

SYNAPPSIA

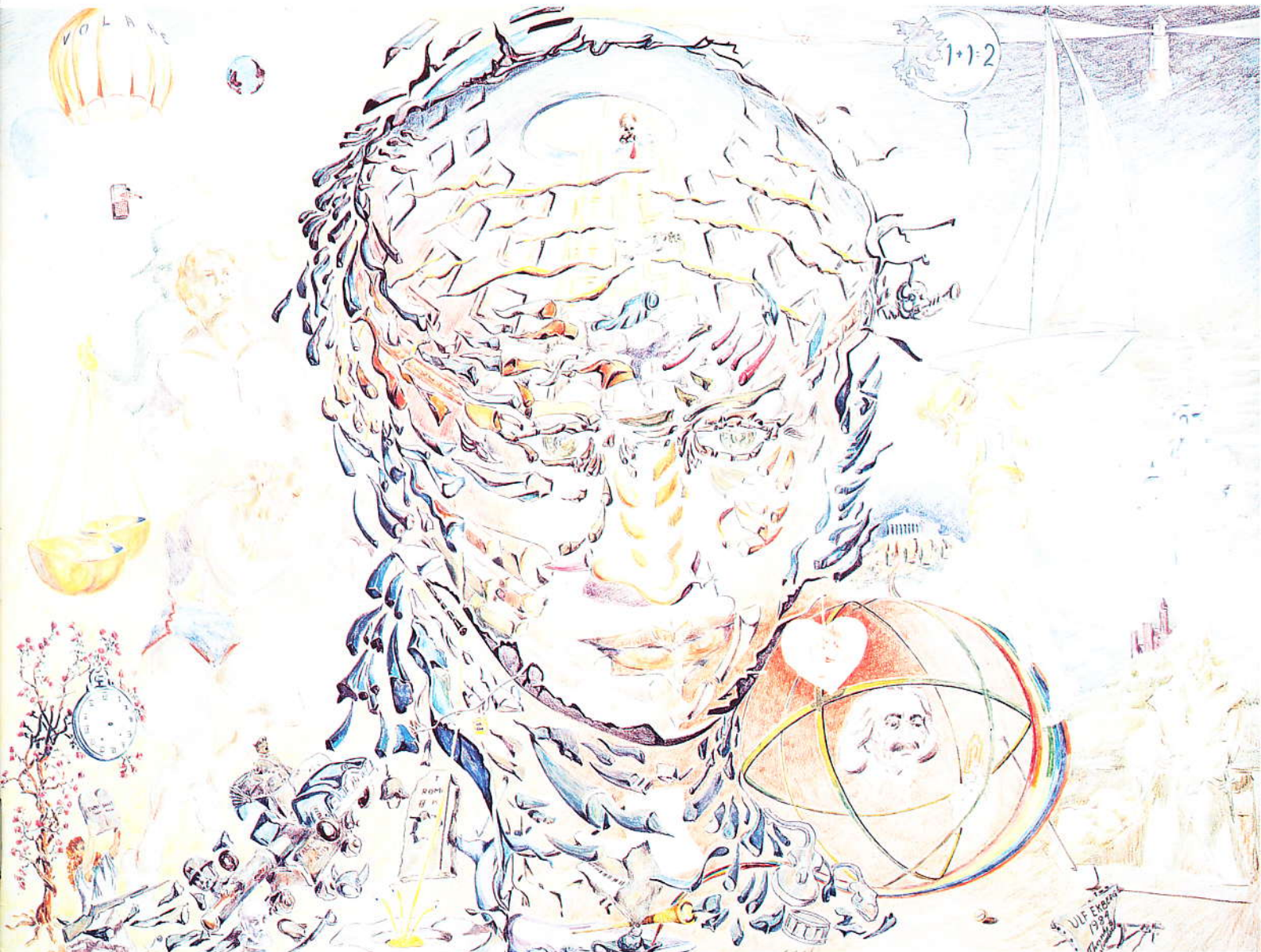
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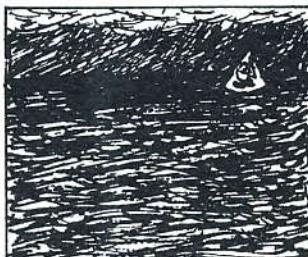


MEGABRAIN 2000
The Brain and The Future

Mental MOT Test
Will you pass first time?

Animal Intelligence

MIND Sports Olympiad
Mental sporting event of
the decade



YOUR BRAIN IS A GIANT, AND YOUR HIGH IQ MEANS THAT YOU PROCESS INFORMATION



AT HIGH SPEED. IN OTHER WORDS YOU'RE BRIGHT. AS A HUMAN YOU'RE AWARE OF YOUR HUMAN



POTENTIAL, BUT HOW MUCH OF YOUR BRAIN'S CAPACITY ARE YOU USING?



ARE YOU AN EXPLORER OF YOUR VARIOUS INTELLIGENCES, SUCH AS CREATIVITY? THE



BRAIN CLUB IS ABOUT EXPANDING HORIZONS - MENTAL, PHYSICAL AND



SPIRITUAL. BELIEF IN THE INFINITE POSSIBILITIES OF THE HUMAN MIND IS THE



DRIVING FORCE, AND EDUCATION IS THE PRIMARY OBJECTIVE. LEARN HOW



TO LEARN. IMPROVE YOUR RECALL. INCREASE YOUR READING SPEED. DEVELOP NEW



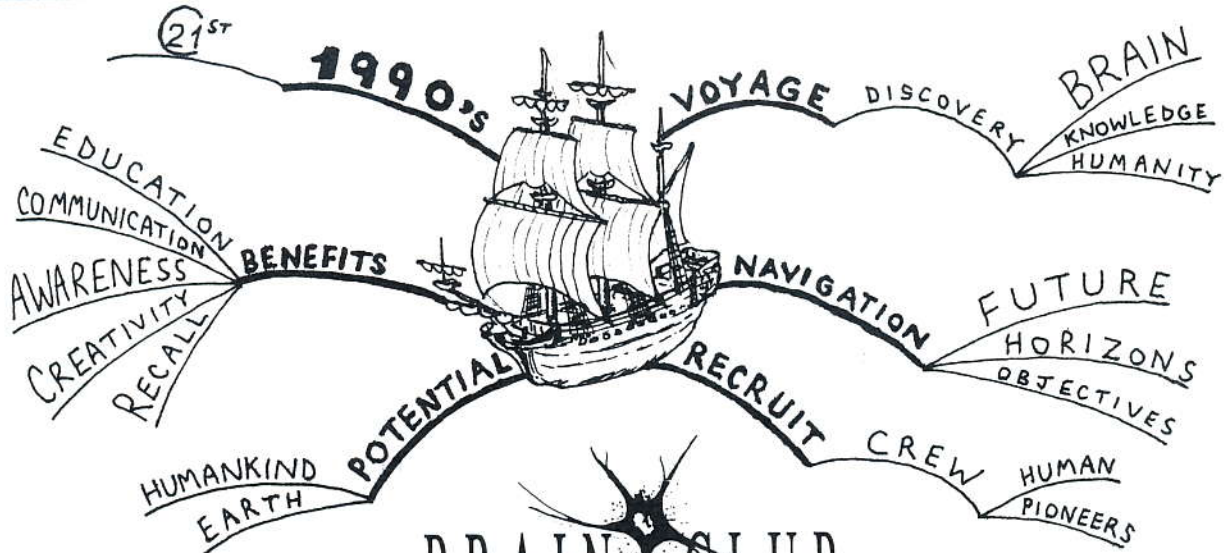
SKILLS. AND, OF COURSE, ENJOY YOURSELF WHILE YOU'RE AT IT. WE HAVE



ONLY JUST SET SAIL IN A SEA OF KNOWLEDGE ABOUT THE BRAIN. IF YOU WOULD



LIKE TO BE INSTRUMENTAL IN PLOTTING OUR FUTURE COURSE, STEP ABOARD AND SEE FOR YOURSELF

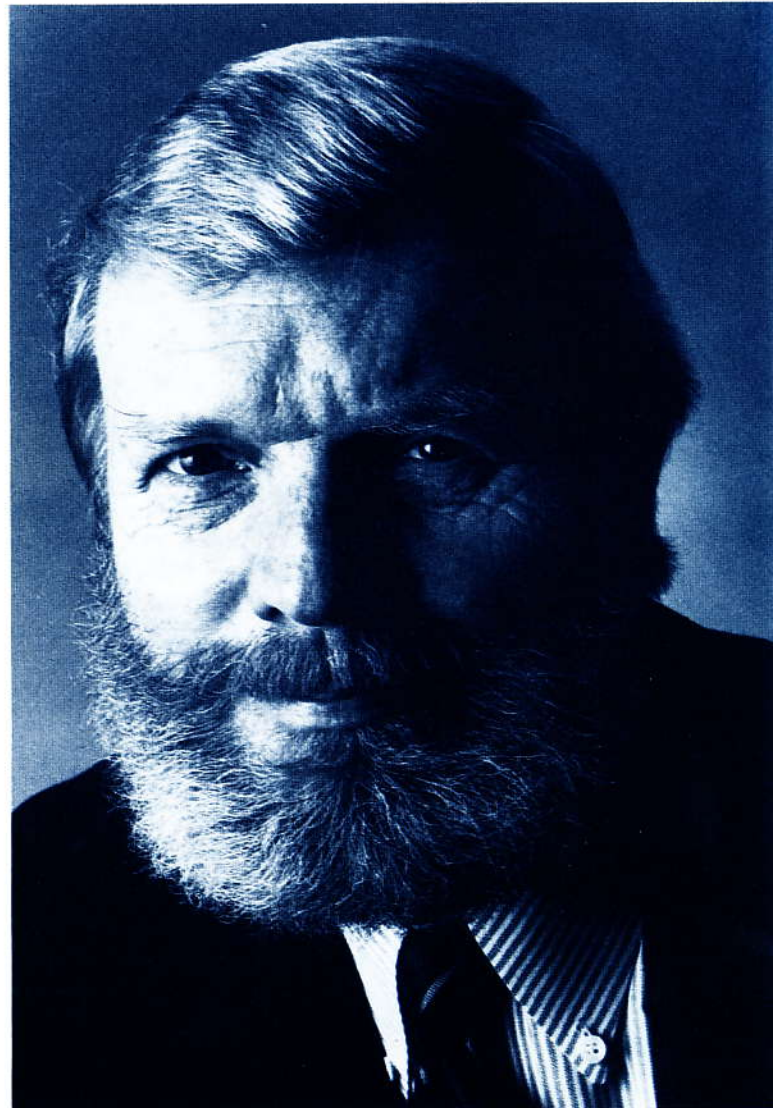


BRAIN CLUB

SUITE 2/3 CARDIGAN HOUSE 37 WATERLOO ROAD WINTON
BOURNEMOUTH DORSET BH9 1BD
0202 533593

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John Naisbitt - Megabrain 2000

THE DECADE OF THE BRAIN

We laud President George Bush of the United States, and the Senate and House of Representatives for their following Resolution:

Resolved by the Senate and House of Representatives of The United States of America in Congress assembled, that the decade beginning January 1, 1990, hereby is designated the "Decade of the Brain", and the President of The United States is authorized and requested to issue a proclamation calling upon all public officials and the people of The United States to observe such decade with appropriate programs and activities.

Approved July 25, 1989

Synapsia recommends that the Resolution be applied to the entire world.

In this issue we explore the possibilities for the Decade of the Brain with the world's leading futurist, John Naisbitt, author of the bestselling *Megatrends 2000*. In a wide-ranging interview, Naisbitt covers in detail his thoughts on the potentials and environment for the brain as it and we approach the 21st Century.

Also in this issue we are delighted to announce the prestigious new member of The Brain Club, Raymond Keene, OBE, International Chess Grandmaster, author of 70 books on chess and learning, former British Champion, and Chess Olympian. In this issue of *Synapsia*, we feature Raymond's regular chess column for Brain Club members, and a major feature by him on *The Mind Sports Olympiad*.

Welcome to the 1990's!

This issue of *Synapsia* celebrates the new decade with, appropriately, its Spring edition.

Executive Editor
Editorial Board
Cartoonist

Tony Buzan
Carol Coaker, Vanda North
Pécub

Published by The Buzan Centre
Suite 2/3, Cardigan House
37 Waterloo Rd, Winton
Bournemouth, Dorset BH9 1BD
Phone: 0202-533-593 (inside the UK)
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All contributions for the Summer edition should reach the editor, at the above address, by July 30. The editor reserves the right to shorten, amend or change any contribution accepted for publication. If you would like articles returned, please include an addressed envelope with appropriate postage.

The term and concept Mind Map™ referred to in this publication is copyright by Tony Buzan. Pécub, the world's fastest brain cartoonist, is happy to provide cartoons based on your ideas and requests.

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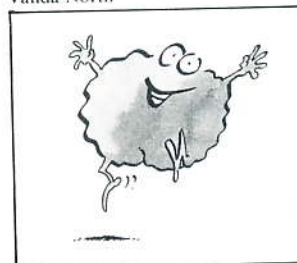
Tony Buzan



Vanda North



Carol Coaker



Pécub

A FLOATING UNIVERSITY FOR THE MIND

Tony Buzan

Imagine

LAST summer, after lecturing to the Young Presidents' Organisation in Istanbul, Vanda North and I heeded our hosts' persistent urgings: 'You *must* go to Bodrum!', 'You *must* go to Bodrum!'

We drove through the teeming, friendly, multi-national areas of Istanbul, and after a wonderfully scenic 55 minute flight, landed at Bodrum airport just after the magnificent red sun had set.

For 40 minutes we drove through the countryside and along moonlit bays, finally arriving at our hotel high on a hill overlooking this town cradled by the Aegean Sea, and nestling on the southwest coast of Turkey.

The following morning at a breakfast of delicious fresh local fruit we looked down on a long, curved bay, on the landside of which clustered dazzlingly white buildings punctuated by the green of trees and bushes, and on the waterside of which rested fishing boats and yachts.

As we had been especially advised to take a boat-trip, we walked down the hill, spent five minutes in 'conversation' with a friendly cow, and strolled along the bay looking at the yachts, some of which were for hire.

I suddenly noticed two gigantic yachts moored at the end of a very long gangway, and purely out of curiosity, decided to find out whether or not they were available. They looked like fantasy boats from an adventure story, and dwarfed everything else around them.

We were invited on board, and stood on the stern of one of the most magnificent sailing vessels I have ever seen: spacious, graciously

curved lines, a large dining area both above and below decks, a good sundeck, and masts that seemed to touch the sky – a dream boat!

