something about it?

158. Do you feel it is a worse fault to be
(A) unsympathetic, or
(B) unreasonable?

159. When a new situation comes up which conflicts with your plans, do you try first to
(A) change your plans to fit the situation, or
(B) change the situation to fit your plans?

160. Do you think the people close to you know how you feel
(A) about most things, or
(B) only when you have had some special reason to tell them?

161. When you have a serious choice to make, do you
(A) almost always come to a clear-cut decision, or
(B) sometimes find it so hard to decide that you do not wholeheartedly follow up either choice?

162. On most matters, do you
(A) have a pretty definite opinion, or
(B) like to keep an open mind?

163. As you get to know people better, do you more often find that they
(A) let you down or disappoint you in some way, or
(B) improve upon acquaintance?

164. When the truth would not be polite, are you more likely to tell
(A) a polite lie, or
(B) the impolite truth?

165. In your way of living, do you prefer to be
(A) original, or
(B) conventional?

166. Would you have liked to argue the meaning of
(A) a lot of these questions, or
(B) only a few?

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DIRECTIONS

This is not a test with right or wrong answers. It is a questionnaire which permits you to describe your major and minor orientations to life, in order to identify the productive and counterproductive ways in which you use your strengths. You will be given self-descriptive statements, each followed by four possible endings. You are to indicate the order in which you feel each ending applies to you. In the blank spaces to the left of each ending, fill in the numbers 4, 3, 2, and 1, according to which ending is most like you (4) and least like you (1).

PLEASE FILL IN THIS EXAMPLE --

MOST OF THE TIME I AM:

good-natured and helpful. . . . . (3)
hard-working and full of plans . . . . . (2)
economical and thoughtful . . . . . (4)
charming and popular . . . . . (1)

DO NOT USE 4, 3, 2, or 1 MORE THAN ONCE.
If the statements that follow in this questionnaire have two or more endings that seem equally like you, or are not like you at all, please rank them anyway, even though it may be difficult. Each ending must be ranked 4, 3, 2, or 1.

← TEAR OFF THIS PAGE AND PROCEED WITH QUESTIONS ON PAGE 1

I FEEL MOST PLEASED WITH MYSELF WHEN I:

☐ + 1. act idealistically and with optimism.

☐ + 2. see an opportunity for leadership and go after it.

☐ + 3. look after my own interests and let others look after theirs.

☐ + 4. adjust myself to fit in with the group I am with.

I AM MOST APT TO TREAT OTHERS IN:

☐ + 5. a respectful, polite, and admiring manner.

☐ + 6. an active, energetic, and self-confident manner.

☐ + 7. a careful, reserved, and orderly manner.

☐ + 8. a congenial, social, and friendly manner.

I MAKE OTHERS FEEL:

☐ + 9. well regarded, capable, and worthy of being called on for advice.

☐ + 10. interested and enthusiastic about joining me in what I want to do.

☐ + 11. justly treated, respected, and appreciative of the consideration I give them.

☐ + 12. pleased, impressed, and desirous of having me around.

IN A DISAGREEMENT WITH ANOTHER PERSON I CAN GAIN MORE BY:

☐ + 13. relying on the other person's sense of justice.

☐ + 14. trying to outwit or outmaneuver the other person.

☐ + 15. remaining composed, methodical, and immovable.

☐ + 16. being open-minded and adaptable to the other person.

IN RELATING TO OTHERS I MAY:

☐ + 17. become confidential and give my trust even to those who do not seem to seek it.

☐ + 18. become aggressive and take advantage of them, before realizing I have not given them much consideration.

☐ + 19. become suspicious and aloof and treat them with too much reserve.

☐ + 20. become too friendly and find myself with people, even when I am not especially invited.

I IMPRESS OTHER AS:

☐ + 21. a naive person who has little self-confidence or initiative.

☐ + 22. a "sharp operator" who always tries to get the best of the bargain.

☐ + 23. a stubborn individual who is cold toward others.

☐ + 24. an inconsistent person who never takes a real stand of his own.

←——— TEAR OFF THIS PAGE AND PROCEED WITH PAGE 2

I FEEL I CAN BEST WIN PEOPLE OVER BY BEING:

☐ + 25. modest and idealistic.

☐ + 26. persuasive and winning.

☐ + 27. patient and practical.

☐ + 28. entertaining and lively.

IN RELATING TO OTHERS I AM MOST APT TO BE:

☐ + 29. trusting, confiding, and supportive of others.

☐ + 30. quick to develop useful ideas and to organize others to carry them out.

☐ + 31. practical, logical, and careful to know with whom I am dealing.

☐ + 32. curious to know all about them and anxious to fit in with what they expect of me.

I FIND IT MOST SATISFYING WHEN OTHERS SEE ME AS:

☐ + 33. a loyal, trusting friend.

☐ + 34. a person who can take ideas and make them work.

☐ + 35. a person who is practical and thinks for himself.

☐ + 36. a noteworthy and significant person.

IF I DON'T GET WHAT I WANT FROM A PERSON I TEND TO:

☐ + 37. give up readily and justify his inability to do it.

☐ + 38. claim my rights and try to talk him into doing it anyway.

☐ + 39. feel indifferent and find another way to get what I want.

☐ + 40. laugh it off and be flexible about the whole thing.

IN THE FACE OF FAILURE I FEEL IT IS BEST TO:

☐ + 41. turn to others and count on them to help me out.

☐ + 42. fight for my rights and take what I really deserve.

☐ + 43. hold on tight to what I already have and keep a close eye on others.

☐ + 44. keep up a front and try to sell myself as well as possible.

I'M FEARFUL THAT AT TIMES I MAY IMPRESS OTHERS AS BEING:

☐ + 45. submissive and impressionable.

☐ + 46. aggressive and conceited.

☐ + 47. cold and stubborn.

☐ + 48. superficial and attention-seeking.

TEAR OFF THIS PAGE AND PROCEED WITH PAGE 3

I FEEL THE BEST WAY TO GET AHEAD IN THE WORLD IS TO:

☐ = 49. be a worthy person and count on those in authority to recognize that worth.

☐ = 50. work to establish a right to advancement, and then claim it.

☐ = 51. preserve and build on what I already have.

☐ = 52. develop a winning personality that will attract the notice of others.

IN SOLVING THE PROBLEM OF WORKING WITH A DIFFICULT PERSON, I:

☐ = 53. find out from others how they have met the problem and follow their advice.

☐ = 54. match wits with the person and get around him as best I can.

☐ = 55. decide for myself what is right and then stand by my own convictions.

☐ = 56. change myself to fit in and make the relationship more harmonious.

I IMPRESS OTHERS AS:

☐ = 57. a trusting person who appreciates advice and counsel.

☐ = 58. a self-confident person who takes the initiative in getting people going.

☐ = 59. a steadfast person who deals with others in a careful manner.

☐ = 60. an enthusiastic person who can fit in with almost anyone.

I FEEL THAT IN THE FINAL ANALYSIS IT IS BETTER TO:

☐ = 61. simply accept defeat and look for what I want elsewhere.

☐ = 62. engage in a contest of wits, rather than lose out and get nothing.

☐ = 63. be suspicious and possessive, rather than give up what I have.

☐ = 64. compromise and go along for the time being.

AT TIMES I AM APT TO BE:

☐ = 65. easily influenced and without confidence.

☐ = 66. aggressive, grasping, and conceited.

☐ = 67. suspicious, cold, and critical.

☐ = 68. childish, and given to seeking the spotlight.

AT TIMES I MAY MAKE OTHER PEOPLE FEEL:

☐ = 69. superior and condescending toward me.

☐ = 70. taken advantage of and angry with me.

☐ = 71. distant and cold toward me.

☐ = 72. mistrustful and disbelieving toward me.

←TEAR OFF THIS PAGE AND SCORE ANSWERS ON NEXT PAGE.

National Institute of Personnel Management

Madras Chapter

in collaboration with

Sri Ramachandra Medical College and Research Institute

Madras

Executive Development Programme

on

Stress Management

READING MATERIALS

November 19, 1993

Hotel Savera, Madras

HOW DO YOU COPE WITH PROBLEMS?

We all use many different defence mechanisms to help us deal with problems which have arisen from our relationships with other people and the outside world. Here are some of them. You will undoubtedly recognize many of these mechanisms as ones you yourself have used; others you will recognize as commonly used by people you know. These mental tricks are not necessarily dangerous or bad for you.

Rationalization

A man who has applied for the job of foreman may console himself when he hears that he has been unsuccessful by telling his wife, 'I didn't want the job anyway. It's badly paid and I'd lose the respect of my friends.'

His wife will probably support his feeling if she loves him.

'You're quite right,' she'll nod, 'We're much better-off as we are.'

If she has been pushing him to apply for the job, however, and is now disappointed that he has not been appointed she may quarrel with his new judgement and point out that he did want the job, that it is better paid and that she doesn't care what his friends think.

Used properly, rationalization can be a tremendous asset. The man whose wife supports and strengthens his rationale will eventually feel quite pleased that he didn't get the job. He'll be grateful that he was fortunate enough not to have become a foreman. He'll suffer very little from the fact that he was unlucky in his application. On the other hand, the man whose wife is less comforting will probably suffer more when his carefully devised explanation, designed to fool only himself and her, has been punctured. (Naturally male and female roles are always interchangeable.)

Rationalization is best used as a private defence mechanism unless you can be sure of support from the person with whom you share the rationalization.

Projection

The woman who cannot cook very well blames her oven. 'How do you expect me to cook you good meals?' she demands of her husband, 'when the cooker is five years old and completely out of date?'

This woman is using the information and advertising material

provided by the cooker manufacturers to enable her to project her own inadequacies on to her cooker.

'The bad workman blames his tools,' goes the old saying and that is true of most of us from time to time. The golfer who makes a bad shot will blame his clubs. The company executive who is responsible for an administrative foul up will blame the manager of the minor subsidiary who failed to provide her with the required materials at half a day's notice. The gardener whose seeds don't grow will blame either the seed merchant or the soil.

In all these cases the person involved has projected his or her own failure on to someone else or on to some material object which cannot avoid the blame.

People also project their own feelings on to others. For example, the man whose car breaks down on a lonely road late at night may set off to look for help. He may have no overcoat to protect him from the heavy rain that is falling and there will inevitably be no moon to make up for the fact that the battery in his torch is flat. With so much against him our unfortunate motorist may be forgiven for believing that the world is not treating him fairly. He may assume that even if he finds a farm or a lonely house the occupier is not going to let him use the telephone. 'Would I let a bedraggled stranger in on a night like this?' he may ask himself.

When he does at last find a small lonely cottage the motorist approaches it with severe reservations about the reception he is likely to receive. Before he rings the doorbell he feels certain that he is going to be refused help. He is in a bad mood and he knows that he wouldn't help a complete stranger who arrived soaked and bedraggled on his doorstep.

So when the owner of the cottage, a kindly retired clergyman with a heart of gold, opens the door he is surprised to see an angry man standing there. 'Stuff your telephone,' shouts the motorist. 'I don't want your bloody help.' And with that he turns on his heel and marches away, having projected his own feelings on to the completely innocent and unfortunate clergyman who would, of course, have been perfectly happy to offer food, drink and telephone to a stranded stranger.

This defence mechanism is not usually a wise one to use. It leaves the person who uses it feeling aggrieved and unsatisfied.

Displacing aggression

The vice chairman of International Telephone Polishing Services Inc. is told off by the chairman for failing to arrange a deal with South Seas Underground Window Cleaning Services Inc. The vice chairman castigates the managing director for not having provided him with the latest figures from the accounts department on time. Then the managing director ticks off his assistant who snarls at his secretary who shouts at the tea lady who screams at the hall porter who snaps at his wife who scolds their son who kicks the cat who frightens the life out of a poor sparrow. None of these unfortunate folk realize that their problems started when the company's Parisian agent failed to obtain tickets for the Paris Opera on behalf of the company chairman whose wife is a great fan of the Italian soprano, Bella Laudli.

It would have been far less traumatic for all concerned if the chairman had taken his aggression out on a punchball or had chosen to smash a couple of old plates in the stables at his spacious country home! A game of squash or a few minutes in the gym might also have helped ease the chairman's feeling of anger.

