

SYNAPSIA

£2.50

THE INTERNATIONAL BRAIN CLUB JOURNAL

Volume 3

Autumn 1992

Number 3



Silicon Graphics

World Draughts Champion Dr. Tinsley and Chinook

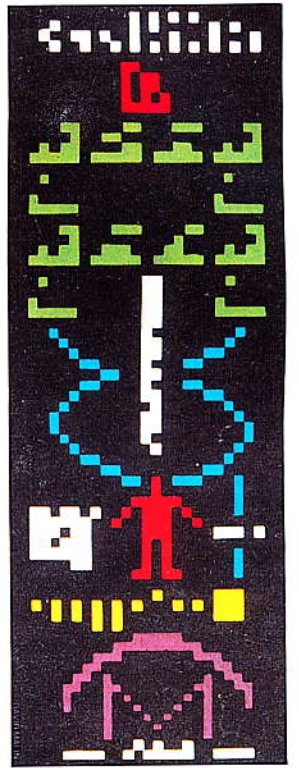
In this issue

- New ideas on human intelligence
- A World Champion at 8
- Man beats Machine to retain World Title!
- NASA launches quest for extraterrestrial intelligence
- Skinner's tenets in practice
- Ant teaches Man



Brain Club Christmas card design
by Claudius Borer BCM 376

Can you decode this?
See page 15 for the solution.



Silicon Graphics Iris Crimson VGX
Workstation displaying the World
Draughts Championship graphics



**SYNAPSIA Vol 3
No 3 Autumn 1992**

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Design & Artwork by
Artwork Overload, Brighton

Printed by Newman Thomson Ltd
13 Albion Street
Brighton
East Sussex BN2 2NE

Typeset by B. B. Enterprises
23 Ditchling Rise
Brighton BN1 4QL

21st February 1995
It's that date again!

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Mexican Eden



Everyone can join
the Brain Club!

EDITORIAL

Psychologist Howard Gardner leads this edition with enthralling observations about the nature of human intelligence. He explains his early dissatisfaction with the standard teaching on his subject, and describes the circumstances that led to his decision to challenge much of this 'received wisdom'. The result was Dr Gardner's own controversial theory, detailed in these pages.

Games are much to the fore this month, and that is in keeping with Brain Club ideals since games develop faculties beyond the immediate demands of the games themselves. It was the Victorians who recognised that game-playing had spin-off benefits, seeing that the enthusiasm generated by involvement in rule-observing fun activities led to improved performance in other, related fields.

A glance at the interview with chess prodigy Luke McShane shows that he regards chess (and tennis) as fun. This being so, he is probably able to concentrate on other subjects for periods longer than 'usual' for an eight-year-old. His cognitive skills, particularly his understanding of logic and problem-solving, are also likely to be enhanced by devotion to his chosen game.

It is on this basis that chess has occasionally found its way onto school timetables as an option. Although puritanical undertows still drag at the idea of pastimes as viable aids to learning - 'it ain't doing good unless it hurts' - the overall worth of games as vehicles for intellectual growth is being rediscovered by educationalists*.

World Draughts Championship sponsors Silicon Graphics have therefore done more for humanity than fund a unique advance in the application of artificial intelligence! Champion Marion Tinsley eventually prevailed over Chinook, the computer program developed by the AI experts from Canada, but the outcome was decided only on the last day of the match.

The news that NASA has launched a comprehensive search for intelligence beyond our planet is truly historic. Read **Intelligence About Intelligence** with keen anticipation of the moment when we

might hear from ET.

Brian Timmins has provided us with an absorbing history of Go, and James Lee has taken over much of the Brain Club news section with his account of the Second Annual Conference held at the University of Durham. Enjoyment and the acquisition of knowledge were evidently in perfect accord during that weekend.

Amazing Memory Stories details the lives of two past prodigies, and the example of George Bidder leads us to think that we can 'train to do the same'!

Lana Israel relates the story of her recent exciting tour around Britain promoting her video **Get Ahead**, and something of the breathless nature of the visit comes through in her conversational style.

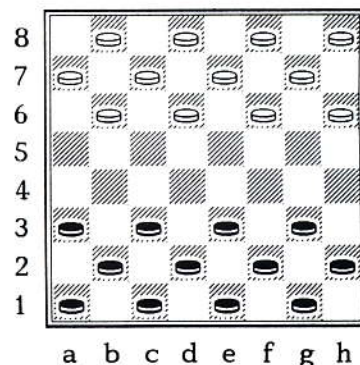
It is good to see that readers are responding to my request for their Top Ten book lists, and in this issue Diane Carter reveals her ten favourite books. We welcome more lists, so please keep sending them in.

New member David Bluck was so taken with **Use Your Head** that he has written a piece about how the book helped him to study and improve the quality of his life. Read **Head Start** to find out exactly how he turned Tony Buzan's teaching into practical success.

Russ Burns has sent in five poems, including the metaphysical reflection chosen for this edition. Dash to your pens and submit the results of *your* lucubrations!

Details of **The Times/Brain Trust** national school chess teams championship and Ray Keene's **Check Mate** precede **Managing Your Brain**, the conclusion to Dr Blanchard's lead feature in the previous **Synapsia**. This wide-ranging dissertation opens by extolling the achievements of behaviourist B F Skinner. Scenes of *Los Horcones*, the community in Mexico that lives by Skinner's precepts, follow Ken Blanchard's article.

Animal Intelligence informs us of the extraordinary faculties possessed by creatures that tend to be viewed as 'lowly'. In the case of the ant, man discovers once again that he can learn from nature.



Brian Lee's **Quote of the Quarter** is thought-provoking, as is Lorraine Gill's exposition of her abstract painting **Night Owl**, the work that embellished the cover of our previous edition.

The **Brain Club Doctor** is currently formulating a theory about calories, and will expound on this and other dietary matters next quarter. He will also contribute a review of the best-seller **Dine Out and Lose Weight** by Michael Montignac, which is involved with these issues.

I finish with the usual request for your literary accomplishments. **Synapsia** is your magazine, so help to write it! MSS should be typed and sent to The Editor, 32 Hollingbury Road, Brighton, BN1 7JA. ■

THE BRAIN CLUB CHARTER

The Brain Club was incorporated on May 15th, 1989, and became a registered charity on November 23rd, 1990. Its official charter states the Club's formal purposes:-

- A To promote research into the study of thought processes, and into the investigation of the mechanics of thinking as manifested in learning, understanding, communication, problem-solving, creativity and decision-making.
- B To disseminate the results of such research and study.
- C To promote generally education and training in cognitive processes and techniques.
- D To develop and exploit new techniques in cognitive processes.

* *The Mind Sports Olympiad, founded by Tony Buzan, Ray Keene and David Levy, will celebrate more than 35 mind sports in the inaugural event planned for summer 1993.*

FROM INTELLIGENCE TO INTELLIGENCES AND BEYOND

Official: the Brain is a Many-Splendoured Thing!



Dr Howard Gardner

Our lead article this month is by pioneering psychologist Dr Gardner - the final part will appear in the next issue.* Dr Gardner argues for the existence of 'multiple intelligences' in the human brain, and lists seven of them while stressing that there are many more. His theory breaks new ground in stating that there is no such thing as intelligence *singular*. Rather, we all have a plurality of intelligences, and need channels 'out there' to express them.

Dr Howard Gardner is a Professor of Education at Harvard University, a Boston Veterans' Administration Medical Centre research psychologist, and is an Adjunct Professor of Neurology at Boston University School of Medicine.

I want to discuss intelligence, what it is, and how we might reconceptualise it. After spelling out my own reconceptualisation, I'll describe intelligence in a set of seven steps or stages.



The First IQ Test

The early history of intelligence reflects the lay view - that held by everybody untrained in the study of intelligence. In other words, some people are smart, some aren't.

About a century ago Alfred Binet was asked to come up with something that would help the educators in Paris predict who was going to have trouble learning in school. Binet was a very resourceful man. He asked hundreds of kids hundreds of questions, and he saw which questions when answered correctly would predict success in school, and which questions when failed would predict difficulty in school. Without knowing it, he had created the first IQ test!

Undoubtedly, the IQ test is the most successful thing psychologists have ever done. It's the one thing that's put our profession on the map, for better or for worse.

When Binet invented the test it was

administered individually. You sat down with the kid, talked with him or her and spent as much time as was necessary. But in 1916 Lewis Terman, working at Stanford, created the Stanford-Binet, which was the first group normed test and the kind most of you probably had when you went to school. You fill in questions and they tell you how smart you are.

On the QT

The view that we all have a certain amount of 'smarts', that we're probably born with them, and that there probably isn't very much we can do about it, is very deeply entrenched in our society. The QT, or Quick Test, is a contemporary manifestation of this way of thinking.

According to its own promotional materials the QT provides a stable and reliable test of estimated intelligence in

* This essay is based on a lecture given by Howard Gardner to the Young Presidents' Organisation. It has been edited only in the interests of clarity.

four or five minutes, has three forms, doesn't depend on global production of subjective scoring, can be used with the handicapped or paralysed, as even they can signal yes or no, and - I love the next one - handles two-year-olds and adults with the same set of items and the same format! So that's the way you can tell how smart somebody is in a few minutes.

Obviously, I'm being a bit slick about this, but that is sort of the standard view of intelligence and how you test it. When people call for standardised tests, that's roughly speaking what they have in mind.

New Moves

Fortunately, the science hasn't completely stopped at the standard psychological, or I might say psychometric/psychological measuring view. There have been three new developments.*

1 Pluralisation, the notion that there are a number of different kinds of intelligence.

2 Contextualisation, the notion that intelligence is never completely in the head.

3 Distribution, the notion that intelligence also lies in the human and non-human resources that you are able



to use and exploit.

I want first to focus on pluralisation, which gives me an opportunity to discuss the work that I've done in developing my theory of multiple intelli-

* The last two will be elaborated in the next issue. -Ed.

Two Populations

To do that, it will be helpful to give you some background on where I'm coming from. I have been a research psychologist for over 20 years and I have worked with two 'populations': brain-damaged adults and normal children.

1 Brain-damaged adults. These are people who were once normal, but who have had the misfortune to suffer a stroke. You might think that all your abilities decline when you have a stroke, but that's exactly what *doesn't* happen. What happens is determined by where the stroke is located. That's the biggest single factor.

If you have a stroke in the middle of your left hemisphere and you're right handed, your speech will be impaired. But you will still be able to appreciate music, you'll be able to find your way around, and you'll still be the same kind of person. You'll be able to understand the personalities of other people without much trouble, because your right hemisphere is okay.

If you have a stroke in the same place in your right hemisphere, your speech will be okay because your left hemisphere's been spared, but depending on where in the right hemisphere, your spatial ability, your musical ability and your understanding of other people will be impaired.

So not only does brain-damage show that the brain is a highly differentiated organ, which you probably accept readily, it shows that *intelligence isn't a single thing*. In fact, there are different information processing capabilities housed in different parts of the brain. And that's an important thing to know.

You all know about the right



brain/left brain, because it's entered into the culture. That's a good beginning, but the right brain, say, is hardly a single mush. It's a highly differentiated organ in itself.

2 Normal Children.

One of the things that struck me about working with kids was that, if you knew how strong a child was in a particular area, academic or non-academic, you couldn't predict how good the child would be in another area.

Now I know that a few kids are 'good at everything', and there are those who are 'bad at everything', but most children have jagged profiles of ability.

What that means is that if a kid is very good at music, you simply can't predict if he or she is going to be good at languages, or at science, or at baseball. By the same token, if a kid is very good at science, you can't predict if he or she is going to be good at language, or at understanding other people, or at playing musical instruments. Try it! The predictability from one aptitude to another is very low.

Challenge

Anyway, I was trained in the Binet IQ tradition and so had nothing in my background to make me suspicious of the teaching that there's one general intelligence which we know how to measure. It was my own research over a fairly substantial time that made me challenge this idea. I reasoned thus: if it's the case that the brain is highly differentiated, and if it's the case that aptitude predictability in children is low, then there's something wrong with the standard teaching.

You will probably agree that most teachers teach what they were taught. It's much easier to teach lecture notes taken at graduate school than to write your own. But even as I was becoming less and less confident about the validity of what I taught, I still kept writing and teaching that stuff because it was easier than coming up with my own opinion. Then I had a very interesting opportunity.

The Dutch Connection

A Dutch foundation approached a number of us at Harvard and said: "We'd like to give you a lot of money if you can tell us what has been established in the biological and cognitive sciences about the nature of the realisation of human potential."

Now human potential is a very big issue. And it's not the kind of thing with which you can apply to the National Science Foundation and say: "Give me a lot of money to study human potential!" They'd laugh at you. Actually, the Dutch had some fair reasons for asking this, and when people offer you a lot of money you tend to find high-level rationalisations for accepting it! So, in short, I became a member of the Project for Human Potential.

Brain Log

I was asked to write a monograph of what we know about the mind that we didn't know a century ago. I decided to use that opportunity to bring together my own work about brain study, child development and different abilities in kids, and many other matters. This work included what we know about child prodigies, idiot savants (individuals who are very good at something but completely subnormal in other things), and autistic individuals like the Rain Man (people who are amazingly good at some kinds of analysis, and just terrible at other kinds of analysis).

I also studied the abilities that vary in different cultures. Because we value certain abilities in our culture, the IQ test is based on them. But let's say you went to the South Seas where survival depends on navigation. There are people in the region who can find their way among hundreds or even thousands of islands without a compass ... without a compass! They do it just by looking at different landmarks, and seeing how the boat goes in water of various depths, and remembering a few configurations in the skies.

The only word for smart in the Caroline Islands would be applied to somebody who could do that. And nobody would care whether or not the navigator could repeat numbers backwards, which is a standard item on the IQ test.

Intelligences

So, I looked at all these sources of information about the brain (prodigies, idiot savants, etc.), and tried to come

up with a more accurate view of the human brain, how it has evolved, and what it can do.

I then made what turned out to be a fateful decision. I decided to talk not about different human talents or abilities, but about different human intelligences.

Why was that a fateful decision? If I had talked about talents, everybody would have said: "Oh yes, we know Michael Jackson is talented, and Michael Jordan is talented, and Yo Yo Ma is talented, but what's really important is how smart you are." Which basically means how well you do in an IQ test.

Radical Redefinition

But, by taking the world 'intelligence', which psychologists think they own, and giving it another twist, another kind of definition, and opening it up, I felt that people would take the recognition of these other abilities more seriously. So I deliberately redefined 'intelligence' at a certain cost to the English language, and at the cost of a certain antagonism on the part of my colleagues in psychology.

I defined intelligence as the ability to solve a problem or to make something, to fashion a product which is valuable to at least one culture.

Now you probably don't find that definition terribly contentious or even terribly interesting. But it's very contentious from the point of view of psychology, for two reasons.

