

Spring 1994

Volume 5

Number 1

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# USE YOUR HEAD

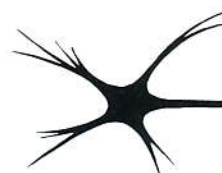
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SYNAPSIA

THE INTERNATIONAL

BRAIN CLUB JOURNAL

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**MIND AND BODY ISSUE**

**INTERVIEW WITH DAVID WILKIE**

**RUNNING WITH YOUR HEAD**

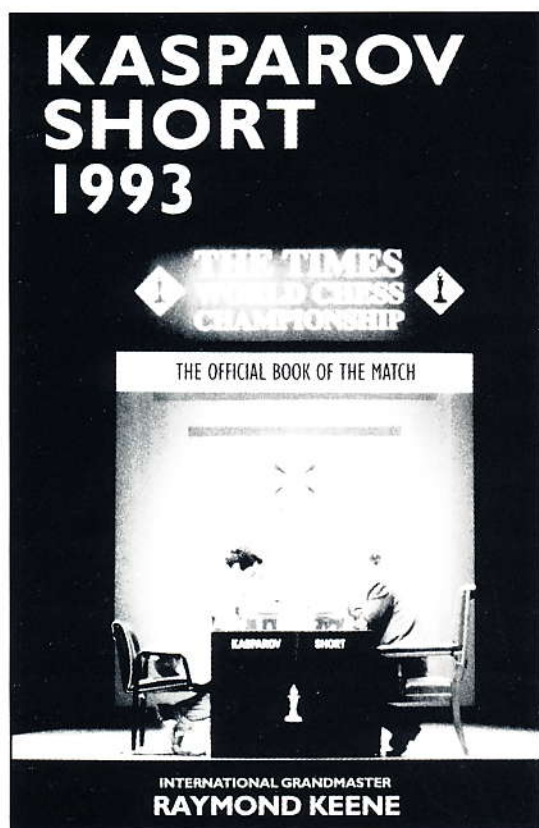
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# USE YOUR HEAD EDITORIAL

## Using Your Head

Alert readers of this magazine will have noticed a recent posting in Brain Club News (Spring 1993 issue) to the effect that a change of name from *Synapsia* to *Use Your Head* was being considered. It has now been decided to implement this change and so, from this issue onwards, *Synapsia* transforms into *Use Your Head* and the Brain Club similarly transforms to the Use Your Head Club. This is a name that has been successfully pioneered by James Lee in academic circles and I would like to pass over the rest of this editorial to James Lee to report on the successful growth of these clubs.

*James Lee writes ...*

'The last 18 months has seen the development of an ever-expanding network of clubs at schools, colleges and universities dedicated to helping students improve the way that they think, study and learn.

'The first Use Your Head Club was set up at Durham University early last year and now boasts over 100 members. Fortnightly 'mind-expanding' workshops are run by students, outside speakers regularly come to talk and members are involved in a whole range of other activities from Radiant Thinking competitions to 'Lose Your Head' evenings. Members of the club have been invited to talk on local radio, have appeared in several regional newspapers and recently co-organised the first ever Student Memory Championships held in London in December of last year.

'The huge success of the club in Durham has led students at several other universities to set up similar clubs. Mann Alibaba and Warren Day set up clubs at Bath University and Canterbury University and Calvin Quek has set up a Use Your Head Club at Leeds University which now has over 100 members. The Use Your Head network is swiftly gaining international status - Norma Sweeney has set up a club at the University of Bahrain and Christine Hogan hopes to set up another at Curtin University in Australia very soon.

'The demand for Use Your Head Clubs is now so great that a starter pack for those

interested in setting up a club at their own educational establishment has just been written. It can be obtained free by writing to James Lee, President of the Use Your Head network, PO Box 3282, London NW6 3DT, or by calling 071 625 6899. There are three versions of the pack: junior school, senior school and university.

'Already there are at least seven Use Your Head clubs in three different countries. Don't miss out on the opportunity of becoming a leading figure in a rapidly-expanding organisation dedicated to helping students to get the most from their minds.'

Finally, congratulations are due to resident *Use Your Head* columnist Lorraine Gill, who is taking a break this issue to celebrate completion of an 18-year artistic project.

### In the next Issue

**Business Brain** - a new regular feature from Vanda North.

**Sarah Chang** - profile of the 12-year-old musical genius.

**Neural Networks** - can they model the workings of the brain?

**Mind Quiz no 3** - held over this month due to pressure of space (sorry Wilf!).

#### THE BRAIN CLUB CHARTER

The Brain Club was incorporated on 15 May 1989, and became a registered charity on 23 November 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 editor welcomes contributions. Please send to: Byron Jacobs, *Use Your Head*, 23 Ditchling Rise, Brighton, Sussex BN1 4QL.

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Pécub, the world's fastest brain cartoonist, is happy to provide cartoons based on your ideas and requests.

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21st February 1995

Carpe diem!

# CONTENTS

## FEATURES

### 6 KEEPING YOUR HEAD UNDERWATER

Olympic gold medallist David Wilkie is planning to swim the English Channel ... underwater. We spoke to him about swimming and mind/body health.

### 10 RUNNING WITH YOUR HEAD

Paul Collins believes we should consult the animal kingdom for our running technique.

### 14 MIND OVER MATTER

In the 1975 Wimbledon Men's Singles Final, Arthur Ashe was given no chance of beating Jimmy Connors, but he won without breaking into a sweat. How did he do it?

### 16 BRAIN OF THE YEAR

Who will boldly go where only Garry Kasparov, Stephen Hawking and Gene Roddenberry have gone before?

### 20 BRAINWAVE 1

In a *Use Your Head exclusive*, we report on a remarkable new invention which enables the user to control his or her own brain waves.

### 30 GENTLEMEN OF JAPAN

Will we soon be swapping our chess sets for shogi boards?

## REGULARS

3 Editorial

5 Synaptic Flashes

24 Amazing Memory Stories

26 Intelligence about Intelligence

27 Animal Intelligence

28 Student Memoriad

33 Greek Island University

35 Use Your Head Club News

# SYNAPTIC FLASHES

## Brain News

### Polgar's Record Falls!

Regular readers of *Use Your Head* magazine will recall that two years ago the Hungarian prodigy Judit Polgar became the youngest grandmaster of all time, breaking Bobby Fischer's record. Fischer's record had stood for more than three decades but Judit's has been broken already, by another Hungarian, Peter Leko. In fact Leko smashed the record, knocking more than a year off, when he gained his final norm at the tournament in Wijk aan Zee, Holland, in January. He had already made two of the three required performances last year, one in Budapest, and one in Leon, Spain, but Wijk aan Zee was his strongest showing yet. In an international field which included two Candidates for the World Championship (and in which Leko himself was the only non-grandmaster) he finished in equal third place.

Amazingly, Leko's new record of 14 years, 4 months and 22 days, may soon be under threat. Eleven-year-old Etienne Bacrot recently scored fifty per cent in a tough all-play-all tournament in Nice, defeating several seasoned internationals along the way, including a former French Champion. Another contender is ten-year-old Luke McShane who, as we reported last time, holds the record as the youngest player ever to achieve an international rating. Chess prodigies are getting younger and younger!

### Fermat Strikes Back!

You may also recall the recent piece on Fermat's Last Theorem (Vol 4 No 2) in which Wilf Hey related how this centuries old conundrum had been solved by Princeton mathematician Andrew Wiles, who had claimed that the verified proof would be published last November. Well, surprise, surprise! It appears that the solution is not completely watertight: Wiles himself has admitted to a theoretical hiccup with 'the upper limit of the Selmer group in the semi-stable case' (whatever that may be!). The problem was identified by the panel of six referees who have been

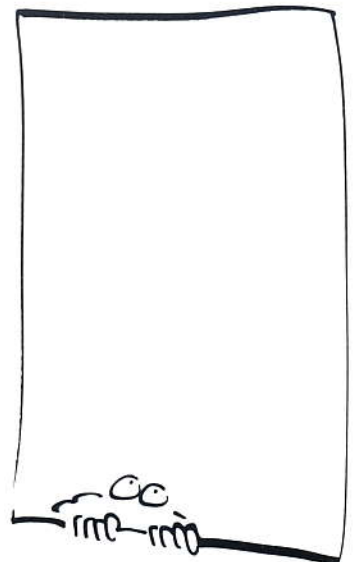
reviewing it for the journal *Inventiones Mathematicae*. Wiles believes that he can overcome this hitch and was planning to explain how at Princeton in February. However, Professor Andrew Granville, another American-based Briton, is keeping an open mind, 'The rumour is that it's a question of altering a little bit of what he's done. The question is: will the knock-on effect destroy the proof?' One thing is for sure, Fermat is still laughing from beyond the grave!