We all use this technique of displacing aggression on to other people or on to objects and it has advantages and disadvantages. The main advantage is that the angry person doesn't allow his feelings to build up inside himself: he passes the feeling on to someone or something else. This is much better than simply allowing the feelings of frustration and anger to build up inside for if this happens then the person involved will probably develop a genuine stress disorder. The main disadvantage of course, is that a great many perfectly innocent people may suffer. Some of them may be paid to accept the boss's displaced aggression. Others will neither expect it or be able to cope with it. For this reason it is far better if aggressive feelings are displaced on to inanimate objects such as squash balls, gymnasium floors, running tracks or pieces of faulty and unwanted china. There's a lot to be said for keeping a store of old plates somewhere so

that you can smash them when you're feeling uptight. Greeks do a lot of this when they're enjoying themselves in restaurants.

Nostalgia

The cry, 'The old days were best' is a common one. Many people enjoy music and fashions from past decades because in this way they can hide from modern problems and unwelcome advances. Problems can arise when the past becomes more real than the present for it is impossible to escape from our technological age. Even those who choose to ignore the modern world and live off the land can usually only manage to keep their heads in the sand for a short period. Enjoy the past but don't try to fool yourself that you can ignore the present.

Specialization

Classically it is university professors who are so lost in their own worlds that they go outside in their carpet slippers, forget to put their ties on, cannot remember where they parked the car and do not know the month or even the year. Many great academic figures have been so wrapped up in their own speciality that they have been quite unable to accept the fact that there is a world outside their own subject.

This is an effective way of closing out the problems of the real world but those who use this mechanism may suffer very badly if their private world collapses or if the problems of the real world become unavoidable. The only people who can use this type of mechanism really effectively are those who have others around them to ensure that the bills are paid and that minor infringements of the law are dealt with painlessly. An academic man whose wife looks after the practical aspects of his life may well be unable to look after himself or to survive at all in the real world after his wife's death.

To a much lesser extent we can all use this defence mechanism to help us lock out the world's problems for short periods of time. Someone whose hobby involves model train building and running may use his hobby to enable him to escape from a stressful world at weekends and during the evenings. Specialist sports followers who enjoy the majestic achievements of their

heroes and follow the fortunes of the various teams involved in their sport often manage to escape successfully from the problems of the coal polishing industry or the peanut salting factory (see also hero worship).

Compensation

The man who is unable to obtain academic success may compensate himself (and those whose love and support he has) by being successful at sports. The man whose business career is less than sparkling may nevertheless achieve success with his hobby.

'Maybe I cannot become chief clerk,' says the clerk seeing his junior promoted above him, 'but my roses are better than anyone else's.'

Similarly, young people who are physically weak or disabled may take to sports which they can do successfully and achieve considerable prestige at them. For example, a young girl who is physically weak may take up swimming and eventually become a champion.

We all need to be successful at something in order to achieve personal satisfaction and to feel wanted. Everyone is good at something and it is essential that we all find out just what we can excel at. To compensate may also be to specialize.

Hero worship

This enables the young office typist doing a boring job which demands little physically or mentally to share the full and exciting rewarding life of a rock star, fashion model or professional tennis player. Surprisingly, many people who might appear to have satisfying jobs envy others. So the rock star may dream of being a racing motorist and the top jockey may worship the film star he'd like to emulate.

Hero worship is generally a harmless way to escape the duller days of life but the people who enjoy life at first hand rather than at second hand probably achieve more genuine and long-lasting satisfaction.

Regression

Many modern businessmen have toys on their office desks.

These are often expensively made and well-designed but they are nevertheless toys. They enable the executive to regress to his childhood in moments of crisis but because they are well-made and expensive they do not detract from his image as a successful and wealthy person.

Playing with toys and games helps by taking the executive back to the days when decisions were fairly simple and responsibilities slight. Games can help us all by enabling us to forget our immediate problems and concentrate on less important tasks. Playing solitaire, or playing with a yo-yo can help reduce physical and mental tension at times of crisis. The man or woman who can switch off from major decision making and spend a few minutes with a toy or game will be able to ward off many stress-induced illnesses.

Incidentally, hospital patients often find it comforting to regress to childhood and leave all decisions to the doctors and nurses looking after them. In childhood we know that our parents will solve all major problems and we have a comforting sense of security as a result. This is exactly what the sick often need. They need to trust others and to abdicate normal responsibilities.

3) Day-dreaming

We all dream from time to time. It helps in boring or unpleasant moments to drift away to another place. This is a particularly useful defence mechanism. Some people find life so unbearable that they live in a permanent day-dream. Those mental patients who are convinced that they are really Napoleon or Josephine are usually happy enough in their private world. However, day-dreaming can give a false sense of satisfaction. It is important for the dreamer to retain a hold on reality!

4) Ideological solutions

The recent popularity of figures such as the Maharishi Yogi shows how quasi-religious solutions are sought by people looking for relief in a new ideology. Similarly, the terrorist organizations which recruit so easily in many different countries

depend for their attraction upon the fact that they offer their converts a way to escape from the other, more trivial, problems of modern living.

Apathy

Another way to cope with problems very effectively in the short term is to simply ignore them. You don't have to be a drop-out to choose the apathy road. Many people who have regular jobs drop out each evening by slumping down in front of the television set.

These defence mechanisms are not necessarily harmful. Problems arise when they are used subconsciously to such an extent that the user becomes dependent upon one or other of them. When used consciously they may be effective stress dissolutives.

YOUR COUNTERSTRESS CHECKLIST

Check your exposure to stressful situations and stimuli with the following questionnaire. Every 'yes' indicates a point of exposure and potential weakness.

Your physical environment

Do you live in a city?
Do you have to commute to work?
Is the office or factory or shop where you work usually noisy?
Do you have to avoid going out alone at night where you live?
Do your neighbours keep to themselves and avoid offering help to others if possible?
Do you own equipment recently bought that you don't really need?
When you mow the lawn does it take longer to prepare the mower than to actually cut the grass?
Do you live in a block of flats?
Can you hear your neighbour's TV set and squabbles at night?
Do you live near to a busy road?
Do you live near to an airport?
Do you live near to a large factory?
Do you ever have to raise your voice to make yourself heard in your home because of noises outside?
Do you have to share an entrance with other people?
Do you wish you had a room of your own to which you could retire when you are looking for a little peace and quiet?
Do you end up watching television most evenings because you don't have anything else to do?
Is the TV set switched on by others when you would rather be doing something else?
Do you have to travel long distances when you would rather stay at home?
Do you spend more than half an hour a day travelling?
Do you fly though you hate flying?
Are you always in a hurry when on business trips?

Your social environment

Do you wish you had more responsibility?
Do you wish you had less responsibility?
Do you get frustrated at work?
Are your activities restricted because of your age?
Did you have to retire earlier than you wanted to?
Do you wish you could have retired earlier?
Do you think your sex has affected your promotion chances at work?
Do you think your sex has affected your ability to raise a mortgage?
Do you believe your religion has adversely affected your career?
Do you think your race or skin colour has adversely affected your career?
Do you regularly suffer social discrimination?
Do you wish your spouse understood you better?
Do you feel that you are competing with your spouse?
Do you feel that your spouse should respect you more?
Do you feel that your children should respect you more?
Do you worry about what might happen if you fall sick?
Do you find it difficult to relax and forget about work at night?
Do you find it difficult to relax and forget about work at weekends?
Do you regularly get bored at work?
Do you find yourself fighting bureaurocrats every day?
Do you have a rushed lunch as a regular thing?
Do you regularly get home late from work?
Do you take work home with you?
Do you have to cancel holidays because of your work?
Do you find yourself having to be nice to people you cannot stand?
Do you find your work unsatisfying?
Do you believe your firm produces shoddy goods or provides people with an unsatisfactory service?
Do you often wonder whether it's all worthwhile?
Do you wonder exactly what it is your firm makes?
Do you go to work purely and simply to earn a living?
When work becomes interesting do you have to hand over to someone else?

Do you find it impossible to talk to your boss?
Do you believe your boss is incompetent?
Do you worry about what will happen when you retire?
Do you believe you would have difficulty in obtaining similar employment elsewhere?
Does your firm own your house?
Is your mortgage linked to your job
Do you earn less than your neighbours?
Do you spend every penny you earn?
Do you usually have an overdraft?
Do you worry a lot about what other people think?
Do you listen carefully to all advice given on TV and radio and in newspapers and magazines?
How often do you leave the house without saying goodbye to your spouse?
Does your spouse seem too busy to discuss your day in the evenings?
Do you sometimes feel marriage was a mistake?
Do you feel that you fail to uphold the principles of your religion?
Do you feel that your sex drive is considerably higher than the normal?
Do you feel that your sex drive is rather lower than normal?
Do you find sex with your regular partner unsatisfying?
Do you envy other people's sex lives?
Do you feel guilty about your sexual preferences?

You

Do you feel that life has passed you by?
Do you have no real friends with whom you can discuss personal problems?
Do you feel that you could have done something more with your life?
Do you feel that you are a burden to your relatives?
Do you have to look after relatives who are a burden?
Do you regularly worry about falling ill?
Do you regularly take medicines you yourself buy from the chemist or drug store?
Do you feel bitter about the way you or a member of your

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November 19, 1993

Hotel Savera, Madras

Dr.T.R.SURESH

STRESS

CONCEPT – CAUSES AND MECHANISMS

W.H.Auden, a noted philosopher-poet, described our times as the "Age of Anxiety". One of the chief causes of anxiety and ill health is stress. Stress, an unknown word in times ancient, has become ubiquitous in the present day world. The concept of stress and its role in modern life has grown in recent years with extensive research work.

All stimuli cause change. Change demands adaptation. Adaptation involves stress. There is no life without stress.

The specific causes of stress are of various types – physical, biological and psychological. The reaction of the individual again varies depending on genetic factors, personality make-up, psychological assets and liabilities and the context in which the person is situated as well as social factors.

The body and mind react to stress by the General Adaptation Syndrome, described by Hans Selye. This involves the nervous, hormonal and psychological systems. This reaction to stress has various stages and may end in successful adaptation or a pathological outcome.

Modern research has shown that the prime mediator of the stress reaction is the psychological apparatus, i.e. the mind, fight or flight, victory or defeat, conquest of collapse, depend on how a person perceives stress and reacts to it.

Stress is everywhere. One cannot avoid it or escape from it. A good understanding of the concept of stress, its causes and the mechanisms by which it operates on us can pave the way to learning what its consequences can be to health and happiness and how to manage stress successfully.

R

CONSEQUENCES OF STRESS ON HEALTH, PERSONAL LIFE AND PERFORMANCE

Dr.T.N.SRINIVASAN, M.D. (Psych)
Assistant Professor of Psychiatry
Sri Ramachandra Medical College and
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Porur
Madras - 600 116.

The health and welfare of an Executive should be considered from a holistic view point with the understanding that the Executive is not just another worker of the organisation but an unique individual with his or her own physical, psychological and social assets and liabilities. Hence stressed executives could develop malfunction not only at work but also in their mental, physical and social functioning.

The common Psychological problems noted are anxiety and depressed mood, lack of concentration, mental exhaustion, hysteria, sense of helplessness, anger and suicidal feelings. Smoking and alcoholism are often a symptom of stress. As the mind and body are very closely linked, mental stress often manifests in the form of bodily diseases. The well known problems observed in people with managerial responsibilities are ischaemic heart diseases, migraine, spinal problems, hypertension, diabetes mellitus, chronic skin diseases, peptic ulcer and irritable bowel syndrome. The Psychological repercussions of stress are also reflected in the personality and attitudanal changes seen in executives who find it difficult to cope with their administrative tasks. Narrowing of social contacts, interpersonal problems with colleagues, job dissatisfaction, 'burn-out' are some of the common sequelae.

Stress at work can get displaced to the home environment leading to marital problems, behavioral problems in children, sexual inadequacy which in turn can further hamper the efficiency of the Executive. Even if the person has escaped from the above sequalae of stress, there is often a dysfunction in his ability to execute his responsibilities. Frequent absenteeism, shirking of responsibility, procrastination, indecisiveness, poor decision making, accident proneness and mismanagement result ultimately hampering his/her productivity. The Executive who had been an asset to the Organisation becomes a liability to it. If not properly identified and remedied the Organisation would suffer in terms of quantity as well as quality.