And the boat we were on *was* for hire, including a captain, a five-star Turkish chef, and a crewman. All at incredibly reasonable prices.

We said 'yes' and had one of the most enjoyable and fulfilling cruises imaginable.

It was at that point I realised what a wonderful 'Floating University' a fleet of these yachts would make for The Brain Club.

The Floating University

The idea that sprang to mind was to hire four or five of these magnificent 80 foot yachts (this has been done!) and to spend a holiday/university with like-minded members of The Brain Club who would enjoy learning how to learn together, developing mental skills, playing games (bring your chess, go and other sets with you!), playing music (bring your musical instruments), swimming, eating the most exquisite native foods, drinking the best local wines, which are clean, fresh, and very much 'of the earth', playing together, exploring, and, obviously, resting!

Mornings

The mornings will constitute the more 'formal' aspect of the University. After a superb breakfast, two-hour formal sessions will begin in the following subject areas:

Art, Memory Skills, Mathematical Skills, Study Book Exchange, (bring your books and Mind Map pads!), Mind Mapping, Physical Training, including swimming and the martial arts, Games instruction (chess and go), Areas of your choice.

We already have volunteer leaders in the first five areas, and would welcome further volunteers.

Afternoons

Afternoons will commence with pre-lunch rest or swimming, to be followed by a superb and relatively light lunch prepared by the five star chefs.

All afternoons will leave everyone free to pursue what they have learnt in the morning, meet new friends, read, relax or sleep.

Evenings

Evenings will offer a wide assortment of activities, including dining in villages en route, visiting artisans, visiting areas of natural and historical interest, going for midnight swims, or simply 'hanging out' on the yachts.

Each yacht will have a captain, five-star chef and crewman, and will be both fully independent of, and interdependent with, the other yachts in the fleet.

So come and join us!

We already have some of the world's best teachers who have volunteered to help us in major skill areas, and can guarantee you one of the most memorable (and we will help you to remember better!) holidays of your life.

En route you will: meet people who will become new friends and remain friends for the rest of your life; pass one of the seven wonders of the world; eat and drink some of the best food and wines the world has to offer; expand yourself mentally and physically; dance, sing, and above all have fun.

See you in Paradise!

See the back cover of this edition of **Synapsia** for your booking form. If you have any queries, please contact PJR Incentives on London 081-995 7679.

MY BRAIN HAS A MIND OF ITS OWN!

by Jean Buzan



IT really is rather peculiar, and at times almost eerie, what that 3½ lb. computer in my skull does all on its own without any conscious help from “me” – whoever *that* is.

For example, I seem to have a strange ability to write ‘instant’ verse, a talent which for years I assumed everyone had until people started asking “How on earth did you do that?”

If a situation arises when a card is to be sent for some occasion, I simply sit down, think of the particular person and the occasion, and immediately out come the appropriate words, scanning and rhyming perfectly. Very rarely does it take longer than five minutes, usually less, and after I’ve written it down quickly in shorthand I may change the odd word when translating it to longhand if I think it improves it.

But, *where* did it come from? It wasn’t a memory dredged up as it was only just composed. And I didn’t sit and consciously *think* what I wanted to say. It pops up into my consciousness fully blown.

I have been able to do this almost since I could write. I remember once, in my teens, when I mentioned that I could write a verse on anything, being challenged to write one on “nothing”, which I did. In fact, I still have it, 55 years later, and well remember writing it in a few minutes, straight on to the typewriter.

Ode to Nothing

*In my head there dwells but you
You are all I have to do
All the weary morning through –
Just nothing.*

*Though in vain I look for work
You in every corner lurk
And my activeness you burke
With nothing.*

*You make life a fearful bore,
Make one weary, sad and sore,
If there’s one thing I abhor
It’s nothing.*

*By comparison with you
Things take on a brighter hue
For most things I’d rather do
Than nothing.*

The other fascinating thing my brain does involves very complicated and specific dreams. For example, recently I dreamed that I was sitting by a pool with a group of people chatting. The man beside me was a teacher of English and was telling me about an exam he was setting for his class.

This test involved the use of words (which I love) and one question was asking the student to make up a sentence involving the word “liaison” plus another word including two consecutive syllables composed only of vowels. (Who would ever *think* of such a question! But my brain did.) Not only that, but in my dream I decided that, since this was a test for schoolchildren, I should certainly be able to do it. And I did – I came up with “The young couple conducted their liaison in a phaeton”. And it was all there in brilliant technicolour when I awoke – including the taste of the chocolate cake I was eating in the dream.

What on earth was my brain doing giving me (or itself) such a test while “I” slept? And I can’t remember when I last even thought of the word “phaeton”.

I would be most interested if any of you reading this would share with us similar experiences. I imagine these experiences would come under the list of ‘The Nobels’ (p. 46 in *The Brain Club Book*) as manifestations of the brain for which there are as yet no definitive answers.



HOW TO MAKE A HUNDRED DOLLARS IN FIVE MINUTES

I am sure this is a question many people have spent endless hours trying to answer. However, I found the answer one Friday night, December the 1st, 1989 to be exact. The following day, I was competing in an oratorical contest. The theme was "Happiness is. . . .", the prize was \$100, and a four to five minute speech was expected. The problem was that at 10:00 p.m. the previous night my speech still was not written or MIND MAPPED!

Yes, finally the answer - I would Mind Map my speech. I began to branch off with all the ideas and interpretations of the theme that I could possibly think of. One portion of this Mind Map was about the happy and not so happy (poetic license) sides of events. For example, "Happiness is coming 1st place in a \$50 essay contest. Sadness is sharing the prize with the 49 other winners."

I had Mind Mapped different definitions and double meanings of happiness, certain happy episodes, jokes, and other thoughts that came to mind. Finally, I looked over my Mind Map, but could not decide which idea to use. So, I decided to combine my best three ideas.

I quickly began on my second Mind Map and the ideas began to flow (all over the paper). Within five minutes I was staring in awe at my master Mind Map. This was gold to me. For, this Mind Map was worth a shot at \$100 and what 14 year old does not want \$100? I stood up with immense determination and began my speech, with no planning except the aid of my Mind Map. I practiced the speech about three times that night and spent the rest with my friend who was sleeping over and had sat through my creative excursion.



The next morning was my sister's birthday, but I managed to practice the speech a few times. That afternoon, I was standing in front of my audience and judges. "Happiness is a nine letter word," I began, "and isn't it interesting that one mere word can evoke so much thought, feeling, and meaning?" I continued for another four and half minutes as I spoke about interpretations of happiness throughout the different stages of life. In the end, I came out the winner and \$100 richer - thanks to Mind Mapping. So, that is my secret weapon, my crucial ingredient, my special plan, my magic method that makes \$100 in five minutes, or less!

Good luck and good Mind Mapping!

Lana Israel

ANIMAL INTELLIGENCE

A WHALE OF A COM

THE *New Scientist* of 10 March 1990 reports that a Canadian scientist has found that killer whales speak a number of different languages in a number of different dialects. The differences between the dialects can be as small as those distinguishing regional dialects of any national language, or can be as large as those between the European and Asian languages.

SUPER-INTELLIGENT LINGUISTIC CLUB

This finding places the whales in a super-intelligent linguistic club among mammals – a club that includes humans, major primates, and harbour seals. (Current research suggests that sounds produced by other mammals are determined genetically, although there is a growing band of researchers who consider that most animals are far more linguistically intelligent than we have previously assumed, and are species-wide and individually creative in their communication).

John Ford, curator of Marine Mammals at the Vancouver Public Aquarium in British Columbia, has been studying communication between killer whales for a decade. He observes that killer whale dialects are made of the whistles and calls the animals use when communicating under water. These calls are quite distinct from the high-energy, sonar-like 'clicks' that the whales emit when navigating by echo-location.

Killer whales are actually members of the dolphin family, and are the largest in that family. Their name is a misnomer, there being no record that one has ever attacked a human – on the contrary there are an

increasing number of records that these whales, like dolphins, have often helped humans.

WHISTLING WHALES

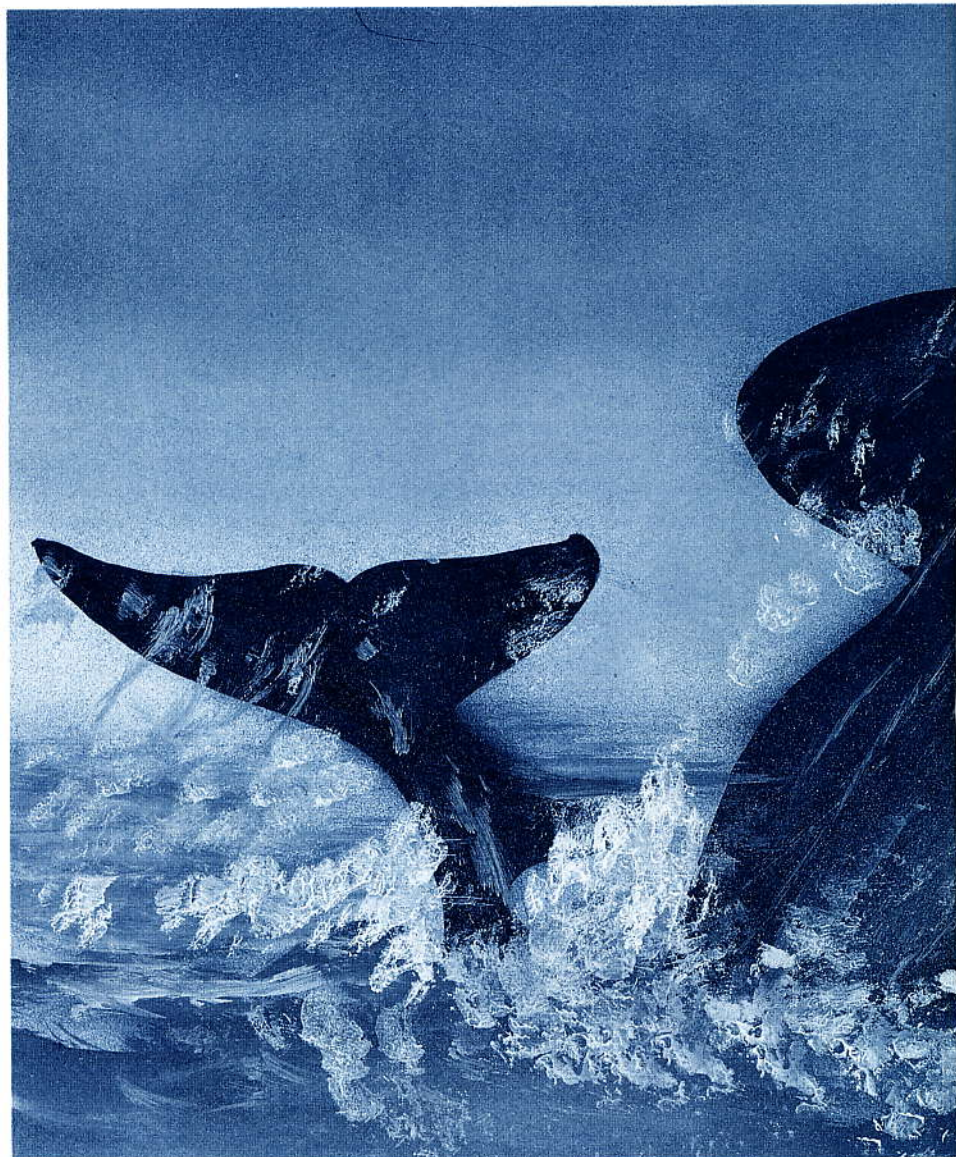
Perhaps we in The Brain Club could start a movement to have them re-named – perhaps the **Whistler Whale/Whistling Whales** would be more appropriate, apart from being more onomatopoeic. *Synapsia* will henceforth refer to them by this name.

Whistling Whales are found in all the major oceans of the world, from the warmest in the tropics to the coldest in the North and South Poles. The largest concentrations are found off the coastal regions of the

cool countries, including Iceland and Canada.

The population Ford studied numbered approximately 350 who live for the entire year off the coast of British Columbia and northern Washington State in America. The whales have formed two separate communities which roam through adjacent territories.

The 'northern community', which consists of 16 family groups, or 'pods', ranges from mid-Vancouver Island north to the south east tip of Alaska. The members of the smaller 'southern community' divide themselves into three pods and wander from the border of the northern



MUNICATOR by MOWGLI

community all the way south into Puget Sound and Gray's Harbour.

Fortunately, most sounds produced by Whistling Whales are within the range of human hearing. Ford's research is therefore easy to carry out - he simply dangles a hydrophone over the side of the boat, and amplifies the sounds electronically, recording them on a tape recorder.

Through his research Ford has been able to identify the dialect of each pod. He has found that, on average, a pod makes twelve discreet calls. Each member of the pod is able to, and does, produce the full set of whistles and calls. The system of these whistles and calls is different,

both quantitatively and qualitatively, from those of other dolphins and whales.

Most calls are used only within a pod, but sometimes one or more are common between pods.

