
Editorial

Science of the Mind

Vidurava has taken up in this number, one of the most complex and intriguing problems that science has ever faced, and that is the unraveling of the mysterious functioning of a meagre 1.4 kg of matter lodged in the human skull, which gives rise to consciousness, thoughts, memory, and emotion. In this publication four sub themes on brain-mind functioning, comprising Mental Stress, Control of Emotion or more specifically Anger, Depression, and Evolutionary aspects of Psychology are discussed.

It is however, significant and almost unbelievable that more than two millennia before modern science emerged, the functional components and behavior of the brain-mind complex had received the most intricate scientific analysis ever under that great omniscient Master, Gautama Buddha. His clear and astounding explanation of the phenomenon of consciousness arising through the impression or contact with what had been described as the “Six Sense Doors” comprising the eye, ear, nose, tongue, body and mind remain inexplicable and enigmatic.

A discussion on the Science of the Mind would however, remain incomplete if no reference is made to other conditions that manifest from the mind-brain phenomenon, such as “Paranormal Phenomena”. As explained by Dr. S. N. Arseculeratne, Emeritus Professor of Microbiology of the University of Peradeniya, in a paper titled “The Challenge to Modern Science from

Parapsychology” published in his Memoir “*I Think, Therefore I am*”, in 2015, Parapsychology refers to the study of Paranormal phenomena such as, telepathy, clairvoyance, and pre-cognition, which are probably operated through the mind, and hence could be subjected to scientific investigations, while other phenomena such as materialization (apport), psychokinensis, reincarnation, and astrology, which are also paranormal phenomena mediated by other means, are at present outside the investigative scope of modern science.

The meaning of the word “Paranormal” used in contrasting context with “Normal” refer to phenomena that are as yet not completely understood through scientific methodology, while “Normal” phenomena are amenable to study through methods of science that are at our disposal.. Over the last few decades, many researchers, including scientists have carried out studies on various aspects of parapsychology, and in most instances, the findings appear to defy scientific experimentation. A test case probably is the investigation on the ancient Indian Palm (ola) Leaf Horoscopes, by Prof. Arseculeratne, one of the few outstanding scholar academics in the field of “History and Philosophy of Science”, where repeated investigations had confirmed the authenticity and validity of these palm leaf horoscopes. Thus here we may be seeing through ‘checks and balances’, the paradoxical reality of the probable limits of modern science.

M. Asoka T. De Silva

The Evolution of Psychology

Dr Nirosha Mendis



The origins of psychology

The term Psychology derives from two Greek words “Psyche” which means soul, and “Logos” which refers to the study of a subject, and when combined, meaning “the study of the soul”, to which historically, many early thinkers and philosophers have given thought. Perhaps the earliest on record was Gautama Buddha, who in 400 BC addressed the subject of the mind and body, and explained in detail the steps and stages involved in the formulation of thought and consciousness following sensory stimuli. In more recent history, the French

philosopher Rene Descartes in the 16th and 17th century expounded that the mind is fundamentally different from the mechanical body. He was followed by several European philosophers each giving their opinion on the subject.

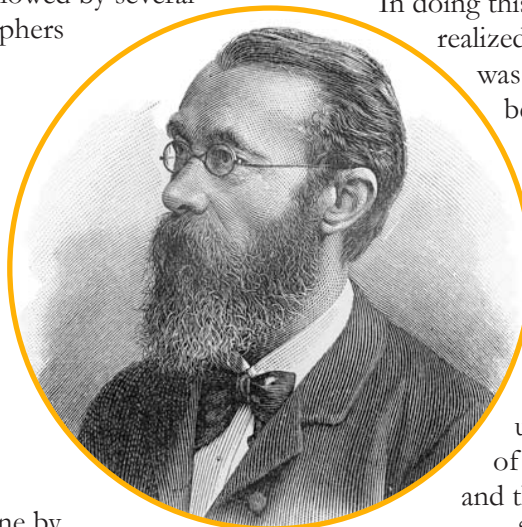
Psychology as a formal subject begins with “structuralism” It was in the 1870’s that psychology was recognized formally as a scientific discipline by the pioneering work of a German Professor Wilhelm Wundt. He began to study the basis of consciousness, which he considered to be the primary focus of psychology, by breaking down the mental experiences of individual subjects. Thus modern psychology began as the scientific study of behavior and mental activity. He established a psychology laboratory in the University of Leipzig in 1879 and started the first Psychology Journal to report the outcomes of research

in 1881. The research involved asking subjects to describe what they experienced as they worked on mental tasks such as viewing colours, reading a page in a book, or working on a math problem.

In doing this work they realized that there was a difference between feeling a sensation and the perception or

understanding of that stimulus, and that there was a “reaction time” between these two

events. This analytical approach led to one of the two schools of thought in psychology known as “structuralism” – which was based on analysing consciousness into its basic elements and investigating how these elements are related. Structuralism sought to examine fundamental components of conscious existence like sensations, feelings and images, by careful self-observation of one’s own conscious experience. A student



Professor Wilhelm Wundt



Rene Descartes



of Wundt, Edward Titchener who became famous for his work on psychology went back to America and began his own research there. He soon realized that although subjects could do something, eg., a math problem, they could not always describe how they did it and that therefore, there were unconscious processes that could not be described or understood.

“Functionalism”

Soon, another school of Psychology emerged as “functionalism” - which sought to understand why animals and humans acquired the various psychological aspects that they possessed, rather than how they were developed as was the pursuit of structuralism. Led by William James, of the Harvard University functionalism began to investigate the function or purpose of consciousness as opposed to its structure. James wrote the “Principles of Psychology” in 1890, which became the standard reading for generations of psychologists, and an influential text in the history

Edward Titchener

of the subject. Students of the functionalism school of psychology wanted to understand the stream of consciousness and not its elements. They were led to believe that psychology is deeply embedded in cultural and intellectual influences. They believed that Darwin’s Theory of Natural Selection also applied to psychology and that typical psychological characteristics must serve a purpose, were useful or functional. Just as physical characteristics such as developing strong muscles enabled the person to run faster, they believed that the human brain must have adapted to serve a particular function in human experience. This approach is what led to an interest in mental testing, patterns of development, effective education practices, and behavioural differences between sexes. This line of thinking led to evolutionary psychology which is based on the assumption or idea that psychological attributes get selected in a population by their “fitness” or their ability to confer an advantage to the individual to

survive, much along the lines of Darwin’s theory of evolution. Thus the structuralists brought laboratory research, and functionalists developed into two modern schools of psychology thought – 1) applied psychology and 2) behaviorism.

Behavioralism

In the 19th century there was a major input into the field of psychology by Sigmund Freud who introduced the psychodynamic approach to understanding behavior. By extensive analysis of his own patients Freud developed the theory that thoughts, memories, and desires that are well below the surface of conscious awareness nonetheless exert great influence on behavior. He theorized that psychological disturbances are caused by personal conflicts existing at unconscious level. Thus emerged the psychoanalytical theory, which attempts to explain personality, motivation, and mental disorders by focusing on unconscious determinants of behavior. This implied that people are not the masters of their own

minds and went on to suggest that behavior is greatly influenced by how people cope with their sexual urges. These ideas led to heated debate at the time, and were even thought to be scandalous by some.

Later in the 19th century emerged yet another line of thinking in

emphasis on the fact that environmental factors influence and molded behavior. He applied the general principles of behaviourism to improve the way children were taught,



psychology which moved the focus from studying the mind, which was difficult to do in an objective manner, to focusing on behavior itself. "Behaviourists" as they were called, based their ideas on the premise that one could study and understand behavior without knowing how the mind that led to the behavior worked, the latter being difficult to study. J B Watson an American psychologist was perhaps the first behaviourist, and he was greatly influenced by the Russian physiologist Ivan Pavlov, who demonstrated that dogs would secrete saliva on hearing a sound which was previously associated with their meal times. Skinner in the 20th century was of the opinion that internal thoughts could not be studied scientifically, and laid

and went on further to apply these principles to ways of producing peaceful and productive societies. In his book "Beyond freedom and dignity" Skinner expounds the behaviourist theory that organisms tend to repeat responses that lead to positive outcomes, and they tend not to repeat responses that lead to neutral or negative outcomes.