The consequences of management stress are presented in an attempt to sensitise the audience to the health and personal problems faced by an Executive under stress. The speaker hopes that this paper will help the audience to be able to identify such problems in their work environment and take necessary early remedial measures to help both the individual and the Organisation.

'SELF HYPNOSIS'

Dr.M. Peter Fernandez

M.D., D.P.M., T.D.D.,
F.C.C.P.(USA), F.I.P.S.

Psychiatrist & Hypnotherapist

M A D R A S

LECTURE I

INTRODUCTION

What is Hypnosis?

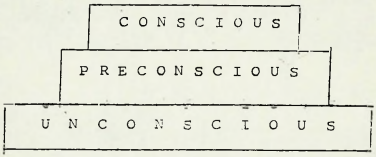
Hypnosis is a normal psychophysiological phenomenon of "dissociation" inherent in all human beings, and can become manifest either spontaneously or induced by conditioning and skilled use of suggestions.

Hypnosis in daily life:

1. Prayer
2. Puja
3. Bajan
4. Children
   a) Feeding
   b) Crying - Cradle bells
   c) Injury
5. Fight
6. Flight
7. Highway Hypnosis
8. Reading
9. Writing Sriram Jayam
10. Day dreaming
11. Supermarket Hypnosis
12. Sex
13. Animals
14. Drugs.

LECTURE II

TOPOGRAPHICAL THEORY OF THE MIND - FREUD



Conscious — Narrow range of our environment

Preconscious — Lies just below the conscious level but can be recalled

Unconscious — Vast region with great dynamic energy
Out of reach to our will by the mechanism of repression
Store house of all the experience of the past particularly those connected with emotional conflicts and unpleasant events producing intense shame and feeling of guilt.
They do not remain dead and static but try to come out
Fortunately for us some psychological force in the Preconscious protects this upsurge strongly.

A COURSE ON

SELF HYPNOSIS

- ☐ Do You want a good memory?
- ☐ Do you want to remember places, dates, faces and names easily?
- ☐ Does nervous tension and worry make your work less effective?
- ☐ Do you have any habits such as drinking, smoking, etc, which you have been trying to get rid of for a long time and have found that you lack the necessary willpower to do so?
- ☐ Do you wish to overcome anxiety and fear?
- ☐ Do you desire to be calm and collected in a tense situation?
- ☐ In short if you wish to be a happier and healthier individual, this course is for you.

PHYCHOLAB

113, PERAMBUR HIGH ROAD,

MADRAS - 600012.

Phone: 6425066

BE MASTER OF YOURSELF

FOR EXECUTIVES AND PROFESSIONALS

Executives and Professionals are over worked today. This stress can lead to physical and mental tension. Consequently, Migraine, Hypertension, Bronchial Asthma, Cardiac troubles, stomach ulcers, nervous diarrhoea, skin troubles etc. are too commonly found in the executive world. This course can help you remove stressful living and teach you the art of relaxation - the key to a more effective, executive or professional career.

Executives and professionals are required to-day to read several journals, books, reports, papers etc. This requires concentration and development of a good memory. This course can help increase your concentration power and develop a photographic memory.

FOR STUDENTS

As astudent you must remain calm, develop interest in your studies and avoid examination panic. The success of an academic career depends on reception, registration, recall and reproduction. All this can be yours if you master the art of self-hypnosis.

The Course Director

Dr. Peter Fernandez is a well known Psychiatrist in the city of Madras, with an experience of 35 years in the field of medicine. His interest in the dynamics of the human mind and behaviour made him specialise in the field of Psychiatry. He retired as Professor of Psychiatry at Madras Medical College and Superintendent, Institute of Mental Health. He is a Fellow of the Indian Psychiatric Society.

He has done pioneering work in Rehabilitation of the mentally ill and is the Founder Director of the Rehabilitation Unit called "Industrial Therapy Centre" for chronic mental patients in the Institute of Mental Health, Madras the only one of its kind in India.

His primary interest in the subconscious mind took a delightful turn when he mastered the technique of Hypnosis and he is now able to interpret human behaviour and direct it towards healthy attitudes. He has been conducting courses on Hypnosis for Doctors, students of Psychology and paramedical personnel for several years in several parts of the country He has delivered lectures with demonstration on Hypnosis to several clubs, schools and colleges in the city and outside. He has conducted credit courses on "Self-hypnosis for Stress management" for executives in India and abroad. He is a member in good standing in the International Society of Hypnosis.

THUS

SELF-HYPNOSIS

Can help you to be a Master of Yourself by getting the qualities that you desire

YOU CAN

- Gain photographic memory
- Remain calm and alert during stressful situations
- Develop analytical ability
- Increase concentration
- Develop self-confidence
- Overcome inferiority complex
- Avoid procrastination
- Master insomnia
- Remove allergies, ulcers, stammering, sexual and other disorders caused by tension and worries.

The person who will conduct the course :

Dr. PETER FERNANDEZ,
M.D., D.P.M., T.D.D., F.C.C.P. (U.S.A.) F.I.P.S.,
Psychiatrist & Hypnotherapist

Desirable Weights for Men, Aged 25 and Over According to Height And Frame

Heights (in inches)		WEIGHT IN POUNDS (in indoor clothing) Small Frame	Medium Frame	Large Frame
Feet	Inches			
5	2	112-120	118-129	126-141
	3	115-123	121-133	129-144
	4	118-126	124-136	132-148
	5	121-129	127-139	135-152
	6	124-133	130-143	138-156
	7	128-137	134-147	142-161
	8	132-141	138-152	147-166
	9	136-145	142-156	151-170
	10	140-150	146-160	155-174
	11	144-154	150-165	159-179
6	0	148-158	154-170	164-184
	1	152-162	158-175	168-189
	2	156-167	162-180	173-194
	3	160-171	167-185	178-199
	4	164-175	172-190	182-204

IMPORTANT VITAMINS

VITAMIN	WHAT IT DOES	SOURCES	RECOMMENDED ADULTS	DAILY AMOUNT CHILDREN
A	Helps maintain skin, eyes, urinary tract, and linings of the nervous, respiratory and digestive systems. Needed for normal growth of bones and teeth, and for good night vision.	Sweet potatoes, milk, liver, fish liver oils, eggs, butter, green & yellow vegetables.	5,000 I.U.	1,500-5,000 I.U.
B-1 (thiamine)	Needed for carbohydrate metabolism and release of energy from food. Helps heart and nervous system function properly.	Yeast, meat, wholegrain cereals, nuts soyabeans, peas, potatoes, most vegetables.	1–1.6 mg	0.4-1.8mg
B-2 (riboflavin)	Helps body cells use oxygen. Promotes tissue repair & healthy skin.	Milk, cheese, liver, heart, fish, poultry.	1.5-2.5 mg	0.5-2.5 mg

VITAMIN	WHAT IT DOES	SOURCES	RECOMMENDED ADULTS	DAILY AMOUNT CHILDREN
Niacin	Essential for cell metabolism & absorption of carbohydrates. Helps maintain healthy skin.	Liver, yeast, lean, meat.	17-21 mg	6-25 mg
B-6	Needed for healthy teeth & gums, blood vessels, nervous system, and red blood cells.	Yeast, whole-grain cereals, meat, wheat germ, most vegetables.	1-2 mcg	1-2 mcg
B-12	Essential for proper development of red blood cells. Helps proper function of nervous system.	Eggs, meat, milk, milk products.	1-3 mcg	1-3 mcg
Biotin	Needed for healthy nervous system and for maintaining healthy skin.	Eggs, liver, kidney, most fresh vegetables.	Unknown	Unknown
Folic Acid	Needed for production of red blood cells.	Green leafy vegetables, yeast, meat	0.5-1 mg	0.5-1 mg

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VITAMIN	WHAT IT DOES	SOURCES	RECOMMENDED ADULTS	DAILY AMOUNT CHILDREN
C (ascorbic acid)	Essential for sound bones and teeth Needed for tissue metabolism and wound healing	Citrus fruits, tomatoes, raw cabbage, potatoes, straw-berries, canteloupe.	70-150 mg	30-100 mg
D	Essential for calcium & phosphorus metabolism.	Fish liver oils, fortified milk, eggs, tuna, salmon, sunlight.	400 I.U.	400 I.U.
E	Helps maintain heart and skeletal muscles, and may help maintain reproductive system.	Whole-grain cereals, lettuce, vegetable oils.	7-10 mg	Unknown
K	Needed for normal blood clotting.	Leafy vegetables, made by intestinal bacteria.	1 mg	Unknown

mg = milligrams; I.U = International Units; mcg = micrograms.

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DIET PLAN

Sl. No		Food item	Calorie level *1800	*1500	*1200
1.		Health drink	½ cup	½ cup	½ cup
2.		Iddli	3 small	2 small	2 small
3.		Sambar	¼ cup	¼ cup	¼ cup
4.	Breakfast	Coffee/Tea Milk	½ cup	½	½ cup
5.		Mixed fruit	½ cup	½ cup	½ cup
	Lunch				
1.		Soup	½ cup	½ cup	½ cup
2.		Salad	4 Tb. Sp.	4 Tb. Sp.	4 Tb. Sp.
3.		Onion – lime	2-4 slice	2-4 slice	2-4 slice
4		Chapathi	2 small	2 small	2 small
5.		Rice	1 cup	½ cup	½ cup
6.		Dhal	4 tb. sp	4 tb sp	2 tb. sp
7.		Sprouted gram	2 tb. sp	1 tb sp	1 tb sp
8.		Veg. bhaji	4 tb. sp	4 tb. sp	4 tb. sp.
9.		Veg. samsar	4 tb. sp	4 tb sp	4 tb. sp
10		Thick butter milk	½ cup	½ cup	½ cup
11.		Thin butter milk	1 cup	1 cup	1 cup
	Tea				
1.		Snack	1 small	1 small	1 small
2.		Coffee/Tea Milk	½ cup	½ cup	½ cup
3.		Side dish	2 tb sp	2 tb. sp	2 tb. sp.
	Dinner				
1.		Soup	½ cup	½ cup	½ cup
2.		Salad	4 tb sp	4 tb sp	4 tb. sp
3.		Onion – lime	2-4 slice	2-4 slic	2-4 slice
4.		Chapati	2 small	1 small	1 small
5.		Rice	1 cup	½ cup	½ cup
6.		Dhal	4 tb. sp	4 tb. sp	2 tb. sp
7.		Veg bhaji	4 tb. sp	4 tb sp	4 tb. sp
8.		Veg. samsar	4 tb. sp	4 tb. sp	4 tb. sp
9.		Thick butter milk	½ cup	½ cup	½ cup
10.		Thin butter milk	1 cup	1 cup	1 cup
11		Fruit	½ cup	½ cup	½ cup
12.		Milk	½ cup	½ cup	½ cup

FOOD EXCHANGE LIST

A - HEALTH DRINKS

Sl. No.	Name of the item	Quantity	CHO*	Protein*	Fat*	Calories
1.	Green gram juice	½ cup	8.67	1.70	0.8	44
2.	Gingelly juice	½ cup	5.0	1.34	2.5	50
3.	Wheat juice	½ cup	9.75	0.1	0.02	43

B - BREAKFAST SNACK

1.	Iddli	3 small	46.0	4.2	0.3	176
2.	Green gram dosa	3 small	27.0	12.0	2.0	174
3.	Rava iddli	3 small	40.7	6.2	3.96	225
4.	Plain dosa	3 small	35.0	5.2	2.0	170
5.	Kadubu	3 small	40.0	4.2	0.3	176

B-1 - SIDE DISH FOR BREAKFAST

1.	Coffee Tea	½ cup	10.0	4.0	-	88
2.	Milk	½ cup	10.0	4.0	-	88

FRUIT

	Mixed fruit	½ cup	10.0	-	-	40

LUNCH

Appetizer

1.	Tomato soup	½ cup	6.0	0.63	0.14	30
2.	Carrot soup	½ cup	6.0	0.63	0.14	30
3.	Mushroom soup	½ cup	3.0	1.20	0.07	20
4.	Vegetable soup	½ cup	5.0	0.90	0.07	25
5.	Horse gram soup	½ cup	8.67	1.70	0.80	42

* (gm)

SALADS

Sl. No	Food Item	Quantity	CHO*	Protein*	Fat*	Milk
1.	Tomato - cucumber	4 tb. sp	5	-	-	10
2	Carrot kosambari	4 tb. sp	5	1.2	1.0	30
3.	Beetroot salad	4 tb. sp	6	-	-	24
4.	Beetroot kosambari	4 tb. sp	6	1.2	10G	30
5.	Onion slice	4	2	-	-	10

MAIN DISH FOR LUNCH

1.	Chapathi	2 small	20	3.6	3.0	120
2.	Plain rice	1 cup	40	4.0	0.05	200
3.	Curd rice	1 cup	27	5.0	5.0	150
4.	Lemon rice	1 cup	40	4.0	2.0	200
5.	Pulao	1 cup	45	3.4	3.0	220
6.	Bisibele bath	1 cup	40	5.72	3.2	211.68
7.	Phulka	2 small	20	3.6	0.5	100

SIDE DISH

1.	Dhal	4 tb. sp	7	2.2	0.7	40
2.	Sprouted gram	2 tb. sp	8	3.4	0.6	50
3.	Veg. bhaji	4 tb. sp	7	1.5	1.5	42
4.	Veg. sambar	4 tb. sp	10	2.0	1.1	50
5.	Tomato raitha	4 tb. sp	4	2.0	0.7	30

MILK PRODUCTS

1.	Thick butter milk	1 cup	15	6.0	-	70
2.	Thin butter milk	1 cup	-	-	-	-

TEA ITEM

1.	Tomato sandwich	1	12.0	2.4	-	60
2	Iddli	1 small	11.0	1.4	0.3	55
3.	Plain bread	1	12.0	2.4	-	60
4.	Biscuits	2	10.5	0.9	2.5	68
5.	Plain dosa	1 small	11.3	1.7	0.6	57
6.	Toast	1	19.0	2.4	-	60

* (gm)
Recommended by Manipal Health Centre.