### Matrix Memory Marvel

How many decimal places of  $\pi$  can you remember from your schooldays? Philip Bond recently returned to the new Mecca of mind sports, Simpson's-in-the-Strand, and proved that he knows it to 10,000 places. And that is not all, he can also remember the correct order from any starting point in the sequence, an achievement that has been confirmed as earning him a place in the *Book of Genius and Mental World Records*. The world record for reciting  $\pi$  (set in 1987 by Hideaki Tomoyori of Japan in a marathon session of 17 hours 21 minutes) stands at 40,000 places, but Philip's approach is more difficult as it requires more memory power to dip in and out than to recite the sequence by rote.

Philip, who finished overall third in Memoriad '93, spent ten hours a day for five days learning the sequence and then correctly recited 50 groups of numbers surrounding sets of five digits chosen at random. He says that his technique is to associate each number with a different colour so that 'when I concentrate on a series of numbers the colours flash past and the answer seems to pop out.' (*Editorial note: This memory technique won't work for me - I'm colour-blind. I shall have to stick with my calculator for the time being!*)

*Heard any good brain news? Please let the editor know for possible inclusion in the next issue.*



# KEEPING YOUR HEAD UNDERWATER

## AN INTERVIEW WITH DAVID WILKIE

**Although a Scotsman, David Wilkie was born in Sri Lanka in 1954 and stayed there until 1966, when his family returned to Scotland. At 18 he obtained a swimming scholarship to the University of Miami from where he graduated with a BA in communication and law. He has won many swimming titles including European, Commonwealth and World Championships and, in Montreal 1976, an Olympic gold. David now lives in Berkshire from where he runs Health Perception. Later this year, in an event supported by the Brain Trust, he will challenge Duncan Goodhew to an underwater swim across (or perhaps under) the English Channel. Use Your Head editor Byron Jacobs spoke to David about swimming and mind/body health.**

**B When did you first become involved in swimming and how?**

**D** I was brought up in a tropical country where swimming is pretty much a way of life. I was able to swim from the age of about two and was always good at it. In Sri Lanka I was a member of a swimming club and competed in a number of galas but it was when I returned to Scotland that I had my first notable success in winning the race for my age group in the Scottish Championships. However, between the ages of 12 and 15 I hardly competed at all which I think, in retrospect, was to my advantage. When I started to train and compete seriously at the age of 15, I was still fresh and enthusiastic. Too many promising young swimmers have suffered 'burn out' by this age, having expended too much energy competing in too many relatively unimportant events. There are also plenty of distractions at that age!

**B How hard did you have to train when you were competing at the highest levels?**

**D** I would train between four and six hours a day, six days a week. During the off-season, it would be four, but when training hard for an impending event I would do six

hours a day Monday to Saturday, with perhaps a couple of hours on Sunday.

**B Are you good at other sports?**

**D** No! I like to participate in other sports but have to say that I am positively mediocre at them. I like soccer, cricket, squash and tennis, but not golf - I've never been interested in golf.

**B Were you ever surprised at the successes you had or the times you were able to achieve?**

**D** Not really. I knew that I was capable of achieving these successes and that to ensure that I would do so was very much a case of having the right mental attitude. In fact, I should probably have won more medals than I did. For example, in 1975, I actually won two world championship golds, whereas I was probably capable of winning three. However, I am satisfied with the successes that I did achieve.

**B It has been suggested that at the top sporting levels there is little to separate the athletes in terms of preparation or fitness. It appears that, when this is the case, it is mental strength that identifies the winners. Would you agree?**

**D** Yes. The mind and body need to function in harmony for the athlete to be successful. Part of the training process is to get the mind used the technique of taking over control of the body so that the body can function on 'auto-pilot'. For example, in a swimming competition the target may be to achieve a time of 2.15 for the event. To achieve this it might be necessary to swim the four lengths in times of, e.g. 32 seconds, 35 seconds, 34 seconds and 34 seconds. The mind knows how to do this and, due to the training process, the mind also knows exactly how fast the lengths are being swum at any moment. Therefore the mind must lead the body and not the other way round. This is very important. People will often make excuses for a poor performance by blaming factors such as 'feeling down', having an off-day, biorhythms, star-signs or whatever. To be honest I think this is all bull. A well-controlled mind is much too powerful to be distracted by such factors. People can be too easily influenced by extraneous factors; these are not really important.

**B Tell us about the impending channel swim.**

**D** This can be described either as a real challenge or total idiocy! I view it as a personal Everest that I want to try to climb. Others with skills in different fields might set themselves different targets. For example, a mountaineer might really try to climb

Everest or a runner might want to complete a marathon, but swimming is my skill and trying to swim 26 miles underwater is a real challenge. The swimming will take three main forms: straight swimming, which we will do either at the start or the conclusion, snorkelling and scuba swimming. It is a challenge between myself and Duncan Goodhew (both of us being Olympic gold medallists) and we recognise that it will be good publicity for the various projects that we are both involved in. We will also be raising money for various charities, including the Brain Trust, but there are obviously expenses involved and if we can find a sponsor to help with these that will make things much easier.

**B What kind of products does your company Health Perception promote?**

**D** Health products based on natural substances. I can give you examples of two. One is an anti-oxident which, effectively, prevents the body from rusting. All organic and inorganic material is exposed to oxygen and, over a period of time, oxidises. For a car this means it begins to rust and, in the same way that you can prevent your car from rusting by the application of paint, you can prevent your body from oxidising by taking vitamins. Secondly, we market a product called seredrin which is an extract of the oldest known living tree - the ginkgo biloba. Some of these trees have been

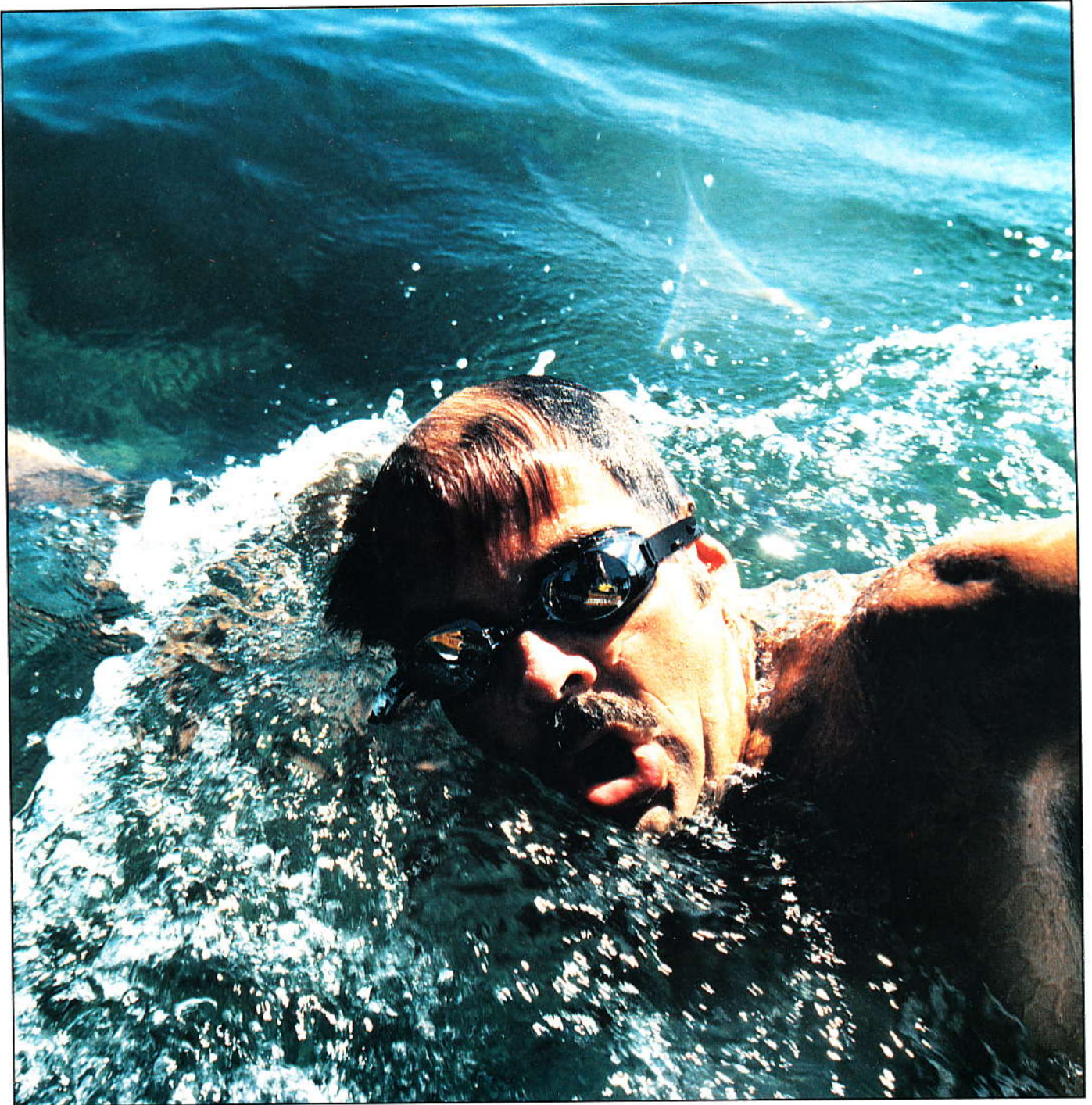
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*The mind knows how to do this ... therefore the mind must lead the body and not the other way round. This is very important.*