COMMON ANCESTORS

Interestingly, Ford has found that these dialects are passed from generation-to-generation within each pod, leading him to speculate that groups which share calls probably descended from a common ancestor

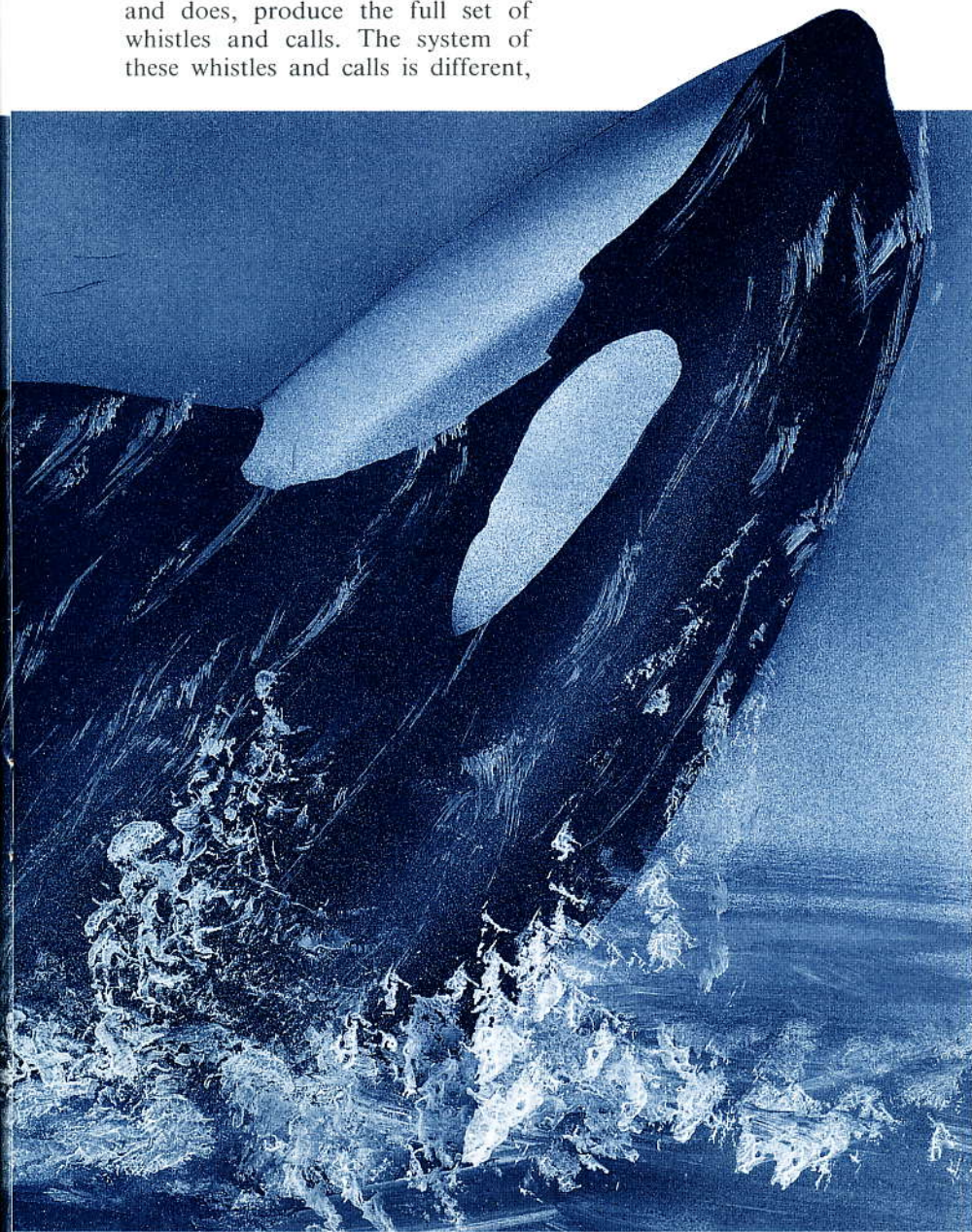
or ancestors. The more calls two pods have in common, the closer the family relationship.

This phylo-genetic link between dialect and pod has enabled Ford to estimate how long it takes for a separate dialect to emerge. "The rate of change appears to be very slow," he says. "It (a dialect) must require centuries to develop" the implication is that some dialects could be thousands of years old.

One new focus of Ford's research has been the correlation between the behaviour of Whistling Whales and the calls they make. So far he has not found a great correlation, although he has found that calls are faster, high in pitch, and more frequent when an animal is excited.

Ford currently believes that taken together the calls form an "elaborate code of pod identity" which enables Whistler Whales to identify fellow members of their pod. This is especially important for keeping the 'family' together when collections of pods, known as 'super-pods' swim together.

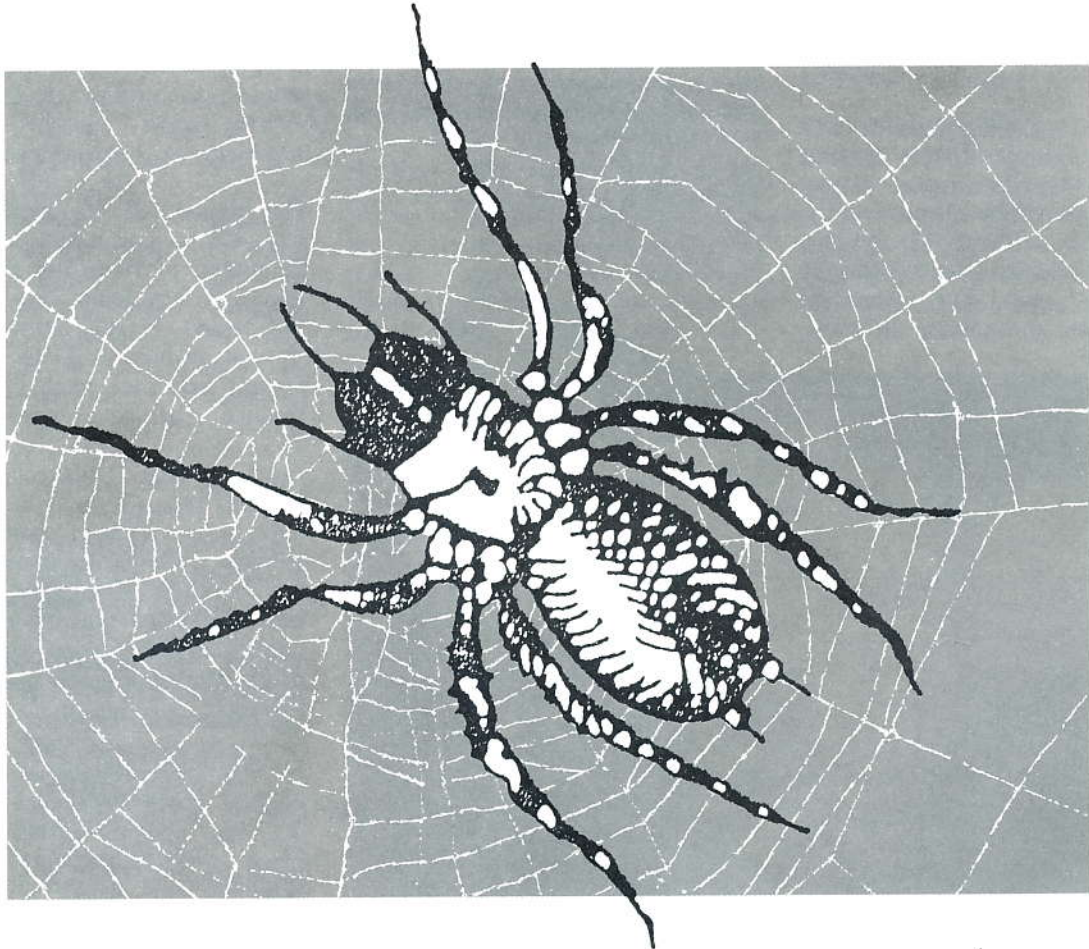
So far, Ford has not been able to identify a grammatical structure in Whistler Whale communication. But he is impressed by its acoustic sophistication: "they seem to have a very highly developed, efficient way of communicating that is something we can only partly understand at this point" he says. "I think as time goes on, we will get a much better appreciation of just how remarkably adapted whales are to their unique environment."



ANIMAL INTELLIGENCE

SPIDER-BRAIN VS INSECT-BRAIN

by MOWGLI



THE battle for survival in the insect and arachnid world sounds like something out of Star Wars!

Evolutionary ecologist Katherine Craig and visual physiologist Gary Bernard of Yale University analysed the spectral properties of the silk from the webs of varying species of spiders.

The researchers found that many of the silks, especially the small pearl-like bulbs that hang near the centre of spiders' webs, are not the result of faulty biology or poor craftsmanship, but sophisticated reflectors of ultraviolet light.

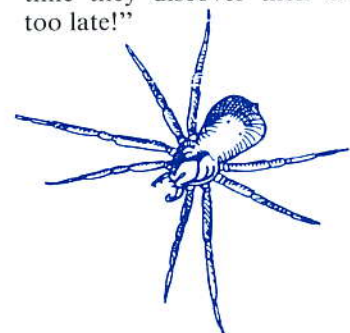
"These spiders have done a sneaky thing" says Bernard, currently working with Boeing Aircraft in Seattle. "By decorating their webs with silk globs they reflect ultraviolet light, that attract insect prey."

Insects, who have a highly developed ability to sense ultraviolet light, use this ability to find food in flowers and fungi that reflect these wavelengths.

Spiders like the common garden spider manipulate the insects super sensitivity to their advantage, creating the ultimate trap. They carefully place the beautiful but deadly little

pearls in positions on the web that make the web look, to the insect, exactly like a flower with its nectar-filled centre.

"The insects are often fooled into thinking an ordinary web is a flower" says Bernard, "and by the time they discover their error, it's too late!"



THE MIND SPORTS OLYMPIAD

EXCLUSIVE!

International Chess Grandmaster Raymond Keene for Synapsia Magazine

Raymond Keene, OBE, is known as one of the great British Chess Champions, and is one of the world's leading chess figures. He is the author of 70 books on chess and is a distinguished new member of The Brain Club!

In this article he discusses the exciting new concept of a World Mental Olympics which is to be co-sponsored by The Brain Club and *Synapsia*.

Introduction

THE Mind Sports Olympiad will be a mini Olympic Games, in which all the contests will be mental skills and thinking games. A major difference between our event and the Olympic Games is that in the Mind Sports Olympiad *anyone* can participate. The first event will take place in 1992, in the United Kingdom.

The concept of an Olympiad for thinking activities is not new. Since 1927 there have been Chess Olympiads, which are held every two years. There are Bridge Olympiads every 4 years. There are Mathematics Olympiads every year. And in 1989 the first Computer Olympiad took place in London – an event in which all of the competitors were computer programs!

What is unique about the Mind Sports Olympiad is that it will combine more than thirty thinking activities in one spectacular event.

The organising body is **Mind Sports Olympiad Ltd.** The founding Directors are myself, David Levy and Tony Buzan, who will be responsible for the creation of the infrastructure and for leading the planning of the Olympiad.

Participants are expected to come from all over the world to compete



in this event, but the countries from which we expect the biggest contingents are: U.S.A., Japan, U.S.S.R., Netherlands, West Germany, France, Italy, Japan and Spain. As an indication of the interest that our event has already generated in the U.S.S.R., David Levy has been invited to visit the Soviet Union this April, at the Soviets' expense, to meet their sports officials and the Soviet organizers of some specific Mind Sports: Chess, Draughts, Go-Moku and Renju.

Why a Mind Sports Olympiad?

Because it is fun and can be profitable. There are various ways in which one can rationalize the creation of sporting and intellectual competitions, and one of the most important is that they are fun for the players and spectators and they give

rise to financial opportunities. As an additional benefit the host city will attract enormous media coverage and enjoy great prestige as the founder of the Olympiad.

The concept of a Mind Sports Olympiad is at the same time simple, complex, dramatic, creative and timely. Most media coverage of sporting events centres around physical activities, despite the fact that the overwhelming majority of leisure games *participants* are primarily interested in "mind sports". Because they require vastly less space, equipment and expense, mind sports are considerably more accessible to most people. Because physical strength is of little importance in mind sports, these games do not discriminate on the grounds of sex, age or physical disability.

There will be several divisions within the Olympiad, featuring more than 20 different mind sports. Within each sport there will be more than one section, to provide opportunities for players of all grades to participate in any of the events. For example, in chess there might be:

Olympic Men's Chess Championship
Open to qualified players only. The system of qualification is that each country is allowed at least two players, with an additional two provided that they are above a certain threshold of strength.

Olympic Ladies' Chess Championship
Open to qualified players only as above.

Olympic Junior Chess Championship
Open to players of either sex who are under 18 on September 30th 1992. The highest placed girl would have the title Olympic Junior Girls' Champion.

Olympic Open Chess Championship
Open to any chess player in the world.

Each of these categories will carry prizes and medals.

When and Where?

The first Mind Sports Olympiad will occupy a 2-week period in 1992. This gives us the correct amount of time to plan the event properly. The ideal month is July, when families will find it easiest to take holidays and when the weather in the U.K. is most suitable for excursions and tours. It is likely that one of the 14 days will be left entirely free, as a rest day for participants, but this decision will depend on the number of contestants and on the number of rounds required in each event.

The 1992 Olympiad will be held in the U.K., where we have the facilities to provide accommodation for a large number of competitors and visitors and we have many good tourist attractions to encourage participants and spectators to attend.

Since this will be the first time that *absolutely anyone* can enter an Olympic style event, subject to payment of the £100 entry fee, we must cater for a large attendance. It is reasonable to assume that there will be an average of at least 500 competitors for each mind sport,

spread over all the different categories. In chess, bridge and many other games the number will be somewhat higher. It is not at all unusual to have more than 1,000 chess players at a 2-week long international open tournament, and the 1985 British Championship in Edinburgh, which was also a two week event, attracted around 800 entries.

In addition to at least 10,000 competitors, we expect at least 5,000 visitors. This figure of 5,000 includes the spouses and friends of the participants. These forecasts might increase dramatically near to the start of the Olympiad, as publicity surrounding the event appears in many countries.

Which Mind Sports?

The Mind Sports Olympiad will include the following mental skill areas:

Creative Thinking
IQ
Memory Skills
Mental Calculations
Problem Solving
Specialised Mental Skills
Speed Reading
Spelling
Study
Vocabulary

and the following mental skill games:

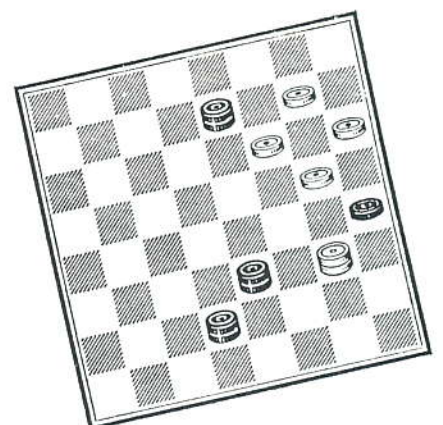
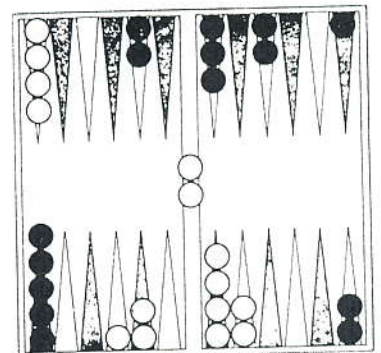
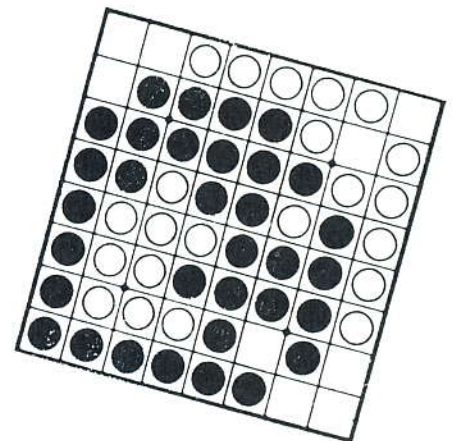
Backgammon
Bridge
Chess
Chinese Chess
Computer Programming
Cribbage
Crossword Puzzles
Diplomacy
Dominoes
Draughts 8 x 8
Draughts 10 x 10
Fantasy and War Games
Gin Rummy
Go
Go-Moku
Mah Jong
Monopoly
Othello
Poker
Renju
Scrabble
Shogi
Skat
Trivial Pursuit
Wari

We will also include "Pentamind", the intellectual equivalent of the Pentathlon, for which contestants must choose 5 tournaments from a list of 10 or 12 games.