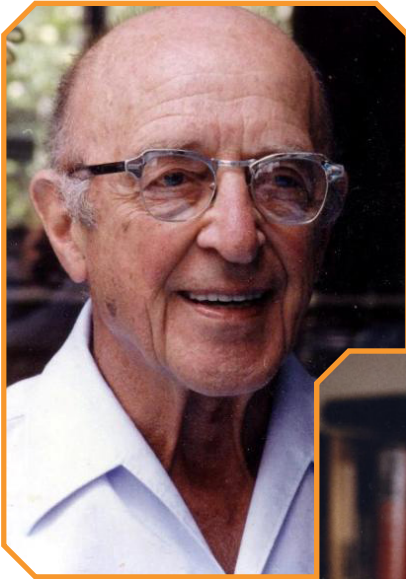
Applications of psychology

Although psychology evolved over the centuries, it had little application to solving practical problems until World War I. Post World War I psychologists began increasingly focusing on the applications of this knowledge to solving problems that occurred in the course of human life. With

time, four main professional specialties in psychology took form: 1) clinical psychology; 2) Counseling; 3) Educational and School and 4) Industrial and Organizational. Clinical Psychology deals with evaluation, diagnosis, and treatment of psychological disorders. Counseling Psychology provides assistance to people struggling with everyday problems of moderate severity eg., marriage counseling, school counseling, etc.; Educational and School Psychology works to improve school teachings, curriculum, teacher training, etc.; and Industrial and Organized Psychology deals with a variety of tasks in the business world such as running human resources departments, improving staff morale and attitudes, increase job satisfaction and productivity, examining organizational structures and procedures, making recommendations for improvements.

The humanistic movement in psychology

In the 1950's there was a reaction against the schools of psychoanalysis and behaviorism on the grounds that these approaches were dehumanizing, pessimistic and failed to take account of personal choice. In the late 1950's Abraham



Carl Rogers

Carl Rogers, Rollo May and Erich Fromm.

The humanist movement had a strong influence on the development of psychology from then onwards, and contributed new ways of thinking about mental health. It also offered a new approach to understanding



Erich Fromm

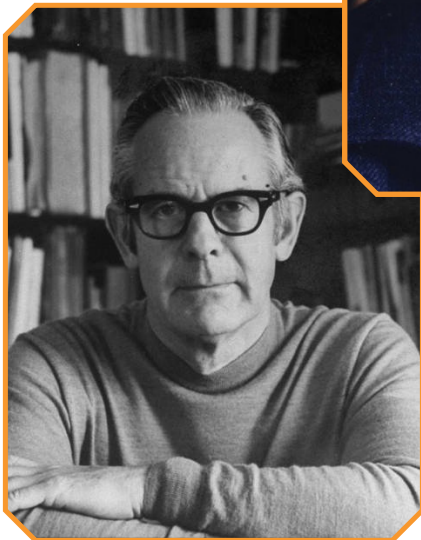
human behaviors, and led to the development of “cognitive psychology” and “positive psychology”.

Applied psychology and the work of psychologists

Today Universities and other higher

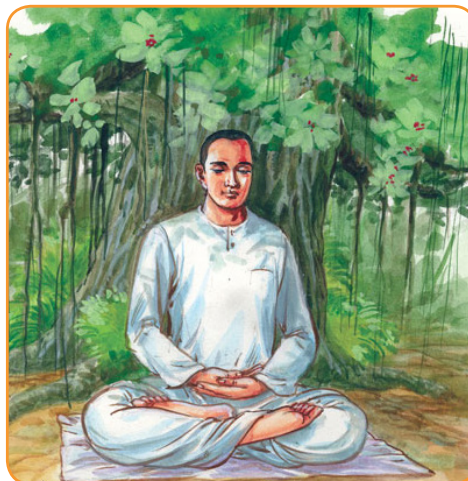
educational institutes award basic degrees in psychology and provide for granting postgraduate degrees in the subject. After the basic degree, students of psychology may receive training to work in several applied professional areas such as clinical practice; counseling; educational fields such as relating to schools; and in industry and organizations. In professing to understand or know about the working of the mind and thereby applying that knowledge, psychologists help people solve mental problems in the above mentioned fields and areas.

Psychiatrists, on the other hand, are medical doctors who diagnose and treat patients with mental illnesses, often with medication but also with various other forms of therapy. Thus, beginning with a curiosity to understand how the mind works, the field of psychology has evolved with psychologists researching and expounding various theories each leading to a school of thought or a branch of psychology. As with most sciences, as the knowledge or theory base grew, they began to be applied to solve problems encountered during human life, be they problems of the mind, learning and teaching, or work. Today psychologists work in highly specialized areas, continuing to research the subject as well as contributing to problem solving and improving the quality of human life.



Rollo May

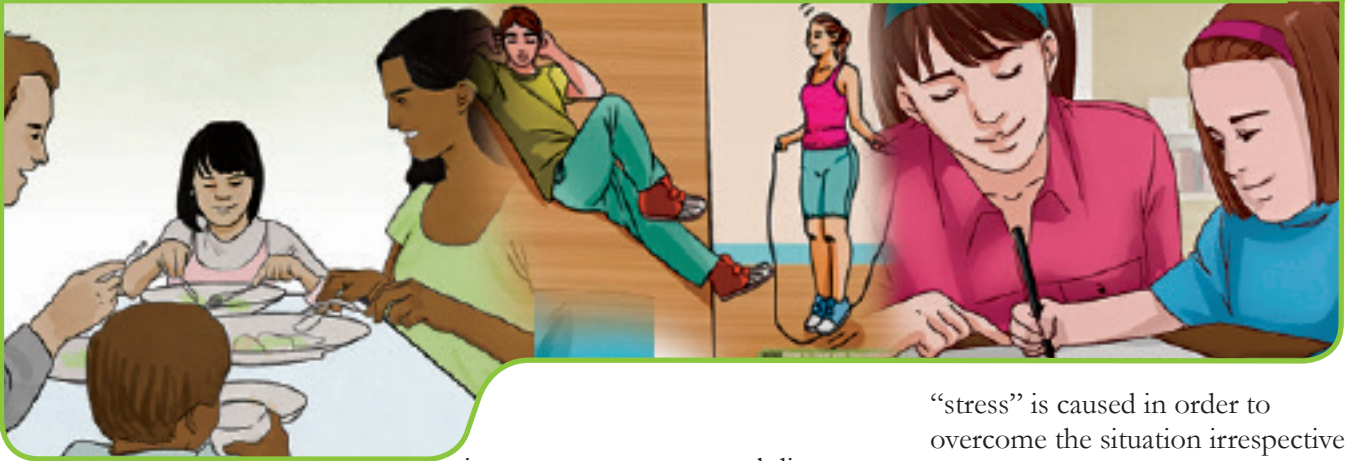
Maslow began introducing topics such as self-actualization, creativity, individuality, and made them the themes of this new humanistic approach. Humanists thought that human behavior is governed by “self concept” and that psychology must take a more optimistic view of human nature, and take into account the strong human drive towards personal growth. Other major contributors to the humanist approach were



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Mental Stress and ways of overcoming it

Dr Niel Fernando



Our ancestors led a very simple life and were happy with what they had. Today we lead a very busy life which is not at all peaceful. This change in the social order has strongly affected the health of the people. The non-communicable physiological diseases such as diabetes, high blood pressure, heart diseases, cancer as well as mental diseases such as stress, depression, anxiety and mental confusion can be considered as the adverse consequences of this change in the society. A physical disease at most times show symptoms and gets cured or may become complicated. Even though mental diseases mainly do not show clear symptoms they also get cured. But similar to physical diseases mental diseases also may gradually get complicated and become chronic. However due to wrong views and attitudes mental diseases are discussed and talked about very minimally.