Firstly, the bit about solving problems is okay, because you can see quickly if somebody can solve a problem. But when you're talking about making something, composing a symphony, running an organisation or meeting, conducting psychotherapy or staging an opera, that's something you can't measure in a few seconds. So when you talk about fashioning a product, that opens up the world of intelligence to all sorts of things which were invisible to you as long as you used a paper-and-pencil test or a beanie.*

The second issue is talking about intelligence as being valued in at least one

culture, and that's even more controversial among my colleagues. Let me tell you why that's such a problematic idea.

Most people believe that if you opened up the skull and looked in the right place, you could find out how smart somebody is. As if there is some centre, or set of neurons, which is 'the smart centre'. In fact, you almost have to believe it in our culture, because the idea virtually drenches us.

If, however, you believe, as I have come to believe, that all we have in our heads is lots of potential, and whether or not that potential gets expressed depends on the opportunities available in our culture, then the definition of intelligence becomes *culturally specific*.

Radical Proposal

If you went to the Caroline Islands and you couldn't sail, you'd be a dummy! It wouldn't matter what your brain was like, because the cultural context in which your kind of ability is valued wouldn't exist there. By the same token, maybe those sailors who came over here would be considered dummies because they wouldn't know how to program a computer, or define antonyms in an IQ test.

So I'm making the very radical proposal that intelligence is an interaction between whatever's in your head and the opportunities around.

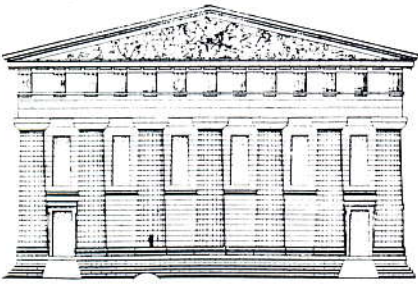
Let me give you another example. Bobby Fischer is one of the best chess players who ever lived. If Fischer had lived in a culture where chess had not been invented, at most he would have been something of a nerd because he has a very specific set of abilities, as anybody knows who has ever watched him do anything but play chess. If chess hadn't been available in his culture, if that spatial, logical, funny sort of interpersonal amalgam that chess is, wasn't there to absorb and glom onto his brain, he would be nowhere.**

Anyway, I collected all this information and performed what I call a subjective factor analysis (that basically means that I just thought a lot about the da-

* In this case, a headpiece device with electrodes used for measuring brainwaves. -Ed

** Bobby Fischer once sat an IQ test and achieved a genius score. It is therefore tempting to think that his "specific set of abilities" would have found another outlet had chess been unavailable. -Ed.

ta!), and I ended up with a list of seven intelligences.



Seven Pillars

My claim, in a nutshell, is that every human has evolved to have seven quite different forms of analysis or information processing. All of us can do these different things, and yet (this is what makes life interesting!), probably no two people have exactly the same combination of intelligences.

I shall now list each one, but remember that every person, unless he or she is grossly abnormal, possesses all of these.

1 Linguistic intelligence.

Poets have exquisite linguistic intelligence. They really think in terms of language. I once took a course with Robert Lowell, the great American poet. He would take a poem and alight on a word which interested him. Then he would tell us how every major poet in the English language had used that word! His mind was like a cross between **Roget's Thesaurus** and **Norton's Anthology of English verse**. My guess is that most of us could read those books for the rest of our lives without attaining Lowell's highly-honed degree of linguistic excellence. Other writers such as lawyers, those for whom language is a stock-in-trade, also have high linguistic intelligence.

2 Logical mathematical intelligence.

Logicians, mathematicians and scientists in general have high logical mathematical intelligence. Piaget, the great psychologist, thought he was studying all kinds of intelligence. He was, in fact, studying logical mathematical intelligence. It turns out that in school, linguistic and logical mathematical intelligence are very important. Standard tests were devised for use in school, and are done well by people who have a certain blend of these two intelli-

gences. I will say even a certain superficial blend, because if you spend too much time on any one question, you're in trouble!

There are many wonderful poets and scientists who wouldn't do well in an IQ test, but if you've got a certain glib mental combination you can do well on such instruments. As long as you stay in a university, as people like me are smart enough to do, then you won't get found out!

Do you know of William F Buckley, the commentator? I don't always agree with him, but he says some very insightful things about SATS, the Scholastic Aptitude or College Board Tests. Buckley claims that to get a good score in the SATs you don't need to know the right answer. You have to know what the question-compileing shnook *thought* was the right answer! That's because standardised tests suit a definite mentality. If you've got it (and some of us have - I happen to have that mentality) you'll know how to psyche out those questions. It won't even matter if you don't understand the concept. You'll do okay.

3 Musical Intelligence.

This is completely analogous to linguistics. If linguistics is an intelligence, then so is music. If language is a talent, then so is music. You can't call one a talent and the other a kind of intelligence. Musical intelligence enables you to think musically, as did Mozart and others.

4 Spatial intelligence.

This enables you to think about the world of space. The wide space environment of a sailor or an airline pilot, or the more local space of a painter, or an architect, or a sculptor. Notice that I've mentioned a bunch of people. I could have included a surgeon or an engineer, as they both have high degrees of spatial intelligence.

It is an interesting fact that you can't predict if spatially intelligent individuals are going to be artists or scientists, but once you know which they are, you can predict what sort of artists or scientists they'll be. If it's the arts, and if they have the highest kind of spatial intelligence, they'll be sculptors, not poets. If it's the sciences, they'll do a lot

of work with visual imagery, as do neuroanatomists and cytologists.

Chess is obviously a game that draws on spatial intelligence, and other intelligences such as the logical mathematical.

5 Bodily kinesthetic intelligence.

Athletes solve problems or make things with their whole bodies or with parts of their bodies, like their hands and mouths. Actors, mimes, craftspeople, surgeons, or anybody who uses his or her body to solve a problem, or make something, shares this intelligence with the athlete.

The last two intelligences, the personal intelligences, are, I think, the most important.

6 Interpersonal intelligence.

This means understanding other people - how they work, what makes them tick, what motivates them, how to manipulate them or help them, whichever you want to do.

For example, to write or act in a play, or understand a play, which is a conflict and a personal drama, you've got to have a lot of interpersonal intelligence, and it's very hard. There are some people who have great difficulty in following a complicated story.* They do not have high interpersonal intelligence.

7 Intrapersonal intelligence.

This is hard to depict, but it's absolutely crucial. Intrapersonal intelligence is about understanding yourself. To use the current jargon, it is about having a good mental model or map of yourself (knowing your strengths, weaknesses, intelligences, fears, etc.), and being able to operate on the basis of that knowledge. It doesn't help if you've got it but can't act on that basis. If you live in a culture where you do exactly what your parents and grandparents did, it doesn't matter if you have intrapersonal intelligence, because the models are all around you.

But if you live in a culture where you're going to make your own decisions about what occupation to pursue,

Continued on page 16

* The eminent physicist Niels Bohr could never quite grasp what was going on in cowboy films(!). -Ed.

BRAIN CHILD

Young World Champion wants Grandmaster Laurels!



Luke McShane, age 8½, World Under-10 Champion 1992

S You were interested in Lego before taking up chess. Do you still play with Lego, or does chess take all your interest now?

LM I don't do Lego anymore, but I like board games - almost any kind of game as long as it's not rough.

S What other board games do you play besides chess?

LM Draughts, Monopoly and Ludo. I like card games, but don't play very many.

S I know you play tennis, and that you are being coached in this sport. How important is tennis to you? What other sporting activities do you like?

LM Tennis is not as important to me as chess, but it's just as much fun. I've got a tiny hope of winning Wimbledon! I went to Sports Experience at Dulwich College, which was like a Summer Camp. I've won badges for swimming.

Mens sana in corpore sano -Ed.

S I remember seeing your school report when you were about six, and it showed straight As except for PE (B). Do you find school work easy? Have you any

This is an interview with the *Synapsia* Editor and Luke McShane, the youngest-ever chess master at the age of eight and a half. This feat constitutes a wonderful Mental World Record. Luke achieved this unique distinction by winning the World Under-10 Boys' Chess Championship in Germany this July. A month later he had won the British Under-14 Boys' Championship. He had previously won the British Under-9 Boys' Championship and other high-ranking junior titles with 100% scores. The interview was especially poignant for the interviewer, in that he is Luke's first chess coach!

favourite subject or subjects?

LM I find some things quite hard, and sometimes get confused in maths although I like the subject. I've no particular favourite.

On learning of this modest reply, Luke's father (a mathematician and journalist) said that maths is his son's best subject, and that Luke could be as good at maths as he is at chess. -Ed.

S Do you want to go as far as you can with chess? What is your personal ambition?

LM Yes! I want to be a Grandmaster. I'd like to be a Grandmaster tomorrow, but I'll have to wait. I'm not thinking of being adult World Champion yet.

S How would you like to play a match with me?

LM Yes, I'd like that.

At this point the interviewer felt that Luke needed a break. The young champion had previously sat for the TV camera after finishing that day's game in the Lloyds Bank Masters, and he was booked for another interview after this. **We look forward to further McShane triumphs, and end with the game that clinched the World Title for Luke.**

We thank the British Chess Magazine for permission to use Luke's game as it appeared in the September issue. Britain's premier chess monthly can be contacted on (0424) 424009. -Ed.

Kings Indian Saemisch

□ Sarkhan Kuliev

■ Luke McShane

World U-10 Boys, Final Round 1992

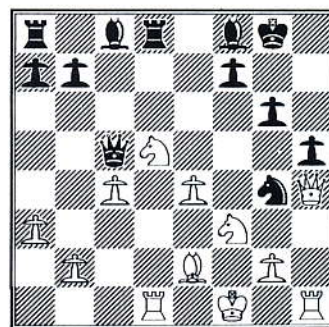
1 d4 ♖f6 2 e4 g6 3 ♗c3 ♘g7 4 e4 d6 5 f3 0-0 6 ♗e3 e5 7 dxc5 dxc5 8 ♗xc5 ♗c6 9 ♗e2 ♖a5 10 ♗e3 ♗b4 11 a3 ♜d8 12 ♖b1 ♗c6 13 ♗f2 ♖e5 14 f4 ♖b8 15 h3 e5 16 fxe5 ♗xe5 17 ♗f3

White should try 17 ♗d5. Now with the aid of a small combination Black seizes the initiative.

17 ... ♗eg4+ 18 hxg4 ♗xg4+ 19 ♖g1 ♗xe3 20 ♖c1 ♗g4 21 ♗d5 ♗f8 22 ♖g5 ♖d6 23 ♖h4 h5 24 ♜d1

Another 'natural' developing move in a situation requiring great care. White had to play 24 b4.

24 ... ♖c5+ 25 ♖f1



25 ... ♜xd5! 26 b4?

Black obtains a won ending after 26 ♜xd5 ♗e3+ 27 ♖e1, but this makes it easy.

26 ... ♜xd1+ 27 ♗xd1 ♖xc4+ 28 ♗e2 ♖xe4 29 ♗e1 ♗e6 30 ♗f3 ♖e3

Better to force mate with 30 ... ♗c4+

31 ♗xb7 ♗c4+ 0-1

WORLD FIRST

Man bytes Machine

Raymond Keene OBE BCM 275

Synapsia is proud to report on the historic clash, organised by Mind Sports Olympiad, between the human World Draughts (Checkers) Champion, and a computer program aspirant to the throne. The man prevailed in what was arguably the finest high-level draughts match ever played.

Silicon Graphics is to be applauded for sponsoring this unique contest. Raymond Keene ('Philidor' of the article *A Tinsley Game* in the previous *Synapsia*) fleshes out the drama for our delectation.

Dr Marion Tinsley



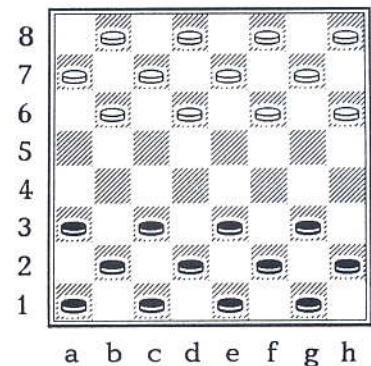
Chinook



Normally I write about chess in this column, but recently draughts has captured the public imagination. This is the result of the challenge in London's Park Lane Hotel by the Canadian computer program Chinook to the human World Champion, Dr Marion Tinsley of Florida, for his World Title.

The game which follows is the first-ever win in an official World Title match by a computer program against a human World Champion in any mental sport.

Remember that Black moves first in draughts, and that therefore the black pieces move up the board.



Silicon Graphics World Draughts Championship

Overall Score After Seven Games:

Dr. Tinsley	½	½	½	½	1	½	½	4
Chinook	½	½	½	½	0	½	½	3

oooooooooooo

Game 8
19th August

oooooooooooo

In game 8, Chinook took an aggressive option leading to complications. Dr. Tinsley was obliged to work hard, having already done so for 4½ hours in game 7. Chinook was never in any trouble and had Tinsley not played 10 ... g7-h6, he would have drifted into a slightly inferior position, typical of the earlier games so far played. In the event Tinsley's tenth move proved weak and on each successive move thereafter Chinook displayed improved scores, showing that its winning chances were steadily increasing. 15 c5-b6 was a devastating surprise which sealed Tinsley's fate. This is the first win ever by a computer in a world championship contest.

Black: Chinook
White: Dr. Marion Tinsley

1	c3-d4	d6-e5
2	e3-f4	

Considered better for White, but not dangerous for Black.

2	...	e5xc3
3	b2xd4	f6-g5

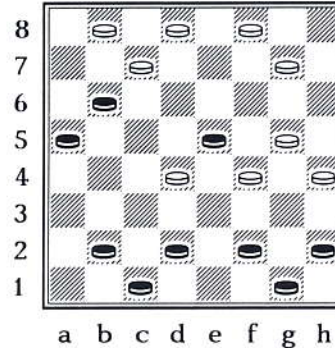
This allows f4-e5 next move, leading to complications. There is nothing wrong with that, but coming so soon after the long game 7 perhaps the more usual 3 ... e7-d6 would have been preferable.

4	f4-e5	b6-c5
5	d4xb6	a7xc5
6	d2-c3	g5-f4
7	c3-b4	c5-d4
8	a1-b2	h6-g5
9	b4-c5	g5-h4
10	a3-b4	g7-h6?

This move loses. It looks innocuous but we understand that almost immediately after making the move, Dr. Tinsley regretted not playing 10 ... e7-f6 instead. Although Chinook thought that it would have a very slight advantage

after 10 ... e7-f6, subsequent analysis showed that in fact the move would have favoured Dr. Tinsley slightly. Dr. Tinsley described his tenth as "a real boner".

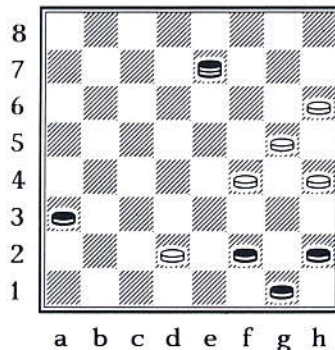
11	e5-f6	e7xg5
12	g3xe5	h8-g7
13	b4-a5	g5-f4
14	e1-d2	h6-g5
15	c5-b6!	