The rules for each competition will be arranged to make the events as exciting as possible for TV and the press.

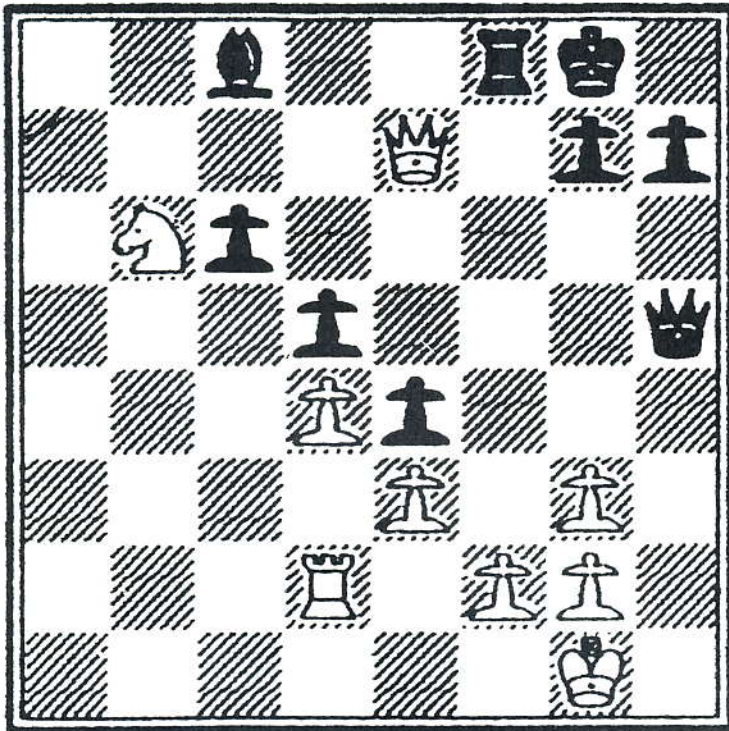
So start preparing! *Synapsia* encourages all members of The Brain Club to help us in any way they can with the publicity and organisation of the event, to generate additional ideas for events to be included in the Mind Sports Olympiad, and to help us with publicity on all levels.

Get those brains in gear!

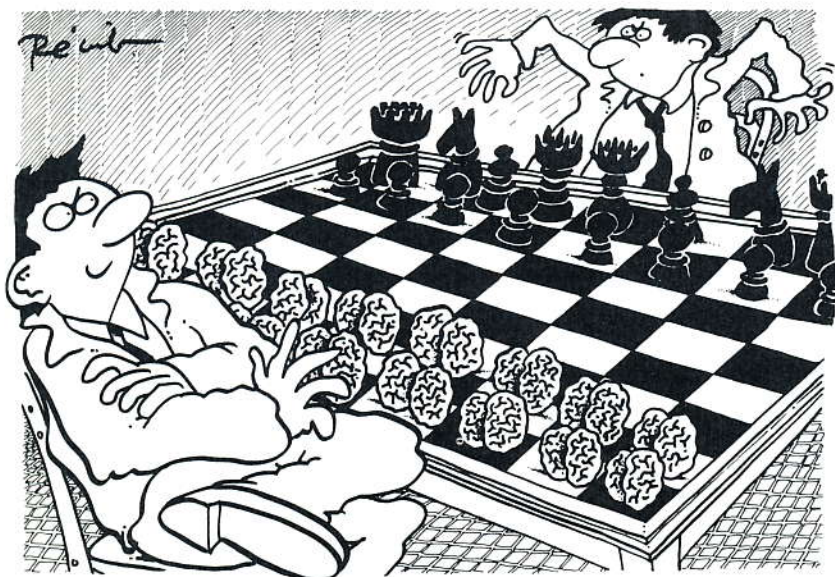


CHECK, MATE,

THIS issue sees the beginning of a new chess column by Raymond Keene, OBE, the International Grand Master and doyen of the English chess scene.



This position is taken from the game
White - Frias Black - Flear
Watson, Farley & Williams/City Of London Corporation 1990
How can White win immediately?
Solution in next issue.



POETRY CORNER

Ostinato

*When I picture a way
to capture the music
wandering
in my unconscious,
when I find the sidewalk
in the mud,
the jewel among the glass,
love among acquaintances,
when my whole body has
received the caress
of a complete idea,
then,
pleasure suffuses my brain,
juices fill my mouth,
heat radiates from my centre,
laughter engorges me
and erupts
from within.*

*Exposed.
I create
precise, focussed images
colours, vibrant
and in perfect balance.*

*The separate components,
the Art of it all,
march
ostinato
across my field
to connect.*

by Judy Caldwell
Canadian Brain Club
Member No.161

INTELLIGENCE ABOUT INTELLIGENCE

by Tony Buzan

Synapsia's Update on the World of the Brain

Hubble Hubble, Toil no Trouble

Mankind's latest 'intelligent eye' is safely in orbit around the earth, and is preparing to take a gigantic step back in time – to the very birth of the universe – at the beginning of the Decade of the Brain.

The Hubble telescope, which took thousands of people, 1.5 billion dollars (\$1,500,000,000), and decades to deploy, has already begun its massive workload of searching the most intimate and far reaching crevices of space.

The Hubble telescope is 500,000,000 times more sensitive than the human eye and will allow astronomers and cosmologists to study objects 14 to 15 billion light-years away.

Hubble also may 'do in a theory or two' about the universe, says Caltech astronomer James Westphal.

The telescope will also give us a much clearer picture of star systems, and a more accurate idea of the number of stars that have planets circling them.

In this way it will increase our ability to predict whether, in the vastness of the universe, there are other intelligent life-forms.

Brain Race

\$33,000,000 is to be given to intelligence researchers by the United States Department of Defence.

The money is being given to them for the specific purpose of funding their efforts to teach computers to think like the human brain.

The funds will be used for experiments which compare how neural networks and traditional computing techniques solve particular problems. The neural networks will be used to recognise spoken commands, detect the noise of submarines in the

ocean, to analyse the seismic echo from nuclear tests and to identify military targets.

The funds will also support a programme devoted to improving scientists' knowledge of how neural networks function in the brain.

From these researches the programme will aim to develop more appropriate hardware for 'neural computing'.

Artificial neural networks, like the neural networks in the brain, consist of many inter-connected processing elements ('cells') each of these elements receiving data from other processing elements in the form of electric charges. The individual elements of the network, all operating simultaneously, process these signals and transmit them to other elements.

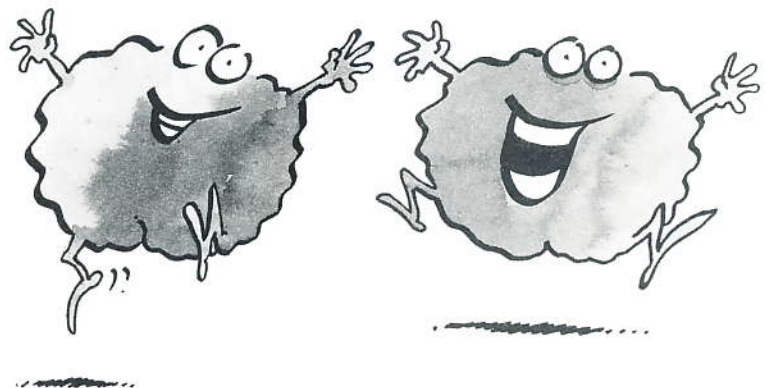
The network is not programmed in the traditional sense. It learns by trial and error. The network is given sample problems, including the answers to those problems, and the individual processing elements modify the way in which they

transform and transmit the data until the network has arrived at an answer which is the same as, or close to, the given answer. The pattern by which the individual elements process the data is then stored, and later applied to new and unfamiliar problems.

The Pentagon hopes that neural networks will be able to provide the breakthrough that has eluded researchers for years – the problems they are trying to solve with these networks have defeated all traditional techniques of artificial intelligence, including the most advanced computers.

Despite decades of research, even the best computers still cannot accomplish tasks that the average human child carries out easily and automatically, such as understanding speech or recognising the faces of humans and animals.

Barbara Yoon, speaking for the Department of Defence, said 'It's very appealing to think that we're on the brink of a computing approach that is patterned on the human brain.'



FIRST BRAIN CELLS GROWN OUTSIDE HUMAN HEAD

For the first time in history, scientists have succeeded in establishing a colony of human brain cells that divide and grow in laboratory dishes.

This achievement has profound implications for our understanding of our mental processes, and for treating a wide range of neurological disorders.

For years researchers from many disciplines have struggled toward the goal of making neurons – the core elements of our brains and central nervous systems – divide and grow like other cells. With the ability to grow them, we will extend dramatically the boundaries of learning how they work and the possibilities for devising methods to repair those neurons that malfunction.

‘This has been one of the major goals of all brain research’, said Solomon Snyder, Director of the Department of Neuroscience at the Johns Hopkins School of Medicine, and leader of the successful research team. ‘We have finally found a way to experiment freely with these most complicated and essential cells,’ he stated in a report published in the May issue of *Science*.

Of all the many different types of cell in the human body, the neuron is by far the most important and complex, communicating with other neurons by exchanging astoundingly sophisticated and complex chemical messages that essentially instruct us how to function.

Growing cells from every major organ in tissue culture has become

one of the essential tools of modern biological research. For years scientists have been able to take kidney, pancreas or liver cells, for example, and manipulate them in a laboratory dish. By mixing in viruses or other disease cells, they have been able to learn how tumours grow and to study the specific properties of each type of cell.

‘This represents a major breakthrough in the study of the brain’, said Lewis Judd, Director of the National Institute of Mental Health. ‘For the first time scientists all over the world will be able to grow human brain cells in culture and perform the bio-chemical, physiological and pharmacological studies that have long been conducted on cells from other parts of the body.’

The brain cells for the experiment were from the brain of an 18-month-old girl who underwent surgery after having seizures in 1986. One of Snyder’s research associates immediately put about a gramme of her cells in a culture dish filled with ‘growth factor’ chemicals. After three weeks only a few of the cells had survived, out of hundreds of thousands. The remaining cells were treated with hormones, and suddenly began to divide and grow.

Snyder’s team spent over three years making absolutely sure that they had indeed cultured mature neurons, and not other less significant brain cells.

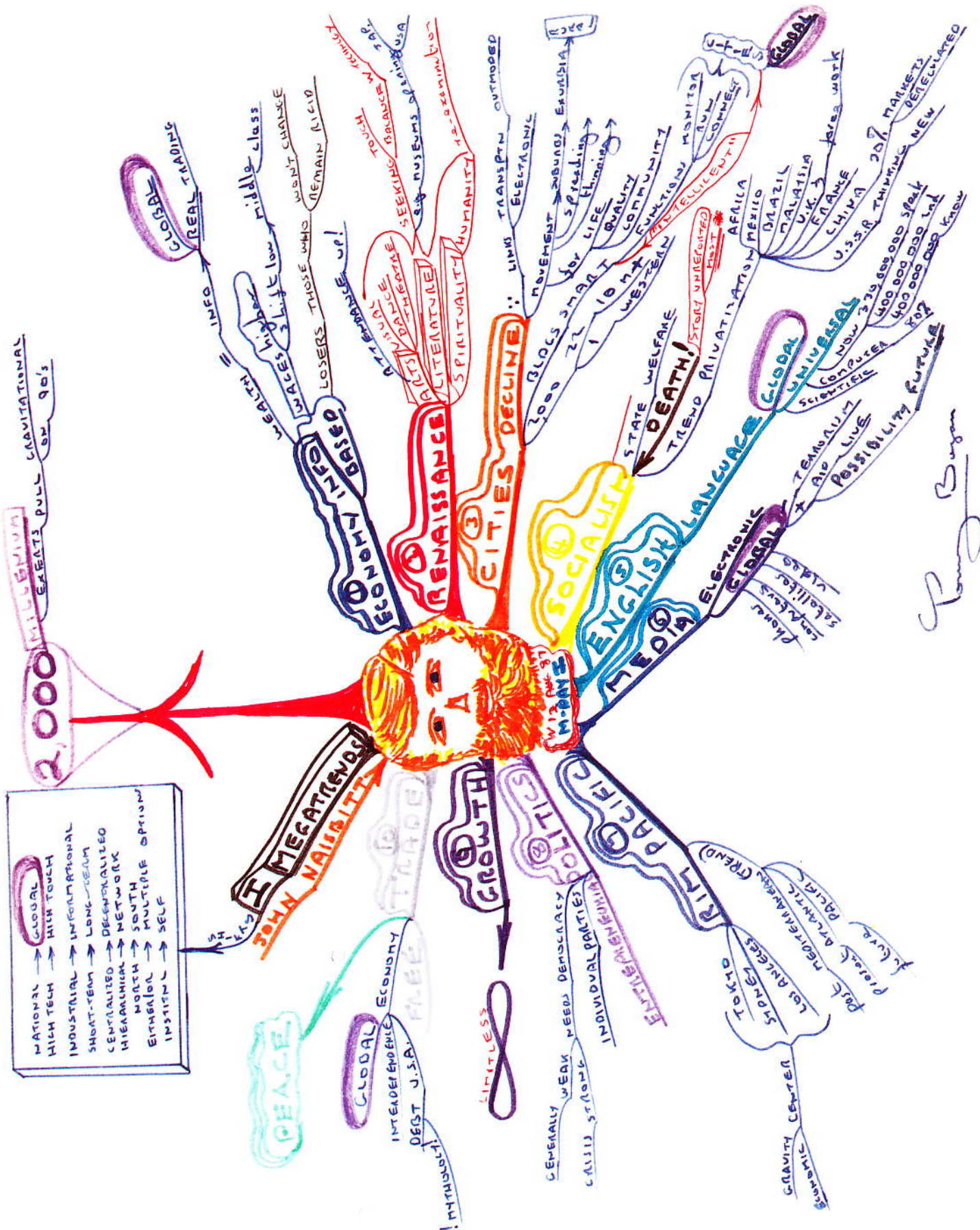
Neurons have special coatings not found in other cells. By inserting specific stains into them, the John Hopkins researchers were able to prove that these packets of chemicals, called neurotransmitters, were indeed present in the mature neurons of their cultured cell colonies.