Mental tension or “stress”

is a very common mental disease condition of the modern day. Tension is a condition that arises and disappears in all of us now and then. We experience stress when facing interviews, competitive examinations, sport competitions, when entering married life, at the birth of a baby or when facing sad situations such as a death in the family. In all these situations

“stress” is caused in order to overcome the situation irrespective of whether successful or not. Once the “tension” is over “stress” leaves us and we become normal.

However if tension or stress continues to last for a long period it can be considered as a disease. We can define stress as a situation or an incident which causes an uneasiness or discomfort in an individual. The incident may be





very serious or minor. However what is important is not the incident or the situation, but the discomfort or uneasiness it causes. Let us consider a very simple example to understand this. Some individuals fear to face examinations. They consider it as an impediment to their future progress. Even though it has brought about negative effects (harmful effects) on such an individual, another individual may consider it as an opportunity to show his capabilities and a way to progress. Here the “stress” situation which had ill effects on one person, has not affected the other person in a similar way. Especially when a certain task has to be completed within a specific time frame or time range, “stress” affects the person. According to the available data, 58% of men and 67% of women are reported to be under stress. In certain situations stress can yield favourable results.

It can help to face challenges and achieve targets. Stress situations may be categorized as either positive or favourable stress, and stress which has ill-effects as negative stress. Positive stress may be called fruitful or useful stress. Stress is necessary to keep our nervous system alert. It is necessary to be alert when threatened or challenged. As an example when all eight runners talking part in a final 100 meter race are competent, only three will win the race. For this purpose not only

do they have to possess physical prowess but also should be able to actually perform the task. So they have to possess an alert nervous system and also a “stress” that helps it.

Negative stress or stress which is not useful has adverse effects on our health in three ways. The first of these is that it has adverse effects on our immune system. It is the immune system which helps to prevent certain diseases or helps to get cured fast. Information obtained through research has



shown that negative stress can aggravate both non communicable and communicable diseases.

The second way by which negative stress affects health is that it can lead people to harmful behavioural patterns. Some people when faced with problems find it difficult to solve them and indulge in risky behaviour such as smoking, consuming alcohol or use “drugs”, and thereby cause harm to their health. This is a fine example for the above mentioned inappropriate risky behavior. Also some people respond to negative stress by being violent. It is a well known fact that such people bring their work place problems to their homes and indulge in violence in their homes and disturb the domestic peace. Similarly some people take problems of home to their office. Psychiatrist world over believe that all are subjected to mental pressure during some situations, specially so as a child, school going stage and as youth. This mental stress may arise by external and internal changes in ourselves or the stress may be caused by teachers and provocations by fellow students.

Mental stress is also caused due to



changes that take place during our life time. We must get adapted to these changes. Otherwise we will get stressed. Therefore a person may get stressed due to the inability to face change to suit the new situation.

It is necessary to adapt to the new situation in a new way. It is necessary not to have a rigid stance but be flexible. We can take aging as an example. Some people find it difficult to face aging and adapt accordingly.

Another example is the birth of the first child for the mother. It is a novel experience for a woman and some women are subjected to mental stress after child birth.

Thirdly we have to face various challenges during our life time. These challenges may be personal or may be related to our professional life. As an example let us consider a fighter pilot. He has to drop bombs on enemy territory while piloting his aeroplane. It is not possible to avoid the wrath of the enemies in this instance. It will cause a great deal of mental stress for him to bomb and destroy, enemy camps while at the same time saving his own life. Interpersonal relationships also cause stress. It is seen prior to the beginning of a relationship, during the maintainance of the relationship and when a



relationship is terminated.

When attempts are made to begin a relationship, stress is caused in determining the way in which to win the relationship. Also stress arises during maintenance of the relationship and fulfilling the duties and obligations specially when various limits are imposed due to the relationship. Most of us may have experienced the hurt and the tension caused when a relationship breaks down and ends unexpectedly. It is possible that stress may bring about mental, physical and behavioural changes in the day to day living.

Among the mental changes the following may be included

- Decrease in the ability to remember
- Difficulties in concentrating on a particular subject
- Frequent occurrence of fearful thoughts
- Difficulties in taking correct decisions and arriving at conclusions
- Frequent occurrence of negative thoughts
- Frequent weeping
- Getting angry very fast
- Feeling of isolation
- Sense of frustration and difficulty to feel care free and light
- Being engulfed by indifference and stress

Physical and bodily changes

- Frequent aches and pains
- Chest pain and increased heart rate or feeling so
- Indigestion (stomach pain or uncomfortable feeling after meals)

- Vomiting/Nausea
- Dizziness
- Headache
- Feeling weak
- Irregular bowel movements
- Irregular menstrual cycle
- Diminished interest in sex
- Decrease or increase of blood sugar levels

Cognitive Changes

- Changes in the way of thinking
- Changes in behaviour and daily routine and activities
- Either decrease in food intake or

restlessness are the determining factors for mental stress.

Mental stress affects all organs of the body. The effects on the heart, brain and stomach (digestive system) are harmful to the entire body. Due to these a person may get subjected to heart attacks, stroke, ulcers in the stomach, cancers, diseases of muscle and bone and immune deficiency.

It is possible to diagnose stress by the physiological and mental changes in a person. Stress helps to find out how the body functions.



excessive eating

- Sleeplessness or sleeping throughout the day
- Desire to isolate oneself and live alone
- Neglecting or avoiding responsibilities
- Addiction to alcohol or narcotics

Biological research has shown that excessive fear, intense sadness and

Though most people believe that the body and the mind function independently of each other, “stress” shows that they function in a similar manner. This is why the body and the mind are seen as the two sides of the same coin. The latest view is that the body and the mind are bound together and function as a unified system. This is the reason why another

system known as the PNI (Psycho Neuro Immune) system is now being discussed. This is known as the mind-neuro-immune system, a result when a person suffers stress condition, his immunity is said to decrease. Accordingly when a

will be shocked with fear. However it is possible to train a person to go near such a bomb and inactivate or defuse it. Similarly it is possible to train a person to tolerate stress.

We can train our children to

exams without difficulty through proper organization. Hence our message here is that management of stress is possible.

It is possible to rid oneself of stress by running, walking, by taking deep long breaths, yoga or through other exercises. Through these it will be possible to get mental and physical relief. Relief is also possible by discussing problems with people we trust, by participating in work along with the family-wife and children



person is stressed, his mind, nervous system and immune system are seen to function together.

Though not indicated in the term PNI there is another aspect to this condition. That is the hormonal system. However instead of naming it as the PNI, it is better to name it as PNHI.

It is difficult for a person suffering with stress to realize that he is stressed. Such a person has to be assessed through the answers he gives to a specially designed questionnaire.

Any person can be trained to resist stress. For example, if any one of us is handed over a live bomb, we



(having meals together, watching TV etc)

Another special requirement is time management. It would be possible to avoid stress, by not only to carry out the duties in the office, diligently but also by carrying out household work, ensuring sleep, rest, and enjoying the 24 hour day.

face examinations and withstand any stress condition. We have to teach them the technique of examinations. In addition to teaching them the subject matter it is necessary to train them in the way of writing answers. It is necessary to train them to face

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Depression: What you should know

World Health Organization



What is depression?

Depression is an illness characterized by persistent sadness and a loss of interest in activities that one normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks.