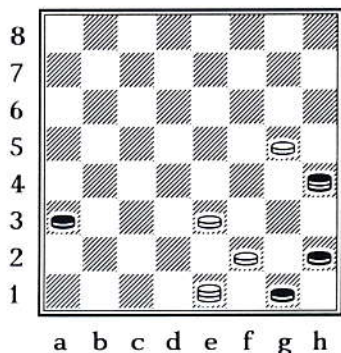
The winning manoeuvre. Nobody in the audience saw this move coming, although by this time Dr. Tinsley had done so. If now 15 ... b8-a7 16 e5-d6 sacrifices a piece in order to get a king, viz: 16 ... c7xe5 17 b6-c7 d8xb6 18 a5xc7 etc, when 19 d2-e3 f4xd2 20 c1xc5 will come next move. Subsequently White cannot break through Black's defensive pivot on the squares g1, h2 and f2 coupled with the piece on b2.

15	...	f8-e7
16	d2-e3	f4xd2
17	c1xc5	c7-d6
18	e5xc7	b8xb4
19	b6-c7	d8xb6
20	a5xc7	e7-f6
21	b2-a3	b4-c3
22	c7-d8/K	c3-d2
23	Kd8-e7	g7-h6
24	Ke7-f8	f6-e5
25	Kf8-e7	e5-f4

see following diagram
Black wins

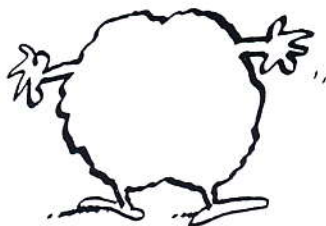


White resigned without waiting for Black's reply. Chinook would now force a win as follows: 26 Ke7-f6 d2-e1/K 27 f2-g3 h4xf2 28 f6xh4 f4-e3 29 h4-g3 h6-g5 30 g3-h4 and Black wins.



The man on g5 cannot move because White would then lose two pieces, e.g. 30 ... g5-f4 31 h4-g3. Therefore, it must remain on g5 only to be captured next move.

Overall Score:
Dr. Tinsley ½ ½ ½ ½ 1 ½ ½ 0 4
Chinook ½ ½ ½ ½ 0 ½ ½ 1 4



Overall Score:
Dr. Tinsley ½ ½ ½ ½ 1 ½ ½ 0
Chinook ½ ½ ½ ½ 0 ½ ½ 1

½ ½ ½ ½ ½ 0 ½ ½
 ½ ½ ½ ½ ½ 1 ½ ½

½ 1 ½ ½ ½ ½ ½ ½
 ½ 0 ½ ½ ½ ½ ½ ½

1 ½ ½ ½ ½ ½ ½ ½
 0 ½ ½ ½ ½ ½ ½ ½

½ ½ ½ ½ ½ ½ 19½
 ½ ½ ½ ½ ½ ½ 18½



Game 39 29th August



For the final two games the opening selected by ballot was the "White Doctor", in which Black is compelled to sacrifice a piece from the outset. In compensation Black gets a "grip", with his two men on a3 and c3 restraining the three White men on a5, b4 and c5. Despite this compensation, experts believe that White's extra man provides more of an advantage than Black's positional grip. This opening could not provide a more fitting conclusion to the match. It is one

In a dramatic finale, 65-year-old Dr Marion Tinsley gained a key and crushing victory. Chinook, running on a Silicon Graphics parallel series supercomputer, the challenger to Dr Tinsley's 38-year tenure of the World Draughts Title, had been ordered by its human minder, Dr Jonathan Schaeffer of the University of Alberta, Canada, to play remorselessly for a win in game 39 of this forty game contest. Trailing by a full point against its human opponent, only two wins for Chinook in the last two games would enable it to win and make history by becoming the first-ever computer World Champion in any thinking game.

Spurning all chances to draw, Chinook hurled itself into the battle and on the tenth move it introduced an entirely new idea, designed to throw the man off course. Dr. Tinsley, defending one of the sharpest opening variations in draughts, known as the White Doc-

tor, never made an error. He mercilessly refuted Chinook's bold effort, crowning two pieces as kings and forcing the machine to resign.

On the 34th move it was all over. Professor Schaeffer resigned on behalf of his creation, conceding both the 39th game and the match. Game 40 did not need to be played. The score was 20½ to 18½, an unassailable lead for Dr. Tinsley. Amazingly, the man used just half an hour thinking time for this historic game, while Chinook used an hour and a half, during the course of which it saw no less than 270 million different draughts positions, but to no avail.

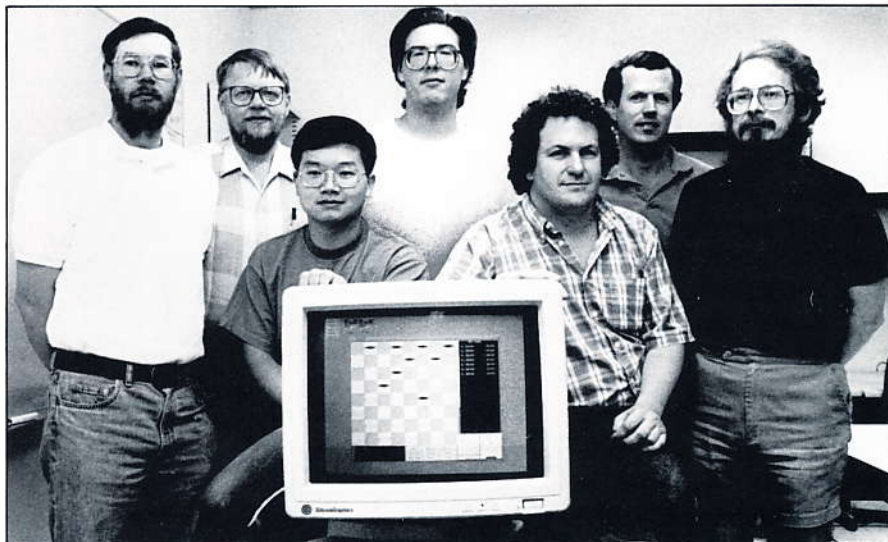
When Jonathan Schaeffer extended his hand in resignation on behalf of Chinook, Dr. Tinsley rose to his feet, raised his fist in triumph over his head and exclaimed to the thrilled audience: "Three cheers for human beings - and that includes Jonathan".

The final game of the match had the packed hall enthralled as the advantage swung from Chinook to Dr. Tinsley. After the game was over, Dr. Tinsley said that this had been the most exciting match of his entire career. According to the many draughts experts assembled at the Park Lane Hotel, the standard of play was possibly the highest ever seen in a draughts match.

Prior to the match, there were some draughts enthusiasts who felt that the participation of computers in what had, hitherto, been an almost exclusively human activity, was a retrograde step. But the massive publicity created for their game and the enormously exciting atmosphere at the Park Lane Hotel, caused a large number of conversions. It is safe to say that the benefit of this match on the draughts world has been immense, and many of those who were previously against the concept are now looking

forward to the next World Championship encounter between man and machine.

Dr. Schaeffer, when asked why the apparently invincible machine had lost said: "Certain holes still need to be plugged in its knowledge of draughts openings. Once this has been done we would like to challenge Dr. Tinsley again next year." Dr. Tinsley responded: "I am game for a rematch, but not one of 40 games. It must be 20 or 30. Look into my eyes - I am deeply tired. After my loss in game 14 this time I almost did not have the strength to go on." Dr. Tinsley, a devout Christian, said his faith had helped him to go on.



From left to right: Duane Szofron, Joseph Culbertson, Paul Lu, Brent Knight, Jonathan Schaeffer, Robert Lake, Steve Sutphen

of the most difficult and sharp openings in the pack and ensured a most exciting session. Since Dr. Tinsley would retain his title if the match was tied, it was necessary for Chinook to win both games if it was to capture the World Championship.

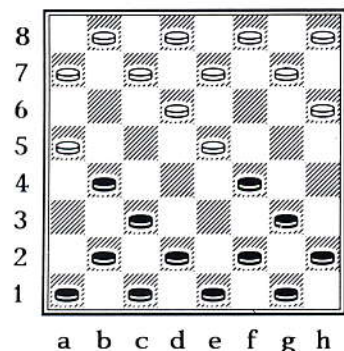
Chinook lost by trying to win a drawn position - a familiar route to defeat for many experts.

Black: Dr. Tinsley
White: Chinook

- 1 e3-f4 f6-e5
- 2 a3-b4

This opening is very powerful for White.

- 2 ... b6-a5



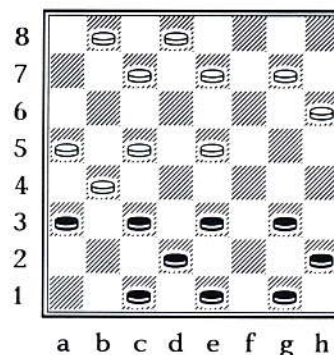
- 3 b4-c5

This sacrifice is essential. All other moves lose. It takes quite some time before Black regains the piece. Less proficient players in the audience might now think Chinook was winning.

- 3 ... d6xb4
- 4 f4xd6 e7xc5
- 5 b2-a3 g7-f6
- 6 f2-e3 h8-g7

Dr. Tinsley beat Asa Long with this line in the 1981 World Championship, which Dr. Tinsley won 3-0 with 34 draws.

- 7 c3-d4 f8-e7
- 8 d4xb6 a7xc5
- 9 a1-b2 f6-e5
- 10 b2-c3

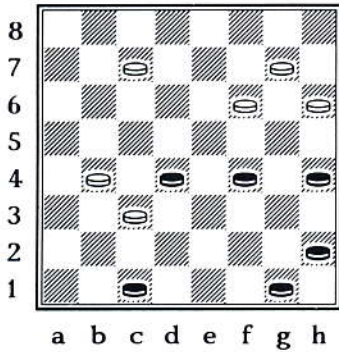


- 10 ... e5-d4

Chinook tries a new move because the published moves are particularly well known to Dr. Tinsley. Returning the piece in this way does rather simplify a very complex game.

- 11 c3xe5 e7-f6
- 12 e3-d4 c5xe3
- 13 a3xc5 f6xd4
- 14 d2xf4 c7-d6
- 15 c5xe7 d8xf6
- 16 g3-h4 a5-b4

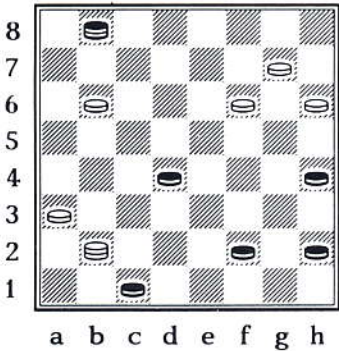
- 17 e1-f2 d4-c3
- 18 f2-e3 b8-c7
- 19 e3-d4



- 19 ... c7-b6

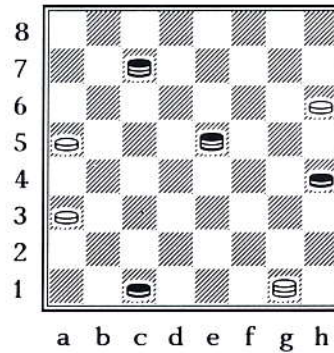
Forced. 19 ... c7-d6 loses to 20 d4-c5 while 19 ... b4-a3 loses to the following pretty combination: 20 d4-c5! c3-b2 21 g1-f2 b2-a1/K 22 f2-e3 Ka1-b2 23 c1-d2 Kb2-c1 24 f4-g5 h6xf4 25 e3xe7 Kc1xe3 26 e7-d8/K, trapping the White piece on the square c7. Black is still in a strong position because of the bunched up White pieces on the squares h6, g7 and f6 and because of the basic defensive structure called a "bridge" consisting of the Black pieces on g1 and c1.

- 20 f4-e5 b4-a3
- 21 e5-d6 c3-b2
- 22 d6-c7 b2-a1/K
- 23 c7-b8/K Ka1-b2
- 24 g1-f2!



- 24 ... Kb2-c3
- 25 f2-e3 Kc3xe5
- 26 e3-f4 Ke5xg3

- 27 h2xf4 f6-e5
- 28 f4xd6 g7-f6
- 29 d6-e7 b6-a5
- 30 Kb8-c7 f6-e5
- 31 Kc7-d6 e5-f4
- 32 Kd6-e5 f4-g3
- 33 e7-d8/K g3-f2
- 34 Kd8-c7 f2-g1/K



Black wins

White can never move Kg1-f2 because of the two for one by h4-g5, nor can White play a5-b4 because Ke5-d4 traps the man on b4, which can be captured three moves later by the other king. The king on c7 can therefore arrive on c3 unhindered, holding the two men on a3 and a5. Black will be playing with three pieces against two on the rest of the board - an easy win.

Final Score:

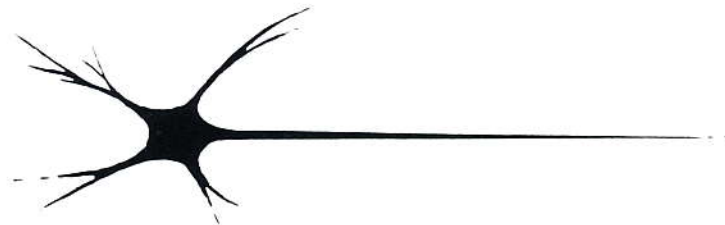
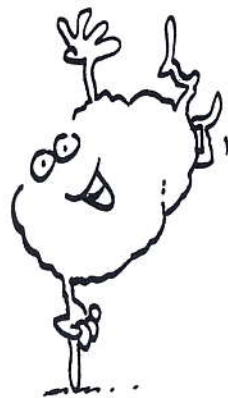
Dr. Tinsley 1/2 1/2 1/2 1/2 1 1/2 1/2 0
 Chinook 1/2 1/2 1/2 1/2 0 1/2 1/2 1

1/2 1/2 1/2 1/2 1/2 0 1/2 1/2
 1/2 1/2 1/2 1/2 1/2 1 1/2 1/2

1/2 1 1/2 1/2 1/2 1/2 1/2 1/2
 1/2 0 1/2 1/2 1/2 1/2 1/2 1/2

1 1/2 1/2 1/2 1/2 1/2 1/2 1/2
 0 1/2 1/2 1/2 1/2 1/2 1/2 1/2

1/2 1/2 1/2 1/2 1/2 1/2 1 20 1/2
 1/2 1/2 1/2 1/2 1/2 1/2 0 18 1/2



INTELLIGENCE ABOUT INTELLIGENCE

The Search for Extraterrestrial Brains

Tony Buzan BCMI

Since 1960, at least 80 investigations have been carried out searching for intelligent life elsewhere in the universe. All of these have been on so small a scale that they were almost naturally doomed to failure. Now NASA has started searching with new equipment that promises to be ten million times more effective than anything tried before. With human and computer intelligence searching for extraterrestrial intelligence on such a massive and massively increasing scale, a number of scientists are predicting that it will be found before the turn of the century.

On precisely the day, hour and minute of the 500th anniversary of Columbus' discovery of America, the human race launched history's greatest-ever effort to discover not only new worlds, but more importantly, new intelligences.