Note :

Maximum amount of food to be consumed under different caloric level.

* 1800

CHO (gm)	Protein (gm)	Fat (gm)	Calories
304-334	60-70	17-30	1725-1800

* 1500

CHO (gm)	Protein (gm)	Fat (gm)	Calories
251-274	51-59	14-24	1400-1500

* 1200

CHO (gm)	Protein (gm)	Fat (gm)	Calories
208-236	43-52	12-19	1200-1230

HOW DO YOU COPE WITH PROBLEMS?

We all use many different defence mechanisms to help us deal with problems which have arisen from our relationships with other people and the outside world. Here are some of them. You will undoubtedly recognize many of these mechanisms as ones you yourself have used; others you will recognize as commonly used by people you know. These mental tricks are not necessarily dangerous or bad for you.

Rationalization

A man who has applied for the job of foreman may console himself when he hears that he has been unsuccessful by telling his wife, 'I didn't want the job anyway. It's badly paid and I'd lose the respect of my friends.'

His wife will probably support his feeling if she loves him.

'You're quite right,' she'll nod, 'We're much better-off as we are.'

If she has been pushing him to apply for the job, however, and is now disappointed that he has not been appointed she may quarrel with his new judgement and point out that he did want the job, that it is better paid and that she doesn't care what his friends think.

Used properly, rationalization can be a tremendous asset. The man whose wife supports and strengthens his rationale will eventually feel quite pleased that he didn't get the job. He'll be grateful that he was fortunate enough not to have become a foreman. He'll suffer very little from the fact that he was unlucky in his application. On the other hand, the man whose wife is less comforting will probably suffer more when his carefully devised explanation, designed to fool only himself and her, has been punctured. (Naturally male and female roles are always interchangeable.)

Rationalization is best used as a private defence mechanism unless you can be sure of support from the person with whom you share the rationalization.

Projection

The woman who cannot cook very well blames her oven. 'How do you expect me to cook you good meals?' she demands of her husband, 'when the cooker is five years old and completely out of date?'

This woman is using the information and advertising material

provided by the cooker manufacturers to enable her to project her own inadequacies on to her cooker.

'The bad workman blames his tools,' goes the old saying and that is true of most of us from time to time. The golfer who makes a bad shot will blame his clubs. The company executive who is responsible for an administrative foul up will blame the manager of the minor subsidiary who failed to provide her with the required materials at half a day's notice. The gardener whose seeds don't grow will blame either the seed merchant or the soil.

In all these cases the person involved has projected his or her own failure on to someone else or on to some material object which cannot avoid the blame.

People also project their own feelings on to others. For example, the man whose car breaks down on a lonely road late at night may set off to look for help. He may have no overcoat to protect him from the heavy rain that is falling and there will inevitably be no moon to make up for the fact that the battery in his torch is flat. With so much against him our unfortunate motorist may be forgiven for believing that the world is not treating him fairly. He may assume that even if he finds a farm or a lonely house the occupier is not going to let him use the telephone. 'Would I let a bedraggled stranger in on a night like this?' he may ask himself.

When he does at last find a small lonely cottage the motorist approaches it with severe reservations about the reception he is likely to receive. Before he rings the doorbell he feels certain that he is going to be refused help. He is in a bad mood and he knows that he wouldn't help a complete stranger who arrived soaked and bedraggled on his doorstep.

So when the owner of the cottage, a kindly retired clergyman with a heart of gold, opens the door he is surprised to see an angry man standing there. 'Stuff your telephone,' shouts the motorist. 'I don't want your bloody help.' And with that he turns on his heel and marches away, having projected his own feelings on to the completely innocent and unfortunate clergyman who would, of course, have been perfectly happy to offer food, drink and telephone to a stranded stranger.

This defence mechanism is not usually a wise one to use. It leaves the person who uses it feeling aggrieved and unsatisfied.

Displacing aggression

The vice chairman of International Telephone Polishing Services Inc. is told off by the chairman for failing to arrange a deal with South Seas Underground Window Cleaning Services Inc. The vice chairman castigates the managing director for not having provided him with the latest figures from the accounts department on time. Then the managing director ticks off his assistant who snarls at his secretary who shouts at the tea lady who screams at the hall porter who snaps at his wife who scolds their son who kicks the cat who frightens the life out of a poor sparrow. None of these unfortunate folk realize that their problems started when the company's Parisian agent failed to obtain tickets for the Paris Opera on behalf of the company chairman whose wife is a great fan of the Italian soprano, Bella Laudli.

It would have been far less traumatic for all concerned if the chairman had taken his aggression out on a punchball or had chosen to smash a couple of old plates in the stables at his spacious country home! A game of squash or a few minutes in the gym might also have helped ease the chairman's feeling of anger.

We all use this technique of displacing aggression on to other people or on to objects and it has advantages and disadvantages. The main advantage is that the angry person doesn't allow his feelings to build up inside himself: he passes the feeling on to someone or something else. This is much better than simply allowing the feelings of frustration and anger to build up inside for if this happens then the person involved will probably develop a genuine stress disorder. The main disadvantage of course, is that a great many perfectly innocent people may suffer. Some of them may be paid to accept the boss's displaced aggression. Others will neither expect it or be able to cope with it. For this reason it is far better if aggressive feelings are displaced on to inanimate objects such as squash balls, gymnasium floors, running tracks or pieces of faulty and unwanted china. There's a lot to be said for keeping a store of old plates somewhere so

that you can smash them when you're feeling uptight. Greeks do a lot of this when they're enjoying themselves in restaurants.

Nostalgia

The cry, 'The old days were best' is a common one. Many people enjoy music and fashions from past decades because in this way they can hide from modern problems and unwelcome advances. Problems can arise when the past becomes more real than the present for it is impossible to escape from our technological age. Even those who choose to ignore the modern world and live off the land can usually only manage to keep their heads in the sand for a short period. Enjoy the past but don't try to fool yourself that you can ignore the present.

Specialization

Classically it is university professors who are so lost in their own worlds that they go outside in their carpet slippers, forget to put their ties on, cannot remember where they parked the car and do not know the month or even the year. Many great academic figures have been so wrapped up in their own speciality that they have been quite unable to accept the fact that there is a world outside their own subject.

This is an effective way of closing out the problems of the real world but those who use this mechanism may suffer very badly if their private world collapses or of the problems of the real world become unavoidable. The only people who can use this type of mechanism really effectively are those who have others around them to ensure that the bills are paid and that minor infringements of the law are dealt with painlessly. An academic man whose wife looks after the practical aspects of his life may well be unable to look after himself or to survive at all in the real world after his wife's death.

To a much lesser extent we can all use this defence mechanism to help us lock out the world's problems for short periods of time. Someone whose hobby involves model train building and running may use his hobby to enable him to escape from a stressful world at weekends and during the evenings. Specialist sports followers who enjoy the majestic achievements of their

heroes and follow the fortunes of the various teams involved in their sport often manage to escape successfully from the problems of the coal polishing industry or the peanut salting factory (see also hero worship).

Compensation

The man who is unable to obtain academic success may compensate himself (and those whose love and support he has) by being successful at sports. The man whose business career is less than sparkling may nevertheless achieve success with his hobby.

'Maybe I cannot become chief clerk,' says the clerk seeing his junior promoted above him, 'but my roses are better than anyone else's.'

Similarly, young people who are physically weak or disabled may take to sports which they can do successfully and achieve considerable prestige at them. For example, a young girl who is physically weak may take up swimming and eventually become a champion.

We all need to be successful at something in order to achieve personal satisfaction and to feel wanted. Everyone is good at something and it is essential that we all find out just what we can excel at. To compensate may also be to specialize.

Hero worship

This enables the young office typist doing a boring job which demands little physically or mentally to share the full and exciting rewarding life of a rock star, fashion model or professional tennis player. Surprisingly, many people who might appear to have satisfying jobs envy others. So the rock star may dream of being a racing motorist and the top jockey may worship the film star he'd like to emulate.

Hero worship is generally a harmless way to escape the duller days of life but the people who enjoy life at first hand rather than at second hand probably achieve more genuine and long-lasting satisfaction.

Regression

Many modern businessmen have toys on their office desks.

These are often expensively made and well-designed but they are nevertheless toys. They enable the executive to regress to his childhood in moments of crisis but because they are well-made and expensive they do not detract from his image as a successful and wealthy person.

Playing with toys and games helps by taking the executive back to the days when decisions were fairly simple and responsibilities slight. Games can help us all by enabling us to forget our immediate problems and concentrate on less important tasks. Playing solitaire, or playing with a yo-yo can help reduce physical and mental tension at times of crisis. The man or woman who can switch off from major decision making and spend a few minutes with a toy or game will be able to ward off many stress-induced illnesses.

Incidentally, hospital patients often find it comforting to regress to childhood and leave all decisions to the doctors and nurses looking after them. In childhood we know that our parents will solve all major problems and we have a comforting sense of security as a result. This is exactly what the sick often need. They need to trust others and to abdicate normal responsibilities.

3) **Day-dreaming**

We all dream from time to time. It helps in boring or unpleasant moments to drift away to another place. This is a particularly useful defence mechanism. Some people find life so unbearable that they live in a permanent day-dream. Those mental patients who are convinced that they are really Napoleon or Josephine are usually happy enough in their private world. However, day-dreaming can give a false sense of satisfaction. It is important for the dreamer to retain a hold on reality!

4) **Ideological solutions**

The recent popularity of figures such as the Maharishi Yogi shows how quasi-religious solutions are sought by people looking for relief in a new ideology. Similarly, the terrorist organizations which recruit so easily in many different countries

depend for their attraction upon the fact that they offer their converts a way to escape from the other, more trivial, problems of modern living.

Apathy

Another way to cope with problems very effectively in the short term is to simply ignore them. You don't have to be a drop-out to choose the apathy road. Many people who have regular jobs drop out each evening by slumping down in front of the television set.

These defence mechanisms are not necessarily harmful. Problems arise when they are used subconsciously to such an extent that the user becomes dependent upon one or other of them. When used consciously they may be effective stress dissolutives.

YOUR COUNTERSTRESS CHECKLIST

Check your exposure to stressful situations and stimuli with the following questionnaire. Every 'yes' indicates a point of exposure and potential weakness.