In addition, people with depression normally have several of the following: a loss of energy, a change in appetite, sleeping more or less, anxiety, reduced concentration, indecisiveness, restlessness, feelings of worthlessness, guilt, or hopelessness; and thoughts of self-harm or suicide. It is something that can happen to anybody and it is not a sign of character weakness. Much can be done to prevent and treat depression, while stress can make depression worse.

The support of care

givers, friends and family facilitates recovery from depression. Patience and perseverance are needed as recovery can take time.

It is treatable, with talking therapies or antidepressant medication or a combination of these. What treatment is needed and how long the depression lasts depends on the severity of the depression.

What you can do if you think you are depressed

Talk to someone you trust about your feelings. Most people feel better after talking to someone who cares about them.

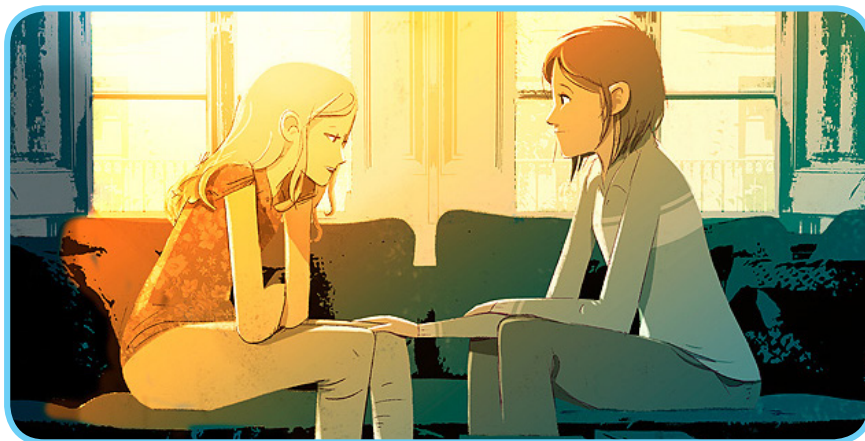
Seek professional help. Your local health-care worker or doctor is a good place to start and remember that with the right help, you can get better.

Keep up with activities that you used to enjoy when you were well. Stay connected and keep in contact with family and friends. Exercise regularly, even if it is just a short walk, and stick to regular eating and sleeping habits. Accept that you might have depression and adjust your expectations. You may not be able to accomplish as much as you do usually.

Avoid or restrict alcohol intake and refrain from using illicit drugs which they can worsen depression. If you feel suicidal, contact someone for help immediately.

Remember that depression can be treated. If you think you have depression, seek help.





Living with someone with depression?

Living with someone with depression can be difficult. Here are some tips on what you can do to help someone you live with, who is depressed while taking care of yourself at the same time.

What you can do for people who are depressed

Make it clear that you want to help, listen without judgement, and offer support.

Find out more about depression and encourage them to seek professional help when available. Offer to accompany them to appointments. If medication is prescribed, help them to take it as prescribed. Be patient; it usually takes a few weeks to feel better.

Help them with everyday tasks and ensure regular eating and sleeping patterns.

Encourage regular exercise and social activities.

Encourage them to focus on the

positive, rather than the negative. If they are thinking about self-harm, or have already intentionally harmed themselves, do not leave them alone. Seek further help from the emergency services or a health-care professional. In the meantime, keep out of reach of items such as medications, sharp objects and firearms.

Take care of yourself too. Try to find ways to relax and continue doing things you enjoy.

Remember that when you live with someone with depression, you can



help them recover, but you need to take care of yourself too.

Is your child depressed?

Growing up is full of challenges and opportunities. This includes starting and changing schools, making new friends, going through puberty and preparing for exams etc. Some children can take change in their stride. For others, adaptation is harder, causing stress and even depression. If you are worried that your child might be depressed, please read on.

In addition to the signs and symptoms of depression during childhood, it is possible to observe withdrawal from others, irritability, excessive crying, difficulty in concentrating at school, a change in appetite or sleeping more or less. Younger children may lose interest in play. Older children may take risks that they would not normally take.

Depression in children is both preventable and treatable.

What you can do if you think your child might be depressed

Talk to him or her about things happening at home, at school and outside of school. Try to find out whether anything is bothering him or her.

Talk to people you trust who know your child, and seek advice from your health-care provider.



Depression: What you should know

Protect your child from excessive stress, maltreatment and violence, and pay particular attention to your child's wellbeing during life changes such as starting a new school or puberty.

Encourage your child to get enough sleep, eat regularly, be physically active, and do things that he or she enjoys.

Find time to spend with your child.

If your child has thoughts of harming him- or herself, or has already done so, seek help from a trained professional immediately.

Remember that if you think your child might be depressed, talk to him or her about any worries or concerns, and seek professional help if needed.

Worried about the future?

Preventing depression during your teens and twenties

Adolescence and young adulthood present many opportunities for meeting new people, visiting new places and finding a direction in life. These years can also be a time of stress. If you are feeling overwhelmed

rather than excited by these challenges, please read on.

What you can do if you are feeling down, or think you may be depressed

Talk to someone you trust about your feelings.

Seek professional help. Your local health-care worker or doctor is a good place to start.

Stay connected and keep in contact with family and friends.

Exercise regularly, even if it's just a short walk.

Stick to regular eating and sleeping

habits, and avoid or restrict alcohol intake and refrain from using illicit drugs, which can worsen depression.

Continue doing things you have always enjoyed, even when you don't feel like it.

Be aware of persistent negative thoughts and self-criticism, and try to replace them with positive thoughts. Congratulate yourself on your achievements.

Remember that there is a lot that you can do to keep mentally strong. If you feel that you may be heading



for depression, talk to someone you trust or seek professional help.

Wondering why your new baby is not making you happy?

Having a baby is a major life event and can cause worry, tiredness and sadness. Usually these feelings don't last long, but if they persist you may be suffering from depression.

For more information, please read on.

What you should know

Depression following childbirth is very common. It affects 1 in 6 women who have given birth. Other than the normal symptoms of depression, symptoms of depression after childbirth also include, a feeling of being overwhelmed, persistent crying for no apparent reason, lack of bonding with your baby, and doubt about being able to care for yourself and your baby. Depression after childbirth can be treated with professional help. Talking treatments and medicines can help. Some medicines can be taken safely while breastfeeding. Without treatment, depression following childbirth can last for months or even years. It can affect your health and the development



support. They might be able to help you look after the baby when you need some time to yourself or to rest.

Stay connected by spending time with family and friends. Get out in the open air when you can. In safe environments, taking your baby for a walk is good for

treatment that is most appropriate to your situation.

If you have thoughts of harming yourself or your baby, seek help immediately.

Remember that depression after childbirth is very common. If you think you may be affected, seek help.

Staying positive and preventing depression as you get older

The life changes that come with ageing can lead to depression. To learn more about preventing and treating depression in older age, please read on.

What you should know

In addition to the common symptoms, people with depression normally may feel several of the following: A loss of energy, a change in appetite, sleeping more or less, anxiety, reduced concentration, indecisiveness, restlessness, feelings of worthlessness, guilt, or hopelessness, and thoughts of self-harm or suicide.

Depression is common in older people but often overlooked and untreated.

Depression among older people



of your baby.

What you can do if you think you have depression

Discuss your feelings with people close to you and ask them for

both of you.

Talk with other mothers who may have advice or be able to share experiences.

Talk to your health-care provider. He or she can help you find the

is often associated with physical conditions, such as heart disease, high blood pressure, diabetes or chronic pain, difficult life events, such as losing a partner, and a reduced ability to do things that were possible when younger. Older people are at a high risk of suicide.

get enough sleep. Exercise regularly if you can, even if it's just a short walk. Avoid or restrict alcohol intake and only take medicine as prescribed by your health-care provider. Remember that there



Depression in old people is treatable, with talking therapies or antidepressant medication or a combination of these.