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## David Wilkie MBE

1972	Olympic Silver	200m Breaststroke
1973	World Champion	200m Breaststroke
1974	European Champion	200m Breaststroke
1974	European Champion	200m Individual Medley
1974	Commonwealth Champion	200m Breaststroke
1974	Commonwealth Champion	200m Individual Medley
1975	World Champion	100m Breaststroke
1975	World Champion	200m Breaststroke
1976	Olympic Champion	200m Breaststroke (setting world record of 2:15.11 which stood until 1983)



David Wilkie finding his sea legs.

known to live to 1000 years and there is one in Kew Gardens which is 300 years old. Seredrin helps with many different aspects of the body's function, including blood flow and circulation.

**B What is your advice for someone wishing to maintain a healthy body, healthy mind relationship?**

**D** Keeping an eye on your diet is important - increasing your carbohydrate intake and cutting down on fats and proteins. Drinking alcohol in moderation should not be a problem, but smoking is a killer and

should be cut out. It is also important to take regular exercise. Most forms, such as walking, cycling, swimming or using a rowing machine, are fine. It is good to do 20 minutes of exercise, three times a week and while doing the exercise you should raise your heartbeat to a certain level. This level will obviously depend on your age and general health, but there are charts and graphs available that will indicate what this level is for you. This will allow you to maintain good physical health for the whole of your life and maybe even swim the English Channel underwater!



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# RUNNING WITH YOUR HEAD

**Just short of his seventieth birthday, Paul Collins, Alexander Technique teacher, athlete and runners' guru, wants to change the way we move. John Bryant, deputy editor of *The Times*, participated in one of his running courses.**

## A Four-Legged Gallop

The idea that you might gallop your way through the London Marathon comes as a bit of a shock - even to a trained runner.

But it is even more of a shock to see a running guru, just a lap or two away from his seventieth birthday, get down on all fours and suddenly break into a four-legged gallop in a fair imitation of a horse.

Paul Collins is an athlete, an Alexander Technique teacher and a remarkable animal. He ran for Canada in the Helsinki Olympic Games as long ago as 1952. Soon after, he pulled out of the sport, sidelined by persistent knee and tendon injuries.

At 50 plus, having rebalanced his body and his life with the aid of the Alexander Technique - a process of re-educating and

rebalancing the way you use, or misuse, your body - he returned to running. Remarkably, by 1983 he was setting records at 200, 300 and 400 miles and competing in six-day and 24-hour ultra-marathons.

He now runs courses on 'Alexander and the art of running' in the beautiful setting of Greenham Hall, near Wellington, in the rolling Somerset countryside. There he dispenses wisdom on posture, muscular tension, movement and running.

## The Collins Message

For runners the Collins message is challenging, unorthodox and refreshing. For anyone condemned by their schedule to building up ever more mileage for the London or any other marathon, he has exciting news. He believes that the way you run may be more important than the miles and the hours that you log in your training diary.

Mr Collins has mixed his own cocktail of advice on how you should run. He has blended the Alexander principle with a dash of the teaching of Australian athletics coach Percy Cerutti, and added much from his own rich experience of athletics. His underlying message is simple. Run like a child, he says, or better still run like an animal. Most runners never bother to ask themselves 'How do I run?'. Not how far, or how fast, but how you move.

Mr Collins teaches that running is a complete flowing action - not something done just by the legs and feet, but something that comes from the whole person.

'Most of the stretches you see runners doing,' he says, 'actually shorten the muscles. That's the very opposite of what you need.'

Instead Mr Collins gets you lying down before you run. He shows you an

## Paul Collins advises:

- Always walk for five minutes or so before you run. Walk briskly, using the arms with unlocked elbows. This is much better than traditional stretching techniques for warming up.
- Run tall, don't lean forwards or backwards.
- Vary your speed in work-outs, even during very long runs. Use your arms to increase the beat and length of your stride.
- If anything feels uncomfortable during a run, stop, then stand erect while you monitor your body's balance. Move off again fluidly, transferring imperceptibly from a walk to a run.
- Many running shoes do as much harm as good; They are often too spongy and have heels that are too high. On good grass you can't beat going barefoot.

established Alexander Technique of lying back on the floor with your head propped up on a couple of paperbacks. The legs are rolled gently at the hip and the knees and drawn up to a point at the ceiling. You let gravity do the work of stretching and lengthening your spine.

Only when you are stretched and relaxed in this way should you run.

### Run like a Horse

The running, too, is different. For his first lesson in running, Mr Collins gets you to stand erect and fall gently forward until you simply run to stop yourself falling over.

Thereafter, his enthusiasm takes over as he quotes Mr Cerutti and tries to turn you into a running animal.

The idea is that you forget about conventional human models and instead study the movement of animals. Run like a horse is the message - trot, canter and gallop instead of trying to jog, stride and sprint.

One of the keys, he explains, is the use of the arms. Not so long ago on the evolutionary stop-watch, mankind first stood up to walk and run on his hind legs. That is when he first began to use his 'forelegs' for drive and balance. We should still be thinking of trying to use our arms and hands like forelegs, he says. 'Running should begin with the thumbs and end in the feet.'

It may sound crazy, but it is fun. Mr Collins grabs the thumbs of his pupils and energetically demonstrates the technique. What follows is a crash course in re-educating the body to run. A touch here, a word there, and soon the elbows are unlocked ('Never, ever run with locked elbows,' he says), the head floats balanced on the neck, the arms are low and beating to strange new rhythms and you are running tall, proud and *fast*.

All the time Mr Collins is dropping nuggets of running lore, mined from a lifetime



Paul Collins running ultra-distance.

interest in the sport. 'Walk often in runs, and even races,' he urges. 'Throw most of your gimmicky running shoes away and look for simpler ones. If you find one that suits you, buy half a dozen pairs. Continually vary your pace when you run. That is the way of the future. Most of running's world records have been set by people trotting. I think that will all change.'

### Running through the Night

Mr Collins himself runs easily, and looks

## Paul Collins - A Running History

- 1948 Canadian 3-mile record holder
- 1949-52 Canadian marathon champion
- 1949 Boston marathon - 10th place
- 1950 Winner, New York Marathon  
Boston Marathon - 8th place  
US National Marathon - 8th place  
Commonwealth Games, New Zealand - 5th place
- 1951 US National Marathon - 6th place
- 1952 US National Marathon - 4th place  
Olympic Games, Helsinki - 19th place

In 1952, aged 26, Paul was forced to retire from athletics with crippling knee and ankle injuries.

He became an Alexander teacher in 1969 after training with Walter Carrington in London, and later established his own teacher training school in London from 1975 to 1982.

Slowly he began to tackle the problem of running from an Alexander point of view. After much intensive analysis and hard work a style of running emerged which enabled Paul to begin regular training again and to return to competition, this time in the field of ultra-distance.