On 12th October, at 3.00pm Atlantic Standard Time, astronomers in Arecibo, Puerto Rico, turned on the most powerful radio telescope ever built. At precisely the same moment others fired up a second telescope at the Goldstone Tracking Station near Barstow, California. More than a hundred physicists, astronomers, computer programmers and technicians are now assiduously monitoring control panels in eager anticipation as supercomputers listen to millions of radio channels, searching for any signal that bears the stamp of intelligent life, and which confirms what the majority of astronomers had believed for years - that we are not alone in the universe.

The \$100 million project, called NASA SETI (Search for Extraterrestrial Intelligence) has full NASA mission status, and will continue to at least the year 2001 in the hope of discovering radio waves created by intelligent beings: radio waves that might have begun their journey towards Earth at the speed of light as recently as yesterday or perhaps as distantly as ten billion years ago.

The mission dwarfs our previous greatest attempt at searching for extraterrestrial intelligence, that in 1974 inspired by the astronomer Frank Drake. Drake used the Arecibo radio telescope, which at the time had an effective power of 20 trillion watts, to send a coded message towards the great cluster of stars in the constellation Hercules, some 24,000 light years away.

The message, a kind of cosmic IQ test, was shown first by Drake to the astronomer Carl Sagan, one of the finalists in last year's Brain of the Year award, over lunch at the Cornell Faculty Club, and according to Drake, Sagan figured out most of it fairly quickly. For Brain Club members who want to test their wits, we refer them to the message on page 2, and recommend that they do not read the following paragraph until they have satisfied their test-hunger, as it contains the decoding!

The message from top to bottom shows:-

- 1 A binary counting system.
- 2 Molecules essential for life on Earth.
- 3 Chemical formulas for DNA, our genetic material.
- 4 The graphic representation of the double helix shape of the DNA molecule ending at the head of a human figure.
- 5 A representation of our Sun and nine planets (Earth is raised to show where we live), and a depiction of a radio telescope beaming the message.

The current mission is so enormous in its conception and precise in its engineering, that in three days we will be able to hear more than we have heard in the 22 years since Drake began his initial experiments in 1970. In the new effort, at least six radio telescopes world-wide will eventually go on constant alert; the dish at Arecibo - a fifth of a mile in diameter - has been upgraded to increase its sensitivity by 300%, and extraordinary software has been designed to interpret signals. Drake, 62, is Astronomy Professor at the University of California, Santa Cruz, and is also President of the SETI Institute in Mountain View, California. In anticipating 12th October he says "I find nothing more tantalizing than the thought that radio messages from alien civilisations in space are passing through our offices and homes right now, like a whisper we can't quite hear"

The Eyes

The largest radio telescope in the world is very different from the traditional optical telescopes used by amateur astronomers, or even the huge tubular telescopes that peer out of observatory domes and mountains around the world, like Palomar in California, or Mauna Kea in Hawaii. The Arecibo telescope is a 1,000-foot wide bowl of perforated aluminium that is set in a vast hole in the ground. Above the bowl, hundreds of tons of steerable antennae hang from cables that are connected to support towers on the

surrounding hills.

Similar in design to a TV satellite dish, a radio telescope can focus every radio wave that hits it towards a central collection point where the signal is then fed to, and processed by, a receiver.

These 'eyes of the Earth' are so sensitive that in 1987 a new super-computer connected to Goldstone radio telescope in the Mojave Desert easily detected the faint, 1-watt signal emanating from the Pioneer 10 probe that was launched from the Earth in the winter of 1972. At the time of the detection, Pioneer was four billion miles out in space!

Radio telescopes are especially useful in the search for extraterrestrial intelligence, because radio waves given off by stars are both irregular and random, while the radio waves used for communication are manipulated by brains, forming patterns that are easily detected on display monitors such as oscilloscopes.

The idea of searching for non-random waves that would suggest the presence of intelligence originally formed in the mid-1950s in the minds of Drake and of physicists Giuseppe Cocconi and Philip Morrison at Cornell. In 1959, in the science journal **Nature**, Cocconi and Morrison wrote "... the probability of success is difficult to estimate, but if we never search, the chance of success is zero."

History's Biggest Bargain

To those who question the 'value' of the effort, Drake points out that the \$13.5 million earmarked for SETI is less than one tenth of 1% of NASA's annual budget of \$15 billion. "When you factor in the consequences of success," Drake says, "this could be the biggest bargain in history."

A large percentage of the budget goes for new computer equipment that both heightens reception and helps in the interpretation of signals.

These giant electronic brains will 'perceive' vast quantities of cosmic radio information which will be spread over millions of channels, and will sift through the data, culling patterns and possibilities for the human observers.

The brain behind these brains is extraordinary in its own right: physicist Kent Cullers has been blind since birth, and has never seen a radio signal on an oscilloscope, let alone a star. His passion for the universe stems from his father who, when Cullers was five, read to him from **The Golden Book of Astronomy**. "The idea that there might be other worlds to discover fired my imagination," he recalls. And his massive imagination is what is helping to give the Earth sight: he has managed to endow his automated signal processing

programme with what **Life** magazine describes as "second sight" - a system that can identify suspiciously intelligent signals out of what would appear otherwise to be nothing more than a sound-cauldron of hissing static.

The head of the NASA project, Professor Jill Tarter believes (as do her colleagues) that other intelligent life does exist. She and her colleagues envision a galactic community of intelligent civilisations, too far apart to socialise, colonise or cannibalise one another. A message from any one of them, sent to Earth perhaps many millions of years ago when our civilisation was not yet existent, could reach us at any time. And what if the project does 'unEarth' the signals for which they search? Tarter says: "Any signals that arrive are rightly the property of human-kind. They were sent to the planet Earth, not to NASA. After millenia of wondering, all humans should know - we are not alone."

Human as Guardian

Arthur C. Clarke, Chancellor of the International Space University, and author of **2001 - A Space Odyssey**, believes the search has tremendous scientific and moral value.

In **Life** he writes: "However it might occur, the detection of intelligent life beyond the Earth would change for ever our outlook on the universe. At the very least, it would prove that intelligence *does* have some survival value, despite what we see on the evening news.

"SETI represents the highest possible form of exploration, and when we cease to explore, we will cease to be human.

"But suppose the whole argument for SETI is flawed, and intelligent life has arisen only on Earth. It would, of course, be impossible to prove that - there might always be ETs just a few light years beyond our range of investigation. If, however, after centuries of listening and looking, we have found no sign of extraterrestrial intelligence, we would be justified in assuming that we *are*.

"And that is the most awesome possibility of all. We are only now beginning to appreciate our duty towards the planet Earth: if we are indeed the sole heirs to the galaxy, we must also be its future guardians."

After millions of years of living in isolation, human intelligence may be within a mere ten years of realising that it has Companions in the Cosmos.

Stay tuned to **Synapsia's** 'Galactic Intelligence Line' for ongoing news! ■

continued from page 8

something new, and you don't have a good understanding of yourself, you're going to make serious errors. Your life will fall through your fingers without you having moved into areas where you might have contributed something.

I dare say that there are many people in this world with IQs of 200 who work for those with IQs half as high, because the latter have a lot of understanding about themselves, and can use that understanding pro-

ductively. I could show you academics with very high IQs who have modest amounts of intrapersonal intelligence.

Having a high IQ tells you nothing if you don't have the slightest bit of self-understanding, that is, intrapersonal intelligence.

That is the list. Seven intelligences. There are many more and each one can be broken down. Everybody has these intelligences, albeit in different blends, and that fact has implications for school and for

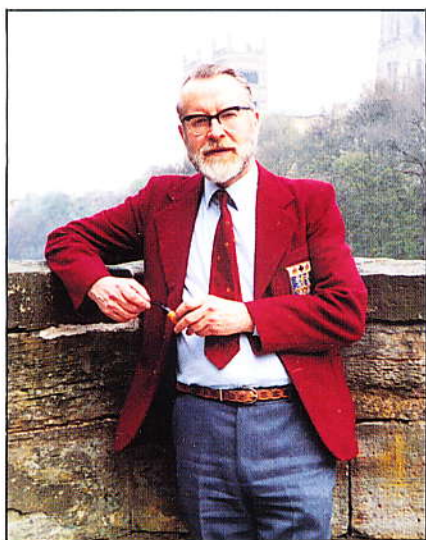
work.

Dr Gardner's feature concludes in the next issue with an explanation of "... two other phases in the development of intelligence, which is newer than my theory, the contextualisation and distribution phases." How they relate to education and the workplace is a revelation. ■

THE ART AND SCIENCE OF GO

More than a Game

Brian Timmins BCM 412



Go has been said to be an analogy of life, business management, warfare (the trench variety, though it is possible to play lightning Go!), Buddhist theory and so on. Brian Timmins is Editor of the *British Go Journal*, and has written an intriguing history of this most ancient and subtle game. The rules and introduction to Go strategy will appear in the next edition of *Synapsia*.

said to have known how to play, and traditionally the Four Sublime Pastimes were Music, Painting, Calligraphy and Go.

Not for the Plebs

Reaching Japan about 700 AD, Go was for centuries prohibited for the plebs. It remained a privilege of the nobility and in particular the samurai, who regarded Go as good military training, and even took it with them on campaign. The game achieved a peak of prestige in the 17th to 19th centuries, when it enjoyed the patronage of the shoguns.

Four professional Go academies were established, and there was great rivalry which culminated in the Castle Games. This was an annual match played before the shogun. Contestants were not allowed to leave the castle until the games were finished.

of Go is clear from scores of Japanese prints, mostly 17th to 18th century, depicting gods and humans intent upon the game.

One legend still echoes in modern usage. A woodcutter in Ancient China came upon two gods playing Go in the mountains. He became so absorbed in watching the game that he was completely oblivious to the passage of time. When he came to his senses, he found that decades had passed, and the handle of his axe had rotted away. The World Go Federation yearbook, printed in Tokyo (in English) is called *Ranka*, which means 'the rotted handle'.

Decline and Rise

After the fall of the shogunate in 1868, Go lost its patronage and declined. However, in the 1890s fresh prosperity came through newspaper sponsorship. There is now a professional body of over 400 players, a Go column is a standard feature in many Japanese newspapers, and weekly lightning Go contests are shown on TV,

One prominent championship has a prize fund of half a million pounds a

Go is about 4000 years old. In China it is called *wei ch'i*, 'the surrounding game', but it reached Europe from Japan, and is therefore usually known here by its Japanese name. There are several legends about its origin. The most popular has it that the game was invented by the Chinese Emperor Shun 'to strengthen his son's weak mind'. Most players would certainly claim that Go is mind-bending!

It is referred to casually in Chinese texts of about 1000BC as a game any reader would know, although the first book exclusively on Go was not written until about 700AD. Confucius is



Chinese heroes playing *wei ch'i* (Go), from a Chinese temple in Brunei. This photo appeared in the *British Go Journal*, Autumn 1992.

Rotted Handle

Legends, literature and art took Go as a theme. The earliest known picture of Go, showing a woman seated at the board, dates from around 690 AD, and was discovered during an archaeological excavation in China. The enduring cultural importance



year, and several European and American experts have emigrated to Japan to seek their fortune in the rigorous world of the Go professionals.

In 1968, an eight-storey Go Centre was built in Tokyo to accommodate national administration, professional competitions, facilities for TV coverage, and large playing areas. The influence of this Go Centre radiates far: in 1989 the first round of the *Meijin Sen*, or Grand Championship, was played in London. This event was sponsored by the newspaper group **Asahi Shimbun International**, which provided generously for British Go players to attend the occasion, and have their own tournament.

Expand and Go

The most rapid expansion in the popularity of Go has taken place in South Korea, where even the guidebooks refer to *baduk* as a game that most people play. Korean player Cho Chi Kun emigrated to Japan at the age of six. He swore that he would not go back to Korea until he won the title of *Meijin* (Supreme Grand Master). He had to wait 18 years, but in 1981 could visit Korea as a national hero, receiving a decoration from the President, a keen Go player.

In China, Go has flourished or wilted according to the political climate. Since 1974 it has been viewed as part of the national heritage rather than as an unproductive pastime, and there is now an annual tournament be-

tween the top players of Japan and China. In Taiwan, too, Go is thriving.

Nearly every European country has a National Go Association affiliated to the European Go Federation. The European Go Congress, which lasts a fortnight, is hosted each year by a different country. In 1992 it was held in Canterbury. However, enthusiasts can only be counted in thousands in the West.

Go versus Chess

Since many millions of people in the East enjoy Go (there are estimated to be ten million regular club players in Japan alone), why is it played so little in the West? One obvious reason is that it only reached Europe in the 19th century. Go suffers the disadvantage of the latecomer, despite a favourable reception by, for example, Edward Lasker. He wrote in **Go and Gomoku** "I am convinced that Go will gradually share with Chess the leading position among intellectual games in the Occident."

Another reason may be the subtlety and deviousness of the game. The aim in chess, to take enemy pieces and mate the king while protecting one's own pieces, remains constant throughout. In Go, however, the taking of prisoners, acquisition of territory, invasion of enemy territory, and the establishment of influence that counteracts an opponent's ability to form territory, all fluctuate in relative value in the course of a game.

Moreover, whereas chess is a single battle, the Go board is spacious enough for several independent conflicts that may only be related in the closing stages of the war. For the convert from chess, there is much aptness found in a comment in Trevelyan's novel **Shibumi**: "Go is to Western chess what philosophy is to double-entry accounting."

This may be a matter of predilection, but there are supporting facts. In the **New Scientist** of the 1st February 1979, an article comparing the two games estimated that the number of possible games of chess was 10^{120} . For Go, the estimate was 10^{700} . Furthermore, while computer games have achieved great competence in chess, over 20 years of Go-programming has only attained the level a bright and enthusiastic player would expect to reach within two years at most.

Brian Timmins' article concludes in the next Synapsia.

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Shropshire TF9 3LY.
Tel (0630) 84292**



Taken on a trip from Canterbury to Leeds Castle. Go players from Holland, Croatia, America and Japan relax in the shade over conversations and a couple of games.





BRAIN CLUB NEWS



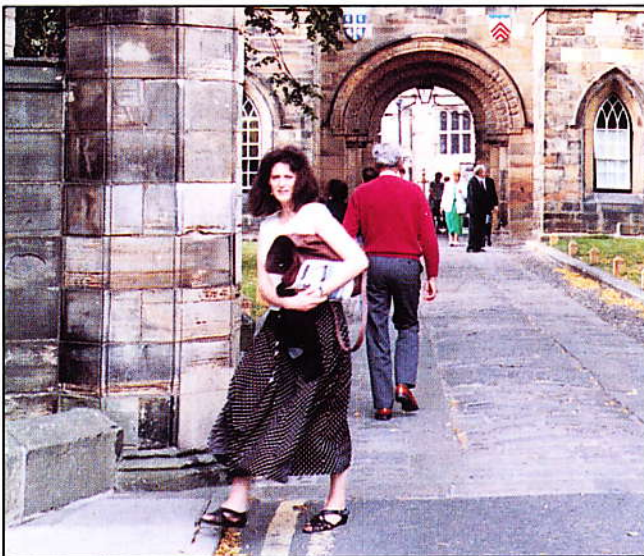
Hello to all members and, as usual, a special welcome to new members.