Echoing the concept that we need to go outside the norm in order to make breakthroughs, Snyder said ‘we didn’t expect it to work. It defied all the catechisms of brain research from the past 50 years!’

Scientists are eagerly awaiting more data from ongoing experiments, while recognising that the immediate research benefits from growing brain cells will be in developing basic knowledge about the brain.

‘No matter what happens this will open vast new horizons of experimental research,’ said Floyd Bloom, Chairman of the Department of Neuropharmacology at the Scripps Clinic and Research Foundation, and one of America’s most renowned neuroscientists. ‘We can now start playing around with all sorts of theories about the brain and see whether they work. And that is the only way science ever accomplishes anything!’

MEGA



Paul B. Bryan

ABRAIN 2000

WITH his breakthrough book *Megatrends*, John Naisbitt established himself as the world's leading futurist. Of the ten Megatrends he predicted for the '80s, ten proved correct! His new book, with Patricia Aburdene, *Megatrends 2000* (see book review by Ionian, page 29) has been at the top of the American best seller lists for all of its 25 weeks of publication. In this issue of *Synapsia*, John Naisbitt talks to Tony Buzan about the brain and the future.

LEARNING HOW TO LEARN

BUZAN

Many of the points you make about what is going to happen in the 1990's, and indeed in the new millenium, are of particular interest for people who are newly and excitedly interested in developing their own intelligence, in learning how to learn and in learning about the functioning and use of their brains. Is the fact that there is a rapidly-growing international community so interested a reflection of your *Megatrends 2000* and beyond?

NAISBITT

Yes. I think that learning how to learn is the whole point. With a world that's changing so fast and with things being outdated so quickly, the skill that's needed by everyone is knowing how to learn. I mean, truly, learning how to learn so that one learns throughout a lifetime. Particularly with all the changes that are going on in the world and will continue to accelerate, quite apart from the stimulation of just that process itself, the process of learning.

I predict that there's going to be more and more interest in learning and in the brain, this in part because of the direction in which our investigation with computers is going into the so-called 'artificial intelligence', which as you know I think is an oxymoron. There's a whole school in the computer sciences that's saying "let's not simply extend what we've learned with digital/parallel computing, let's go look again at how the brain works - let's go back to *that* model."

So it seems to me that given these two things: the need to learn how to learn; and the brain becoming the model for a whole band of brain conceptualisers in the computer business,

that interest in how we learn, and interest in how the brain works must increase dramatically. It must become a preoccupation for many of us in all our global societies.

ARTIFICIAL INTELLIGENCE - COMPUTER BRAIN/BRAIN COMPUTER

BUZAN

Could you comment in more detail on the oxymoronic nature of the concept of artificial intelligence?

NAISBITT

Well, by definition, intelligence is not artificial. By definition, intelligence is natural. It's begiven. To then speak of artificial intelligence is to, in a sense, negate what is there to begin with. You could say "imitative intelligence", or something that tries to imitate human intelligence, but to say "artificial intelligence" is a contradiction in terms, and its direction of thought is a false direction.

So, what we really have are expert systems, which is great because what expert systems do is catalogue everything we know about a subject. We can then ask the computer, once it's stored all this information and variations, what it's going to resolve. Then based on the opinions of the experts that have been codified into the system, we obtain an interesting result.

Let me give you an example of expert systems - the computer that plays chess. It's a very good example because if you get smart enough chess players, that is to say experts, who factor in all the possible moves, all the possible responses to given moves and what that in turn will lead to, and then if you consider the speed of computers, eventually if you get enough information in the computer, and if the computer has

enough calculatory responses programmed in, then in time the computer may beat any human. But that's *not* because the computer suddenly has got a brain and is smarter: it's because enough chess experts (human brains) program in enough catalogues, enough possible moves, to make it overwhelming to a single human being who is trying to calculate the moves. Expert system is not even imitative intelligence - it's quite a different thing.

However, I think we'll look back in 2010 or 2020 or perhaps even before that, and see that the computers we have today are really rather primitive. We're just at the beginning of the investigation of real and machine intelligence.

I think it's going to be very interesting that on the one hand we have the more conventional computer software folks and scientists chasing after expert systems and making them better and better, and on the other hand you have the people who want to make the leap and look at the model of how the brain works and see if that can in some way (at least in a rudimentary way) be replicated in computers, which is very different from the digital and binary direction it's taking now.

BUZAN

I agree with you on computers - the intelligence, if one could call it that, of the best computer, is far, *far* less than that of an earthworm in comparison to the brain. One nice piece of data that supports your view is that the individual brain cell, of which we have a million million, has ten thousand million working parts and is fundamentally independent. It is *this* that controls and guides the computer, not the computer controlling us. Moving on from computers to education:

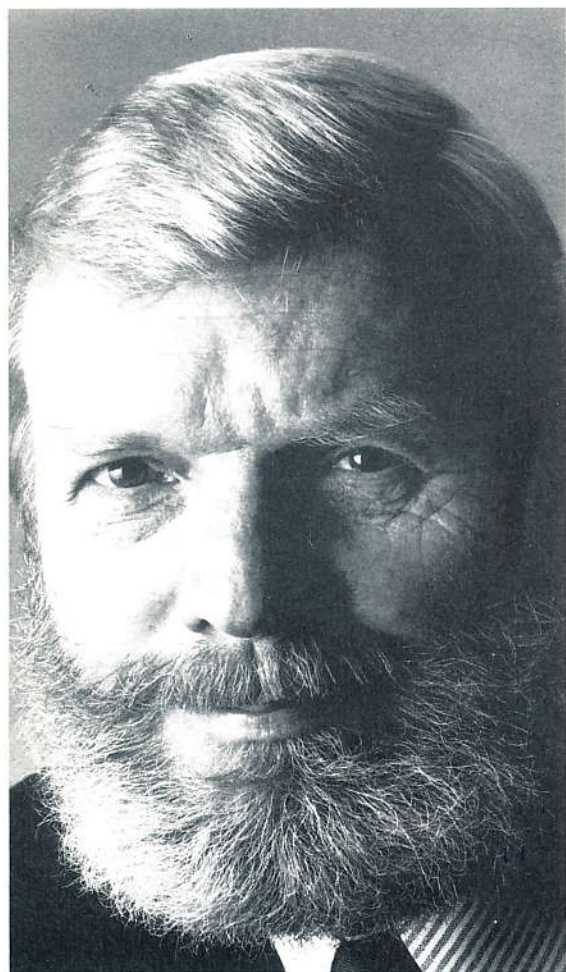
EDUCATION IN THE 21st CENTURY

BUZAN

From your basis of research so far, where do you see education going as we head into the 21st Century?

NAISBITT

I think we're going to move to a period of much more individual education, rather than 'mass' education and those are the breakthroughs that really excite me. It's almost as if we've gone full cycle. We go back to the days when most people were illiterate and those who were literate were the very well-to-do who had tutors. I mean that's how you learnt, you had a tutor for this, a tutor for that, and it was all individual education with an array of tutors. Well the tutors might be in different forms, some of them computers and some of them people, but



the paradox that's going on in the whole world in the 1990's, as we go into the next millenium, is that at the same time that we're creating this huge single market economy for the whole world of almost incomprehensible size.

Individuals are becoming more important and more powerful, because

of the extension of their power through technology. I just think 150 years ago an individual couldn't leverage much change in his own little village and now one individual can leverage change in the whole planet.

BUZAN

Can I ask your thoughts on a new subject in the curriculum, which would be based on learning how to learn, but the subject itself would be Mental Literacy? By Mental Literacy I mean a child being taught how its brain works and how to use it. In other words, the whole range of mental skills, including intelligence, which can be nurtured and taught.

NAISBITT

That certainly seems right to me. For example, in this country, in the States, perhaps elsewhere as well, the incredibly important mental skills of intuition and creativity, for example, get pretty much beaten out of us in the process of learning, because we've been captives of rationality to a great extent, and you know young people don't know that it's OK to be intuitive; that the intuitive leaps are the creative leaps. So I think yes, it would be extremely useful.

I know that in my own work often the connections I make are intuitive with the leaps to a new hypothesis. Of course they are intuitive. They just click in and God knows where they come from - wherever they might come from, and I think we ought to teach people that this is an extraordinarily important, valid way of understanding things, of thinking about things, of breakthroughs, which then can be tested in other ways to see if they hold up.

SCHOOLING IN THE UNITED STATES

BUZAN

Would you comment on the American Education System and your schools?

NAISBITT

I think, you probably divined, that I have a very optimistic outlook on the world. I think that we're in pretty good shape but the really dark cloud on America's horizon is its school system and we have to attend to our school system. We're not doing that really, and it occurs to me that not only is there nothing more important on our social agenda in the U.S., but now **there's nothing more important in our economic**

agenda than attending to our education system.

BUZAN

Would you comment on training and education in businesses?

NAISBITT

Today, companies are spending more money on educational training than we in the U.S. are spending on education. And I think that's going to increase. The labour shortages - we're going to have to hire a lot of people we didn't hire before, who need a lot of training. A big increase in training and very, very importantly a big increase in education. There's a difference. It's a big difference. It's like sex education and sex training but I guess you have to know the difference.

Education now requires us to think globally. I think there's going to be tremendous demand for education. For us to be global thinkers and to be globally competitive, we really have to know what a market looks like, and so I think that you folks are in a line of work that can only grow and become more important as we move through the 1990's.

THE NEW RENAISSANCE

BUZAN

You mentioned that there was a massive renaissance in the arts, specifically literature, dance, poetry, art itself. Could you comment on that as a massive worldwide development of intelligence/the brain? It obviously is the brain's next big move - why do you think the brain is moving in this direction?

NAISBITT

The phenomenon that I've observed and talked about in *Megatrends 2000* is the phenomenon that we see occurring in all developed, maturing countries, those that are moving from what we've come to understand as the industrial-based economy to the information-based economy.

These economies and these societies, the new information society, is a much more sophisticated one than the industrial society, and we have to pause to reflect, pause to remember that, before the industrial revolution, most of us were illiterate. Then the industrial revolution came along and we saw that we had to have literate workers so what did we do? We created free schools, public schools, or as you say in Britain,

private schools. The society had to create schools so that people could learn to read and write, so they could participate in the new era.

Two decades ago, we Americans spent twice as much on tickets to sporting events as we did Arts events. Then the Arts pulled ahead about three years ago and today we're spending, at least last year we spent, about a billion dollars more on tickets to Arts events than sports events. That disparity is going to grow tremendously. The sports are flat.

The Arts are taking off. Art exhibitions, opera and museum going has tripled in the last couple of decades, and I just see no end to that because it's part of a whole new era that we're involved in – a major new Renaissance.

ART

BUZAN

You mentioned that you yourself were interested in and collect art. Would you care to comment on that – why you're interested in it, what it gives you personally?

NAISBITT

I used to be an artist, and I gave up because I was raising a family. I have been a collector for many years, and I collect mostly modern art. It's a balance to my life with technology. It's aesthetic, high touch balance to all the hi-tech to which I'm subjected. We humans want to create compensatory ballast to the threatening side, the dark side so to speak, of technology, and this is expressed in many ways. And one of the ways that I express this is collecting art, and really appreciating art and being very devoted to art.

The Arts are moving to the countryside too. For example, in my little mountain village in Colorado, we have summer festivals all year long. We have an opera house, that's left over from the days when it was a boom town. We do have chamber music festivals, we have jazz festivals, we have theatre productions in our opera house all year long, we have string quartets, we have the Junior String Quartet which played in our concert hall five times. And all over the festival halls of this country it is decentralising the arts, unlike the industrial model where we had to have a big city in order to do that.

A TIME OF PEACE

BUZAN

You mention we are entering an era of peace – what evidence do you have for this?

NAISBITT

Well, for example, the democratisation of Spain and Portugal has meant that for the first time ever all of Western Europe is now governed by democracies. There is *détente* between the United States and the Soviet Union. And listen to this, extraordinarily, there have been no wars, *no wars* among the 44 wealthiest nations for 44 years! Totally unprecedented in modern history! The Cold War is over. The post war era is over.

A new era begins. The era of the development and full realisation of a single global economy and community: the era of globalisation. And in our new information global economy, in this era of globalisation, our human resources are the competitive edge, and **that's why those of you in training and self-development are so important and will assume more important roles in this global economy and community.**

BUZAN

What effect will the fact that the millenium is approaching have on our thoughts?

NAISBITT

A millenium is a powerful, powerful thing. The last time around in the 990's as we approached the year 1000, 997, 998, 999, people went a little nuts. Many thought that surely the world would come to an end in the year 1000, and the priests in Europe were saying that. And the Pope was getting ready. Others writing at the time thought that perhaps the year 1000 would usher in a golden era. Well, the year 2000 is going to have a gravitational pull on the 1990's that will exaggerate everything we are doing: intensify, amplify everything that we're doing. The 1990's will be a fantastic decade: the most exciting decade of our lives.

THE BRAIN CLUB

BUZAN

One last question: What would you answer if a Brain Club Member said to you, "John, what should I do for the next ten years to make the best of, and take the best opportunities from, the Megatrends you have identified?"

NAISBITT

Well, when you say 'Brain Club' I have this image of this huge club and you're just pounding my brains with it. **I think a brain club is a good idea.** I would take that brain club and get people's attention, I guess, and say: Look at the shifts and changes in the world, and see how they impact on your lives or really on your own possibilities, because you are going to be more important and powerful as individuals. See what possibilities they suggest for you.

I know that I feel very much as if I'm a global player and I do business all over the world, and I'm not a multi-national corporation. Trish and I have this little company called Megatrends Ltd and we have two employees, two besides ourselves. We operate globally and we see the



incredible opportunities to just be really present in the world, in this huge incredible world that's changing so much.

I would say:

Look at all these things.

Look for opportunities.

Look for connections.

Look for ways to ride that wave!

BRAIN CLUB NEWS

Edited by Vanda North

GEORGE Sweetnam, Member Number 47, has been busily working away on the Brain Club Manifesto Curriculum. He has written frequently to tell us of his progress, ask questions, and discuss ideas. He has progressed from an initial reading speed of 62 wpm and comprehension of 72% before 10 July 1989, to 1,730 words per minute in his 14 February 1990 letter – **CONGRATULATIONS George!**



Vanda North and Sue Peaty – "Delightedly Deluged" in Bournemouth.