In 1983 he set world records for his age group (55-60 years) for 200, 300 and 400 miles; 200, 300 and 400 kms; plus 3-, 4-, 5- and 6-day records at the 3rd Annual 6-Day Race in Nottingham. In April 1986 Paul ran a new personal best of 117 miles in the Preston 24-Hour race, for 5th place. Since then he has regularly competed in 24-hour races, generally completing over 100 miles each time.

In 1990 Paul Collins became Director of the Bristol Alexander Technique Training School Association.

years younger than his age. He is looking forward to being 70, 'because then I can enter a new class in the veterans' races'.

In the summer he plans to do 'a few 24-hour races'. To train for these he puts in some 50-mile runs. 'I do them on a Saturday night,' he says in a matter of fact way. 'All night. I set out in the twilight as the world is going to sleep. I have a few hours of wonderful peace, running through the night, and then watch the world wake up all over

again. It's a great way to run.'

Presumably his pupils are out there practising these techniques of movement right now. So do not be too surprised in this year's London Marathon if someone passes you moving like a galloping horse. It will just be someone who has learnt to run differently on the windswept hills of a moor in Somerset.

(c) *The Times*, 1993

## Alexander and the Art of Running

Later this year a course especially for *Use Your Head Club* members is being held at Greenham Hall, Wellington, Somerset. It will combine the delights of a West Country holiday with intensive Alexander Technique work in its application to running. All aspects of running will be covered, using a variety of beautiful locations which offer a wide range of running experience. The dates are August 1-4 and a deposit of £225 ensures your place on the course. Participants must be able to run 5km in 30 minutes. For further information contact Paul Collins, 4 Mount Pleasant, Wellington, Somerset TA21 8DA (Tel: 0823 - 667685).

# RUNNING AND THE ALEXANDER TECHNIQUE

*The first of a new series by Paul Collins*

Let's start with a warning. I'll need to introduce a little basic theory, not to blind you with science, merely to explain the point of the experiments I'm proposing. In the Alexander Technique, the experiment and the rationale go hand-in-hand, usually in that order.

**Experiment:** Lie down on the floor (no, a bed won't do!) on your back, with a little pile of paperback books supporting your head, but *not* your neck. The pile should be high enough so the chin is not thrust towards the ceiling, but not so high that the back of the jaw interferes with the breathing. Place your elbows approximately a foot away from your sides, with hands resting on the rib-cage. The knees should also be bent, pointing straight up at the ceiling, parallel to each other, the feet placed flat on the floor. Having assumed this position, *now do nothing for ten minutes*. Keep your eyes open, leave yourself quietly alone, not fidgeting, allowing the head to rest fully on the pile of books, reminding the knees to remain parallel, pointing towards the ceiling. At the end of ten minutes roll over gently, get to your feet and walk around for half a minute or so. The first experiment is now finished. Write up a report in the usual Mind Map fashion.

I shall not attempt to predict what you will have experienced during the experiment; for each of you it will obviously be different. After all, this is an individual experiment and, as such, 'whereof one cannot speak thereof one must be silent' (Wittgenstein). Rather, I shall confine myself to an explanation of the principles which are brought into play by the experiment. We spend most of our waking hours counteracting the pull of gravity in order to remain vertical. For reasons we shall not go into here, most of us counteract gravity rather inefficiently in a manner which twists us round our central axis (the vertebral column). It is quite easy to see the outward signs in other folk - one shoulder higher than the other, the left foot turning out more than the right, etc, etc. In the experiment just outlined, gravity is exerting its

influence on us at a completely different angle. It will have the effect of drawing us down to the floor. If we offer no resistance (i.e. leave ourselves alone) the result will be to untwist us out of our habitual acquired shapes, gradually restoring us to the balanced forms we had as children.

Two points to consider:

i) The process described is gradual. To accumulate worthwhile information from the experiment one should repeat it regularly (twice a day) over a period of several months.

ii) Do not get sucked into trying for an immediate feeling as to what is going on, for this can be very misleading. The best way to judge results objectively is not to go for immediate effect ('What on earth has the floor just done to me?') but to wait for the overall sensory appreciation of your relationship to the world around *when you stand up*. It would seem to be only common sense not to draw conclusions during an experiment, but rather to wait until the end.

Having been asked for four articles, hopefully of a self-helping, do-it-yourself nature I shall give you a new experiment in each article, together with its practical theoretical explanation. It is very difficult to be impractical in the Alexander Technique, simply because it is all based on what the great American running doctor, George Sheehan, called 'the experiment of one'. So! Don't ask me for group statistics, they're scientifically inadmissible in our present situation, based as it is on individual reactions to a group of specific procedures.

For those of you with an interest in quantum theory and the ideas of Werner Heisenberg there is an amusing parallel in the work we are doing together: the observed body, namely yourself, will be subject to constant, precisely unpredictable changes just because you're trying to tie the poor thing down for an accurate observation. The whole point of the experiment is that the more you try to observe a static you, the more it proves you wrong - it's alive, kicking and seemingly quite irrational. That's life. So long for now.

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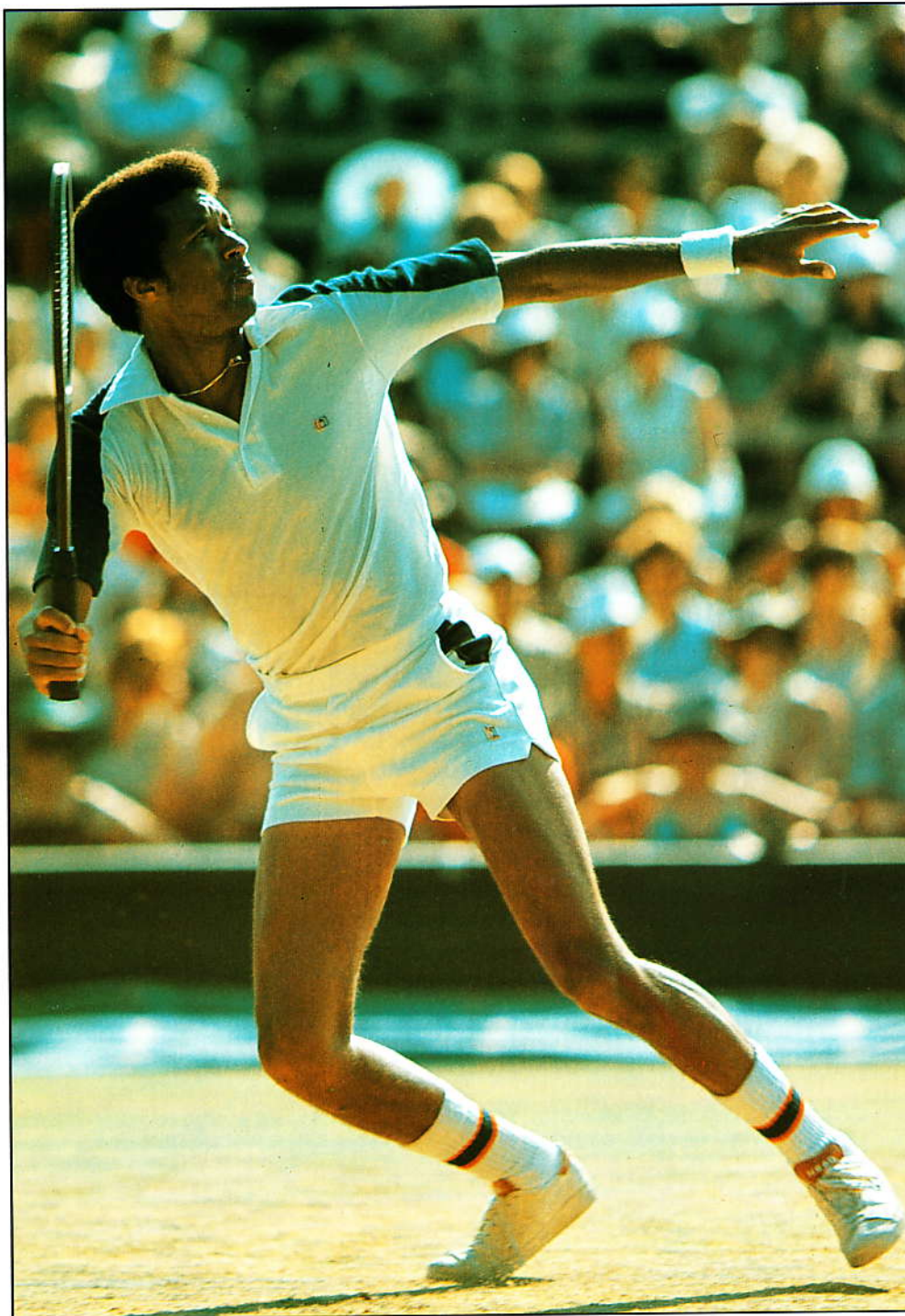
*The whole point of the experiment is that the more you try to observe a static you, the more it proves you wrong - it's alive, kicking and seemingly quite irrational.*

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**In this issue we begin a new series of practical articles on the Alexander Technique by runners' guru Paul Collins.**

# MIND OVER MATTER

**Use Your Head** editor Byron Jacobs explores the factors which enable top athletes to engage mental and physical overdrive just when it matters most.