What you can do if you are feeling down, or think you may be depressed

Talk to someone you trust about your feelings.

If you think you are depressed, seek professional help. Your local health-care worker or doctor is a good place to start.

Keep up with activities that you have always enjoyed, or find alternatives if previous activities are no longer possible.

Stay connected and keep in contact with family and friends.

Eat at regular intervals and

is a lot that can be done to prevent, and treat, depression in older age.

Do you know someone who may be considering suicide?

Every 40 seconds, someone, somewhere in the world, dies by suicide. For people with severe depression, it is not uncommon to think about suicide.



What you should know if you are worried about someone
Suicides are preventable.
It is okay to talk about suicide.
Asking about suicide does not provoke the act of suicide. It often reduces anxiety and helps people feel understood.

Warning signs that someone may be seriously thinking about suicide
Threatening to kill oneself.
Saying things like "No-one will miss me when I am gone."
Looking for ways to kill oneself, such as seeking access to pesticides, firearms or medication, or browsing the internet for means of taking one's own life.
Saying goodbye to close family members and friends, giving away of valued possessions, or writing a will.

Who is at risk of suicide?

People who have previously tried to take their own life including those with depression or an alcohol or drug problem.
Those who are suffering from severe emotional distress, for example, following the loss of a loved one or a relationship break-up; people suffering from chronic pain or illness ; people who have experienced war, violence, trauma, abuse or



discrimination and those who are socially isolated.

What you can do

Find an appropriate time and a quiet place to talk about suicide with the person you are worried about. Let them know that you are there to listen.

Encourage the person to seek help from a professional, such as a doctor, mental health professional, counsellor or social worker. Offer to accompany them to an appointment.

If you think the person is in immediate danger, do not leave him or her alone. Seek professional help from the emergency services, a crisis line, or a health-care professional, or turn to family members.

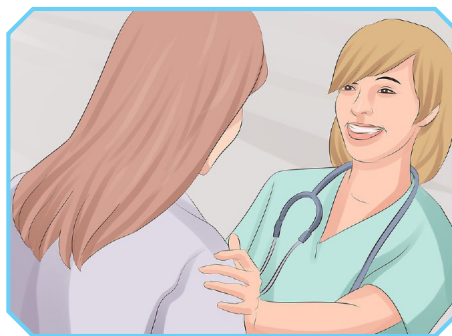
If the person you are worried about lives with you, ensure that he or she does not have access to means of self-harm (for example pesticides, firearms or medication) in the home. Stay in touch to check how the person is doing.

Remember that if you know someone who may be considering suicide, talk to them about it. Listen with an open mind and offer your support.

Do you feel like life is not worth living?

If you sometimes feel that life seems so hard that it is no longer worth living, please read on.

What you might be thinking or feeling



The pain seems overwhelming and unbearable.
You feel hopeless, like there is no point in living.
You are consumed by negative and disturbing thoughts.
You cannot imagine any solution to your problems other than suicide.
You imagine death as a relief.
You think everyone would be better off without you.
You feel worthless.
You feel very lonely even when you have friends and family.
You do not understand why you are feeling or thinking this way.

What you need to remember

You are not alone. Many other people have gone through what you are going through and are alive today.
It is okay to talk about suicide. It can help you feel better.
Having an episode of self-harm or suicidal thoughts or plans is a sign of severe emotional distress (perhaps as a result of the loss of

a loved one, loss of employment, a relationship break-up, or experience of violence or abuse). You are not to blame and it can happen to anyone.

You can get better.
There are people who can help you.

What you can do

Talk to a trusted family member, friend, or colleague about how you feel.

If you think you are in immediate danger of harming yourself contact the emergency services or a crisis line, or go there directly for counselling and help.

Talk to a professional, such as a doctor, mental health professional,



counsellor or social worker.

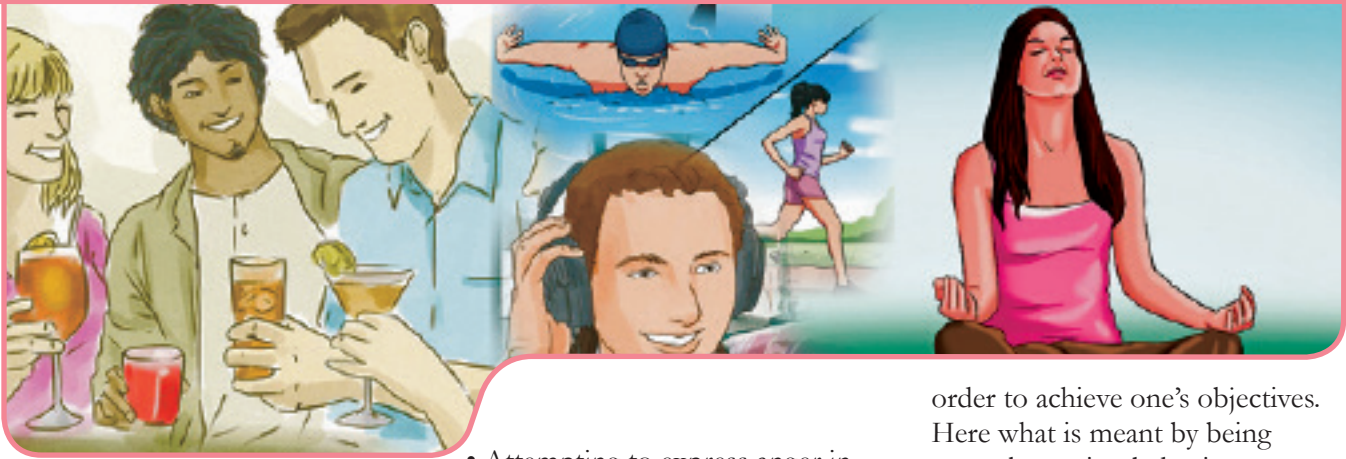
If you practice a religion, talk to someone from your religious community whom you can trust. Join a self-help or support group for people who had lived with experience of self-harm. You can help each other to feel better.

Remember that if you feel that like life is not worth living, reach out for help. You are not alone. Help is available.

Prepared from a text published by World Health Organization for the World Health Day 7th April 2017 On the theme.

Let us control our Anger

Dr Niel Fernando



Anger, temper, annoyance and animosity—all these words can be considered as synonyms. Anger is a condition that any one of us can experience sometime or another. It can be regarded as a feeling or a mental agitation.

Anger is a natural reaction. It is important to recognize some background situations and factors that cause anger:

- Having to face a threat or a challenge
- The thought of a wrong committed against one self by a person or a group of persons.
- Frustration and disappointment due to the failure to achieve needs, expectations and targets.

Anger or animosity is a common experience that anybody may face. Very often anger is something that arises and then subsides. However there are some situations when anger can become a problem. The following are some such situations.

- When the intensity of anger becomes extremely high
- Getting angry very frequently

- Attempting to express anger in an inappropriate manner (such as by scolding, physical attack, indiscriminate use of obscene language etc.)

Some persons consider anger as a useful tool. The reason is their belief that people such as their wife, children and servants will comply when ordered in an angry manner. However these are not



fruitful actions. It should be borne in mind that they will comply with the orders not willingly or with the feeling that it is their duty, but merely to escape the wrath.

Also, it is a myth that one has to be quarrelsome in

order to achieve one's objectives. Here what is meant by being quarrelsome is a behavior attempting to harm another person or property. It is not proper to allow anger to escalate to a point when one causes harm by words, shouting, scolding, threatening or displaying quarrelsome behaviour. It is also a myth to think that getting angry is an innate characteristic which is inherited or that anger will compulsorily lead us to be quarrelsome. It is also a myth even to think that it is useful to exhibit anger and wrath.

It is a good thing in all aspects to strive to control anger. Anger control is conducive to physical wellbeing, mental well being, social well being, and for maintaining health as an entirety.