ADVANCED MENTAL SKILLS

Many of you have contacted us about opportunities for the following:

- * *Advanced Range Reading*
- * *SEM³ application*
- * *Application of Mind Mapping to complex subjects, i.e. Mathematics, Physics, Law, Languages, Medicine*
- * *Brain injury rehabilitation*
- * *Research into the relationship between the brain and Art, Psychology, Music, etc.*

Send your Mind Map ideas of how you would like to communicate, work together, create and assist in these areas to Vanda North at Bournemouth.

It is believed that we can create some very exciting and most worthwhile results as we work together. We look forward to hearing from you.

BRAIN CLUB FLOATING UNIVERSITY

As you will see from the feature article, and the booking form on the back cover of this issue of *Synapsia*, a Brain Club university/holiday is being organised aboard a fleet of yachts sailing the Aegean Sea, between the 22 and 28 September 1990.

It has been decided, in view of this, to merge the proposed Brain Club Conference which was scheduled to take place in Wales during July with the floating university, and it is our hope that those members (and their friends) who were planning to attend will be able to join us in Turkey!

BOURNEMOUTH CELL

The Bournemouth Cell is twitching with activity again! They held a meeting directly after a day of 'Improving Mental Performance' training on Friday, 8th June 1990, at the Belvedere Hotel in Bournemouth. If you are interested in attending future meetings please call Vanda North, the Cell co-ordinator, on 0202 533593 or FAX on 0202 534572.

FLORIDA BRAIN CLUB

The Brain Club Cell in Florida recently met in co-ordination with the Futures Group of Palm Beach County, in sunny Palm Beach, for an exciting, exploratory meeting which raised many questions and provoked conversations that went on well into the night!

NEW ZEALAND NEWS

Stephen Quinn, the Editor of our first issue of *Synapsia*, has left us

temporarily and is now residing in New Zealand; from where we heard recently the great news that he is now the father of a delightful young lady, called Tobi. Congratulations to father, mother and daughter!!

CANADIAN CLUB

The Brain Club Cell in Vancouver, British Columbia, Canada, (known affectionately as the B.C. B.C.C.) has been meeting regularly since February 1990. Some excellent ideas from their agenda are:

- * *The purchase of a library of recommended books and tapes for loan to members.*
- * *Putting their combined brain power to work on a personal, professional or community problem, to be posed by a member.*

Members' ages range from 13 to 74, enjoyment and enthusiasm expressed by all.

'IS ANYBODY OUT THERE??'

That is one question that we at the Buzan Centre do not have to ask!

Due to an overwhelming response to the articles about Tony Buzan in the MENSAs magazine and some recent radio and television shows, the Buzan Centre has been deluged by phone calls, letters and, now, orders.

The Buzan Centre staff, who are assisting with the management of The Brain Club during its formation, are busily responding as fast as we can, although not always as fast as we would want to. So we wanted to let you know that we appreciate your patience and understanding.

Anyone want to come and help?!

'Delightedly Deluged' in Bournemouth.

AMAZING MEMORY STORIES

Tony Buzan

We introduce with the Spring Issue of *Synapsia* the first of a new regular feature: Amazing Memory Stories. In this feature you will read *true* stories about the amazing memory potential and memory feats of the human brain.

The first Amazing Memory Story is from Raif Haber's memory laboratory.

IN the late 1960's the North American brain and memory researcher, Raif N. Haber, decided to test the visual memory capacities and potentials of 'normal' human beings. In 1970 he wrote about his extraordinary findings in *Scientific American*. The subjects who Raif studied were shown a series of two thousand five hundred and sixty (2,560) photographic slides at the incredibly fast rate of 1 every 10 seconds. Their task, as they looked at the slides, was to remember each picture as well as they could, and hopefully to be able to recognise whether or not they had seen it before if it was presented to them a second time.

To present 2,560 pictures at that rate took approximately seven hours of viewing, and this seven hours was split into several separate sessions over a period of approximately one week. One hour after the last slide had been shown on the last day, each of the subjects was tested to see whether or not he could recognise any of the pictures previously seen.

To make the exercise even more difficult, Haber showed them 280 *pairs* of slides, in which one of each pair was always a picture from the series they had seen, and the other was from a similar set that they had never seen.

BRAINS BEAT PREDICTIONS

It was predicted that an average score would be 50% recognition, and that a really good score would be between 65% to 75% memory accuracy. The results surprised both the individuals themselves, and Haber and his colleagues: for even after such a long-term experiment punctuated with 'forgetting breaks', they had all managed to score between 85% and 95% correct!

Amazed by these results, Haber and his team performed a second experiment in which they speeded up the presentation time of each picture to *one every second*. Predicting that this would cause a relative chaos in memory, and that the scores would plummet.

The result? The scores were *identical!*

AN EVEN GREATER CHALLENGE

Challenged even more by the brain's ability to do better in their experiments than it was 'supposed to', Haber and his team devised an even *more* difficult experiment. This time they maintained the high-speed presentation of the pictures, but presented them all as a mirror-image to the way in which the subjects finally saw them for the purposes of memory/recognition.

The results? Identical again!!

The brain had won! In happy defeat, Haber commented, in the light of this amazing evidence of the natural capacity of *any* normal human being:

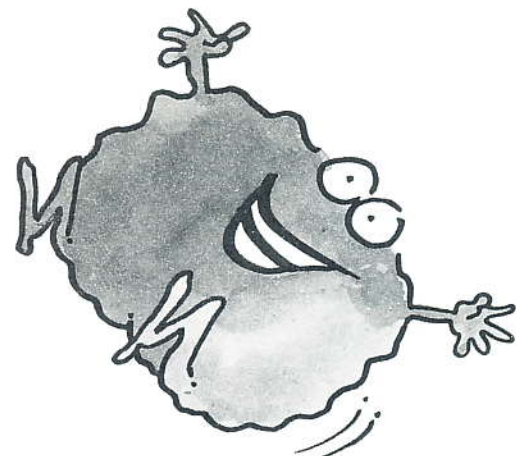
"These experiments with pictorial stimuli suggest that *recognition of pictures is essentially perfect*. The results would probably have been the same if we had used *twenty-five thousand (25,000)* pictures, instead of two-thousand five hundred (2,500)."

The ability of your brain to recognise and remember images, and to place things in appropriate order, is a natural talent that lies embedded in the basic structure of the way in which your brain is designed.

It is up to you to discover it, nurture it, and use it!

Synapsia suggests that readers, where possible, duplicate the experiments and methods given in Amazing Memory Stories and let us know of their own results.

We would also love to receive readers' own stories and contributions about either their personal experiences or their knowledge of other amazing memory stories.



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Fortunately those same educationalists and top psychologists have perfected a unique and **BETTER METHOD**. It's justifiably called **ACCELERATED LEARNING** and these are the main secrets of its success.

RELAX... to start with, background music relaxes you – makes you more receptive. Part of the course has a soothing rhythmic music background, which builds powerful association between words and music. Think how many popular songs you've learned that same way!

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SUBCONSCIOUS AND FUN... By using the latest psychological and educational discoveries, much of the learning becomes subconscious and effortless. Etched into your memory by involving you in word games, learning becomes **FUN** and you absorb your new language automatically without tedious repetition. You'll understand hundreds of words from the very first day.

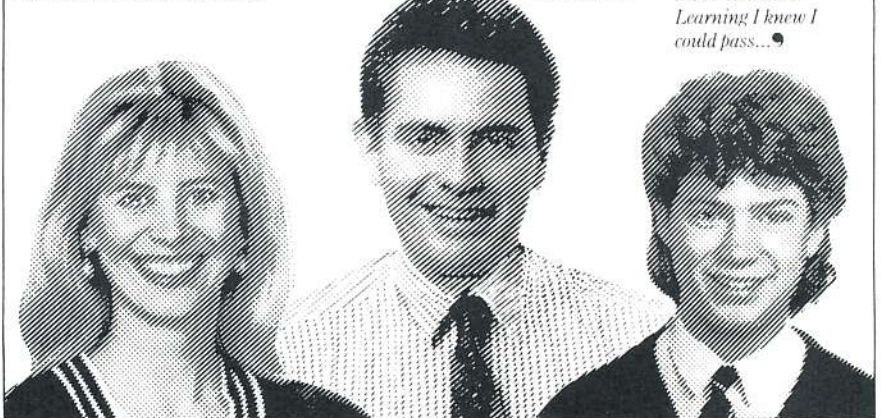
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THE MENTAL M.O.T. TEST

What sort of shape is your brain in? This fitness test, compiled by Tony Buzan, for The Sunday Telegraph Magazine, tests you in all areas of brain power. Identify your strengths – and the areas which need attention

IQ TEST

Complete the following ten IQ questions in 20 minutes or less. Time yourself precisely, as speed of thought is one of the variables being tested.

- 1 Fill in the word that completes the first and starts the second:

H A R M () O N

- 2 Circle the odd one out:

ORAL NASAL
AURAL VISUAL
LOGICAL PEDAL
GENITAL MANUAL

- 3 Rearrange the following letters to make four words:

a) CHATY b) NABIR
c) CLINPE d) GFITH

- 4 Fill in the missing number:-

1	5	5
3	6	18
10	20	

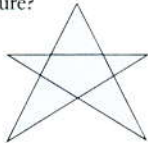
- 5 Fill in the missing word:

Infant is to infancy
as adult is to

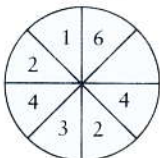
- 6 Fill in the next number:

1, 4, 9, 61, 52, 63, 94,

- 7 How many triangles are there in this structure?



- 8 What is the missing number?



- 9 What is the odd word out?

a) BREZA
b) GRITE c) LSNAMO
d) DOPLEO e) KLUCLOB

- 10 Fill in the missing number:

3 A P A 2 L

From now on, circle a number for each answer, and note your total score for each section.

YES NOT SURE NO

SELF AND TIME MANAGEMENT

- 1 Do you have a clear vision of what you want from life? (2) (1) (0)
2 Do you carry more than fifty pages of 'diary material'? (0) (1) (2)
3 Are you punctual? (2) (1) (0)
4 Do you use images, symbols and colours in your diary? (2) (1) (0)

- 5 Do you regularly feel stressed? (0) (1) (2)
6 Do you like planning? (2) (1) (0)
7 Do you plan for yourself regular holidays and breaks? (2) (1) (0)
8 Do you feel guilty if you are not working? (0) (1) (2)
9 Do you remember your life in individual years? (2) (1) (0)
10 Do you regularly review your life? (2) (1) (0)
11 Do you generally look forward to tomorrow? (2) (1) (0)
12 Do you feel threatened by your diary? (0) (1) (2)

THE PHYSICAL BRAIN

- 1 Do you eat (and like!) lots of sugar and/or salt? (0) (1) (2)
2 Do you regularly eat fresh vegetables and fruit? (2) (1) (0)
3 Do you eat a lot of refined foods? (0) (1) (2)
4 Are you considerably over or under weight? (0) (1) (2)
5 Do you take (and enjoy) regular exercise? (2) (1) (0)
6 Do you have regular health/medical checks? (2) (1) (0)
7 Do you drink excessively? (0) (1) (2)
8 Do you regularly take drugs of any sort? (0) (1) (2)
9 Do you grill rather than fry foods? (2) (1) (0)
10 Do you have a varied diet? (2) (1) (0)
11 Do you drink more than six cups of tea and/or coffee per day? (0) (1) (2)
12 Are you a smoker? (0) (1) (2)

EMOTIONAL STABILITY

- 1 Are you self-confident? (2) (1) (0)
2 Are you able to cry? (2) (1) (0)
3 Do you often get annoyed? (0) (1) (2)
4 Do people generally consider you a happy person? (2) (1) (0)
5 Do you maintain friendships over a long period of time? (2) (1) (0)
6 Do you often feel helpless? (0) (1) (2)
7 Is life often a burden? (0) (1) (2)
8 Do you get along with your family? (2) (1) (0)
9 Do you say what you feel? (2) (1) (0)
10 Do you like to touch and be touched? (2) (1) (0)
11 Do you feel happy when others feel happy? (2) (1) (0)
12 Do you generally keep your fears to yourself? (0) (1) (2)

SENSUAL AWARENESS

- 1 Do you enjoy dancing? (2) (1) (0)
2 Do you regularly enjoy films, plays, paintings and music? (2) (1) (0)
3 Are you able to recall visual information clearly? (2) (1) (0)
4 Are you able to recall smells and tastes clearly? (2) (1) (0)
5 Do you recall sounds, tactile sensations and physical movements clearly? (2) (1) (0)
6 Do you eat to live, not live to eat? (0) (1) (2)
7 Are you sensual? (2) (1) (0)
8 Do you enjoy playing with children? (2) (1) (0)
9 Do you like your body? (2) (1) (0)
10 Do you like nature? (2) (1) (0)
11 Do others consider you well dressed? (2) (1) (0)
12 Do you dislike driving? (0) (1) (2)

MEMORY TEST 1 LONG-TERM MEMORY

On a piece of paper, write the names of the planets of the solar system, in order of distance from the sun.

MEMORY TEST 2 RECALL DURING LEARNING

Read the following list of words once through, and then answer the question that follows:

1 cage	12 of	22 of
2 exact	13 wide	23 turn
3 his	14 Leonardo	24 up
4 pan	da Vinci	25 will
5 foot	15 tiny	26 afraid
6 page	16 the	27 join
7 high	17 the	28 ceiling
8 and	18 wood	29 top
9 of	19 door	30 finger
10 the	20 glass	31 fire
11 the	21 of	

Without looking at the words again, write down as many as you can on a piece of paper, and then refer to the scoring.

CREATIVITY

Before answering this question, make sure you have a pen and pencil, and a watch so that you can time yourself for a minute. When you have done so, answer the following question.

Write down in one minute, as fast as you can, all the uses you can possibly think of for a paperclip.

Answers and scores on page 28.

HOW FIT IS YOUR BRAIN?



SYNAPSIA

LETTERS

BRAIN CLUB SUGGESTIONS

Dear Mr. Buzan,

I have just enrolled in the Brain Club as member No.86 and would like to suggest the following;

- (1) A problem-solving consultation service run via the club for Govt/ Industry.
- (2) Inventions/innovations/designs made by Club members for licence out to industry, funds from (1) and (2) fed back into the Club for more training/growth of the members.
- (3) There are a large number of International/National competitions e.g. Toshiba Year of Invention. A listing of these events compiled and distributed through the club, with entries by Brain Club members resulting in possible winnings, would bring prestige and increased membership of the Club.