Everyone loves a giant-killer, a trend started around 3000 years ago when David, a young Judean hopeful, overturned the form book by letting loose a well-aimed slingshot at the Philistine champion, Goliath. Ever since, the public have been fascinated by people who can succeed in contests when faced by seemingly insuperable odds. Our appetite for stories about every dog having his or her day appears insatiable.

Nowadays most of our sporting show-downs are held in a more civilised manner, but there are still examples of competitors who can, when the occasion demands, perform well above their usual abilities. Written off by the pundits as having no chance, they dig deep into their mental and physical reserves and triumph in apparently hopeless situations. A recent example was seen in the 1991 World Athletics Championships, in the final of the Men's 4 x 400 metres relay. The British anchor (the man entrusted with the final lap) was Kris Akabusi. Although a fine athlete, Akabusi was not known as a straight 400m runner - his speciality was at the equivalent distance, but in the hurdles event. As he took over the baton on the last lap he faced a

*Arthur Ashe reaching for the sky.*

daunting prospect. He was trailing the American Antonio Pettigrew, who had just become the individual 400m World Champion, by a couple of metres. Simply to keep up with his illustrious opponent would have been a major achievement for the Briton, but to overtake him was almost unthinkable. However, Akabusi ran well and, when the runners turned into the home straight, although he still trailed, the gap had not increased. His legs had got him so far, now his head took over. Unearthing personal depths he never knew existed, Akabusi found something extra and when they crossed the finishing line, he had squeezed ahead by the narrowest of margins. He said that running for the team had been the crucial factor.

### Tennis in a Trance

In the 1975 Wimbledon Men's Singles Final Arthur Ashe faced Jimmy Connors, against whom nobody gave him a chance. The difference in their respective strengths could hardly have been more pronounced. Connors was the reigning champion and dominant figure in men's tennis, had easily won his last three matches against Ashe and had made mincemeat of his opponents in the earlier rounds. Ashe, on the other hand, although a competent professional, had never won anything of note. Most players in his situation would have been content to have reached the final and would be hoping only to put up a good show before collecting the runner-up prize. Ashe, however, had other ideas. He analysed Connors' style, pin-pointed his slight weaknesses and fashioned his match strategy.

The first game indicated little of the drama to come as Connors served and held easily. Then Ashe struck. Playing almost flawless tennis he won an incredible nine consecutive games to take the first set and establish a 3-0 lead in the second. He ruthlessly subdued all of Connors' best shots. Prior to the final, the American champion was noted for the power and accuracy of his passing shots and Ashe's main weakness had been his volleying. On the day, however, Ashe was inspired, anticipating the direction of almost every passing shot and thumping away the volleys with ease. 'It wasn't difficult to volley against a guy who just hit the ball at 100mph,' he explained, 'If I put my racket in the way, it went

screaming back.' As the odds-on favourite struggled, the crowd became totally involved. There were so many cries from the gallery that the umpire frequently had to demand silence. At 0-3 in the second set, someone shouted out 'Come on Connors.' 'I'm trying, for Christ's sake,' was the exasperated response of the beleaguered American.

The crowd continued to try to get Connors going, but Ashe remained unperturbed. He meditated between games, shutting his eyes and sitting totally relaxed while Connors fretted and fidgeted like a volcano on heat. Ashe took the second set and, when he broke serve early in the third, it looked all over. However, Connors is a tough fighter: he broke back, broke again to take the third set and then established a 3-0 lead in the fourth. Many players, faced with this come-back, might have crumbled, but Ashe was so strong mentally that it didn't trouble him. 'I didn't worry too much,' he said later, 'After all, it was only one break against me.' He had broken Connors so often in the match already that he felt quite capable of doing it again. He duly did, and Connors only won one further game. Ashe had triumphed against all the odds, winning the final in four sets 6-1, 6-1, 5-7, 6-4.

### Serene High

What did Connors have to say? He gave his assessment at the press conference afterwards: 'Today I just lost. Everyone must realise that every time I go on court I can lose. You guys in the press have to realise that as much as anyone. He played well and did everything well today. I don't reckon I had an off day. It was just that I was playing a better Arthur Ashe. I can't pin-point any one thing that he did that put me off.'

How did the new Wimbledon champion account for his victory? Ashe was in what he himself described as a 'serene high'. At every change of end he sat by the umpire's chair, deliberately facing away from his opponent, his eyes closed and inducing in himself a form of yoga or self-hypnotism. This shut out all distraction and enabled him to remain on that high plane for much longer than a player can normally achieve. This was the 'better Arthur Ashe' that Connors had identified - Arthur Ashe Mark 2, the model with the mind in control of the body.

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*At 0-3 in the second set, someone shouted out 'Come on Connors.' 'I'm trying, for Christ's sake,' was the exasperated response of the beleaguered American.*

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# IT'S OFFICIAL! TWO BRAINS ARE BETTER THAN ONE

**The Brain Trust recently met with the difficult task of selecting the winner of Brain of the Year 1993. When, after lengthy deliberations, the puff of white smoke finally emerged, it was announced that the conclave had decided that Lana Israel and Dominic O'Brien were equally deserving of the title and they were therefore declared joint winners of the Da Vinci trophy. The presentation was made at Simpson's-in-the-Strand on Sunday March 6th.**

## **Lana Israel**

At thirteen years of age, Lana Israel had quite an ambitious goal - revolutionising education. Five years later, she has two books and a video on study methods behind her, has lectured to students and teachers on five continents, and recently received the Grand Award at the International Science and Engineering Fair for her research on learning methodologies.

Lana's interest in learning techniques, specifically Mind Mapping, was piqued after reading *Use Your Head (Use Both Sides of Your Brain)* by Tony Buzan. Curious to see if Mind Mapping could be integrated into the school system and applied towards education, Lana conducted her eighth grade science project on Mind Mapping, probing the effects of the technique on recall and creativity. The project took Lana to the Florida State Science & Engineering Fair, where she was placed second, and four months later, to Sydney, Australia, where she was the first child presenter at the Eighth World Conference on Gifted and Talented Children. In preparation for the international conference, Lana wrote her first book, *Brain Power for Kids: How to Become an Instant Genius* (co-authored by Buzan), which was published in Australia as well as the States. The cumulative effect of these events was Lana's resolve to continue and expand upon the research which had produced such resounding interest in so short a time.

For the next four years, Lana devoted

subsequent science projects to researching Mind Mapping and memory techniques. Her research spanned a wide spectrum of students: from seven-year-olds to seventeen-year-olds, mentally handicapped students to gifted students. By her senior year in high school, Lana had conducted research on 500 students, focusing on the effects of holistic learning techniques on recall, creativity and specific subject areas, as well as identifying and analysing the components of effective learning methods.

In February 1993, Lana was placed first in her division (Behavioural and Social Sciences) at the annual Florida State Science & Engineering Fair, topped off by winning, out of 500 participants throughout the state, the Best in Fair Award. As a result, Lana went on to represent the State of Florida at the 44th International Science and Engineering Fair (ISEF) in Gulfport, Mississippi.

According to the Science Service, 'The ISEF is the pinnacle event in a year-long process of local, regional, state and national science fairs. More than one million students from the United States, American Samoa, Guam, Puerto Rico, Canada, Denmark, Finland, France, Germany, Ireland, Japan, New Zealand, Republic of China, Sweden, the United Kingdom and South America participated in the program'.