Getting angry should not be made a habit. One must try to recognize the signs that one is in the process of getting angry. These signs or indications can be categorized into four groups. Namely Physical, Thoughts, Feelings and Behavioural.

The common Physical signs are:

- Increase in heart beat
- Tightening of the chest and difficulty in breathing
- Increase in body temperature and feeling hot

Mental signs

- Feeling of isolation
- Feeling of unconcern
- Feeling that one has done some wrong
- Lack of patience
- Jealousy
- Fear
- Feeling of being subjected to disrespect
- Feeling of being blamed
- Insecurity
- Rejection



Cognitive signs

Interpretation that other people's actions and statements have made one not being accepted, blamed and as an attempt to control one self

Behavioural signs which indicate that a person has got angry

- Clenching of fist - this may extend to the state of becoming quarrelsome
- Walking to and fro or walking forwards and backwards
- Banging or shut a door or a window (producing a loud noise)
- Shouting loudly

It is useful for persons who get angry frequently to be aware of the places and the situations which make them angry.

- Most people get angry when they are at home. Shortages at home, children shouting, nagging by husband/wife or any other may be the cause of their getting angry when at home.
- There are some people who lose their temper at their work place. Also there are people who get angry on their way to or back from work (a delayed train or bus may cause anger)

It is not only situations, but also incidents which make people angry. Specially it is common to see a person becoming angry when an





It is usual for most people who behaved in an unproductive manner when angry to accept in the post explosive stage that they had acted unnecessarily when angry. The process of anger control is composed of three factors which strengthen each other. They are as follows.

The best way to control temper is to avoid situations which cause anger. For example if the action or the conversation which makes a person angry takes place in a house or a room, getting out of the place prevents the development of anger. It is possible to talk to a trustworthy amicable person regarding the situation or the incident which makes one angry. Most faithful friends will provide the guidance to quench the anger. It is possible to make anger subside by walking some distance, specially if one admires the surroundings, which will make the mind peaceful. Also certain chemicals which are secreted in the brain while walking makes the anger to subside. Spiritual activities help to control anger. Indulgences in Maithree Bavana (meditation) can specially help to get rid of hatred and thereby control anger. Following the methods to pacify the mind as shown by the various religions is useful.

incident one does not tolerate happens.

It is possible to employ various methods to measure the extent of anger. Sometimes a questionnaire or a Anger meter may be used. The anger meter is numbered from 1-10 : numbers 1-3 indicate an angerless situation while 4-6 indicate medium state of anger, 7-9 indicate an extreme state of anger, 10 denotes a state when it is not possible to bear the anger anymore, and is ready to explode. The quarrelsome behavior and being involved in quarrels take place simultaneously with this explosion.



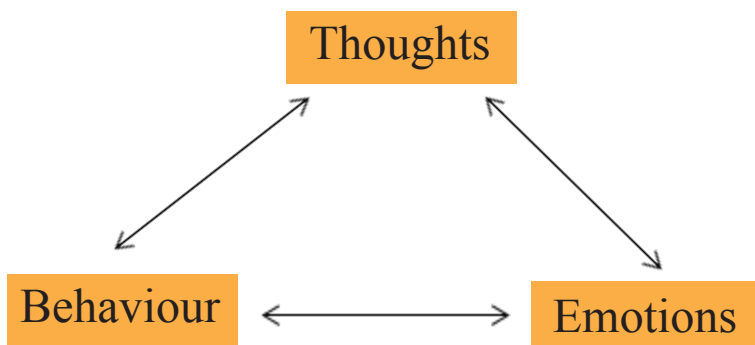
- It is possible to avoid the habit of becoming angry by using methods to control anger

The process of becoming angry has three stages:

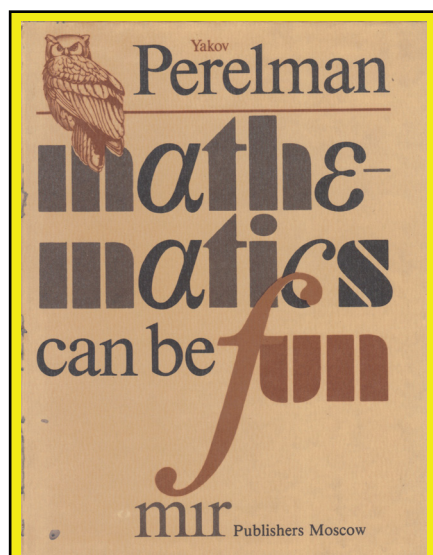
- The gradual increase of anger to the acute stage
- Explosion of anger
- Post explosive stage

How is it possible to break the habit of getting angry?

- Recognize the places, situations and the process of losing ones temper, and try to avoid them.



Prepared based on the workshop on “Control of Anger” as a component of Mihimadala workshop series conducted by the National Science Foundation.



Continued....

Part by part of this book will be published in the Vidurava issues for the benefit of the readers.

In June 2015 issue we published Questions 14 - 18 of the above publication. In this issue, you can read Questions 19- 23.

19. A Frame

Figure 4 shows a square frame made up of dominoes in accordance with the rules of the game. The sides are equal in length, but not in the total number of dots. The top and left sides add up to 44 points each, while the other two to 59 and 32 points, respectively.

Can you build a square frame in which each side will have 44 points?

20. Seven Squares

It is possible to build a four-domino square in such a way as to have the same number of dots on each side, as shown in Fig. 5: there are 11 dots on each side.

Fig.4

Fig.5

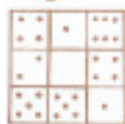
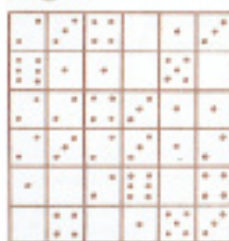


Fig.6



Can you make seven such squares out of the 28 dominoes? It is not necessary for all the sides of the seven squares to have an identical number of dots, just the four sides of each square.

21. Magic Squares

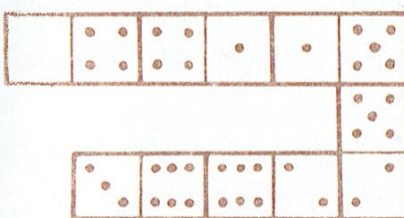
Figure 6 depicts a square of 18 dominoes. The wonder of it is that there are 13 dots in every one of its rows, columns, and diagonals. From time immemorial these squares have been called “magic”.

Arrange several other 18-piece magic squares, but with a different number of dots. Thirteen is the lowest total in a row and 23 the highest.

22. Progression in Dominoes

Figure 7 shows six dominoes

Fig.7



arranged according to the rules of the game, with the number of dots increasing by one on each successive piece: four on the first, five on the second, six on the third, seven on the fourth, eight on the fifth and nine on the sixth.

A series of numbers increasing (or decreasing) by the same amount is known as “arithmetic progression”. In our case, each number is greater than the preceding by one, but there can be any other “difference”. The task is to arrange several other six-piece progressions.

The Fifteen Puzzle

The story of the well-known square shallow box with 15 blocks numbered 1 to 15 inclusive is an extremely interesting one, though very few players know it. Here is what W.Ahrens, German mathematician and draughts expert, wrote about it:

“In the late 1870s there appeared in the United States a new game. The Fifteen Puzzle’. Its popularity spread fast and wide, and it soon became a real social calamity. “The craze hit Europe too. One came across people trying to solve

the puzzle everywhere, even on public transport. Office workers and shop salesman became so absorbed in working it out that their employers had to forbid the game during working hours. Enterprising people took advantage of the mania to arrange large-scale tournaments.”

The puzzle made its way even into the German Reichstag. The well-known geographer and mathematician Siegmund Gunther, a Reichstag deputy at the time of the craze, recalled seeing his grey-haired colleagues bending thoughtfully over the little square boxes.