Your physical environment

Do you live in a city?
Do you have to commute to work?
Is the office or factory or shop where you work usually noisy?
Do you have to avoid going out alone at night where you live?
Do your neighbours keep to themselves and avoid offering help to others if possible?
Do you own equipment recently bought that you don't really need?
When you mow the lawn does it take longer to prepare the mower than to actually cut the grass?
Do you live in a block of flats?
Can you hear your neighbour's TV set and squabbles at night?
Do you live near to a busy road?
Do you live near to an airport?
Do you live near to a large factory?
Do you ever have to raise your voice to make yourself heard in your home because of noises outside?
Do you have to share an entrance with other people?
Do you wish you had a room of your own to which you could retire when you are looking for a little peace and quiet?
Do you end up watching television most evenings because you don't have anything else to do?
Is the TV set switched on by others when you would rather be doing something else?
Do you have to travel long distances when you would rather stay at home?
Do you spend more than half an hour a day travelling?
Do you fly though you hate flying?
Are you always in a hurry when on business trips?

Your social environment

Do you wish you had more responsibility?
Do you wish you had less responsibility?
Do you get frustrated at work?
Are your activities restricted because of your age?
Did you have to retire earlier than you wanted to?
Do you wish you could have retired earlier?
Do you think your sex has affected your promotion chances at work?
Do you think your sex has affected your ability to raise a mortgage?
Do you believe your religion has adversely affected your career?
Do you think your race or skin colour has adversely affected your career?
Do you regularly suffer social discrimination?
Do you wish your spouse understood you better?
Do you feel that you are competing with your spouse?
Do you feel that your spouse should respect you more?
Do you feel that your children should respect you more?
Do you worry about what might happen if you fall sick?
Do you find it difficult to relax and forget about work at night?
Do you find it difficult to relax and forget about work at weekends?
Do you regularly get bored at work?
Do you find yourself fighting bureaurocrats every day?
Do you have a rushed lunch as a regular thing?
Do you regularly get home late from work?
Do you take work home with you?
Do you have to cancel holidays because of your work?
Do you find yourself having to be nice to people you cannot stand?
Do you find your work unsatisfying?
Do you believe your firm produces shoddy goods or provides people with an unsatisfactory service?
Do you often wonder whether it's all worthwhile?
Do you wonder exactly what it is your firm makes?
Do you go to work purely and simply to earn a living?
When work becomes interesting do you have to hand over to someone else?

Do you find it impossible to talk to your boss?
Do you believe your boss is incompetent?
Do you worry about what will happen when you retire?
Do you believe you would have difficulty in obtaining similar employment elsewhere?
Does your firm own your house?
Is your mortgage linked to your job
Do you earn less than your neighbours?
Do you spend every penny you earn?
Do you usually have an overdraft?
Do you worry a lot about what other people think?
Do you listen carefully to all advice given on TV and radio and in newspapers and magazines?
How often do you leave the house without saying goodbye to your spouse?
Does your spouse seem too busy to discuss your day in the evenings?
Do you sometimes feel marriage was a mistake?
Do you feel that you fail to uphold the principles of your religion?
Do you feel that your sex drive is considerably higher than the normal?
Do you feel that your sex drive is rather lower than normal?
Do you find sex with your regular partner unsatisfying?
Do you envy other people's sex lives?
Do you feel guilty about your sexual preferences?

You

Do you feel that life has passed you by?
Do you have no real friends with whom you can discuss personal problems?
Do you feel that you could have done something more with your life?
Do you feel that you are a burden to your relatives?
Do you have to look after relatives who are a burden?
Do you regularly worry about falling ill?
Do you regularly take medicines you yourself buy from the chemist or drug store?
Do you feel bitter about the way you or a member of your

family has been treated by a doctor?
Do you find advertisements difficult to ignore?
Do you regularly borrow money from non-institutional sources?
Do you change your car regularly because of variations in styling?
Do you take examinations you do not need to take, simply to acquire qualifications?
Do you only enjoy sports when you are competing?
Do you puff and pant if you have to run to catch a bus?
Do you look at your watch a great deal?
Do you smoke?
Do you drink alone regularly?
Do you worry about your weight but do nothing about it?
Do you give up smoking every year?
Do you take sleeping tablets regularly?
Do you need to take tranquillizers regularly?
Do you avoid stairs whenever possible?
Do you drink at work?
Do you dress to please strangers rather than yourself and the people you know?
Do you never take vacations?
Do you find it impossible to relax if you go away for the weekend?

Answer all these questions honestly for cheating helps no one. Each question to which you have answered 'yes' points to a potential source of stress. Sometimes there will be no escape, but acknowledging the problem will often in itself provide some relief. Often there will be a choice and you must decide whether there is anything you can do to protect yourself or whether you are prepared to accept the risk involved.

LECTURE IV

HISTORY AND PRESENT STATUS OF HYPNOSIS

EARLY HISTORY :

1. Primitive people: Induction of trance by rhythm, drums, chanting etc.

2. Egyptians and Greeks : Sleep Temples

3. Decline of hypnosis with the advent of Christianity

MODERN HISTORY :

1. Gassner of Ratisbon - simple country priest who believed in demonology used the method of exorcisms probatives (trial exorcism)

2. Franz Anton Mesmer (1734 - 1815) Austria - 'Baquet' in Paris "Animal Magnetism"; Committee's report to Louis XVI of Paris 1784.

3. Marquis de Puysegur 1785 in Paris - Society of Harmony

4. Marquis de Lafayette - took this science to George Washington in America

5. Dr. James Braid (1795-1860) Scottish Physician - used the term "Hypnotism" in 1841-42

6. Dr. John Elliotson (1791-1868) suggested the use of the phenomenon in anesthesia; in 1846 he started the first journal on hypnotism.

7. Dr. James Esdaile (1808-1859) reported the use of hypnosis in major operations in Calcutta, India

8. 1891 - favourable report on hypnosis by British Medical Association

9. A.A. Liebeault (1832-1904) Father of Modern Hypnotism - Nancy School, use of hypnosis in therapy.

10. Dr. Josef Breuer (1842-1925), Austria, responsible for trying to get at the cause rather than remove symptoms by suggestions. Freud was influenced by Breuer, especially by the case of "Anna O" who relieved her trauma and experienced catharsis under hypnosis.

11. Professor Hipployte Bernheim (1837-1919) also at Nancy, France - published two books; De la Suggestion, and La Therapeutique Suggestive that established hypnosis at an important psychotherapeutic method.

12. Dr. Jean-Martin Charcot (1825-1893) Paris - regarded as the founder of clinical neurology - led Salpetriere school of thought in the field of hypnosis - hypnosis a pathological state, and only neurotics could be hypnotised - his theory was demolished by Bernheim of Nancy School.

13. Dr. Sigmund Freud (1856-1939) Vienna - attended Charcot's demonstrations of hypnosis in 1885-86 used hypnosis in his practice and later developed the method of free association between 1892-95 that became a cornerstone of psychoanalysis.

14. World War I: revival of hypnosis due to many cases of psychogenic origin and scarcity of psychiatrists - hypnosis widely used in the treatment of battle neurosis such as shell-shock- Hadfield coined the term "hypno-analysis", as a method used successfully during World War II.

15. In 1953 British Medical Association officially recognised hypnosis as a therapeutic technique and endorsed its use in medicine.

16. In 1958 American Medical Association officially approved hypnosis in medicine and dentistry.

17. First College credit course in hypnosis in Canada designed and taught by Rooshikumar Pandya, John, Abbott College, Montreal in 1972.

18. First formal course in hypnosis in India taught by Rooshi-Kumar Pandya in 1973 under the auspices of the Indo-American Society, Bombay, India.

19. Institutions engaged in teaching and doing experimental and clinical work in hypnosis in USA include, the American Institute of Hypnosis, The American Society of Clinical Hypnosis The Society for Clinical and Experimental Hypnosis, Association to advance Ethical Hypnosis, American Psychological Association (Division Thirty).
In India: Indian society for Clinical and Experimental Hypnosis, Ahmedabad.

LECTURE V

CONDITIONING TESTS OF HYPNOTIZABILITY

DEFINITION: IN PSYCHOLOGICAL TERMS

Conditioning is a form of learning in which

1. an old response is evoked by a new stimulus - this is called classical or respondent conditioning developed by Ivan Pavlov in about 1900 while studying digestion in animals, and
2. an new response is acquired as a result of satisfying a need - this is called instrumental or operant conditioning studied by B F Skinner in 1936

Both kinds of conditioning are found in animals as well as human beings

CONDITIONING IN HYPNOSIS - 90% OF THE WORK

--- Observe subjects defenses

--- Make the subject relate

--- Explain the phenomenon of hypnosis

--- Remove misconceptions

--- Test the subject's hypnotizability

HYPNOTIZABILITY (CONDITIONING) TESTS

1. Arms rising and falling
2. Postural sway
3. Handclasp (for group or an individual)
4. Releasing an object held in hand (for an individual or a group)
5. Eye catalepsy
6. Others

CONDITIONING TEST NO. 1 ARMS RISING AND FALLING

I AM NOT GOING TO HYPNOTIZE YOU. I JUST WANT TO FIND OUT WHAT KIND OF A SUBJECT YOU ARE.

PLEASE STAND COMFORTABLY AND EXTEND BOTH OF YOUR ARMS IN FRONT OF YOU. THAT IS VERY GOOD. NOW PLEASE CLOSE YOUR EYES AND OPEN THEM ONLY WHEN I TELL YOU.

NOW IMAGINE A VERY HEAVY WEIGHT IS ATTACHED TO YOUR RIGHT ARM (TOUCH THE TOP OF THE SUBJECT'S RIGHT ARM VERY LIGHTLY), AND ALSO IMAGINE THAT THIS VERY HEAVY WEIGHT IS PULLING YOUR RIGHT ARM DOWN. YOUR RIGHT ARM FEELS VERY HEAVY AS THE WEIGHT IS PULLING IT DOWN, WAY DOWN. (EMPHASIZE)

NOW ALSO IMAGINE THAT YOU HAVE A VERY LIGHT GAS BALLOON TIED TO YOUR LEFT ARM (TOUCH UNDERNEATH THE SUBJECT'S LEFT ARM) AND IT IS PULLING YOUR LEFT ARM UP AND UP, AND STILL HIGHER UP.

THAT IS VERY GOOD. NOW OPEN YOUR EYES. MY! YOU ARE AN EXCELLENT SUBJECT.

CONDITIONING TEST NO. 2 POSTURAL SWAY

I AM NOT GOING TO HYPNOTIZE YOU. I JUST WANT TO FIND OUT WHAT KIND OF A SUBJECT YOU ARE.

PLEASE PUT YOUR FEET TOGETHER, TOES TOGETHER AND RELAX. NOW I WOULD LIKE YOU TO CLOSE YOUR EYES AND OPEN THEM WHEN I TELL YOU.

I WANT YOU TO IMAGINE THAT YOU ARE STANDING ON THE TOP OF A HILL LOOKING DOWN ON A BEAUTIFUL LANDSCAPE. AND AS YOU LOOK DOWN ON IT YOU FEEL THAT YOU ARE LEANING FORWARD TO TAKE A CLOSER LOOK AT IT. YOU FEEL YOURSELF LEANING FORWARD, MORE AND MORE..... THAT'S RIGHT, I AM STANDING IN FRONT OF YOU AND I WILL SUPPORT YOU. THAT'S WONDERFUL. (AND AS THE SUBJECT SWAYS FORWARD) VERY GOOD, OPEN YOUR EYES :) YOU ARE A VERY GOOD SUBJECT.

(HYPNOTIST'S STANCE: ONE LEG FORWARD, OTHER LEG BRACED, HANDS OUT IN FRONT AT THE SHOULDER LEVEL OF THE SUBJECT)

CONDITIONING TEST NO. 3 HANDCLASP TEST FOR A GROUP

I AM NOT GOING TO HYPNOTIZE YOU. I JUST WANT TO SEE HOW SUSCEPTIBLE YOU ARE TO SUGGESTIONS.

I WANT YOU TO PUT YOUR FEET FLAT ON THE FLOOR AND SIT COMFORTABLY. I ALSO WANT YOU TO REMOVE ALL RINGS. NOW I WANT YOU TO STRETCH YOUR HAND OUT IN FRONT OF YOU, AND CLASP YOUR HANDS VERY FIRMLY WITH YOUR FINGERS INTERLOCKED LIKE THIS (SHOW THEM WHAT YOU EXPECT THEM TO DO).