Out of the 826 students who qualified to compete at the ISEF final, highest honours go to four top winners. Two of these winners receive the Glenn T. Seaborg Nobel



## Nominations for Brain of the Year Award

**Dr Marion Tinsley**, World Draughts Champion

**Ruth Sheldon**, World Girls' U-14 Chess Champion

**Judit Polgar**, Chess Grandmaster, World's leading female player

**Dominic O'Brien**, World Memory Champion

**Garry Kasparov**, World Chess Champion

**Lana Israel**, 18-year-old polymath

**Edward Hughes**, winner of the Baker Prize for top graduates from Harvard in 1993

**Jusuf Hariman**, outstanding academic who has overcome severe medical problems

**Natasha Diot**, 16-year-old Women's World Memory Champion

**Dr Chopra**, author of *Ageless Body, Timeless Mind*

**Sarah Chang**, *Gramophone* magazine's Young Artist of the Year, aged 12

**Patricia Breen**, 16-year-old, youngest ever World Ladies' Draughts Champion

Prize Trip Award, the most coveted award at the fair. In contention for the top awards are all first place winners in each of the 13 disciplinary categories: Behavioural and Social Sciences, Biochemistry, Botany, Chemistry, Computer Sciences, Earth and Space Sciences, Engineering, Environmental Science, Mathematics, Medicine and Health, Microbiology, Physics and Zoology. Lana, a first place winner in Behavioural and Social Sciences for which she received a prize of \$500, was the recipient of the top award at the fair and subsequently attended the Nobel Prize ceremonies last December in Stockholm, Sweden.

Lana also received four special awards at the ISEF. She was the Federal Aviation Administration's Grand Award Winner (\$500 and a plaque), the First Award Winner from the American Psychological Association (\$250 and a plaque), the First Award Winner for the US Air Force (\$750, a medallion

and certificate), and the Superior Award Winner for the US Army (certificate, gold medallion, and personal computer).

Lana is also talented in other directions: she is the top scorer in the Florida Women's Soccer League, is an accomplished cross-country runner and writes, plays and sings her own music. She has also obtained a special scholarship to Harvard.

### **Dominic O'Brien**

Dominic O'Brien is the reigning World Memory Champion whose feats in this field will already be familiar to readers of *Use Your Head*. In the 2nd World Memory Championships, held at Simpson's-in-the-Strand last year, Dominic finished well ahead of the other competitors and established a number of new mental world records. His most impressive feat was perfect recall of one hundred digits spoken at

## Past Winners of the Brain of the Year Award

1990 **Garry Kasparov**, World Chess Champion

1991 **Gene Roddenberry**, engineer, social philosopher, the mastermind behind *Star Trek*

1992 **Professor Stephen Hawking**, astronomer and physicist extraordinaire

the rate of one every two seconds. Dominic achieved this, under competitive pressure, not once, but twice.

Dominic became interested in memory only six years ago, in early 1988, when he watched Creighton Carvello memorise a pack of cards on the TV programme Record Breakers. Intrigued, he sat down with a pack of cards and set about devising his own memory system. His first attempt was far from auspicious - he took 26 minutes and made eleven errors. However, Dominic persisted and it was not long before he could memorise not just one pack of cards, but several. He achieved his first record of six packs at County Sound Radio, Guildford, in June 1988.

Having first been inspired by Creighton Carvello, Dominic then obtained further motivation from the film *Rain Man*, in which Dustin Hoffman plays an autistic savant with a phenomenal memory. In one scene in the film, Hoffman uses his talent to help his

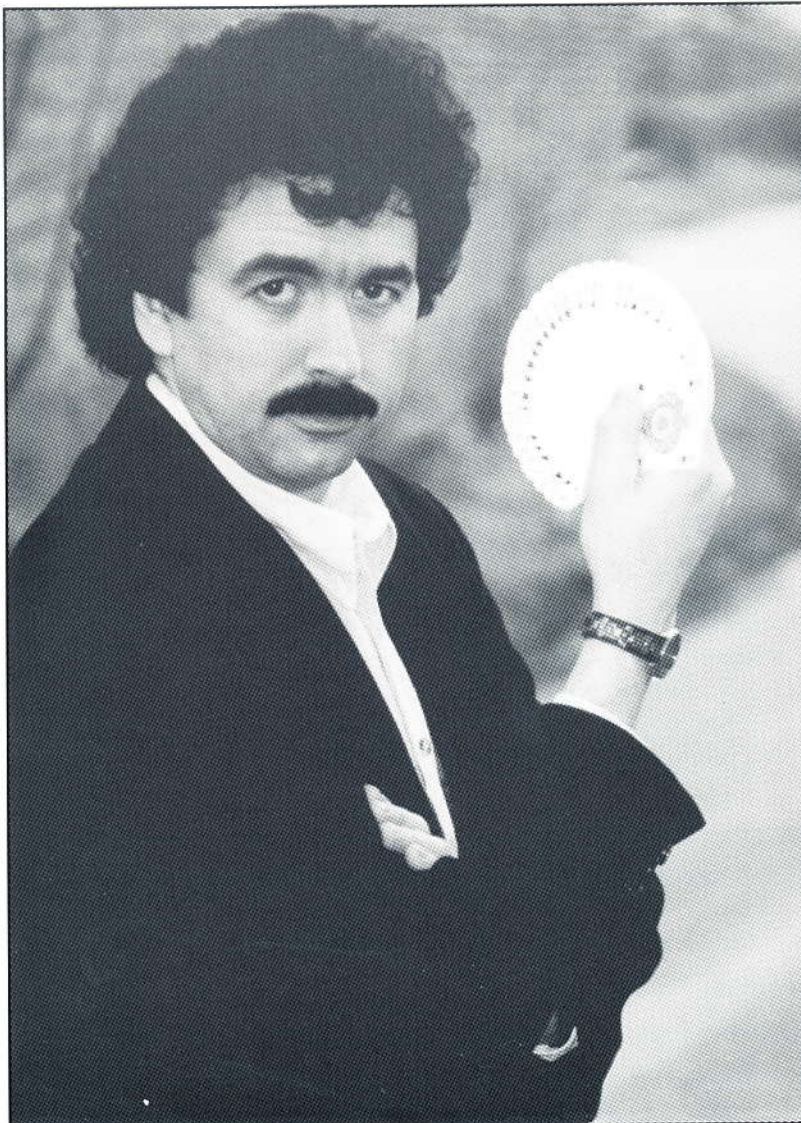
brother, played by Tom Cruise, clean up at the blackjack tables in Las Vegas. This struck Dominic as a potentially lucrative outlet for his talent and he spent the next six months analysing the game and developing his own strategy for success. Unfortunately, Dominic's meal ticket proved to be a temporary one. Casinos are wise to the techniques of card counters and Dominic is now banned from most of them.

In 1991 Dominic participated in the first ever World Memory Championships, held at the Athenaeum Club in London. In the final, the competitors were lined up head-to-head, and each given a pack of cards. On Dominic's left was the man who had inspired his own career, Creighton Carvello. Dominic started to deal, turning the cards over faster and faster, until Creighton lost his concentration. Dominic won the event and assumed the title of World Memory Champion.

Dominic does not recognise any limits to the potential of human memory and has continued to improve on his records and set ever more impressive ones. His achievements include: memorisation of a pack of cards in 55 seconds; 35 packs of cards (this particular task took 13 hours) and the entire set of Trivial Pursuit questions.

The number  $\pi$  (the ratio of the circumference of a circle to its diameter) has exerted a fascination over mathematicians for millenia.  $\pi$ , which starts 3.14159265..., is a transcendental number. This means it continues indefinitely, without ever dissolving into a repetitive sequence of digits. As such it is an excellent tool for memory tests. Dominic is currently planning an assault on the first 50,000 digits of  $\pi$ . This is a phenomenal amount of information to store in memory: to read out 50,000 digits at the rate of one per second would take over 14 hours. Nevertheless, Dominic is confident that he can commit the number to memory over a period of just two weeks.