Kind regards,

*Alan Walker (Member No.86)
London, E5*

ED. Good idea! Readers - send us your data and ideas.

IQ RAINBOW BELTS

As a recently recruited member of The Brain Club, I thought it was time to start being a more active member. I thought the best place to start would be with the intelligence testing.

As a member of MENSAs I have achieved an IQ score of 161 which I believe puts me in the top 1% of the population. If I am correct this qualifies me as a 'Rainbow Belt' in this area.

Having achieved this I hope to go on to achieve Rainbow 10 status with the help of standard texts on this subject.

I would like to take this opportunity to congratulate Tony Buzan along with everybody else associated with the formation of The Brain Club. I find the whole concept most stimu-

lating. I have started reading *Harnessing the ParaBrain* and have already achieved a noticeable improvement in certain areas of memory. Keep up the good work!

I hope to become an active member of the club, although, living in deepest Lincolnshire, it may not be very easy meeting other members. However, I'll do my best.

*Andrew Colston (Member No.187)
Boston, Lincolnshire*

The following two letters appeared in recent editions of the *New Scientist* magazine, and we thought they would be of particular interest to Brain Club members.

NUMBER JUGGLING

I was interested in Paul Davies' article "The new science of complexity" (26 November). In particular I was interested to learn of a new branch of mathematics called algorithmic complexity. This reminded me of a mnemonic method that I sometimes use to recall telephone numbers.

The human short-term memory appears to have a capacity to store about 7 items of information. Thus, if one is memorising a random number, one has to store and recall each individual digit, as they are independent. However, as a mnemonic aid, it is occasionally possible to see a pattern in an integer, and instead of memorising the integer, an algorithm is memorised. Thus the number 895635123 is a series of random digits, and difficult to recall. However, the integer 135791113 is easier to memorise, as it is possible to change the number to an algorithm: nine odd numbers starting with one. Similarly, a number such as 124312436 can be changed to an algorithm $124+312=436$, to facilitate its memorisation. The short-term memory could thus presumably recall a longer digit than allowed by an ordinary digit-span by storing

the algorithm, up to the limit imposed by the short-term memory. A random number cannot be further reduced in this way, and each individual digit has to be separately memorised.

This can also occur for numbers stored in computers, in that some numbers are algorithmically reducible and can be stored in a smaller amount of memory, while other numbers are random and cannot be represented in this way.

Our ability to comprehend and model complex systems may be limited by the computing power available to match the complexity of the situation being investigated, and the algorithm necessary to describe a particular complex situation may exceed the capacity of any available computer.

*J. R. Jones
Rhewl, Clwyd*

CALLING THE SUPER YOUNG!

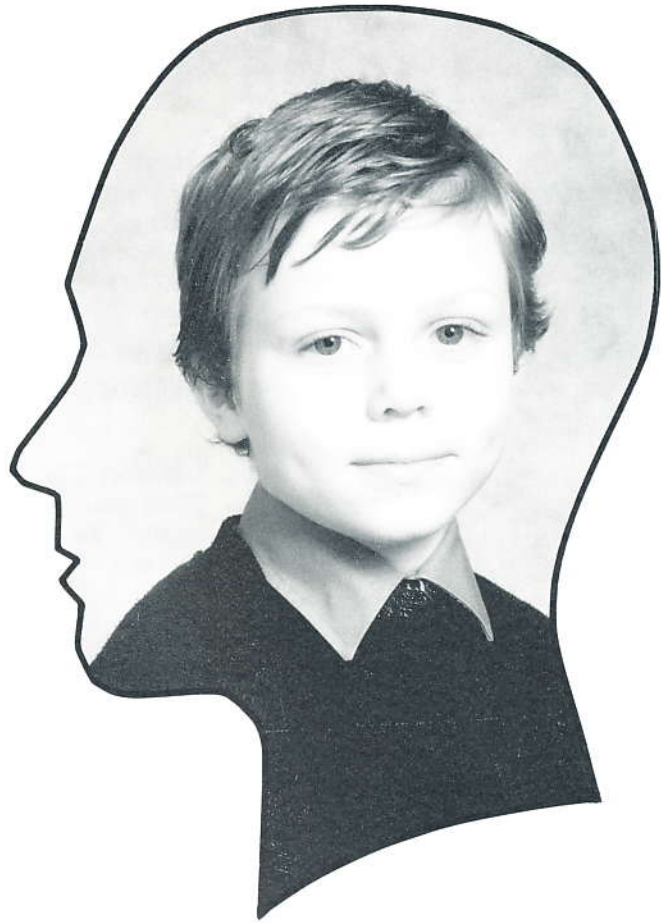
I am conducting a nationwide search for people over the age of 40 who feel or look considerably younger than their years. The main aims of this research are to try to discover how this happens, what factors are involved and if there are any cognitive/intellectual/attitudinal variables which contribute to these very large differences.

In the first instance, I would like to receive the spontaneous accounts from these "super-young" persons, including any details, thoughts or speculations. Following this stage, questionnaires will be sent out to all volunteers. The project may have implications for the study of normal ageing and benign senescent forgetfulness. Letters should be sent to me, David J. Weeks, Principal Psychologist, Royal Edinburgh Hospital, The Andrew Duncan Clinic, Morningside Terrace, Edinburgh. EH10 5HF.

David Weeks

BRAIN CHILD

The following Puzzles for junior Brain Club Members have been submitted by Richard Champion-Bias, aged 9½ years. A Founder Member of The Brain Club, Richard has been using Mind Mapping since before he started school, and is currently working on a project based on the life of Leonardo da Vinci.



Which of the following things turn clockwise?

1. The hands of Big Ben.
2. A car's steering wheel — turning left.
3. A car going round a roundabout.
4. The order when playing cards.
5. The hands of a digital watch.

Which of these things are to do with boats?

- | | |
|-----------------|----------------|
| 1. Capstan | 7. Red Admiral |
| 2. Skipper | 8. Rudder |
| 3. Anchor | 9. Swallowtail |
| 4. Large copper | 10. Hull |
| 5. Galley | 11. Orange-tip |
| 6. Bridge | 12. Brimstone |



In the code below, the letters of the word DECORATIONS have each been given numbers. Using the same code can you work out what these ten words are?

DECORATIONS
1 2 3 4 5 6 7 8 9 0

- | | |
|------------|-----------------|
| a. 3651 | f. 35267849 |
| b. 18774 | g. 180458297672 |
| c. 7563745 | h. 18034 |
| d. 3657449 | i. 7255825 |
| e. 6115200 | j. 633451849 |

Richard would like to know how you scored on the tests, and would like to receive your suggestions and ideas for other quizzes and articles in the Brain Child section of *Synapsia*.

ANSWERS

- (1) 1. Yes; 2. no; 3. yes; 4. yes; 5. no.
 (2) 1, 2, 3, 5, 6, 8, 10.
 (3) a. CARD; b. DITTO; c. TRACTOR; d. CARTOON; e. ADDRESS; f. CREATION; g. DISORIENTATE; h. DISCO; i. FERRIER; j. ACCORDION.

MENTAL WORLD RECORDS



WITH this issue *Synapsia* commences another regular feature – Mental World Records recognised by the Brain Club. The feature will cover all areas of mental endeavour, and will keep readers (who are encouraged to send in any information they have in this area) regularly informed of the top rankings.

Numbers – The Memorisation of Pi

Pi is the ratio between the circumference and the diameter of a circle, and it is one of those rare numbers whose digits follow no known pattern of duplication.

The world record holder is:

Rajan Mahadevan who memorised thirty-one thousand eight hundred and eleven (31,811) digits of pi.

Rajan Mahadevan was raised in Mangalor, India, and since January his prodigious memory for the number pi has been the object of a three-year \$167,000 research study funded by the National Institute of Mental Health in America.

He first showed his interest in numbers as a 5-year-old, when he stunned guests at a family party by reciting the licence numbers from forty of their cars! His father, a prominent surgeon in India, was one of the few guests not surprised: he himself is fascinated by words, and has memorised all 2,156 lines of Shakespeare's sonnets.

The researchers at Kansas State University, where Rajan is a graduate student in psychology, are particularly impressed with his memory. Said psychology professor Jerome Frieman, one of the researchers involved in the Kansas City study: 'If you give people 8 or 9 numbers and ask for them back in reverse order, most will do about 7. We give Rajan 40, and he gives them *all* back!'

Brain Club members are encouraged to write to the Kansas State University Psychology Department for further information, and perhaps some guidance on how they can train to break Rajan's record!

Chess

Chess players are ranked according to gradings devised by the International Chess Federations.

A weak club player would have a ranking of between 1,000 to 1,200; a class 'A' player a ranking of 1,800+; an expert a ranking of 2,200+; an International Master a ranking of 2,400+; and a top ranking International Grandmaster a ranking of over 2,600.

The current World Champion, and indeed the chess player with the all-time highest ranking is:

Garry Kasparov with a ranking of 2,800.

Kasparov is a particularly good example of a well rounded and integrated, holanthropic human being.

His friends describe him as a cultivated and curious man who closely follows literature, film and politics.

To keep his brain in shape he keeps his body in shape. He runs, swims, cycles and plays soccer as part of his training programme for World Championship matches. Kasparov makes full use of the range of his mental skills while playing. He is described as the artist of the chess board, taking bold chances, making breath-taking sacrifices, and hunting for the opponent's King with passion. 'From the very beginning of a game, I strive to make it as sharp as possible and to take it outside the familiar patterns' he once said.

Kasparov states:

'For me, chess is above all art, with elements of science and sport.'

Speed Reading

Speed reading tests are primarily based on the reading of novels.

The reader has to read an *entire novel* as fast as possible, subsequently giving a speech to people who have already read the novel in depth.

The speech has to include knowledgeable comments about and integration of the following main areas:

Characters, Setting, Plot, Philosophy, Symbolism, Language level, Literary style, Metaphor, Themes, Historical context.

The world's fastest reader on record to date is:

Sean Adam with a reading speed of 3,850 words per minute.

In a subsequent questioning session, Sean Adam was able to answer *every* question that was asked of him by others who had read the book. To date the second fastest reader is Kjetill Gunnarson from Norway, with a reading speed of 3,050 words per minute.

(In the next issue of Synapsia, Sean Adam has kindly promised to write a feature on Speed Reading).

Creativity

Creativity is defined by Torrence, the doyen of creativity testing, as follows: 'creativity is a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on; identifying the difficulty; searching for solutions; making guesses or formulating hypothesis about the deficiencies; testing and re-testing these hypotheses and possibly modifying and re-testing them; and finally communicating the results.'

Torrence tests of creative thinking were developed to assess the process and especially the ability of the subject to think divergently and originally.

Such tests also challenge the test taker not only to find a solution, but actually to invent the problem to which he or she will provide a solution!

The success of the test taker will express itself through the divergent thinking factors of 1) fluency: 2) flexibility: 3) originality: 4) elaboration.

It is argued that every creative production is at the same time the result and manifestation of these four factors of divergent thinking.

Fluency reflects the test-taker's ability to produce large numbers of ideas with words (verbal fluency) or with pictures (figural fluency). Quantity or ease with which associations flow is the main characteristic. Intellectual energy is readily available.

Flexibility represents the test-taker's ability to produce different kinds of ideas. The ability to shift from one approach to another, using a rich variety of strategies.

Originality represents the ability to produce ideas that are unusual, unique, and far removed from what is normal or common-place. A person scoring high in originality may be perceived as non-conforming, but this does not mean that such a person is either erratic or impulsive.

On the contrary, originality is the result of considerable 'controlled' intellectual energy, and generally a capacity for high levels of concentration.

Elaboration. According to Torrence, high scores on elaboration indicate that the subject is able to develop, embroider, embellish, carry out or otherwise elaborate ideas. Such persons are likely to demonstrate keenness or sensitivity in observation.

Normal scores in the verbal scale are:

Fluency 77
Flexibility 27
Originality 37

The highest registered scores in the world to date:

Tony Buzan, Fluency 249, Flexibility 94, Originality 368. Throughout the test Tony also achieved an originality score on the figural scale of 100%.

Creativity, like any other mental skill, can be taught and learned.

In preparation for his Torrence test, Tony Buzan, like Kasparov, trained himself physically, and honed his Mind Mapping and memory skills before breaking the world record.

Mental World Records

Who are the top ten brains on the Planet in each of the following mental skill areas:

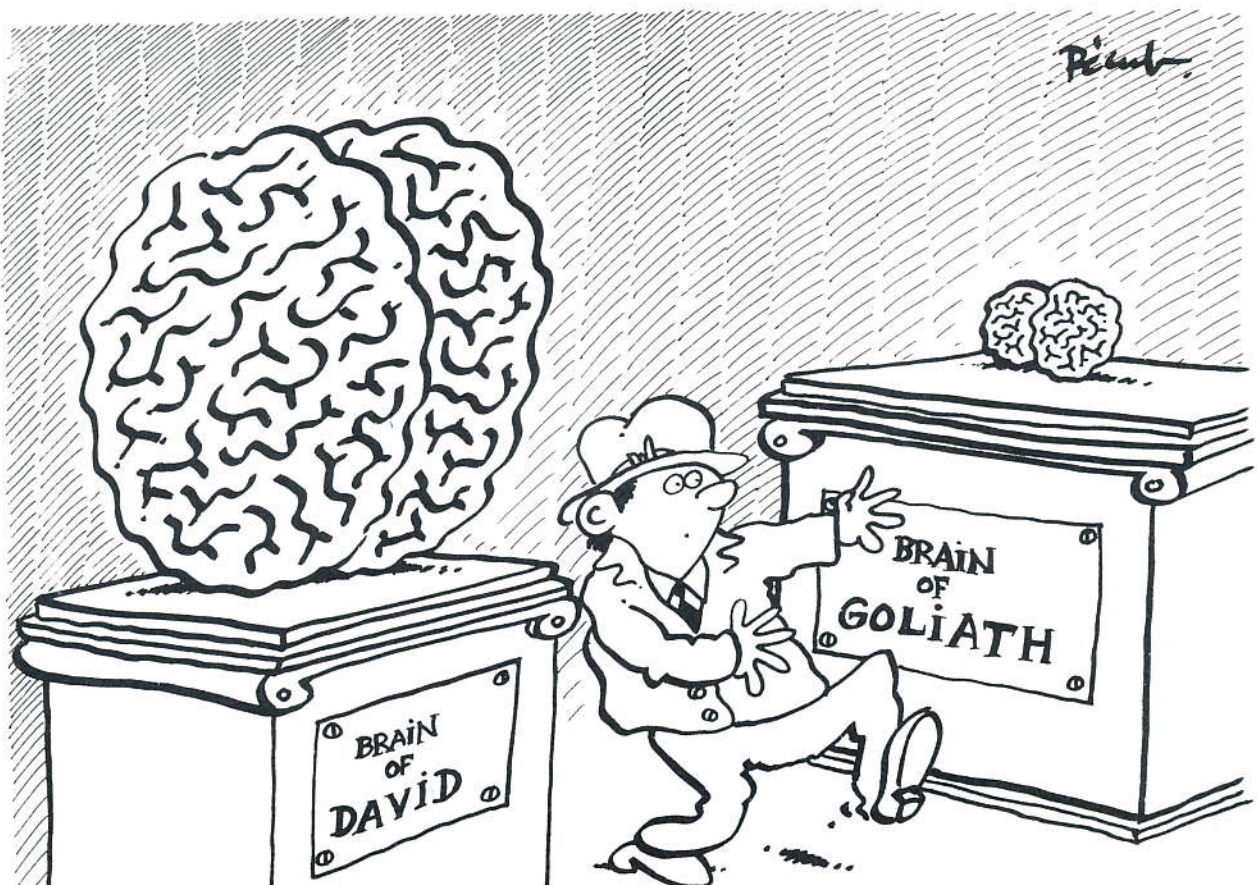
1. Number memory
2. Card memory
3. Date memory
4. List memory
5. Book memory
6. IQ (intelligence quotient)
7. Creativity
8. Reading speed
9. TV quiz championships
10. Chess
11. Go
12. General knowledge
13. Mental calculation
14. Vocabulary
15. Mind Mapping

If you have any information in these areas, please send it to *Synapsia* care of the Editor.