NOW I WANT YOU TO LOOK INTO THE CEILING; SELECT ANY SPOT AND CONCENTRATE ON THAT. AND AS YOU ARE CONCENTRATING ON THAT SPOT

ONE : YOU ARE PRESSING YOUR HANDS HARDER AND HARDER

TWO : YOUR HANDS ARE LOCKED TOGETHER AS YOU KEEP PRESSING THEM TIGHTER AND TIGHTER LOOKING AT THAT SPOT ALL THE TIME. NOW

THREE: AS YOU ARE LISTENING TO MY VOICE AND PRESSING YOUR HANDS TIGHTER AND TIGHTER, YOU FEEL THAT YOUR HANDS ARE STUCK TOGETHER. IT IS IMPOSSIBLE FOR YOU TO TAKE THEM APART. THE HARDER YOU TRY TO TAKE YOUR HANDS APART THE TIGHTER THEY GET (REPEAT THIS). NOW WHEN I COUNT TO THREE FOR YOU, YOU WILL BE ABLE TO SEPARATE YOUR HANDS, ONE, TWO, THREE.

LECTURE VI

CAPACITY FOR HYPNOSIS

AGE : 1. 7 - 15 ----- excellent subjects (easy amnesia)

2. 15 - 50 ----- most practical group

SEX : No significant differences between the male and female subjects

INTELLIGENCE

Minimum intellectual ability needed for hypnosis appears to correspond to the verbal abilities of a kindergarten or elementary school child

Mentally deficient and insane persons are most difficult subjects

Ability to concentrate necessary

OTHER IMPORTANT FACTORS

1. Motivation
2. Conditioning, Belief and expectation
3. Imagination - the Law of Reversed Effect - Effort
4. Co-operation
5. Environment
6. The personality of the hypnotist
7. Technique

LECTURE VII

HYPNOSIS MYTH AND REALITY

MYTHS AND MISCONCEPTIONS

1. Hypnosis is an unnatural phenomenon : UNTRUE
   Examples of spontaneous hypnosis :

   1. Religious services
   2. Reading
   3. Daydreaming
   4. Highway hypnosis
   5. Supermarket hypnosis

2. Hypnosis is dangerous : UNTRUE. In trained hands no danger arises.

3. Under hypnosis the subject loses consciousness: UNTRUE. No loss of consciousness

4. Under hypnosis the subject will tell his o innermost secrets : UNTRUE

5. Hypnosis will weaken one's mind : UNTRUE

6. Hypnosis is addictive : WRONG

7. The subject surrenders his will under hypnosis : WRONG

8. The subject will not awaken : WRONG

REALITY

1. Hypnosis is a normal psychophysiological phenomenon

2. Hypnosis, above all, is a pleasurable experience.

3. Even in the deepest trance the subject is in contact with reality.

4. Hetero-hypnosis is a close interpersonal relationship

5. Hypnosis is a means to heighten and direct the suggestibility, inherent characteristic of all human beings

LECTURE VIII

COMMUNICATION - SEMANTICS - VOICE

COMMUNICATION - RAPPORT, SEMANTICS

Listen to the subject/patient carefully

Use the patient's vernacular

Inspire confidence

Be authoritative without being authoritarian

Know how to remove fears and apprehensions

Remember your appearance also communicates something.

VOICE

Articulate

Confident

Changes in intonation as necessary

Monotonous during induction

LECTURE IX

THEORIES OF HYPNOSIS

THEORIES OF HYPNOSIS

1. "Animal Magnetism" theory: Mesmer and others
2. A state of exaggerated suggestibility - the phenomenon of hypnosis rooted in suggestion: Braid, Faria and others
3. A state of artificial hysteria - hypnosis is 'Pathological' and a mere symptom of hysteria : Charcot
4. The phenomenon of divided mind - in hypnosis "Dissociation" occurs, and a group of dissociated memories might develop into a second personality : Pierre Janet
5. Freud : One of the peculiar features of the hypnotic state is a sort of paralysis of the will and the power of movement, a paralysis produced by the influence of an omnipotent person on a defenseless, impotent subject. This feature is reminiscent of hypnosis produced in animals by fear.
6. Hypnosis and sleep are related - "Hypnosis is inhibition spread over the usually active points in special areas of the hemispheres" - hypnosis neural phenomenon : Pavlovian School.
7. Hypnosis is regression to infancy : Ferenczi
8. The Mechanisms of Hypnosis : Dr. S J Van Pelt

LECTURE IX (CONTD)

THEORIES OF HYPNOSIS - DEFINITIONS OF HYPNOSIS

DEFINITIONS OF HYPNOSIS

1. Gindes : "Hypnotic suggestion is the process of controlled alternations of human actions and reactions through thoughts, objects, or actions".

2. Eysenck : "The ability of an individual to direct the whole force of nervous energy into a smaller number of nervous channels, thereby reducing the synaptic resistance and facilitating the passage of nervous energy".

3. Boswell : "An unusual state in which the mind concentrates on immediate thoughts disregarding surrounding stimuli".

4. MCDougall : "Voluntary attention is withdrawn from the outer world and concentrated in force upon the vaso-motor system, producing changes impossible in normal consciousness".

5. Bryan : "Hypnosis is a normal physiological, altered state of consciousness, similar to, but not the same as being awake; similar to, but not the same as being asleep, and is produced by the presence of two conditions: (1) A central focus of attention, and (2) surrounding areas of innibition. The state of hypnosis, in turn produces three things:
a) An increased concentration of the mind,
b) an increased relaxation of the body, and
c) an increased susceptibility to suggestion.

6. Pandya : Hypnosis is a psycho-physiological, altered state of consciousness induced by conditioning and skilled use of suggestions, resulting in lessening of subject's inhibitions and reasoning, and heightening of his ability to relax and his susceptibility to suggestion.

GINDES - HYPNOTIC FORMULA

MISDIRECTED ATTENTION + BELIEF + EXPECTATION = THE HYPNOTIC STATE

LECTURE X

AWAKENING PROCEDURE

POST-HYPNOTIC SUGGESTION

1. Give a post - hypnotic suggestion before initiating awakening procedure
2. Specify the duration of any post-hypnotic suggestion
3. Make all post-hypnotic suggestions clear and unambiguous

AWAKENING PROCEDURE

1. Give a post-hypnotic suggestion-signal-for future induction
2. Remove all suggestions extraneous to therapy
3. Emphasize the benefits and the feeling of well-being to be felt upon awakening
4. Terminate the trance gradually by counting slowly up to three or five (some hypnotists count up to ten)
5. Do not snap the subjects out of the trance
6. Be considerate, kind, and respectful to the subject throughout the awakening procedure

POSSIBLE PROBLEMS

1. Bodily discomforts
2. Abrupt or premature awakening
3. Reluctance to awaken

MANAGEMENT OF THE PROBLEMS

1. Make sure that the subject understands what is expected of him upon awakening
2. Remember that the subject needs time to awaken fully even after he has opened his eyes.
3. Avoid abrupt awakening
4. If the subject is reluctant to awaken
   a) Repeat the awakening suggestions
   b) Ask the subject the cause of his reluctance to awaken
   c) Check whether the subject has gone into normal sleep
   d) Payment for your time

LECTURE XI

HYPNOTIC SLEEP VS. NORMAL SLEEP

NORMAL PHYSIOLOGICAL SLEEP

1. No response to stimuli and suggestions
2. Reflexes such as the knee-jerk are diminished or abolished in sleep
3. "The limbs become flaccid from cessation of muscular tone and action ...." Braid
4. No reasoning capability
5. Not induced by another person

HYPNOTIC STATE

1. The subject responds to suggestions
2. Reflexes such as knee-jerk are present
3. "...the arms and legs are maintained in a state of tonic rigidity for any length of time I have thought it prudent to try." Braid
4. The subject is capable of reasoning -
5. The state could be induced by another person and without mentioning sleep
6. The EEG recordings of brain waves during the hypnotic and waking states are quite similar
7. The heart and lung action during hypnosis is more similar to that of the waking state than that of normal sleep.

LEXTURE XII

A METHOD OF INDUCTION TECHNIQUES

1. Eye fixation method
2. Fascination technique
3. Progressive relaxation technique
4. Opening and closing of the eye technique
5. Repeat induction method (for auto-hypnosis as well)
6. Eye to eye technique

IT IS IMPORTANT TO

Choose the method that suits the need and personality of the subject.

Give conditioning tests to find out the suggestibility of the subject.

To know whether the subject was previously hypnotized by anybody, if yes, by what method.

To be en rapport with the subject before inducing hypnosis.

LECTURE XII CONTD)

SAMPLE : INDUCTION OUTLINE

NOW I WOULD LIKE YOU TO SIT COMFORTABLY ON THE CHAIR AND RELAX. PLEASE PUT BOTH OF YOUR FEET FLAT ON THE FLOOR AND REST YOUR HANDS ON YOUR LAP, FINGERS UNLOCKED. THAT IS PERFECT. AND AS YOU ARE SITTING THERE, RELAXING COMPLETELY, I WOULD LIKE YOU TO SELECT A SPOT ON THE CEILING AT ABOUT 45 DEGREE ANGLE WITHOUT BENDING YOUR NECK AND CONCENTRATE ON THAT SPOT. AS YOU ARE CONCENTRATING ON THAT SPOT YOU ARE LISTENING TO MY VOICE VERY CLEARLY AND RELAXING MORE AND MORE.

YOUR BODY HAS STARTED RECAPITULATING THAT FAMILIAR FEELING OF RELAXATION ... WHATEVER IT MEANS TO YOU. IF RELAXATION MEANS A VERY HEAVY FEELING... THEN THAT FEELING IS COMING OVER YOUR BODY IF RELAXATION MEANS A LIGHT FLOATING SENSATION THEN THAT SENSATION IS ENVELOPING YOUR BODY....

AS YOU ARE LOOKING AT THAT SPOT, YOUR EYES ARE BECOMING VERY, VERY HEAVY. YOU FEEL VERY RELAXED AS YOUR EYES BEGIN TO WATER AND YOU FEEL LIKE CLOSING YOUR EYES AND AS YOU ARE LISTENING TO MY VOICE YOUR EYES BECOME HEAVIER AND HEAVIER AND YOU FIND IT VERY HARD TO KEEP YOUR EYES OPEN. JUST LET YOUR EYES CLOSE NOW, AND AS YOUR EYES ARE CLOSING YOU RELAX EVEN MORE THAN YOU WERE RELAXING BEFORE.

AS YOUR EYES ARE COMFORTABLY CLOSED NOW, YOU FEEL VERY MUCH AT EASE, VERY RELAXED AND YOU KNOW THAT FOR THE NEXT FEW MINUTES THERE IS NOTHING FOR YOU TO DO BUT TO RELAX. YOU ALSO KNOW THAT ONCE YOU HAVE MASTERED THE TECHNIQUE OF RELAXATION, YOU WILL BE ABLE TO RELAX ANY TIME, IN ANY PLACE BY YOURSELF. NOW AS YOUR EYES ARE CLOSED AND YOU ARE RELAXING BEAUTIFULLY, YOU ARE BREATHING DEEPLY AND EVENLY AND EVERY BREATH THAT YOU TAKE MEANS YOU FEEL MORE AND MORE RELAXED, CALM AND COMFORTABLE AND TAKES YOU DOWN, WAY DOWN DEEPER AND DEEPER INTO THIS WONDERFUL RELAXATION.

NOW I AM GOING TO COUNT FROM ONE TO TEN FOR YOU AND AT THE END OF THE COUNT YOU WILL RELAX EVEN MORE THAN YOU ARE RELAXING NOW.

LEXTURE XII (CONTD)

ONE : THE MUSCLES OF YOUR FACE AND YOUR JAW ARE VERY RELAXED NOW... AND I WOULD LIKE YOU TO BECOME AWARE OF THAT RELAXATION IN THE MUSCLES OF YOUR FACE AND YOUR JAW.

TWO : THE MUSCLES OF YOUR NECK ARE RELAXING NOW AND AS YOU FEEL THIS RELAXATION GOING DOWN, DOWN OVER YOUR ENTIRE BODY.

THREE: THE MUSCLES OF BOTH OF YOUR SHOULDERS AND ARMS FEEL VERY HEAVY AND RELAXED.

FOUR : THE MUSCLES OF BOTH OF YOUR FOREARMS WRISTS AND FINGERS AND EVEN YOUR FINGERTIPS ARE RELAXED... YOU ARE BECOMING INCREASINGLY AWARE OF THIS PLEASANT FEELING OF RELAXATION.