This quarter I have the privilege of handing over to James Lee, already familiar to **Synapsia** readers for his past contributions. With his usual wit and style he has written a piece on this year's Brain Club Conference held at the University of Durham.

The Second Annual Brain Club Conference

Over the weekend of 31st July to 2nd August, Brain Club members from all over the world descended on the beautiful university city of Durham to enjoy the Second Annual Conference.

It all began, of course(!), in the dining hall of Durham's historic castle. This magnificent building was to be the base for two fun-packed days of cerebral inspiration and camaraderie.



Gate leading to the castle. Katherine Mills (a delegate) facing, foreground.

Enjoy!

Mr Tony Buzan (apparently quite a prominent Brain Club member!) officially opened the conference. He ran through the weekend's activities and quite fairly declared that not having fun was a crime punishable by frontal lobotomy. The fact that everyone kept their right and left brains very much connected must surely be a good sign!

We continued the next morning by passing around tennis



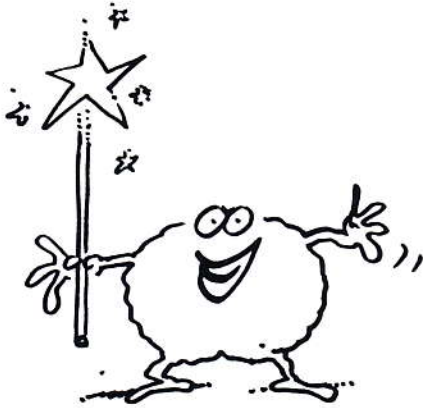
L-R: Norma Sweeney from Bahrain and our photographer Andrew Walkden.

balls and trying to get everyone to try and juggle. Predictable chaos ensued as half those attending rummaged on the floor, while the other half seemed to go into some shock-induced state of narcolepsy.



The keep, where we all slept (62 steps up!)

Relative sanity returned as Tony pieced together the principles of TEFCAS (Trial, Event, Feedback, Check, Adjust, Success) and Positive Thinking. Participants suddenly realised that juggling may not be as difficult as it seemed, relaxed, and soon vowed to join a circus by the end of the year. "Roll up! Roll up! The Brain Club Circus is in town!" Not a bad idea, really!?



Paul Collins calmed this by now rather excitable group of enthusiastic brain users with his talk on the Alexander Technique. He encouraged everyone to break free of poor postural habits. One could almost hear the vertebrae sighing with

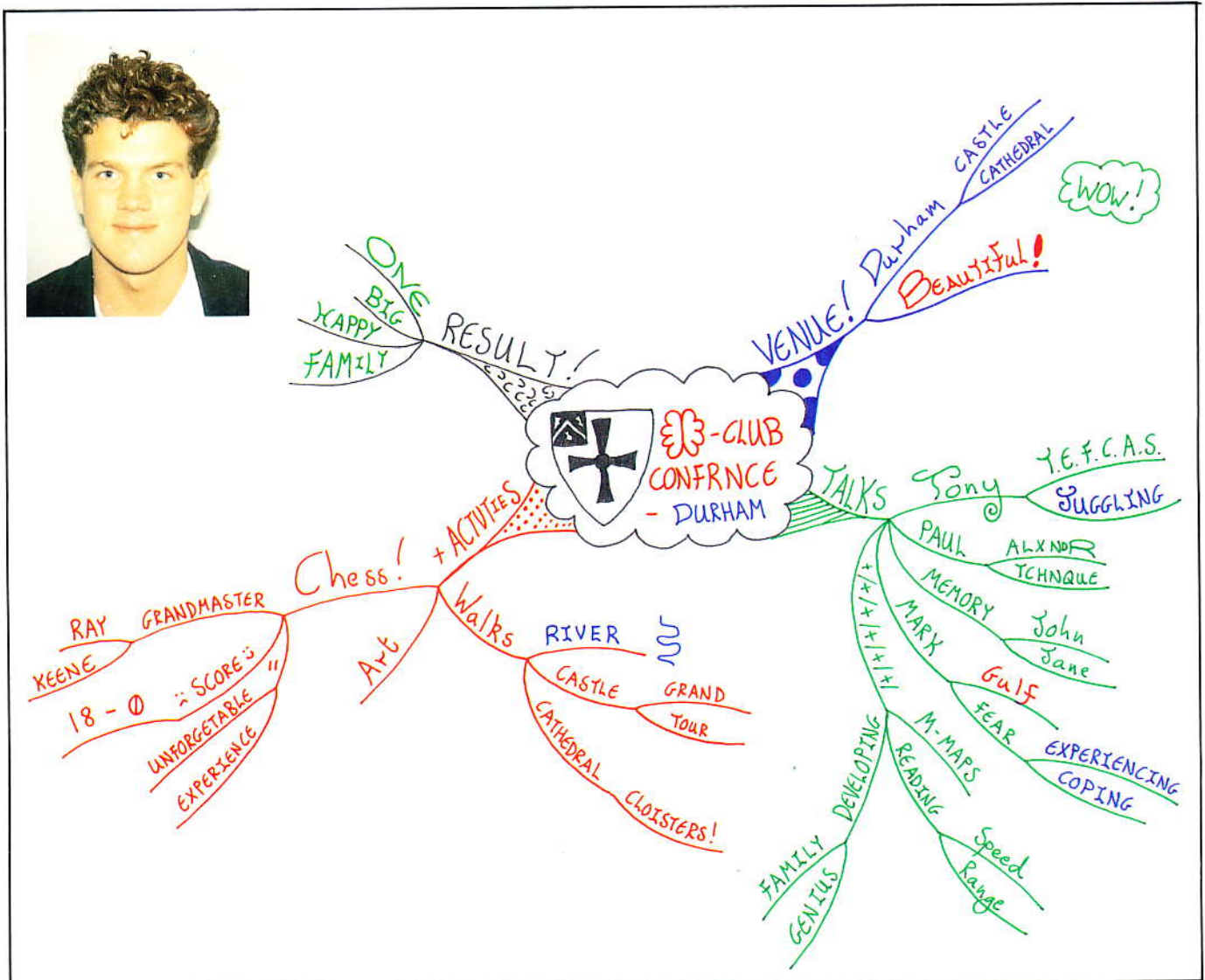
relief as we began to sit up straight and pay more attention to posture and stance. Paul reminded everyone that improving the way one sits, stands and walks is a continuous process - a process that has far-reaching benefits.

Murder by Chess

After lunch a group of almost 20 determined faces poised over their boards in preparation for a simultaneous chess dis-



L-R: Ray Keene, Vanda North, Tony Buzan and Dr Shukri Abdulla from Malaysia.

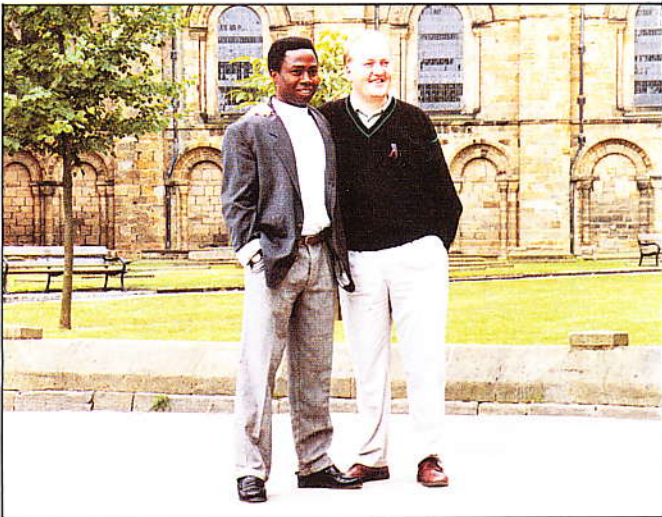


play by Grandmaster Raymond Keene. The walls seemed to shake as this intellectual giant stormed from board to board. It is perhaps best to summarise that some gallant resistance was put up, yet Ray seemed to have the edge on the day. *The edge?!!* The 18:0 score to Grandmaster Keene suggests a rather different scenario.

Still, having their chess boards blown to pieces by a Grandmaster was actually deemed by many to have been one of the most enlightening experiences they have ever had! Many, many thanks to Ray for agreeing to hold the event. As Ray is a Brain Club member, some wag suggested that the *Brain Club* had won 18:0!

Memory Caps

John Needham and Jane Mitchell went on from where Ray left off by getting everyone to put on their memory caps. All conference goers were given a chance to discuss and improve their memories. Tony and Vanda then ran workshops on the development, application and refinement of Mind Mapping. The end of an awe-inspiring day approached, yet not before a pleasant stroll by the river and a tour of the castle itself.



L-R: Mann Alibaba and Derek Collins

Materfamilias

By the next day there was definitely a feeling that everyone had become part of one big happy family. It was therefore appropriate that Lynn Collins gave a talk on studying as a group, and in particular as a family. It became apparent that groups can be powerful intellectual forces if they function in the right way.

Studying as a group can release stress within a family and increase co-operation, and therefore also general happiness and harmony. Special congratulations are sent to Lynn, as this was the first time she had given a presentation in public.

Vanda predictably gave a totally invigorating and enlightening talk, this time on speed and range-reading. Participants were told that the eyes fixate when we read, and were then told about the benefits of using a guide when reading.* After this they had a go at speed-reading itself. Some remarkable increases in reading speed were recorded before the day was out.

* See David Bluck's article *Head Start*. - Ed.

Mon Brave

Without doubt the most moving talk given over the weekend was by Captain Mark Shelford. He gave a presentation about his own experiences in The Gulf War. Mark talked openly about the fears that soldiers experience on the battlefield and how the military brain manages to cope with them.

During a weekend dedicated to encouraging us to make the best use of our minds in real life situations, Mark made it plainly obvious just how much we are capable of overcoming and achieving if we focus our minds.

Everyone felt very privileged to listen to someone who has had such first-hand experience of what it is like to have his mind really put to the test.

Finale

Tony and Vanda fittingly brought the day to a close with their MMOST and art workshops before tea and tearful goodbyes. Hence came the end of another Brain Club Conference to remember.



Most of us, on Sunday as we broke up.

Many thanks to everyone involved. This was my second Brain Club Conference, yet I still find it difficult to explain the wholesome feeling that comes from participating in this regular event. It is perhaps best summarised by Warren Day, who wrote to me afterwards to say what an "... amazingly vibrant and uplifting feeling it was to be in the company of so many like-minded people for such an intense and enjoyable weekend." I am sure that this is echoed by everyone else who attended.

I look forward to seeing you all again next year! ■

The Third Annual Brain Club Conference

This has been scheduled for Friday 6th August to Sunday 9th August 1993. Make a note in your diaries and let us know of your likely attendance. Tel: (0202) 535071. Further details will be forthcoming.

Memoriad II

This event is to be held at Brocket Hall, Hertfordshire, in early 1993. The venue is 20 minutes by train from King's Cross Station.

Gold, silver and bronze medals will be awarded in **ALL** sections plus prizes! The entry fee is £100. Please send entries to:

Tony Buzan,
The Harleyford Manor Estate,
Marlow, Bucks SL7 2DX.
Tel: (0628) 482765.



The list now reads:- Mohammed Ali, Stephen Hawking, Madonna, Gary Kasparov, Marion Tinsley, Judit Polgar, Bill Gates, Oliver Messiaen, Satyajit Ray, Alex Hailey, Bobby Fischer and Nigel Mansell.

The finalists for 1992 will be announced in the next edition.

The Brain Club Charity Duck Race

The race was held on Sunday 9th August. It was a huge success as entertainment, and raised a lot of money for charity. A full account will be given in the next issue.

Brain of the Year 1992

Two more names have been added to the roll of nominees for this coveted award. Former World Chess Champion Bobby Fischer and Britain's new Formula One World Motor Racing Champion Nigel Mansell have been nominated.

The Brain Club is actively seeking new members. The individual fee is £30 a year, for which members receive **Synapsia** four times a year plus other benefits. Contact Sally Shelford at 778 Wimborne Road, Moordown, Bournemouth BH9 2DX, Dorset, UK for membership details.



Right to reply

Dear Editor

I appreciate the concern of your correspondent (*Synapsia* Spring 1992) about the teaching of the Alexander Technique. However, I find it difficult to understand how he believes I am claiming to be an Alexander Technique teacher. In the CV to which he refers I make a distinction between the methods I have been trained in, which include the Alexander Technique, NLP and Touch for Health, and those which I am qualified in, which include Yoga and the teaching of English as a foreign language.

The Inner Track method, which I have developed over some 15 years, contains elements from a number of different techniques, such as the Alexander. They are designed to help people develop specific skills, such as studying, creative thinking, and negotiating. Each of the methods I have taken training in makes a contribution, but none of them is complete in itself for the purpose I have in mind. This is why I have taken training in such a wide variety of methods. I could not possibly become qualified in them all.

I can assure Mr Collins that I make it quite clear to people on my courses whether or not I am qualified in the method I happen to be telling them about. In the case of the Alexander Technique, I refer them to the Society of Teachers of the Alexander Technique and recommend they ask the society for the name of a local teacher and take lessons with him or her. If Mr Collins would be kind enough to supply me with his address I should be pleased to give his name to anyone on my courses living in his area who is interested in the Alexander Technique.

Michael Lawlor BCM 28
Forge House
Limes Road
Kemble
Gloucestershire GL7 6AD

From His Excellency

Dear Editor

Thank you for the copy of your quarterly magazine *Synapsia*.

I have read the article *Past Master: Short Story* with the greatest of interest, and I should like to say how much I appreciate your thoughtfulness in giving me the opportunity to read this homage

to my country.

Felipe de la Morena
Ambassador of Spain
Spanish Embassy
66 Ciltern Street
London W1M 1PR

Success story

Dear Editor

I was born with head injury and was later diagnosed as dyslexic. Yet now, at 38 years old, I am a qualified (registered) accountant and a psychologist, and have almost completed a law degree from Macquarie University.

My publications are in the reading lists of university courses throughout the world, and I am listed in *Who's Who in Australia* and *Who's Who in Australasia and the Far East*. I am also the founder of the fifth force in psychotherapy, integrative - eclectic (after psycho-analytical, behavioural-cognitive, existential-humanistic and transpersonal).

I would like to act as honorary adviser to Brain Club readers.

Dr Jusuf Hariman PhD BCM 638
Macquarie Centre
PO Box 1688
North Ryde
NSW 2113
Australia

Dr Hariman is the Founding Editor and Proprietor of the Journal of Integrative and Eclectic Psychology. He has fought successfully against cancer and other physical problems, and we have accepted his offer to write an article for Synapsia. -Ed.