Dominic reports that since developing his memory skills he has noticed improvements in other areas, such as sensory perception, reasoning abilities and




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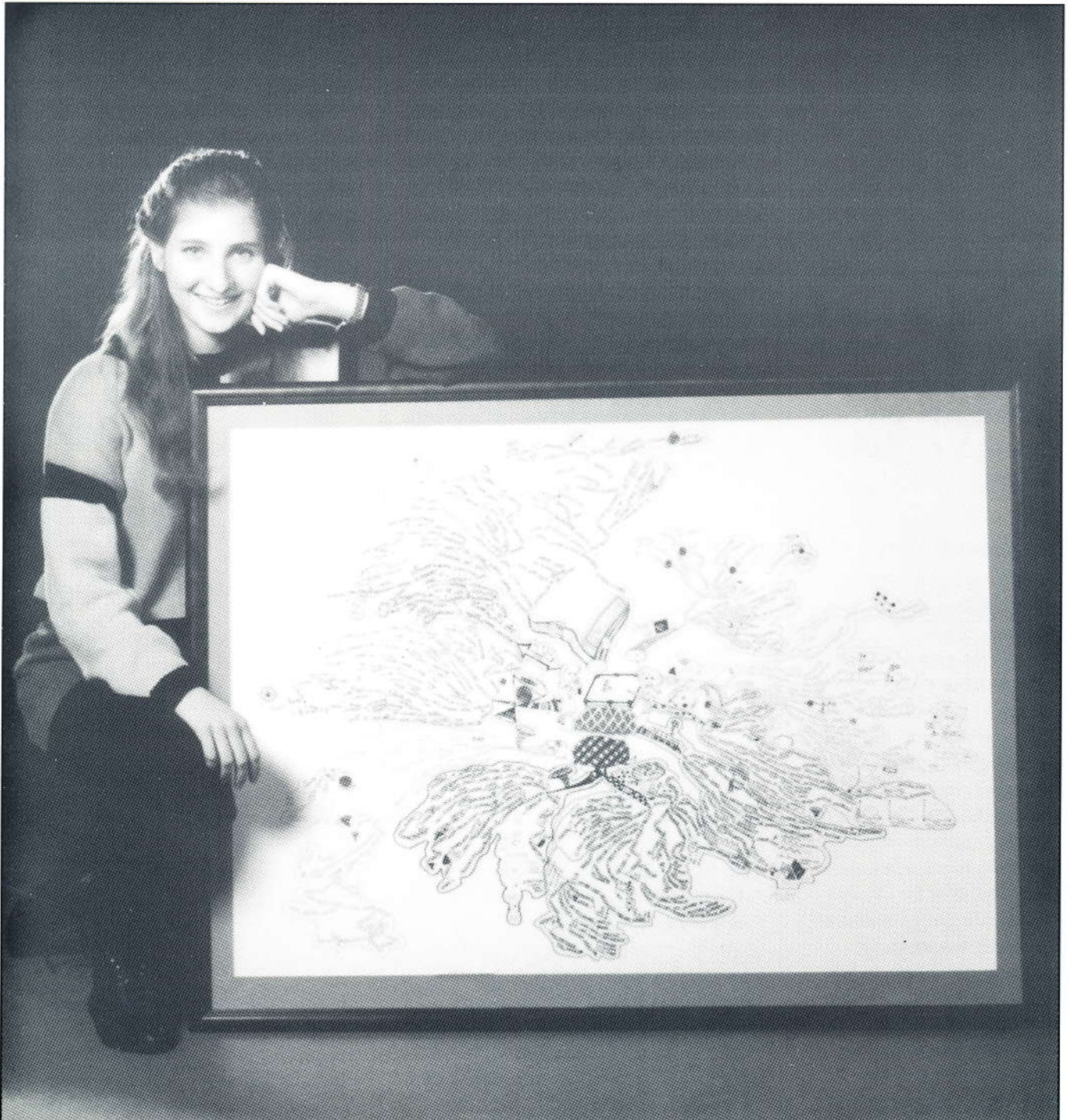
*Dominic and Lana ...  
with the tools of their  
respective trades.*

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even intelligence.

Dominic's feats should serve as an inspiration for anyone who wants to use his or her brain in a more efficient manner. After all, in an age of motorised transport, being able to run short distances very quickly is not a socially useful skill, but that does not prevent us from wanting to keep fit or

from marvelling at the achievements of athletes such as Linford Christie and Sally Gunnell. Everyone who feels their brain may have become slightly flabby and is daunted at the prospect of, for example, learning a new language, should take inspiration from Dominic's achievements. Training your memory is a form of aerobics for the mind.



# BRAINWAVE 1: NAUTILUS EQUIPMENT FOR THE BRAIN

*In 1989 it was discovered that it is possible to train people to control their own brain waves - very precisely and within a few days. The Alphalearning Institute was at the forefront of research into this field and, by August 1989, they had developed rudimentary equipment to accomplish this. One of the first brains to be trained with this new system was Tony Buzan's who then, on behalf of the Use Your Head Club, became instrumental in arranging funding for the project. Sponsoring groups have included the American Management Association, Raychem, ICL and Henkel. The result of four years' research is Brainwave I, which has just been completed.*

October 1989, Harley Street, London. Research by a group of psychologists meeting at Regent's College led to the discovery that the brain was digital, not analogue. It was primarily electronic frequencies that affected the state of mind and particularly the balance of the brain and body.

Within a year techniques had been perfected to enable an individual to duplicate - at will and on command - any desired brain wave frequency. Four major frequencies were utilised.

Beta - 14Hz for external attention and decision making

Alpha - 7 Hz for learning and concentration

Theta - 3 Hz for memory and creativity

Delta - 1 Hz for relaxation and pain control

Over the past five years extensive testing has been conducted on over 500 business executives and professionals.

The primary objective was to create a brain wave training system to maximise their abilities to read and remember the ever increasing pile of printed data moving across their desks (and computer screens).

That objective was achieved. An overall average increase of 300% in reading speed (from 250 words/minute to 700 words/minute) in only 5 days of training one hour a day. Comprehension and memory were also improved.

## **Then - Along Came Pyotr!**

A 17-year-old man with mild paralysis on the right side due to a fall and concussion at age three attended a student's course on advanced learning and study techniques. When he was trained with the optical acoustical equipment to achieve a left-right brain balance at 7 Hz he appeared to become nauseous for 10-15 seconds and then became extremely relaxed.

At the end of the 12-minute session he was able to stand equally balanced on each foot (he couldn't stand on the right foot before) and to exercise a firm grip with his right hand.

That was the summer of 1992 and so far over 250 executives had been tested with the equipment and since none of them had obvious brain damage nothing similar had occurred. Event noted with interest.

## **Then - Along Came Sofie!**

A 16-year-old with her left side paralysed and left arm convulsive from age two days, due to lung collapse and oxygen loss to the right brain. In a wheelchair for 16 years. Her father had heard about Pyotr and wished to try the Brainwave I with Sofie. This was in early 1993.

After the first 12-minute session the convulsions in the left arm were well under control. Within a month she was able to get in and out of the wheelchair alone. For the first time in 16 years she could take herself to the toilet.

Now over a year later positive side effects have been discovered in both cases - their physical and mental strengths continue to improve: Pyotr - IQ 75 up to 100, Sofie - IQ 85 up to 135.

The past is again confirmed in the present. From Ancient Greece, *mens sana in corpore sano*, the health of mind and body are inextricably linked.

See future issues of *Use Your Head* for full stories of these two remarkable children and the five more similar cases that followed.

## **Then - Along Came Harry!**

The eighth case occurred in February 1994. It was a two-year-old who could barely speak and had no idea what to expect. Therefore any 'placebo' effect was elimi-

nated.

See Harry's story below in his mother's own words.

### **Harry's Story**

When he was aged around six months I started to become slightly concerned about Harry. Try as he might he could never quite reach his right foot to pull his socks off. He could never suck his right toes. Little things - nothing really to worry about.

At ten months he was pulling himself up and I noticed the toes on his right foot were curled and his ankle was collapsing very slightly. Luckily we have a very supportive doctor who was sure there was nothing wrong but that there was no harm in him seeing an orthopaedic specialist. Harry's feet were X-rayed and, though slightly different, were declared normal. His legs were identical.

At fourteen months Harry began walking but, as the walking progressed, the early stumbling didn't disappear. The right ankle seemed to roll inwards, the toes remained curled. Harry developed a limp. I asked to be referred to a physiotherapist who immediately noticed that Harry's right arm was not functioning correctly either. The problem seemed to relate to the right side of his body and so she referred us to a paediatrician and foot specialist. Harry's shoes were adapted in order to counteract the tendency of the right ankle to collapse inwards and this seemed to help his balance. The paediatrician explained that Harry's problem was caused by a small blood clot on the brain during pregnancy. His disability was mild and would never get worse but we were terribly upset and I felt horribly guilty thinking I must have caused it, despite being told otherwise.

Harry began to see the physiotherapist and an occupational therapist on a regular basis and also found his own ways to cope with the problem. Unless people knew, they didn't notice his limp and stiff arm which tensed up while running. To me it was obvious and I felt tremendous frustration. I sensed that Harry's problem could be fixed and that there was someone who should be able to help if only they could be found.