FIVE : AS YOU ARE BREATHING DEEPLY AND HEAVILY; THE MUSCLES OF YOUR CHEST ARE RELAXING COMFORTABLY

SIX : THE MUSCLES OF YOUR STOMACH ARE VERY RELAXED NOW... AS YOU FEEL SO COMFORTABLE, YOU ARE ENJOYING THIS FEELING OF RELAXATION.

SEVEN: THE MUSCLES OF BOTH YOUR THIGHS FEEL SO HEAVY AND RELAXED.

EIGHT: THE MUSCLES OF YOUR LEGS, YOUR ANKLES AND EVEN YOUR GOES ARE RELAXED

NINE : YOU ARE DRIFTING DEEPER AND DEEPER INTO THIS RELAXATION.

TEN : THERE IS NO TENSION IN ANY MUSCLE, ANY PART OF YOUR BODY. AS YOU ARE BREATHING DEEPLY AND HEAVILY, YOU ARE GOING DEEPER AND DEEPER INTO THIS WONDERFUL RELAXATION.

LECTURE XIII

IMPLANTING AND REMOVING SUGGESTIONS

TYPES OF SUGGESTIONS

1. Positive
2. Negative
3. Dominative
4. Permissive
5. Direct
6. Indirect

METHODS OF IMPLANTING SUGGESTIONS

Verbal

Visual

Other senses

OTHER IMPORTANT FACTORS

Repetition

Reinforcement

Use of subject's imagination

Use of the "AS IF" principle

Allowing time for response to take place

Unambiguous and literal phrasing

Making the subject relate his goal

Avoiding unpleasant suggestions

"The patient with a functional malady will get well when he is convinced that he will be well; he will be cured at the exact moment he convinces himself that he is cured".

REMOVING SUGGESTIONS:

Remove all suggestions extraneous to therapy before awakening the subject
Remove one suggestion before giving another - avoid confusion
Be literal and precise at all times

LECTURE XIV

AUTO HYPNOSIS

CONCEPT

1. Autohypnosis is merely in intensification of the capacity of an individual to examine his own mental processes in order to make the best "bets" as to how he should act.
2. Self control is not relinquished as is commonly believed. Actually more control is gained.
3. Essential pre-requisites: a) Strong motivation
   b) Intelligent application of the autosuggestions
   c) Diligence
4. Time necessary to achieve autohypnosis varies
   some subjects learn it in a half hour
   others require much longer periods
5. One question often asked is "If I am under hypnosis, how can I give myself suggestions?" "You are always aware of what is going on and therefore, you can think, reason, act, criticize, suggest or do whatever you imagine or believe you need. You can give yourself the suggestions aloud or mentally".

   Another frequent question is : "How do I bring myself out of the Autohypnotic state?" "You can terminate autohypnosis immediately upon specific suggestions or a pre-arranged cue"

LEARNING METHODS:

1. Heterohypnosis
2. Reading Books and Practising

LECTURE XIV (CONTD)

ADVANTAGES:

1. Promote relaxation
2. Promote self confidence
3. Increase concentration
4. Improve memory
5. Overcome bad habits
6. Substitute strong behavioural responses for weaker ones
7. Alleviate many distressing symptoms
8. Positively contributing to physical, mental and spiritual phases of life.

SIX STEPS TO SUCCESS

1. Select your goal
2. Phrase positive suggestions for achieving that goal and write them down on a piece of paper.
3. Before you go into self hypnosis everyday take that piece of paper out and read it out loud to yourselves with all confiction, faith and emotion.
4. Go into self hypnosis (Lecture XII)
5. After you have hypnotized yourself, shut up and see your positive self image.
6. Wake yourself up as per the awakening procedure.

PROBLEMS:

1. Procrastination
2. Trying, instead of doing
3. Remembering of past incidents
4. Hallucinations - Dr. Estabrooks and his phantom bear.

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".....when we honestly ask ourselves which persons in our lives mean the most to us, we often find that it is those who, instead of giving much advice, solution or cures, have choosen rather to share our pain and touch our wounds with a gentle and tender hand.

The friend who can be silent with us in a moment of despair or confusion, who can stay with us in an hour of grief and bereavement, who can tolerate not-knowing, not-curing, not-healing and face with us the reality of our powerlessness, that is the friend who cares ....."

— Henri Nouwen

THE INSTITUTION

Banjara Academy is an institution dedicated to the improvement of quality of life. It aims to bring together experts and professionals, to share their knowledge and experiences in various fields ranging from family life, personal development, social decision making, to professional excellence.

The Academy lays stress on practical aspects of betterment, and the workshops are designed to be brief but comprehensive. Effective participation is encouraged to ensure that each workshop becomes meaningful at a personal level. A pioneer in this field, the Academy's uniqueness lies in focussing on practical aspects of finding solutions to day to day problems.

Besides conducting high profile executive development and management programmes, the Academy offers very affordable interaction workshops in meaningful subjects like counselling, self-development etc.

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- *Parent Training Programme*
- *Coping with Academic Stress*
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- *Managing Matrimonial Harmony*

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BANJARA ACADEMY
Queens Road, Bangalore 560052,
Phones: 2265628 2260674

"

CERTIFICATE COURSE IN COUNSELLING SKILLS

"

CCCS – 2

Banjara ACADEMY

CERTIFICATE COURSE IN COUNSELLING SKILLS (CCCS2)

Counselling is fast becoming an essential part of urban life. With the breakdown of joint families and secured village social life, more and more people find themselves alone in a crowd.

Banjara Academy has been conducting numerous short and long term counselling courses, using the services of some of the most capable and experienced resource personnel in the field.

This course has been designed as a rigorous residential/day programme to give an exposure to participants, not only to the theoretical aspects of counselling, but also to its practice in daily life.

This promises to be a week of enlightenment, sharing, understanding each other as human beings, and appreciating human behavior.

Objectives:

- ★ *To provide an understanding of human behavior, and to improve interpersonal relationships and interactions*
- ★ *To help others understand themselves and overcome their own problems*
- ★ *To promote mental health and happiness in self and others*
- ★ *To provide practical skills for counselling and guidance in the fields of work, family & community*
- ★ *To enable the participants to improve their own assertiveness, problem solving skills and coping styles*

Course Content:

The course comprises of scientific practical information and technical know-how of human interactions, nature of behavior and problems of various stages of life. This information gears an individual towards the multiple roles he/she needs to play as a concerned and responsible adult.

Specific problem areas like dealing with the behavioral problems of normal and exceptional children, career counselling, marital counselling, gender role orientation, crisis intervention, dealing with alcohol and drug abuse, and the like.

Information about common psychological techniques of dealing with stressful or problematic situations will be provided through case studies by experts in the field.

The programme will consist of lectures, exercises, role plays, counselling sessions (including individual sessions with participants who desire to have them), and group discussions.

The day will begin with relaxation and meditation techniques and will end with voluntary late evening group discussions and brainstorming.

Day participants who do not wish to stay late, can attend the course between 9:30 am and 5:00 pm

Target Group:

People in human service professions like teachers, lawyers, health workers, social workers. People concerned with child and family welfare, community leaders, managers, supervisors, who are interested in working towards peace and happiness. People from any walk of life who wish to improve the lot of other human beings through guidance and counselling.

Duration:

6 days, starting on Wednesday 9th November, 9 am and ending on Tuesday 15th November 4 pm (with a break on Sunday for relaxation/ sight-seeing)

Venue:

The Indian Social Institute (ISI)

24, Benson Road, Bangalore 560046
(near Jaymahal, 1.5 km from
Cantonment Railway Station)

Programme Co-ordinators:

Mr Ali Khwaja, B Tech (IIT), MIE
Counsellor and HRD trainer

Dr Amudha Jayaraj, MBBS, MD, DPM,
Consultant psychiatrist and counsellor

(with a number of experts from medical, psychiatric and counselling professions)

Course fee:

Rs. 750/- per participant for individuals
Rs. 1,000/- for candidates sponsored by organisations
(inclusive of course material, lunch and tea)
Residential accommodation will be charged at Rs.85/- per day including food

CUT HERE

REGISTRATION FORM

Programme : ☐ Certificate Course in Counselling Skills (CCCS2)

Name of Participant :

Mr./Ms _____

_____

Date of Birth : _____ Phone No._____

Designation/Profession:_____

Other interests:_____

Address : _____

_____

_____PIN_____

Previous experience of counselling, if any :

_____

_____

Amount : Rs

Enclosed vide cash/cheque No. _____

Signature of participant

Send to
Banjara Academy
Queens Road, Bangalore 560 052
Phones : 2265628, 2260674

Participants are requested to be punctual.

Note : Registration once made, will not normally be cancelled. However, substitution of participant will be considered

The science of mental healing

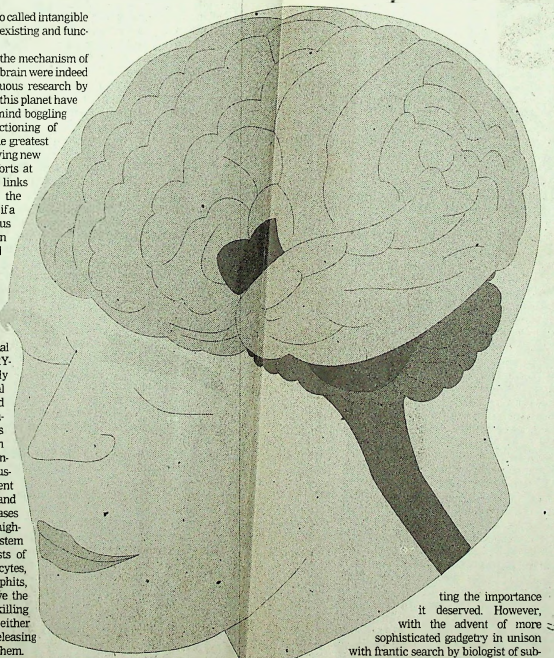
All things by immortal power
Near or far
To each other linked are
That thou can't stir a flower
Without troubling a star — *Anonymous*

By Dr. Indranill Basu Ray

Amebiscus was an old citizen of Abaccas a small seaside village in Greece who lived in 800 BC, so the story goes. Amebiscus was a sad man. After the death of his wife, all his sons and daughters forsook him because of his miserly habits. Morose with the happenings around him he grew sadder day by day till he fell seriously ill, which finally, did cost him his life. This story, told and retold many times over the years, is significant because it amplifies the fact that it was the sad mental state in which Amebiscus was, that produced his illness, and finally led to his death.

Such concepts of intricate mind-body connections where the state of the mind influences factors that promote physical well being are nothing new to our ancient medicine. Starting from the Vedas through Upanishads one may mention that even physicians and surgeons like Charaka and Sushruta emphasised primarily on the creation of the right mental state because the entire gamut of existence of human being and certainly one's physical health depend essentially on the state of the mind. Despite the fact that all ancient philosophies that existed on earth for many centuries were in consonance in respect of the concept of mind body unity. This idea, however, did not find favour with medical biologists. Medical science did trace the existence of certain diseases to mental aberration like anxiety, naming them Psychosomatic illness, but deeper mind-body links where variance of mental state directly affected body functioning was certainly not what most human biologists even thought of, let alone believed. Western medicine lay obsessed with the conventional idea that links between brain and body remained restricted to those biological functions of the body that had their highest centre of control in the brain. The idea of mind which is an abstract entity remained, vague and ill-defined. Thus what inside the brain was anatomical consisting the mind; if any, or what sort of functioning on the part of the brain produced 'mind' remained unknown. Thus it is quite ostensible why medical biologist never even dreamt of any connection between this so called intangible mind and the very much existing and functioning body.

The initial glimpses of the mechanism of functioning of the human brain were indeed stunning. Years of strenuous research by some of the best brains of this planet have brought to light certain mind boggling concepts about the functioning of brain. However, one of the greatest triumphs of this fast evolving new biology has been our efforts at discovering the hidden links that intricately connect the mind and the body. Today if a person develops a serious viral infection within weeks of a personal tragedy, his doctor might not just push it off as coincidental. The fact that the two could be related was first accepted by science when researchers at the National Institute of Mental Health at Bethesda, MARYLAND, were convincingly able to prove that mental states of the brain could indeed affect body immunity. The human body is regularly bombarded with a wide variety of infection-causing bacteria and viruses. To fight this ever present menace of both infection and certain non-infective diseases like cancer there exists a highly specialised immune system in the body. This consists of blood cells called lymphocytes, monocytes, neutrophils, eosinophills etc. that have the varying capacity of killing invading micro-organism either by devouring them or by releasing chemicals that inactivate them.