AMAZING MEMORY STORIES

Two Luminaries
Tony Buzan BCM I

The Infant of Lubeck

On 6th February 1721, in Lubeck, Germany, there was born a child by the name of Christian Friedrich Heinecken, whose prodigious memory feats became so well known in the town and abroad that he became

This account describes two individuals whose mental feats astounded their contemporaries.

specialise, taking as his fields of particular application the study of church history and world religion. Sadly, because of the rampant illnesses

prodigy in these areas. He was able to memorise and immediately answer questions such as: "If a flea springs two feet three inches every hop, how many hops must it take to go round the world, the circumference of the world being 20,020 miles? And how long would it require for the journey if it took 60 hops every minute?"

Unswervingly, George would immediately answer: "It would take 58,713,600 hops, requiring one year, 314 days, 13 hours and 20 minutes!"

Bidder found the areas of memory and mathematics fascinating, and like Christian Friederich Heinecken before him, found that these studies led to a growing interest in all areas of knowledge.

The two areas that interested him most were engineering and politics, his gigantic mental skills allowing him eventually to be elected to parliament. There his mental powers made him nationally famous, and also left his political opponents in fear and trembling.

His victories were so impressive and crushing that one MP actually appealed to the House of Lords, stating that Mr Bidder should not be allowed to remain in the room where other members



famous as the 'Infant of Lubeck'.

By the tender age of ten months, he had developed his senses and his memory to such an extent that he could speak and repeat every word said to him. Christian continued this meteoric progress, and by the age of one year was able to converse fluently, and had remembered every major event in the first five books of The Bible, a skill which he developed by the age of two into the memorisation of virtually all the facts of biblical history.

By the age of three, he had expanded on this basic knowledge to provide himself with a comprehensive understanding of world history and geography, which he supplemented by learning to speak, fluently, both Latin and French.

In his fourth year, having acquired what he considered a comprehensive and universal knowledge, he began to

and plagues of that time, his studies were halted by terminal illness. Showing that learning and memory can also develop into wisdom, it is said that he calmly predicted his own death, which occurred on 27th June 1725, when he was still under the age of four-and-a-half!

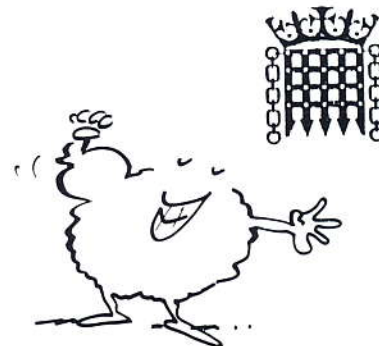
One of the prime features of Christian Friedrich's story is that *knowledge leads to more knowledge, and that the more you learn and remember, the more easy it is to learn and remember more.*

Get that Number

"BAN HIM FROM THE HOUSES OF PARLIAMENT - HE'S TOO SMART!"

In 1806, in a small town in Devon, England, George Parker Bidder was born.

From an early age he showed a great interest in calculation and memory, and rapidly became known as a child



were discussing a matter of importance, because nature had endowed Bidder with qualities that did not place any of his opponents on a fair footing!

Bidder eventually explained the techniques he used to train his memory and to perform mathematical and other mental feats. In his explanation you will see that Bidder is making use of his cortical skills, and is making particular use of mnemonic techniques.

As Bidder explained: "If I am asked the product of 89 times 73, the answer, 6,497, comes immediately into my mind. I multiply 80 by 70, 80 by 3, 9 by 70, and 9 by 3". It was just that simple. "But it works better if those figures, 5,600, 240, 630, 27, can be visualised as a column and held as a retentive image - like chalk on a blackboard - until the addition can be completed mentally." George Bidder trained his mental powers in order to help him develop a photographic memory before photography itself was known. Bidder put it more



fully when he stated: "In mental arithmetic, you begin at the left-hand extremity and you conclude at the unit, allowing only one fact to be impressed on the mind at a time. You modify that fact every instant as the process goes on; but still the object is to have one fact only stored away at one time The last result in each operation, alone, is registered by the memory, all the

previous results being consecutively obliterated until a total product is obtained."

As with most people who develop their mental powers, George Bidder's abilities continued to increase as he became older. He was able to perform phenomenal memory and calculation feats, right up until the moment of his death at the age of 72. ■

POETRY CORNER

Russ Burns
BCM 556

Now

That single point of focus when all has slipped away

But Now

*All I know is condensed and clear
If I could share that sense
When even passion has slipped away
And pain and pleasure are forged and fused
A symbiotic whole*

*If I could keep that sense
To revel in the Now
An integrated whole
But delusions create my past and future*

Yet

*Living Now is living whole
If I could share that sense
With but one kindred soul
It would make all the difference*

For Now!



BUSINESS YOUNG BRAIN

BEHIND THE SCENES AND IN FRONT OF THE SCREENS

She Makes it Her Business to Know!

Lana Israel BCM 222

Big Ben! The Tower of London! Speaker's Corner! Tourists flock in from around the globe to see the sights of London. Harrods! London Bridge! Buckingham Palace! Brixton? Brixton was the sight I came to see during my stay in London last December. Within the confines of four vast walls, winding stairways and hidden rooms stood the cameras, crew, and set of **Get Ahead**. Outside the door, taxis flew past and people strolled the streets with soul. Inside, thoughts flew past and people captured the camera with charisma. The creation of a comprehensive explanation of Mind Mapping and test-taking techniques was in the making.

The M16! BBC! TV sets! Endless highways! These were the sights I became all too familiar with during my frequent returns to London. My horizons were being expanded, for I was being introduced to England. England and its rolling greens, quaint cottages and awesome castles. The video was made and now the real work began - promotion.

Work - I enjoyed every minute of it! There were radio interviews in small towns. I would sit at a table with a microphone on hand and answer questions for about 15 minutes. Then I was thanked, out the station door, in the car and back on the highway. There were radio interviews in large towns. I would sit in a studio surrounded by rainbows of buttons and switches and dressed in headphones with a microphone leaning towards my mouth. After the interview I was

Lana recounts her hectic but thrilling visit to Britain earlier this year, when she sped around the country promoting her video **Get Ahead**. The video details the many ways that Mind Mapping can help students, and readers will be interested to learn that Lana has founded her own business, called *Brain Power for Kids*.



thanked, out the station door, in the car and back on the highway.

There were newspaper interviews. In Cambridge, I sat in front of a computer among journalists scurrying about with deadlines to meet. The interviewer was calm and interested, we chatted for a while, and it was news. In Clifton, I sat upon the pink cushions of the interviewer's couch with a cup of tea and had a friendly conversation. That was also news.

The diversity was terrific. Different settings, styles and approaches all for the same purpose - publicity. I spoke in schools to students huddled around the chalkboard in the library, sitting on stools in the science lab, and sitting in rows in the lecture hall. My week-long visits racing around England (plus a quick stop in Scotland) proved to be challenging and entertaining. I received

great insight into the world of video. Not all encounters went as well as planned, but most went better than planned.

There were also some unexpected events which materialised in the schedule. My visit to a Brain Club meeting was a night of wonderful excitement! I hopped over to Brussels to join Tony and Vanda for an afternoon of teaching. I spent an afternoon in a classy hotel while teaching Mind Mapping to Gazza. I was privileged to attend the historic football match in which England defeated France. Never mix business with pleasure. Oh well, you only live once! ■

Lana has written to point out that, in her article from the Spring issue, **THE CONQUEROR**, the formula for oxalate should have read $C_2O_4^{2-}$
-Ed.



THE IONIAN REVIEW COLUMN

The anticipated review by Paul Wilcox of Anne Moir's **Brain Sex** is still in the process of fermentation, but in the meantime your Editor has provided a brief account of an article about the book that appeared in the **Reader's Digest** of January 1992.

According to this feature, men are supposed to do better than women at tests of visual-spatial ability, while women apparently tend to "... speak in longer, more complex sentences than men." Also, tests after autopsy have shown that part of a woman's *corpus callosum* (linking left and right brain hemispheres) "... is bigger in relation to overall brain weight than in men." The conclusion is that this particular factor "... might allow more information to be exchanged between the two sides."

The article was too short to offer detailed explanations of assumed differences, and ended with a quiz purporting to indicate if a reader's mind was orientated towards male or female 'characteristics'.

If any Brain Club member has read **Brain Sex**, I would be happy to receive his/her review of the book.

Steve Nichols, whose book **Phantom Eye Theory** was reviewed in the Summer **Synapsia**, writes to point out that "... I am not saying we retain a 'trace' of pineal vision, I am putting forward the idea that 'consciousness' fills the gap left by the abstraction or disappearance of pineal vision."

Point taken!

NIGEL SHORT World Chess Challenger

Raymond Keene
Paperback 144 pp £10.99
B T Batsford Ltd
4 Fitzhardinge Street
London W1H 0AH

The author, a word record holder in that he has written more chess books than anyone else, reviews the career of England's best contemporary World Chess Championship prospect.

The book contains a foreword by

Dominic Lawson, relevant tournament tables and other information about this prodigy who qualified for the British Championship at the age of 12! More importantly, the reader is served with a feast of 40 splendid, annotated games covering the period 1977 to 1992.

Nigel Short will soon meet Holland's Jan Timman in Los Angeles to battle for the right to play Kasparov for the supreme title, and there is no doubt that the pride of Lancashire has a realistic chance of winning the match. Keene's book helps to explain why.

Julian Simpole

BOOKS Your Top Ten

I have received some lists from **Synapsia** readers, and look forward to a deluge!

We would like you to send us a list of the ten books that you recommend to Brain Club members (including yourself) as a means of enhancing *mens sana in corpore sano* - the development of healthy mind, healthy body. In other words, ten books that have influenced you, books that excite you, books you might even 'rave' about, and that you would personally buy for your family and friends in order to help them develop a well-rounded personality.

Your lists of favourite music and poetry are also requested.

Here is the book list of Diane Carter, BCM 703, given in order of merit. All submissions should be presented in this way.

1 PLAY OF CONSCIOUSNESS

Muktanada
An autobiography by a contemporary Indian saint. A very powerful book that can transform your life.

2 DUNCTON CHRONICLES

William Horwood
An allegory similar to **Lord of the Rings**. A memorable, spellbinding series that turns its readers into philosophical moles. Highly recommended.

3 SETH SPEAKS

Jane Roberts
Thought-provoking and stimulating. The unusual concepts in this book gave me a totally different view on reality.

4 HOW CAN I HELP

Ram Dass
This practical book offers wisdom, insight and inspiration for those times when we reach out to another for whatever reason.

5 INSIGHTS FOR THE AGE OF AQUARIUS

Gina Cerminara
A unique book based on semantics. It questions religious and philosophical ideology.

6 JONATHAN LIVINGSTON SEAGULL

Richard Bach
This is a delightful fantasy that has a real message for the sensitive and the perceptive. One of my favourite books - superb photography. A definite must.

7 ILLUSIONS

Richard Bach
Anyone who reads this fascinating little book is going to have his/her ideas of Christianity knocked sideways.

8 FOR THOSE I LOVED

Martin Gray
A powerful, true story (recently dramatised on TV) of the Holocaust. One of the few books of this type that I have read several times.

9 THE SOUL OF THE WHITE ANT

Eugene Marais
This interesting book is the result of a lifetime study of the termite and the author's discovery of the strange communication system evolved within termite society.

10 THE ACCURSED KINGS

Maurice Druon
This is a series of six historical fiction books about the kings of France. The books are remarkable for their literary quality and dynamism.



HEAD START

What I have Learned through Reading *Use Your Head* by Tony Buzan

David Bluck BCM 768

Use Your Head has revolutionised my ideas of study, notetaking, revision and remembering. The book shows very graphically that the brain is not a listmaking machine, but that it works in tangents and recalls things that are triggered by other things. So a train of thought springing from one idea can easily bring out a large number of thoughts.

These thoughts are not in the form of words but pictorial images. Everything follows on from one basic idea, and the idea is represented by a shape, which is the concept of the Mind Map.

Three Disciplines

The book splits the learning process into three basic disciplines.

1 Reading.

2 Notetaking.

3 Revising.

It analyses what people generally do in each case, and suggests a totally new idea for each discipline.

1 Reading

When reading, people tend to push their eyes along the line, occasionally pausing at words and skipping back to previous words. It has been proven scientifically that the eyes do not sweep smoothly along the line but stop briefly at every word. All these factors take extra time and affect the information going into the brain.

Tony's book suggests that you should look at more than one word at a time, i.e., three to five at a time. This effectively speeds up reading, while the use of a guide on the line (a pen or other pointer) prevents pausing and skipping back.

2 Notetaking

It is standard practice to read through a text and religiously take notes on everything in the order in which it occurs.

Use Your Head suggests that you should read through a text, close the book and then draw a Mind Map, with

David is a student of polymer science and technology in his early twenties. He is employed as a technician in the Research and Development Laboratories of Raychem in Swindon.

the main subject as the core. Everything remembered about the text is written down around the core, and as an 'arm' is built up the key words will trigger others until the Map is finished

You soon realise that the majority of what has been read is mentioned in the Mind Map.

3 Revising

3a Prime time. A popular misconception highlighted by the book concerns the amount people can remember after the passing of time. It is assumed that the amount of information that can be remembered plummets as soon as it is 'taken in', while experiments have shown that the amount remembered actually rises for a short time before falling.

If revision is done at the time of peak recall, the amount retained should stay at this level, and may increase gradually with subsequent revision.

3b Learn and relearn. These revision times are not constant. It has been shown that maximum effect can be achieved through first revising about ten minutes after acquiring the information, which is then reviewed after a day, then a week, then two weeks, etc. The student learns and relearns to assist recall, instead of learning once, ignoring the information for a year and then trying to cram solidly for two or three weeks before an exam.

The learn and relearn method recognises that the brain occasionally needs a rest from learning, so a series of breaks should be planned to give maximum concentration periods of 20 to 30 minutes.

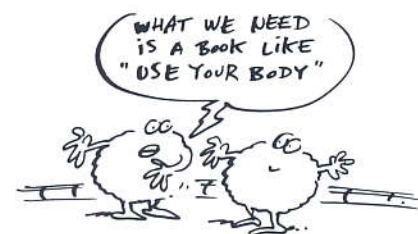
Remember that revision is part of the learning process, not just a means of passing exams before the knowledge is forgotten.

3c My way. When revising I choose various subtopics from my lecture notes. For example, a subtopic could consist of

a full description of a polymer, polymerisation, properties, additives, and history.

I read through these details, after which I draw a Mind Map around the subject, learn it and do another one. When this second subject is 'mapped out' I refer back to the first and redraw a Mind Map on it. When there are problems of recall, in-depth reading takes place.

For the college topics on which I am collecting information, I still take lecture notes 'classically' until a subject is complete. I then try to complete a Mind Map of that subject, with no referral to notes beforehand, as close as possible to the end of the lecture (usually that evening or the next morning). After this I read through the notes in order to find inaccuracies and misconceptions.



More Than a Tool

Reading **Use Your Head** has given me more ideas, more motivation, and a better overall feeling about my ability to do things

I thought originally that the book was simply a good tool for passing exams, but a closer reading reveals how it can help me remember details about work, leisure, home and education over a long time period.