“In Paris the game was played in the open air, on the boulevards, and soon spread from the capital to the provinces.” There was no rural homestead where this spider had not woven its web’, was how one French author described the craze. “The fever was apparently at its highst in 1880, but mathematicians soon defeated the tyrant by proving that only half of the numerous problems it posed were solvable. There was absolutely no chance of finding a solution for the rest. “The mathematicians made it clear why some problems remained unsolved despite all efforts and why the organizers of tournaments were not afraid of offering huge prizes for their solution. In this the inventor of the puzzle, Sam Loyd, surpassed everyone. He asked a New York newspaper owner to offer \$1000 to anyone who would solve a certain variant of the Fifteen Puzzle, and when the publisher hesitated, Loyd said he would pay the sum himself. Loyd was well known for his clever conundrums and brain-teasers. Curiously enough, he could not get a U.S. patent for his puzzle.

According to regulations, a person applying for one was required to submit a ‘working model’. At the patent Office he was asked if the puzzle was solvable, and Loyd had to admit that mathematically it was not. ‘In that case’, the official said, ‘there can be no working model and without it there can be no patent. Loyd left it at that, but there is no doubt that he would have been much more insistent could he have but foreseen the unusual success of his invention.”

Here are some facts about the puzzle, as told by the inventor himself:

“Puzzle enthusiasts may well remember how, in the 1870s, I caused the world to rack its brain over a box with moving blocks, which became known as ‘The Fifteen Puzzle’. Thirteen of the blocks were arranged in regular order (Fig.8) and only two, 14 and 15, were not (Fig.9). The task was to shift one block at a time until blocks 14 and 15 were brought into regular order.

“No one won the \$1000 prize offered for the first correct solution, although people worked tirelessly at it.

There are many humorous stories told of tradesmen who were so absorbed in the puzzle they forgot to open their shops, and of respected officials who spent nights seeking for a way to solve the problem. People just would not give up their search for the solution, being confident of success. Navigators ran their ships against reefs, locomotive engineers missed stations, and farmers chucked up their ploughs.”

We shall acquaint the reader with the rudiments of the puzzle. On the whole, it is extremely complicated and closely connected with one of the sections of

advanced algebra (“the theory of determinants”). Here is what Ahrens wrote about it:

“The job is to shift the blocks by using the blank space so as to arrange all 15 in a regular order, i.e. to have block 1 in the upper left-hand corner, block 2 to the right of it, block 3 next to block 2, and block 4 in the upper right-hand corner; to have blocks 5,6,7, and 8 in this order in the next row, etc. (see Fig.8).

“Imagine for a moment that the blocks are all placed at random. It is always possible to bring block 1 to its

correct position through a series of moves.

“It is equally possible to shift block 2 to the next

square without touching block 1. Then, without touching blocks 1 and 2, one can move blocks 3 and 4 into their places. If, by chance, they are not in the last two vertical rows, it is easy to bring them there and to achieve the desired result. The top row 1, 2, 3, and 4 is now in order and in our subsequent operations we shall leave these four blocks alone. In the same way we shall try to put in order the row 5, 6, 7, and 8; this is also possible. Further, in the next two rows it is necessary to bring blocks 9 and 13 to their correct positions. Once in order, blocks 1, 2, 3, 4, 5, 6, 7, 8, 9, and 13 are not shifted any more. There remain six squares one of them blank and the other five occupied by blocks 10, 11, 12, 14, and 15 in pelimell order. It is always

Fig. 8

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

possible to shift blocks 10, ii, and 12 until they are arranged correctly. When this is done, there will remain blocks 14 and 15 in proper or improper order in the bottom row (Fig. 9). In this way, as the reader can verify himself, we come to the following result:

“Any original combination of blocks can be brought into the order shown in Fig. 8 (position I) or Fig. 9 (position II).

“If a combination, which we shall call C for short, can be rearranged into position I, then it is obvious that we can do the reverse too, i. e. rearrange position I into combination C. After all, every move can be reversed: if, for instance, we can shift block 12 into

blank space, we can bring it back to its former position just as well.

“Thus, we have two series of combinations: in the first we can bring the blocks into regular order (position I) and in the second into position II. And conversely, from regular order we can obtain any combination of the first series and from position II any combination of the second series. Finally, any one

Fig. 12

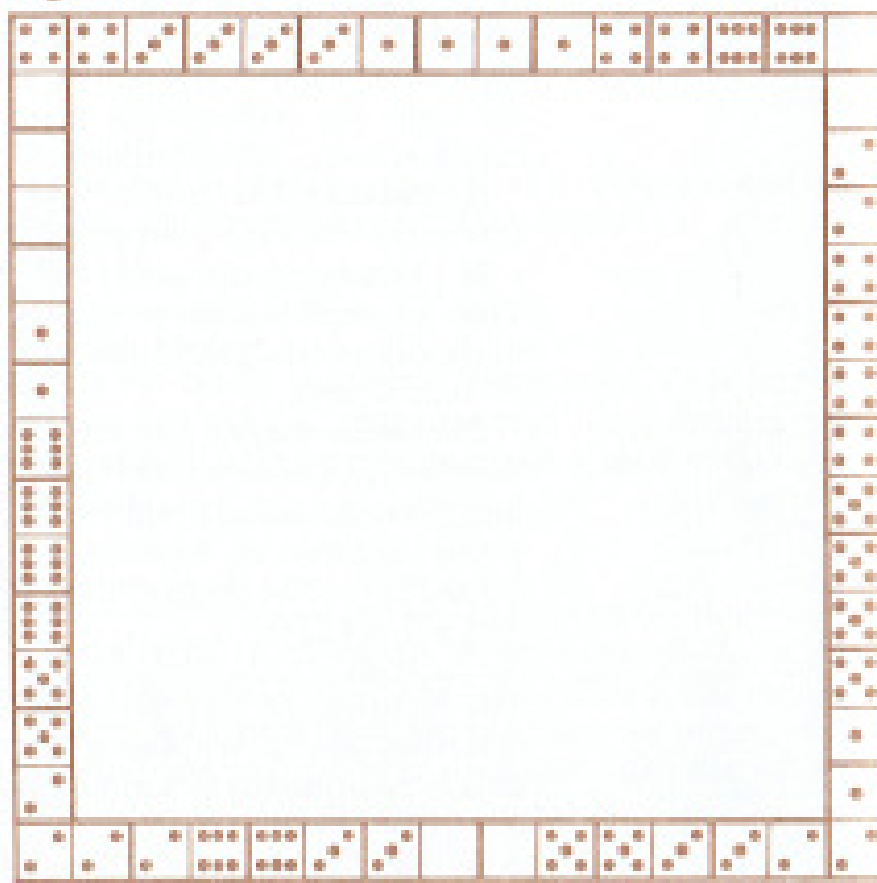


Fig. 9

1	2	3	4
5	6	7	8
9	10	11	12
13	15	14	

Fig. 10

	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15

Fig. 11

4	8	12	
3	7	11	15
2	6	10	14
1	5	9	13

of the two combinations of the same series may be reversed.

“Is it possible to transform position I into position II? It may definitely be proved (without going into detail) that no number of moves is capable of doing that. Therefore, the huge number of combinations of blocks may be classed into two series, the first series where the blocks can be arranged in regular order, i. e. the solvable; and the second series where in no circumstances can the blocks be brought into regular order, i. e. the insoluble, and it is for the solution of these positions that huge prizes were offered.

“Is there any way of telling to what series the position belongs? There is, and here is an example.

“Let us analyse the following position. The first row of blocks is in order and the second, too, with the exception of block 9. This block occupies the space that rightfully belongs to block 8. Therefore, block 9 precedes block 8.