Till the early eighties, it was believed that this independent system had little or no connection with the brain and acted independently to keep the body disease free. However, in the late eighties and early nineties it was known that certain chemicals released by the brain activated or inactivated these cells of the immune system. Thus, melatonin, a chemical released by pineal, a gland located deep inside the brain, was shown to directly activate certain lymphocytes called natural killer cells. Thus activated, these lymphocytes were far more active in devouring virus-infected tissues and tumours. Melatonin till the late seventies had been relegated to the status of not so important a hormone. While it has been credited with functions as diverse as producing skin pigmentation to regulating sexual activities in animals, particularly reptiles. Its function in humans had remained largely obscure. This severe deficit in knowledge had probably resulted in melatonin not getting the importance it deserved. However, with the advent of more sophisticated gadgetry in unison with frantic search by biologist of substances that mediated day and night cyclical changes in humans, resulted in attention falling on hitherto little-known hormone, melatonin. The fact that melatonin could directly stimulate the body defence mechanism to ward of intruding invaders was recognised far later.

Considerable evidences have accumulated that speaks of the fact that certain other chemicals released from the brain also stimulate the body's immune system. Met Enkephalin is a chemical which, when released by certain nerves deep inside the brain, at a site called amuygdala, produces euphoric moods in humans. It has been subsequently discovered that this chemical apart from being released inside the brain is also released into the blood stream. What then baffled the investigators was the mystery about nature indulging in this seemingly wasteful process of producing excess chemical that got washed into the blood stream, whilst apparently serving no useful purpose. It was only in the late eighties that researchers first discovered that Met Enkephalin is a chemical that produced euphoria when released inside the brain and that it also stimulated our immune system on entering the blood stream. The mode of stimulating the body defence system by Met Enkephalin was simple; it activated blood cells called lymphocytes. This was the first instance where direct evidence of mind-body interaction was discovered.

Thus when one is in a happy mood, his capacity to ward off disease is greater, as his body's defence mechanism is perceptibly stronger. A case in favour of the above finding is the study by Sandra Levy, a psychologist, at the University of Pittsburgh's Cancer Institute. The psychologist monitored 36 women afflicted with highly advanced breast cancer being treated at the institute. By the seventh year 12 of the women were still alive. Though digressing a little bit, it may be pertinent to state here, that prognosis of highly advanced breast cancer is very poor and many patients die within five years, with almost zero survivability after 10 years. The occurrence of this stage is rarer nowadays because of early diagnosis and treatment with appropriate surgical techniques augmented by a wide armamentarium of anti-cancer drugs that can prolong survival by many years, if not cure the disease. Coming back to our case, this study showed that two factors were mainly responsible for the survival of these women. The primary factor was how long each women remained disease-free after treatment and the second most important factor was a high level of happiness and joy (measured by scores on a standard questionnaire) that these surviving women enjoyed.

The connection between the mind and the body, got more clear as scientists got to understand the so-called mind and its different aspects like the mood for example. Not only that: hundreds of different biomolecules were discovered that were chemical messengers running from the brain to the immune system cells and vice-versa, informing each other of their respective state and maintaining a highly efficient, organised and elaborate communication system. These findings opened an entirely new dimension of medicine. It began to be understood that effective mental training can indeed at least delay the progress of certain diseases if not cure it. Which might indeed come as a blessing to the sufferers of those diseases, for which as yet, we have no satisfactory treatment protocols. It began to be understood for the first time that mental training can indeed delay the progress of certain diseases; if not cure them, a fact unheard of in the history of the so-called 'Western' Medicine. Research conducted at the same cancer institute headed by director Ronald Heberman, psychologist Sandra Levy and Judith Rodin of the Yale University reached the same conclusion. They selected a group of cancer patients who were in remission from their disease after successful medical therapy. Since there remains a high risk that the disease might relapse, they were subjected to psychological training as a mode to increase the patients' resistance; so as to prevent a relapse. Eighteen patients were selected amongst the group and were given an eight-week programme of meditation, mental relaxation and changing of self-defeating beliefs was attempted. At the end of the study it was found that all the patients who took part in this programme developed more active natural killer cells, a type of lymphocyte which destroys tumour tissue, than that developed by the rest of the patients who received only standard medical therapy.

This new science called psychoneuroimmunology that endeavours to study the mind and the body interactions is still in a formative stage. But the day is not far, given the fast pace of research in this area, when a much more clear picture would emerge and healing by mental power would be a scientific proposition and not a metaphysical experiment as of present. Certain words spoken a century ago adequately summarises the contentions of hundreds of biologists working to unravel one of the most closely guarded secrets of this Universe — the mode of functioning of the human mind!

There is no limit to the power of the human mind — Swami Vivekananda

The author is a cardiologist & the National Convenor: Working Group on Drugs, Pharmaceuticals & Health Care Policy

MH-4

Stalking the tigers in the wild ambience of Biligiri Rangana Temple (BRT) sanctuary. See page 5 for story

DECCAN HERALD
Sunday Herald
7/3/04

When the mind becomes Hell

With high stress levels at home and work and a biological make-up that translates stress to the psychological plane, women's mental health cries out for special attention.

Meera's fiancee went to USA after their engagement. A fortnight later, her elder brother who was also working in the US gave her family the shocking news that Meera's fiancee was already married to his German colleague. Meera initially expressed shock and disbelief. A few days later when Meera developed disinterest in her job and started locking herself up in the room, her parents got alarmed at their daughter's mental state. After much persuasion Meera agreed to undergo counselling and was diagnosed as having suffered a 'nervous breakdown'.

• • •

Mandakini had suffered in silence for nearly two decades of her married life. But in her own perimenopausal phase at the age of 45 years, Mandakini had started acutely feeling what is termed in psychiatry as 'the trapped wife syndrome'. She could no longer endure her mother-in-law and sister-in-law's grievances against her.

A week before her untimely death, Mandakini had confided with a close relative. "I am fed up of my mother-in-law and sister-in-law's tantrums. My husband is refusing to set up a house of our own even after two decades of our marriage," and as Mandakini started sobbing over the phone, her relative suggested that she seek her family's support and explain her emotional turmoil to her family physician.

Had she listened to my advice then probably Mandakini would have been alive today, noted the friend.

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The National Award winning Kannada movie of the 1970s, *Sharapanjara* based on the novel by late Triveni and directed by late Puttanna Kanagal depicted the hysterical outbursts of a married woman who acutely suffered puerperal psychosis following the birth of her second child. The heroine Kaveri's unresolved conflict about her pre-marital affair gets unravelled through the reverberating words *Veni, Vedi, Vecil* (I came, I saw, I conquered)

Psycho-analysts attributed Kaveri's mental illness to a loss of sense of belonging in her husband's family after her husband rejects her on account of the pre-marital affair.

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Andrew Morton, the author of *Diana - her true story* describes a pregnant Diana's suicide attempts in the very first year of her married life as "messages of complete desperation... cries for help."

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The above mentioned case histories reveal that women's mental health continues to be a truly global health problem, since at any given time, nearly ten percent of women all over the world would be suffering from different types and varied degrees of mental illness. According to psychiatrists and behavioural therapists, 'Women's mental health' deserves to be categorised as a separate entity since both the stress factors faced by women and stress response in women are different when compared to the same phenomena occurring in their male counterparts.

- For each case of a depressive disorder reported in male, there are at least two such cases in females. So also is the fact about post traumatic stress syndrome (PTSS) which is twice more common in females than in males.

- In young women, eating disorders like *anorexia nervosa*, self harm, attempted or parasuicide are reported far more often than in young men.

- The hormonal profiles of women during various stages of their life make them vulnerable to various mental illnesses. A WHO study has found that depression presents the greatest disease burden for women when compared with other diseases. The hormonal fluctuations are more pronounced during the onset of puberty or menarche, pregnancy, post-child birth phase (postnatal phase), perimenopausal phase and immediately after menopause.

Nearly ten percent of women the world over suffer from different types of mental illness

STRESS FACTORS

Some of the stressors faced by women in India

- inadequate financial resources for basic needs.
- Task overload and professional dilemmas.
- Stereotyped role expectations by the society.
- Poor self-image.
- Deprivational stress due to loneliness (in young widows, divorcees, spinsters and in women whose husbands would be working abroad for years together.)
- Sexual abuse and harassment.
- Abortions, hysterectomy and infertility may also burden a woman in a distinctly stress inducing manner.
- Husband's addiction to alcohol is a day to day stressor to a wife.

- Research has shown that while some women interpret the various demands of their life as challenges and thus are not likely to experience significant distress, others may perceive the challenges as overwhelming and threatening. The latter category of women may go through intense emotional turbulence.

A woman's mental health assumes paramount significance since a mother's emotional stability is the fulcrum for the healthy upbringing of the children and for the socio-economic progress of any family. "Psychologically deviated mothers are often emotionally flattened and thus are not able to provide enough encouragement and affection to their children. The emotional turbulence suffered by children of depressed mothers may manifest itself as varied behavioural problems during their adolescence," opine behavioural therapists.

According to Dr Mohan K Isaac, Professor of Psychiatry, NIMHANS, Bangalore, "Most of the stress related disorders in women eventuate on a psychological plane, whereas in men the cumulative stress at once can surface as an organic disease, such as a heart attack. Women quite often require different anti-depressant medication and behavioural therapy than men not only because they are biologically different but mainly because the impact of environment both at domestic and professional spheres can tremendously influence a woman's recovery from her mental distress."

Many women with severe depressive symptoms do not receive any treatment till a suicide has been attempted.

Attacks of 'tension headaches' are also more frequent in women than in men. "Out of every ten cases of tension headaches that I get to counsel and treat, about seven patients are females," says a leading psychiatrist in Bangalore.

Says Dr Prabha S Chandra, Associate Professor of Psychiatry, NIMHANS, based on an extensive research study carried out by her on pre-menstrual syndrome, "Earlier, Pre Menstrual Syndrome was considered as a culture bound syndrome reported only in western countries. Whereas studies in India has revealed that even in our country nearly 75 percent of urban women experience one or more of the incapacitating symptoms a week or ten days before the onset of their monthly cycles. In our study, right from teenagers to women in their late thirties reported mood swings, irritability, anxiety, proneness for easy crying spells, muddled thinking and so on."

Denial of self

According to psychiatrists many women experience a dark feeling of the 'denial of self' in matrimony. If some women subconsciously resent the process of role adaptation, others brood over their role incompetence. *This type of adaptational pathology can lead to what is termed as* a 'trapped wife syndrome'. Such women lack a close female confidante and due to their bottled up emotions feel torn apart by the demands of child rearing, looking after in-laws and constantly compare their duties with their husband's career graph.

Depressed and neurotic women are more prone to psycho-somatic diseases wherein they become victims of pain syndromes, chronic low abdominal or pelvic pain.

According to Dr Prabha Chandra, "Nuclear families and the dual role played by the working woman may put the mental resilience of the new mother to test. Soon after delivery, a vulnerable woman may show stress response of varied degrees."

Depressed mothers show delay in maternal responses leading to impaired mother-infant bonding.

Rape trauma

Rape victims are among those who undergo severe depression. Long term reactions are more mentally disturbing in the form of post traumatic stress syndrome when consequent to sexual violence, the victim gets bouts of sudden, agonising, vivid, graphic memories of the traumatic episode weeks or months after the painful incident. These trigger suicidal tendencies.

According to Dr Issac, "People are yet to understand the emotional consequences of rape. Even the relatives of a rape victim are more concerned about the girl becoming pregnant than sharing her mental turbulence."

Psycho-analysts advise mental catharsis as a form of therapy to several mental illnesses. This is a form of medical confession, wherein the depressed woman can share her troubles and is encouraged to face the difficulties with a positive attitude. As psychiatrist Sir Ross has said about the therapeutic value of mental catharsis 'A skeleton in the cupboard is a gruesome and fearful thing but if we look at it often enough it will become only a bag of old bones!'

All this brings to mind John Milton's words from *Paradise lost: "The mind is its own place, and in itself can make a heaven of Hell, a hell of Heaven!"*

VEENA BHARATHI