The techniques described in this book are invaluable for exam preparation, but the knowledge gained will not be discarded. It will be recalled, added to and used in the future. All future exam goals will not be posed as *goals only*, but as *stages* in the learning and revision process. ■

NOTTINGHAM HIGH!

Mitchell Taylor reports on *The Times* British Schools Chess Championship 1991-92. Mr. Taylor is an adviser for the Brain Trust British Schools Chess League, a function he shares with two other top national organisers, Richard Furness and Raymond Keene.

The 35th year of the Championship started in October 1991 with just under 400 teams from schools in all parts of the British Isles. By February 1992 there were winners from 25 zones.

After the interzonal stages, the semi-finals and final took place at the Charing Cross Hotel, London on 2nd and 3rd July, 1992. In the semi-finals, Nottingham High School beat City of

London School 4-2 and Truro School defeated Royal Grammar School, Newcastle 3½-2½.

In the final, Nottingham triumphed over Truro School 4½-1½. In the 3rd place play-off, City of London beat Royal Grammar, Newcastle 4½-1½.

This was the first time Nottingham had carried off the winners' trophy. Their team was, in board order, Stephen Joseph, James Redburn, Steven



SUNDAY TIMES and THE TIMES BRITISH SCHOOLS CHESS CHAMPIONSHIP 1958-92

Organised in association with the BRITISH CHESS
FEDERATION

BRAIN TRUST ORDER OF MERIT 1992

Position	School	1st	2nd	3rd	4th	Zone winners	Pts
1	St. Paul's, London	9	1	1	-	15	117
2	Dulwich College	3	3	-	-	16	67
3	Manchester Grammar	1	3	1	2	20	62
4	Royal Grammar, Newcastle	1	-	4	1	20	53
5	Bolton	3	1	-	-	12	49
6	Nottingham High	1	2	1	1	16	48
7	King Edward's, Birmingham	-	1	2	-	21	38
8=	Caldy Grange, Wirral	2	-	1	-	12	37
	Queen Mary's Grammar, Walsall	2	-	1	1	9	37
10	Hove Grammar	1	1	2	-	8	35
11	Ayr Academy	2	1	-	-	7	34
12=	Plymouth College	1	1	-	1	13	33
	King Edward VI, Southampton	1	-	-	3	14	33
14=	Blue Coat, Liverpool	1	-	1	2	11	32
	Glyn, Epsom	-	1	1	2	14	32
16	Liverpool Institute High	2	-	1	-	3	28
17	Bedford Modern	-	1	-	-	21	28
18	Southern Grammar, Portsmouth	1	1	1	-	4	26
19=	Trinity, Croydon	-	-	3	-	9	24
	Truro	-	2	1	-	5	24
21	Bristol Grammar	-	-	1	2	11	22
22	Bradford Grammar	-	-	-	2	16	22
23=	Ilford County High	-	1	1	-	9	21
	Watford Boys' Grammar	-	2	-	-	7	21
	Methodist College, Belfast	-	-	2	1	8	21

Points Awards: 1st=10, 2nd=7, 3rd=5, 4th=3, Zone winners=1

Maxwell, Matthew Talby, Geoffrey Hodgett and Philip Faulkner.

Raymond Keene, Chess Correspondent of *The Times*, awarded the best game prize to Stephen Joseph and the second best game prize to Philip Faulkner.

Among those who have played in the Championship since it began are Grandmasters Nigel Short, Julian Hodgson, Jonathan Speelman, Tony Miles, Michael Adams and of course Raymond Keene, who played for Dulwich College.

It is hoped that other countries will be able to organise a schools event as prestigious as that of *The Times*, and I am willing to help should any overseas *Synapsia* readers show interest in how things are organised. This might help to realise Tony Buzan's idea of establishing a World Schools Chess League.

We end with the aims of the Brain Trust British Schools Chess League, and an updated Order of Merit table showing the country's most successful chess-playing schools.

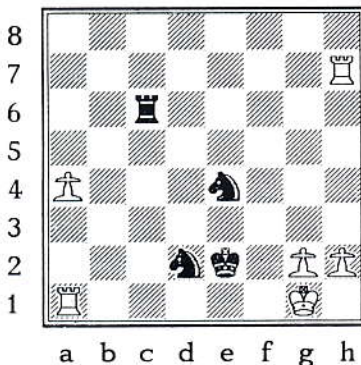
The League has the following initial aims:-

1 To provide a comprehensive League Table for all British Schools.

- 2 To encourage the teaching of chess in schools as an art, science and sport, and as a basis for other forms of learning.
- 3 To provide teachers with the encouragement to form chess clubs in schools.
- 4 To provide material support for such initiative.
- 5 To provide a base for data collection, communication and networking.
- 6 To publicise the game of chess.
- 7 To give each teacher and each pupil a means of 'self-grading' by which all students can see where they stand on a comprehensive individual league table.
- 8 To support all current chess initiatives in schools.
- 9 To expand the British Schools Chess League into a Global Schools Chess League.
- 10 To co-operate with governments, businesses, professions and individuals, to raise funds, and to gain support for the above goals.

CHECKMATE

This position is from the game Korchnoi - Karpov, Baguio City 1978. Viktor Korchnoi and Anatoly Karpov competed three times for the World Title, with victory going to Karpov on each occasion. The closest of their matches was in Baguio City in 1978 when Karpov won the final game to retain the title. The position below is from an earlier stage of the match. Can you see how Karpov checkmated his opponent? Black to play.



Solution

1 ... Nf3+! 2 gxf3 (if 2 Kh1 Nf2 mate) 2 ... Rg6+ 3 Kh1 Nf2 mate.

MANAGING YOUR BRAIN

Own the Knowledge
Dr Kenneth Blanchard



This is the conclusion of **FIRST THINK POSITIVE**, the lead feature of our summer edition. In this part, Dr Blanchard's opening appraisal of behaviourist B F Skinner finds illumination in the subsequent item depicting scenes of the Mexican colony that lives by Skinner's social ideals.

ment - you tell them that they're off, you tell them how you feel about it, but there is no mention of punishment. The reprimand also ends with a positive reaffirmation of the person.

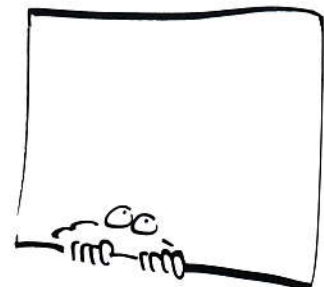
We never talked about no reinforcement at all, which is called extinction or whatever. Consider the three major consequences of behaviour.

A Positive, which tends to increase the frequency of future behaviour.

B Negative, which tends to decrease the frequency of future behaviour.

C No response, where at first somebody might work harder because he thought you hadn't noticed, but eventually behaviour decreases at a more rapid rate than with **B**.

Of the three (positive, negative and no response), the only one that tends to increase the frequency of future behaviour is positive, and yet in management circles the two most common responses are negative or none. We call it 'leave alone zap' or 'seagull management'. Seagull managers fly in, make a lot of noise, crap on everybody and then fly out.



S In previous issues of *Synapsia*, we featured with B F Skinner's interviews. I understand that you have read *Walden 2*, and I would appreciate your comments on (a) Skinner and his work, and (b) positive and negative reinforcement.

KB First of all, let me say that *The One Minute Manager* was really Skinnerian psychology popularised so people could understand it in a usable way. Unfortunately, when they read *Walden 2* they got very frightened, thinking that somebody could control the way people operate by creating an environment in a certain way.

I am absolutely convinced that Skinner was a genius, because behaviour is controlled by its consequences. With *The One Minute Manager* the first secret is one minute goal setting. Once people know what the goal is, you let them head off and try to reach it. *The One Minute Manager* gave one minute praises, which were positive reinforcements. We just never mentioned the word 'reinforcement' in the book.

If people get off the track, the one minute reprimand is negative reinforce-

Skinner's whole approach - refer to **The One Minute Manager** - is behavioural, setting clear goals and then praising, reprimanding and redirecting people. Because in the book we didn't use the normal terms that people are afraid of, they said: "God, isn't that just great!" It was fascinating to see how people responded to that.

What's really interesting about Skinner is that he was absolutely right in **Walden 2**. What we've done in America is systematically, *positively*, reinforce negative behaviour. People are lazy and don't do anything, so we pick up the tab for them; we don't ask them to do anything. If somebody works really hard, we take the money away in taxes!

Apotheosis Now?

Every time I've been to Singapore it's struck me that this is **Walden 2** in modern times. If you remember in **Walden 2**, probably the most efficient leadership style (and people might want to hear it) is the benevolent autocrat. As long as you can keep the autocrat benevolent.

(There followed a list of Draconian measures introduced by the prime minister of Singapore to combat various social problems. Namely, a \$500 fine for litterbugs; public hanging for drugs traffickers; a toll on anyone failing to 'car-pool', that is, carry three or more passengers into town; and finally, severe financial penalties for parents who have more than two children. -Ed.)

The tough thing in societies today is moving from an autocratic, military state to a democracy. The problem is that you have to follow the railroad tracks, and if you've been a military state, which is defined usually as overdirective, people don't like that and go to a participative style when they're not ready. What they really need is a new vision, but then that vision has to start with a directive-leadership style.

One of the reasons Gorbachov had trouble was that, in order to bring about his new vision, he had to be pretty directive. People said he was no different to the others.

In Argentina, you initially had chaos when people with no experience of involvement and participation had to move from a dictatorship to democracy. You almost need to start off with a benevolent autocrat who can gradu-



You've had trouble!

ally loosen the reins, but he has to create a new vision and provide new direction - you can't just slip from one to the other.

S In terms of vision, we have a quote here from America. I don't know if you have heard this one, but it is something that is going to be like a bolero. These are the first notes, and it will become a crescendo.

"July 25th 1989, resolved by the Senate in the House of Representatives of the United States of America in Congress assembled, that the decade beginning January 1st 1990 hereby is designated the Decade of the Brain, and the President of the United States is authorised and requested to issue a proclamation calling upon public officials and the people of the United States to observe that decade with appropriate programmes and activities."

I'd like your reaction to that. How significant a proclamation do you think that is and may become?

KB When was it made, in 1989? I think that one of the problems with the United States is that there are so many proclamations that priorities aren't set. It's a great proclamation; I've



just never heard it before. Therefore, where does it fit in with priorities? I think that it really is the time of the brain, and what we need to do is teach people to get a user's manual for the brain.

Back to the Future

In terms of this model I was telling you about, the goal should be that teachers are directed to coaching, supporting and delegating. That is done in five steps: telling people what to do, showing them what to do, letting them try, observing their performance, and then praising progress or redirecting them. We always say praise progress because you don't want to wait until people do things exactly right before giving praise. If they make no progress then you go back to redirect, which is back to show and tell.

What I want people to be able to do, if they are going to take what we're trying to teach in courses and subject matter, is that they need to program their own brains by those five steps. In other words, they've got to be able to tell themselves what to do, show themselves what to do, let themselves try, observe their own performance, and then praise their own progress or redirect themselves if necessary.

What we try to do in the golf school is enable students to program their brains behind the ball. What we want them to do after learning the kind of things we're doing, is for them to tell the brain what they want it to do: *I want to get a good shoulder turn, I want to follow it through, and I want the ball to soar towards the target and land down lightly.* Then they show themselves. They take a practice swing and see the ball going where they want it. So they tell themselves and show themselves.

Then it's interesting. Norman Peel said positive thinking was important, but that it is not the end-all. I've been fascinated by some of the new linguistic programming developed by Tony Robbins, who is very popular in the United States. He and Chuck Hogan believe that there are three parts to programming your brain for good performance: positive thinking, body language, and routine repetition.

A Positive thinking: you send positive vibes to your head.

B Body language: if you say "God, I'm

great at this!" and yet walk with a slump like you're no good, then your brain believes your body rather than the words. You have an inconsistency that the brain picks up. **People mean, words don't.**

C Routine repetition: people who are good at something usually develop a routine that they repeat. For example, Jack Nicklaus always takes the same number of steps as he approaches the ball, always approaching it in the same way. He jiggles his hands in the same way, which assures his brain that everything is okay. All this tells him what the hell he's doing.

If you are going to be a positive thinker, you should walk like you know what you're doing, which is true modelling. See people who are good at doing something, see how they walk and how they approach, and walk like that!



I learned that early as a kid. I lived near a fancy country club. It would be hot in the summer and I would suggest to my friends that we should go to the club for a swim. They would reply that we'd be kicked out, but I'd say that wouldn't happen if we walked in the front door and acted as if we belonged. So I'd go in and say "Hi! How are you doing? Good to see you!" I'd walk out to the back and my friends would come in and look like they didn't belong, so I'd be in the pool and they'd be outside.

The first rule is positive thinking. The second rule is alignment of your body language, your body position, with that positive thinking. The third rule is the use of routine repetition.

Positive versus Negative

One of the things I've found is that the brain does not know the difference between real and perceived success. You can hit a great shot, and the brain

can accept it as a great shot. But if you try your best to do it and miss, that still scores one for the brain.

Jim Newman, who has been a YPO resource talker, was the first person I saw talking about success as like a teeter-totter between the number of positive experiences versus negative experiences. If you are normally not good at doing something, it might take you a while to develop the skill so that you can actually execute it well. But you can practise in your mind doing it well! You can put the thing on your side of the ledger, so that when you do it, your mind really feels that you must be confident.

The brain like any computer only does what the program tells it. In other words, garbage in, garbage out. If you program lousy, it'll come out lousy.

S We have a variation on that because the brain is synergetic: 1+1=2 or more. With the brain it isn't so much garbage in garbage out; it's garbage in, garbage grows. It finds a nice little nesting place and actually multiplies.

KB What we are trying to do is change our teaching styles so students can own the language. Then they can start to practise the behaviour that would derive from that knowledge. They would be able to tell themselves what to do, show themselves what to do, do it and observe, and then manage the consequences by praising and even reprimanding themselves if required. That way people own their own learning.

We need to teach people less, but empower them to use learning. One of the things that changed my life when I was at the uni-graduate school was the work of Elton Mayo, who was considered the father of the human relations movement.

Back in 1942/43 he had written a book called **The Social Problems of an Industrial Revolution**. In one of the chapters that I think became an article, he stated that we ought to be at the beginning of a Golden Age because of advanced technology, not fighting a major world war. And there was fighting at home as well. (He was referring to the divorce rate. That was in 1942. Imagine what he'd say now!)

Two Kinds of Knowing

Mayo raised an interesting question: why are we so advanced in our technical skills, and so bad in our human skills? He said that maybe it was the difference between the successful sciences and the unsuccessful sciences. I think William James was the first to say that there are two kinds of knowledge:

1 Knowledge *about*, which is factual and theoretical.

2 Knowledge of *acquaintance*, which is how to use these facts and theories to solve problems.

Mayo said the successful sciences are physics, chemistry, biology, botany, zoology, and all those, because whenever they're taught in school, it's always two kinds of knowledge that's taught: knowledge about and knowledge of acquaintance. If they lecture to you on chemistry in the morning they usually put you in the lab in the afternoon, when you have to take what you've learned earlier to see if you can solve a problem with it.