Such violation of regular order is termed ‘disorder’. Our analysis further shows that block 14 is three spaces

ahead of its regular position, i. e. it precedes blocks 12, 13, and 11. Here we have three ‘disorders’ (14 before 12, 14 before 13, and 14 before 11). Altogether we have $1 + 3 = 4$ ‘disorders’. Further, block 12 precedes block 11, just as block 13 precedes block 11. That gives us another two ‘disorders’ and brings their

Fig. 13

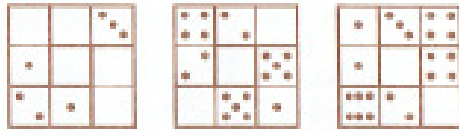
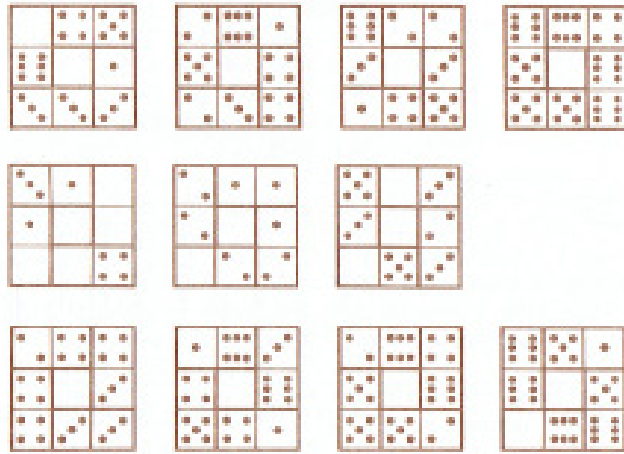


Fig. 14



total to 6. In this way we determine the number of 'disorders' in each position, taking good care to vacate beforehand the lower right-hand corner. If the total number of 'disorders', as in this case, is even, then the blocks can be arranged in regular order and the problem is solvable. If, on the other hand, the number of 'disorders' is odd, then the position belongs to the second category, i. e. it is insoluble (zero disorder is taken as even number).

"Mathematical explanation of this puzzle has dealt a death blow to the craze. Mathematics has created an exhaustive theory of the game, leaving no place whatever for doubts. The solution

of the puzzle does not depend on guesswork or quick wit, as in other games, but solely on mathematical factors that predetermine the result with absolute certainty."

Let us now turn to some problems in this field. Below are three of the solvable problems, made up by the inventor.

23 .The First Problem

In Figure 9 arrange the blocks in regular order, leaving the upper left-hand corner blank (as in Fig. 10).

Answer 19 - 23

19. The total number of dots on the four sides of the unknown square must equal $44 \times 4 = 176$. i.e. 8 more than the total number of dots on all the dominos (168).

This is because the numbers at the vertices of the squares are counted twice. This determines that the total of the numbers at the vertices is 8 and that helps to find the necessary arrangement (although its

discovery nevertheless remains quite troublesome). The solution is shown in Fig. 12.

20. Here are two of the many solutions of this problem. In the first (Fig. 13) we have:

1 square with a total of 3, 2 squares with a total of 9,

1 square with a total of 6, 1 squares with a total of 10,

1 square with a total of 8, 1 squares with a total of 16,

In the second (Fig. 14) we have:

2 square with a total of 4, 2 squares with a total of 10,

1 square with a total of 8, 2 squares with a total of 12,

21. Figure 15 s a specimen of a magic square with a total of 18 dots in each row.

22. Here, as an example, are two progressions with a difference of 2:

(a) 0-0, 0-2, 0-4, 0-6, 4-4 (or 3-5), 5-5 (or 4-6),

(b) 0-1, 0-3 (or 1-2), 0-5 (or 2-3), 1-6 (or 3-4)! 3-6 (or 4-5), 5-6.

There are altogether 23 six-domino progressions. The starting dominoes are:

(a) For progressions with a difference of 1:

0-0 1-1 2-1 2-2 3-2

0-1 2-0 3-0 3-1 2-4

1-0 0-3 0-4 1-4 3-5

0-2 1-2 1-3 2-3 3-4

(b) For progressions with a difference of 2: 0-0, 0-2, 0-1.

23. This problem may be solved by the following 44 moves:

14, 11, 12, 8, 7, 6, 10, 12, 8, 7,

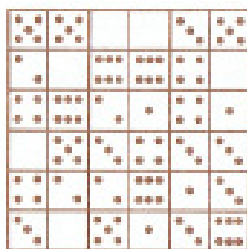
4, 3, 6, 4, 7, 14, 11, 15, 13, 9,

12, 8, 4, 10, 8, 4, 14, 11, 15, 13,

9, 12, 4, 8, 5, 4, 8, 9, 13, 14,

10, 6, 2, 1.

Fig. 15



The nomination from the Science Research Project Competition of the National Science Foundation won the Prestigious Grand Award at the ISEF 2017

The nomination of the Science Research Projects Competition (SRPC) organized by NSF since 2008, was able to receive the Grand Awards Winning Science Project at the Intel International Science and Engineering Fair (Intel ISEF) held in Los Angeles, USA from 14 – 19 May 2017.

A Grand Award (fourth place) under the theme of Earth and

Environmental Sciences was awarded at the Grand Awards Ceremony of the Intel ISEF held on 19 May 2017 in Los Angeles to Shehan Kavishka and Sankalpa Perera, two students of S. De S. Jayasinghe Central Collage, Dehiwala, who represented the Science Research Projects Competition (SRPC) 2016 organized by NSF. The winning project was on “Micro and

nano engineering for wastewater: magnetized biochar and nanoparticle composite for toxic Cr (VI) removal”. This is the very first time in the history of SRPC conducted

from 2008 onwards, that a Grand Award had been won at the ISEF.

They were also able to win a Special Award of US\$ 1000/- (Mawhiba’s Special Award) for the same project at the Special Awards Ceremony held on 18 May 2017 at ISEF.

Shehan Kavishka and Sankalpa Perera competed at the SRPC 2016 held from 17-19 January 2017 in Colombo, and their Science Project (Micro and nano engineering for wastewater: magnetized biochar and nanoparticle composite for toxic Cr (VI) removal) was selected as one of the Top Ten Winners of the above Competition. After receiving the a Top Ten Winner Award their project became eligible



Shehan Kavishka and Sankalpa Perera on their arrival at the Bandaranayke Memorial International Airport



Winning Medals at the ISEF 2017



Receiving awards from Hon. Susil Premajayantha 1. Sankalpa 2. Shehan 3. Ms Gayani Samarasinghe 4. Dr Meththika Vithanage, Respectively

for participation at the Sri Lanka Science and Engineering Fair 2017 held in Colombo on 09 February 2017. Their project won the second place at the above competition and therefore, was eligible to participate at the ISEF 2017 in Los Angeles.

During the recent past, the SRPC had become prestigious with the introduction of several progressive steps by NSF with the objective of creating international level winners. Introducing Principal Supervisors / Supervisors for science projects was a significant step. Dr Meththika Vithanage was appointed as the Principal Supervisor of this project by NSF, and she did an excellent job by supervising the two students to enter the winning path.

Apart from this progressive

steps were taken by NSF, firstly in organizing of two progress review workshops prior to the final evaluation and selection by a high caliber Resource Panel to guide the students to apply scientific method accurately in their research work, and also secondly by increasing of financial support by NSF for conducting science research projects.

NSF is committed to produce more Grand Award Winners of ISEF in the future, and to encourage Sri Lankan school children to be involved in science research, and thereby contributing to the inculcation of a science research culture among the school children of the country.

NSF wishes to extend its warm

greetings and congratulations to Shehan Kavishka and Sankalpa Perera for the effort in winning a Grand Award and a Special Award at the Intel ISEF, which is the world's largest international pre-college science competition, organized in USA featuring nearly 1,800 young scientists selected from 425 affiliate fairs in 78 countries, regions and territories.

**K.G.Janaka Karunasena
Additional Director (Covering)
National Science Foundation**