Similarly, if you wish yourself to challenge for the top ten, do so, and send us your results.

Any suggestions for additional categories will be welcomed.

Synapsia looks forward to hearing from you.



MOT ANSWERS

IQ TEST

- 1 LESS Score 1 point
- 2 LOGICAL Score 1 point
- 3 Score 1 point for each correct answer:
a) YACHT; b) BRAIN; c) PENCIL;
d) FIGHT.
- 4 200 Score 4 points
(the figure in the left-hand column multiplied
by the figure in the centre column)
- 5 Adulthood or maturity (*not* adultery)
Score 2 points
- 6 46 Score 4 points ($1^2, 2^2, 3^2, 4^2$, etc – but
with each number reversed)
- 7 10 Score 6 points
- 8 8 Score 3 points
- 9 LSNMO (SALMON!) – the only fish. Score
6 points
- 10 5 Score 4 points
(A=1, B=2, C=3, etc. The word thus spells
CAPABLE)

Scoring:

- 30-35 You obviously have a high IQ, and could consider joining MENSAs.
- 20-30 You are in the normal to high IQ bracket, and with appropriate training could get into the genius group.
- 10-20 Your training has not prepared you for this form of thinking; but you can easily learn the necessary mental skills.
- 0-10 The fact that you can read this summary proves that your brain is capable of getting a far higher score. Train yourself.

SELF AND TIME MANAGEMENT

Scoring:

- 18-24 Excellent. You are working at something like maximum efficiency.
- 12-17 Good, but there is plenty of room for improvement.
- 6-11 Could (and should) try harder.
- 0-5 You are not using anything like the full power of your brain and body.

THE PHYSICAL BRAIN

Scoring:

- 18-24 Excellent. You are giving your brain every opportunity to flourish
- 12-17 Good – but you may not be looking after yourself quite as well as you think.
- 6-11 You may be losing out mentally by underestimating the importance of physical health to a sharp mind.
- 0-5 You are undermining your brain power by bodily abuse. Give your brain a chance.

EMOTIONAL STABILITY

Scoring:

- 18-24 You are unusually emotionally mature.
- 12-17 You are generally mature but would benefit from working on this area.
- 6-11 You undervalue yourself – wrongly.
- 0-5 Pay attention to this aspect of your mind

SENSUAL AWARENESS

Scoring:

- 18-24 Excellent. You live a well balanced, sensual, cultural and physical life, and your brain benefits as a result
- 12-17 A good score, on which you would do well to build.
- 6-11 An average score, but not a particularly good one. Remember that there is more to thinking than dry theorising.
- 0-5 You are in danger of starving your brain of stimulation. Enjoy yourself.

MEMORY TEST 1

ANSWER: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto. Score one point for each planet which you placed correctly.

Scoring:

- 8-9 Exceptional
- 6-7 Very good and well above average
- 4-5 Still above average
- 2-3 Average to just above average
- 1-2 Surprisingly, quite normal
- The reason for our low score on a subject such as this, to which our brains have been exposed in both school and general life, is that we have not been trained to use our memories.

MEMORY TEST 2

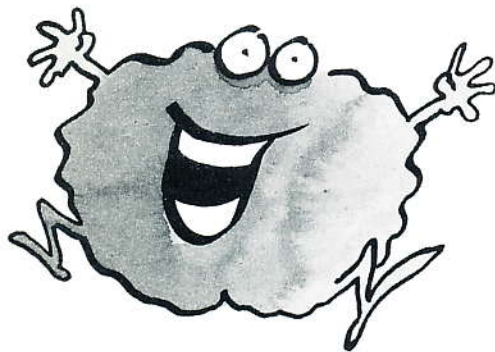
Scoring:

You will probably find that you recalled at least one of the words that were repeated (of, the), that you remembered Leonardo da Vinci (because it 'stood out') and that, of all the other words, you remembered more from the beginning and end, and words from the middle that were in some way associated with each other or something special to you. If you remembered *all* the words, you have a quite exceptionally well-trained memory. If not, don't worry. But if you think that remembering such a list is completely beyond your capabilities, you are wrong. Study the methods introduced in the episodes that follow.

CREATIVITY

Scoring:

The normal test scores on this creativity test, based on the work of Torrance, range from 0 to an average of 3 to 4, to an excellent of 8, a very unusual of 12, and an exceptional of 16.



NEXT ISSUE

The Harmony of the Hemispheres

Read Dr. Ned Herrmann on brain dominance.

Forget-Me-Not

Remember – your memory is phenomenal. Remember to read our Amazing Memory Story which proves it.

Pure Genius

The *Synapsia* book of Mental World Records.

Top of the Pecking Order

Animal Intelligence explains why “bird brain” is a compliment.

THE IONIAN

IN this issue of *Synapsia*, we begin our book review column, "The Ionian". In future issues, we will be reviewing books relating to the Brain, new research, education, health, self-development techniques, and our brain environment.

MEGATRENDS 2000

John Naisbitt & Patricia Aburdene
William Morrow & Company 1990
(U.S.A.), Sidgwick & Jackson (U.K.)
383 pages

Since World War II we have entered into a period which will be to the future what the Renaissance was to the past. We have moved into a new age that is fundamentally different from the age from which we have come – an age that began with the Renaissance and ended essentially with World War II, the advent of digital computers, and the reality of a "Global Village".

In their new book, *Megatrends 2000*, Naisbitt and Aburdene outline some of the specifics of this age we are likely to see between now and the turn of the Century. With hope and optimism, they paint a picture of a future that holds a better life for Mankind, and give us guides for preparing for this exciting time in history.

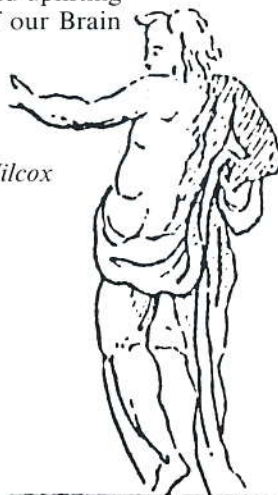
As in the first *Megatrends*, the book is formatted in ten distinct sections. Each points to an interrelated trend that will affect most of us in the coming decade and beyond. Briefly, the subjects covered include: The Global Economic Boom, Renaissance in the Arts, Emergence of Free-Market Socialism, Global Lifestyles and Cultural Nationalism, Privatization of the Welfare State, Rise of the Pacific Rim, Decade of Women in Leadership, Age of Biology, Religious Revival, and (perhaps most importantly to Brain Users), Triumph of the Individual.

In an Age of gloom and doom, the authors have been criticised (notably in the New York Times review of books) of being starry-eyed and unrealistic. However, the predictions espoused in the original *Megatrends* have proven to be remarkably accurate in hindsight, and that could well be the case here. For example, Mr. Naisbitt gave a keynote address two summers ago at the University of Alberta, Canada in which he outlined the collapse of Eastern Europe. At the time, that seemed hardly possible but has since proven to be the case.

The authors use a process called "Content Analysis" which over the years has proven to be quite accurate in predicting future events. If this material turns out to be as accurate as the process promises, we are in for an exciting and productive decade.

Megatrends 2000 is as enjoyable to read as any of the current works on the subject. The format allows it to be taken in small chunks over time or consumed whole during a weekend. *The Ionian* recommends this reading as an enjoyable and uplifting journey into the future of our Brain Environment.

Paul H. Wilcox

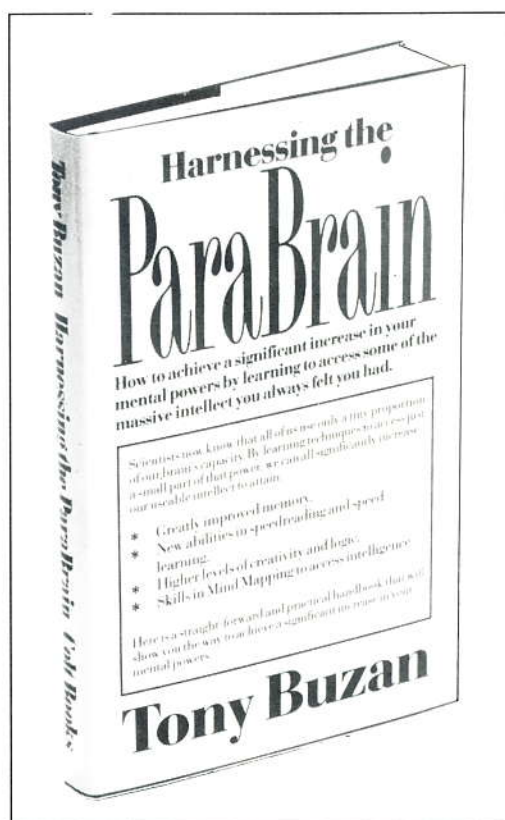


“Your Brain is like a Sleeping Giant”

Wake it up — and you will discover the massive intellectual powers that are in every one of us!

Research shows that many of us use barely 1% of our brain's capacity. All of us have massive intellectual powers at work all the time; but we have learned to access only a tiny portion of that intellect. This enormous untapped potential is what is meant by the ParaBrain — continually at work in parallel with our ‘normal’ brain.

Just accessing a small part of the power of the ParaBrain will have a dramatic effect on your useable intellect. *Harnessing the ParaBrain* is about how to access that power. Everyone can do it. Everyone has these huge reserves of brain power. *Harnessing the ParaBrain* shows you how to achieve a significant increase in your mental powers.



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Harnessing the ParaBrain
(usual price £14.95)

If you do not want to use the coupon, please quote the reference BCS/001 with your order.

Make sure of your copies now.

To: **Colt Books Ltd**
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Cambridge, CB2 2BH.

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Name MR/MRS/MISS: _____
(in block capitals)

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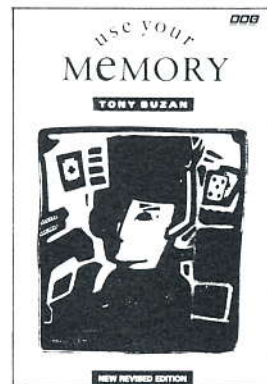
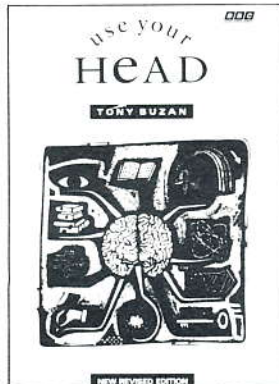
COMPETITION

use your
HEAD

use your
MEMORY

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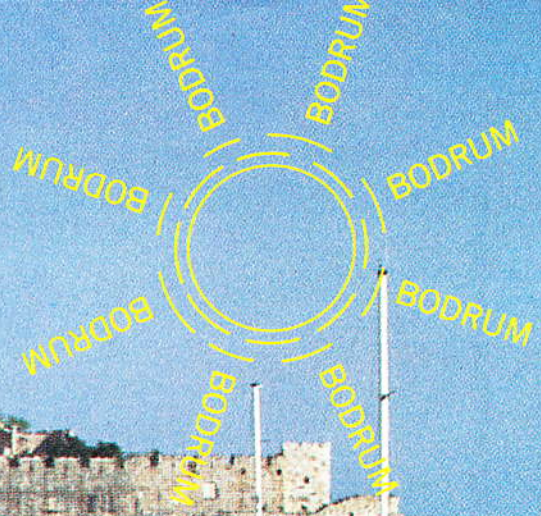
- 1) How many years ago was the *location* of the brain discovered?
 - a) 50 years
 - b) 500 years
 - c) 5000 years
- 2) Which side of your upper brain is used in Tony Buzan's famous Mind Mapping technique?
 - a) the right side
 - b) the left side
 - c) both sides
- 3) How many different chemical reactions take place in your brain every minute?
 - a) Between 1,000 and 10,000
 - b) Between 10,000 and 100,000
 - c) Between 100,000 and 1,000,000

The first 40 correct entries received will win a copy of either USE YOUR HEAD or USE YOUR MEMORY. Please send your answers on a postcard to: Janet Dominey, BBC Books, Room A3125, Woodlands, 80 Wood Lane, London, W12 0TT. You should specify which of the two books you would prefer to receive.

The new editions of USE YOUR HEAD and USE YOUR MEMORY by Tony Buzan were published by BBC Books on 28th September and are available through bookshops at £6.99 paperback or £13 hardback. They can also be obtained from The Buzan Centre on 0202-533593.

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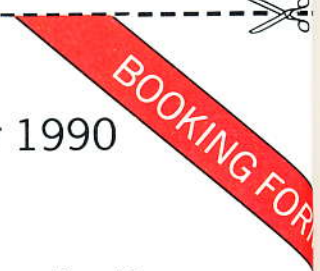


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