The unsuccessful sciences in the past have been psychology, sociology, political science, economics, and anthropology, because with them people tend to teach knowledge about, which is one fact-and-theory after another. They never teach you how to use it.

Summary

The only reason we should teach people is so that they can use knowledge. If that is our goal, then we really have to modify our teaching style so as to empower students to use the knowledge *themselves*.

We thank **Chess in Israel** for the Yeltsin/Gorbachev cartoon. The caption is ours. ■



WALDEN TWO FOR REAL

Following Dr Blanchard's appraisal of B F Skinner and his vision of human society, *Synapsia* offers views of *Los Horcones*, the community in Sonora, Mexico that has based its social philosophy on Skinner's precepts.

Relevant to this is *A Scattering of Ashes*, a programme shown this June on BBC 2's documentary series *The Human Element*. The series investigates the hidden world of science, and on that occasion covered the story of Carl Djerassi, the American scientist and 'father of the Pill', who has founded an artists' colony in the Santa Cruz mountains.

It would be fascinating to make comparisons between the two communities! Readers may like to write in with details of similar experiments in communal living.

Synapsia Vol 2 No2 featured the Skinnerian colony *Los Horcones*. At that time (summer 1991) the community consisted of 28 adults and 11 children. It supports itself by farming and providing "... educational programmes for children from the city of Hermosillo, 64 kilometres away. In addition to being farmers and teachers, the residents ... also re-

gard themselves as scientists."

Money earned by members is shared among the community, and is spent as the whole community wishes. Life in *Los Horcones* (The Pillars) is "... based on co-operation and not competition, on equality and not discrimination, on sharing and not individual property, on pacifism and not aggression."

An elaborate code of behaviour has been evolved since the community was founded in 1973, and it serves to help residents pursue the ideals enshrined in this credo. Evidence of their active belief in sharing is seen in the fact that the members of *Los Horcones* "... use a large common clothing room in which all items of clothing belong to the community, and are available on a first-come-first-served basis."

Children live in a 'common house' and are taught by adults trained in infant and child care education. Sometimes the older students teach the little ones. Complex subjects are broken down into 'manageable concepts' so that the youngsters can benefit from "... the reinforcement of mastering an idea before moving onto the next."

The following scenes show everyday life in this egalitarian society. The photographs were supplied by Linda Armendariz, Comunidad Los Horcones, Hermosillo, Sonora 83000, Mexico.



Laundry building and communal clothing room.



Children working in the carpentry shop, the oldest one taking care of the others.



A member working in the agricultural garden.



Two members talking outside the dining room.



Interior of the dining room.



Meeting in the work office.



Garden in front of the work office.



The wooden pillars (*horcones*) after which the community is named.

ANIMAL INTELLIGENCE

By Mowgli

Trout - all Eyes and Ears?

Ripley's **Believe It or Not!** reports that trout have such remarkable vision they can focus simultaneously on both near and far objects. This may be a capacity unique throughout the animal kingdom - do any Mowgli readers have further information on this claim?

In addition to their amazing visual accuracy, trout also have hearing so acute they can pick up, from 20 feet away, the sound of a tiny water flea flying.

Ants educate Computer Scientists

As the human race engages in its largest-ever search for extraterrestrial intelligence (see **Intelligence about Intelligence** page 15) a tiny terrestrial intelligence, the like of which no known space probe would be able to detect, is

Fascinating revelations about two lifeforms that share the planet with us.

confounding our most sophisticated computers.

The 'logic' of ants' social behaviour has them competing favourably with computers in both problem-solving and fault-tolerance.

Dr Nigel Franks at the University of Bath is collaborating with Edinburgh University and the Universite Libre de Bruxelles in looking at ant behaviour in new ways. The group believes that ant colonies are a superb example of self-organising systems - systems that create patterns or, in the case of living creatures, solve problems without any central 'guiding hand'.

Jumping straight into controversy, Franks' colleagues in Brussels, Jean Louis Deneubourg, a former theoretical

chemist, and Dr Simon Goss, a zoologist, began to wonder recently whether social insects might not be using a form of self-organisation to solve problems collectively which individual members would not be able to handle. Although the hypothesis was controversial, the initial evidence seems to be supporting it.

Already it appears that groups of ants, acting in concert, can answer efficiently such relatively complicated questions as:-

- 1 Which is the shortest route to a source of food?
- 2 When should we (I) be active and when at rest?

Franks and company believe that no individual ant could answer such ques-

tions, yet have proven that the group can. It seems to be a classic biological demonstration of a situation in which the whole is indeed greater than the sum of its parts.

Through their ant studies, the researchers have already made discoveries that throw light on communications theory in general. These include:-

1 Choosing routes. Deneubourg and Goss have effectively shown how ants collectively 'choose' the shorter of two routes to a given food source.

Initially, both paths are used equally. However, a clever bit of ant chemistry soon begins to favour the shorter. For ants, as they move, lay a trail of pheromone (animal perfume) on the ground.

This pheromone will be laid on both paths, but the combined strengths of the pheromone of ants using the shorter path will soon be much greater than that of ants using the longer path, because more journeys will be accomplished by each ant in the same time than by those using the longer path. New ants coming into the area are attracted by the 'stronger path' and join the growing army of ants who favour it, and in so doing add even more pheromone to the shorter path. Those ants who are already at the food will similarly select the shorter path in order to return to the nest.

Without this 'group constructed preference system', individual ants are never able to select which is the shorter route, Goss says.

Selecting the route is a collective decision. "No ant has compared the two trails, but collectively they've used a very simple rule and they've used positive feedback."

2 Synchronicity. We have been brought up to think of ants as tireless, non-stop and almost fanatically hyperactive workers. Ants in fact use their time far more intelligently. Franks has shown, using time-lapse filming, that ants engage in short bursts of activity to ac-

complish specific goals, and then suddenly, as though 'switched off', the entire colony becomes inactive for long periods of time.

These pulses of synchronous inactivity interspersed with activity are seen even in queenless colonies. "It is not centralised control" says Franks. "It is decentralised control. It is self-organising."

Ant as Computer-Teacher

The ant research has thrown up similarities between problem-solving ant colonies and parallel processing computers.

In PP computers, instead of tasks being done one step at a time, as in conventional computers, many different elements of the problem are worked on simultaneously by many different processes.

Observing how ants act so similarly, it is a short jump from teams of simple interacting ants to teams of simple interacting computerised robots. The principles that guide collective problem-solving in ant colonies might well be copied and adapted for distributed control systems in robot teams.

"Currently people are trying to devise robots which are given massive sets of instructions so they never make mistakes," says Franks. "Maybe, instead of trying to build increasingly sophisticated robots, we could, in some roles, have incredibly stupid robots, but lots and lots of them.

"And maybe we could have these robots being collectively not so stupid by having them communicate with one another," he theorises. Robot teams organised in this manner, Franks believes, could be used in dangerous tasks such as locating radiation fall-out, collectively hunting down radiation hot spots just as colonies of ants track down food sources.

Chris Tofts, a computation theorist seconded to the team from Edinburgh University, is examining ant algorithms (rules for problem-solving methods) and is checking to see whether they would work in computer theory.

"We are trying to understand *what* information gets exchanged. The 'how' is more biology and not really relevant," says Tofts mysteriously.

"What does this chemical trail being here mean for another ant? They exchange information. What's important

is *what* order, and how *much* of it is exchanged."

Ant-Theses

Tofts is further intrigued by one specific aspect of ants' self-organising behaviour. Colonies of ants are not just very good problem-solvers - they are what a computer buff would call very 'fault-tolerant'.

A problem with computers is that they are extremely vulnerable to hardware failure and systems error. Not so with ants, says Chris Tofts.

"They're 'stable' to individual ants dropping dead. In computer terms an ant dropping dead is equivalent to, say, one processor failing.

"In a sequential machine, if your processor goes, that's that. It's all over for you - you've got only one processor. Most programs on parallel machines actually have to know how many processes there are, and if only one processor fails, the algorithm will not work."

Computer programs, whether on sequential or parallel computers, are decidedly fault-intolerant. "Usually," says Tofts, "If you've got 1,000 processes and one fails, the program just stops."

The ants have solved the problem. It's now the humans' turn!

Ants leave Predictors Behind

If you were a leaf-cutting ant, foraging farther and farther afield for food, would you return to your nest with bigger and bigger pieces of leaf the farther you went, or smaller and smaller ones?

Most people, when asked this question, answer smaller and smaller ones, because of the increasing distance the leaf would have to be carried.

The ants choose the 'bigger and bigger, the farther and farther' approach and, according to the latest theories, are gathering leaves in the most efficient manner, exactly as predicted by biologists' new models of foraging.

Flavin Rocés, of the University of Buenos Aires, has studied leaf-cutting ants of the species *Acromyrmex lundia*. These ants transport leaf fragments to their nest, where they are used to culture a crude fungus. Rocés has found that the ants behave in much the same way as people who make an expedition to a distant supermarket and return with far more than the pint of milk they might be satisfied with from a local shop



(**Animal Behaviour**, volume 40, page 1181).

In his laboratory, Roces arranged for his leaf-cutting ants to forage from two sites, one of which was one meter from the nest and the other five metres away. Instead of leaves, Roces persuaded the ants to chew pieces from a film he had impregnated with a 'leafy' smell. The film was of an even thickness, thus guaranteeing that Roces could be sure the fragments carried home were equal in all respects with the exception of size.

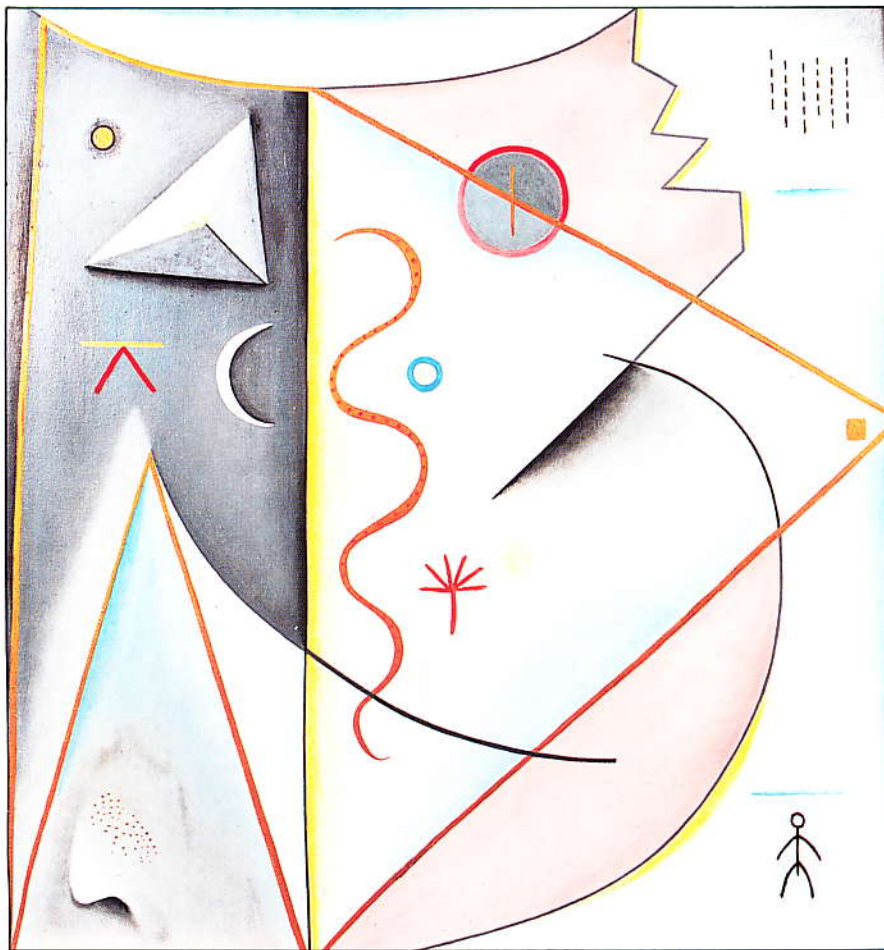
He found that when the ants foraged from the nearer site, they cut off pieces

which were up to half their own body weight. And when they travelled to the more distant food source, they cut out much larger fragments. Indeed the larger of the working ants returned with pieces that were nearly twice as heavy as they were!

According to Roces, the ant behaviour is precisely as predicted by mathematical models which describe how animals should behave if their aim is to return food efficiently to a central place. The models predict that if the number of foraging trips that each animal can make is limited by time and the

energy the animal consumes, the animal should carry as much as possible on each individual trip. In this way, says Roces, they can make their longer trips particularly worthwhile.

The ants have obviously got it right. However, Mowgli would like to know if any Brain Club mathematico-computer buffs out there can explain why the ants don't also take larger chunks on the shorter trips? Is it because they are saving their energy for the model-efficient longer journeys? ■



The cover of the previous issue featured *Night Owl* by Lorraine Gill, BCM 49. Here is the promised description of her painting, dictated by the artist - without hesitation! - over the phone.

Night Owl represents the difference between opposites, and is divided into night and day.

The owl represents the mystery of what night can contain. This is also to do with our psychological states, but bound within that framework is the gold geometry (gold representing hope) which contains the image. There are only slight references to the shape of the owl, which associates to memory.

The pyramid is an ancient symbol of architectural framework within the divine laws of nature.

The small figure represents mankind in the knowledge of ascertainment with nature.

QUOTE OF THE QUARTER

Who says brains are stupid? Brian Lee BCFM 3

NEXT ISSUE

The conclusion of Dr Gardner's thesis: new perceptions!

Return of a Genius Ray Keene on Bobby Fischer

The Force is With You! Interview with Superintendent Brand of the Met

Sing-alonga-Zander Ben Zander's musical offering

Brain Club Brain 1992 Who will be Brain of the Year?

Mohammed Ali, Stephen Hawking?

The Decade of the Brain

"July 25th 1989, resolved by the Senate in the House of Representatives of the United States of America in Congress assembled, that the decade beginning January 1st 1990 hereby is designated the Decade of the Brain, and the President of the United States is authorised and requested to issue a proclamation calling upon all public officials and the people of the United States to observe that Decade with appropriate programmes and activities."

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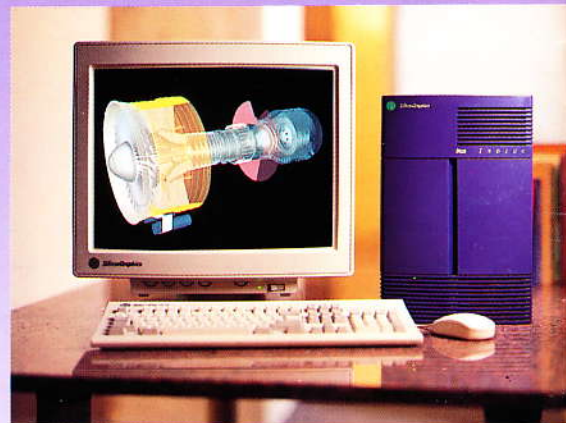
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