On February 14th my husband Peter returned elated from the first day of a course on learning conducted at his work by the Alphalearning Institute. As he enthused on and on, I began to think that perhaps this man could help Harry in some way. I told Peter he must speak to the instructors about our son and, three days later, Peter rang home saying they

would like to see Harry that evening. As Harry's problem was a left brain/right body problem the instructors thought it was unlikely to have been caused by oxygen starvation, as this would more commonly be associated with damage in the right brain. More likely was a knock on the left side of the head at some stage. I had a number of falls during my pregnancy, one of which was particularly heavy, and there was no doubt in my mind that Harry's brain had received a knock and the instructors had told Peter that it was very likely that this could be treated.

That evening we took Harry along to see them. He was attached to an EEG brain monitoring screen which registered an active imbalance between right and left brain while he was drawing. He then sat by the Brainwave 1 machine with glasses on his head and synchronised sounds on earphones. He was perfectly happy and relaxed and could take them off at any time - which he chose not to do. The entire sequence took just twelve minutes.

Immediately after this we explained our concern about the muscle wastage in Harry's foot due to the peculiar way he holds it. The instructors asked us to remove his shoes and socks but they couldn't see the problem. This was ridiculous; we had lived with this problem for two years and knew what we were talking about. They then made us examine his feet closely. They were identical! The ankles were now vertical. We found ourselves looking at a perfect set of toes as Harry curled and uncurled them. He then stood on one leg demonstrating perfect balance and began flexing the fingers on his right hand as if experiencing new sensations. It was unbelievable. I asked apprehensively how long this change would last; expecting to be told minutes or, at the most, hours. When I was told that it was permanent, my eyes filled with tears. It was all too much to comprehend. I had come hoping for advice as to how best to help Harry and, instead, it seemed we would be leaving with nothing short of a miracle.

Harry was then monitored again on the EEG and this time the left and right brain readings were practically even. We then watched his walking. His head, which would normally tilt to the left when self-conscious, was central. His walking was as near perfect as you could get with a slight leg length discrepancy.

The Alphalearning instructor then explained how we must not encourage the right side. We must hand everything to him with both hands so as not to reinforce a preference. He also advised us not to refer to the now banished problem again; any references might perhaps cause a re-

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*It was all too much to comprehend. I had come hoping for advice as to how best to help Harry and, instead, it seemed we would be leaving with nothing short of a miracle.*

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**Authors**

This article is a product of the efforts of the Alphalearning Institute research team supported by the board of directors.

No single person was responsible. It was, and continues to be, a group effort by a team of professionals dedicated to the advancement of learning technology.  
March 3, 1994

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lapse. Positive reinforcement was to be the key to Harry's continuing recovery.

The next morning Harry walked into the kitchen on perfect feet and was soon busy with his crayons and scissors. The crayons were still picked up with his right hand and passed to the left, but he cut with both hands and I followed the advice and said nothing. The occupational therapist had been encouraging him to cut with the right hand but from now on there would be no encouraging of either side.

The biggest test was the trampoline. Instead of repeatedly falling, he bounced until he chose to fall. He was thrilled at the height he could achieve now that both legs were operating correctly. At first his right arm was held in its usual stiff, semi-bent position, but after a while he began experimenting with it. In the end he decided his balance was better if he dropped it to his side. He was enjoying himself so much that it was an hour later before he came off, his feet white with cold. By coincidence we had videotaped Harry trampolining the day before his experience with Brainwave 1 - his progress overnight was dramatic.

By Saturday, I was watching for improved upper body skills. His right arm was definitely more relaxed and he ran confidently, ducking under bars and swinging round poles, enjoying his new

found freedom. On Sunday he walked around the village for the first time without tripping. He also managed to walk down the steep hill without thinking to ask for a hand; a first - before now he hadn't been able to walk the length of the driveway without falling. He has since continued to become more confident and adventurous and is now experimenting with seat drops, knee drops, spinning in a controlled way and anything else he has seen his older brother and sister do on the trampoline. He is also enjoying walking on tiptoes for the first time and I've noticed his right foot is now more flexible than the left.

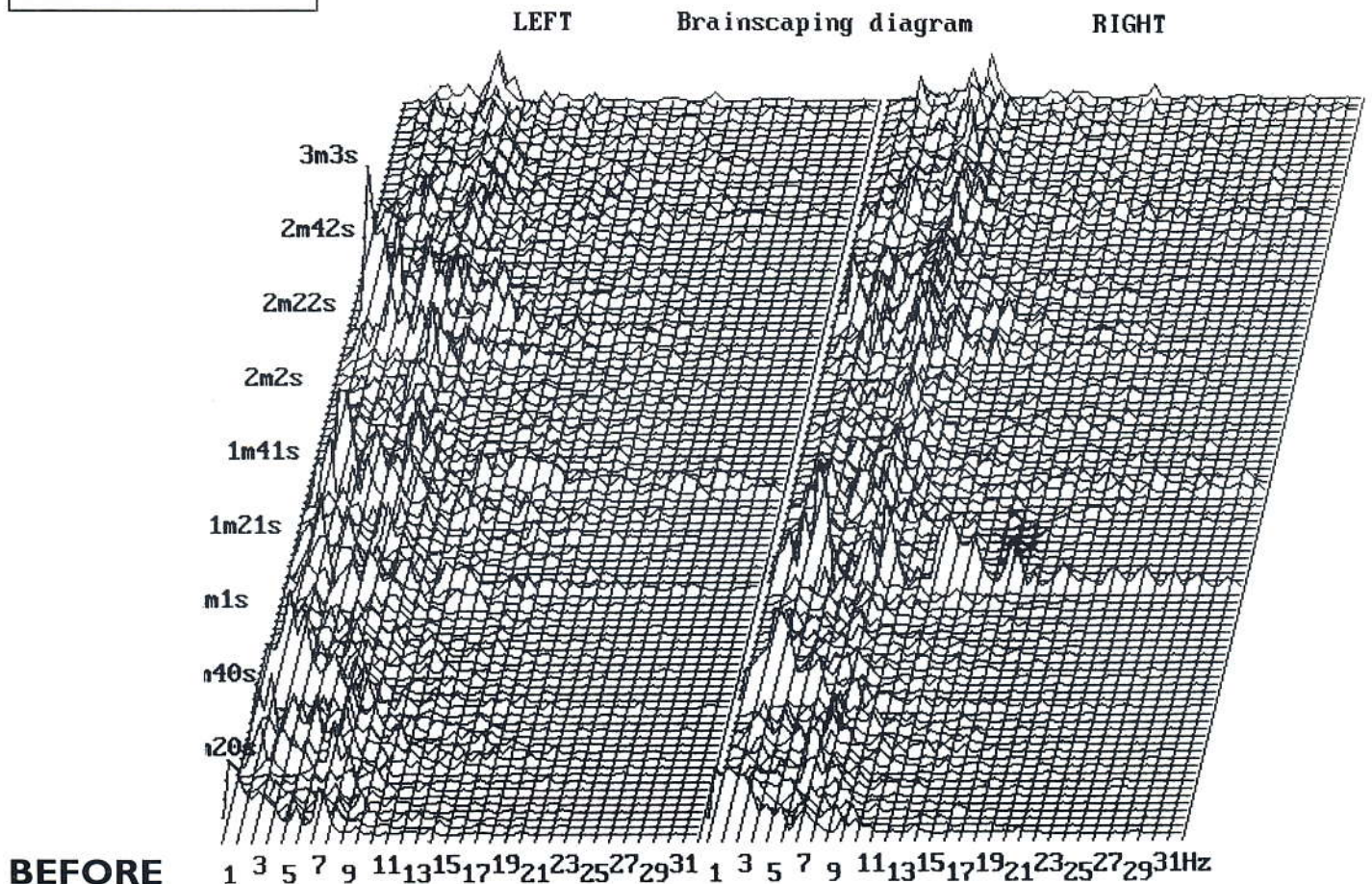
That day, 17 February 1994, will be the most important day of Harry's life. We shall certainly never forget a minute of it.

**Continuing the Project**

We at the institute fully encourage more research into this exciting new field.

Neurosurgery with light and sound waves is now a reality. Since the Fall of 1992 the Alphalearning Institute equipment and techniques have been capable of diagnosing (in ten minutes or less) any left/right brain imbalance, wave amplitude extremes and control lapses.

Within five minutes a custom computer



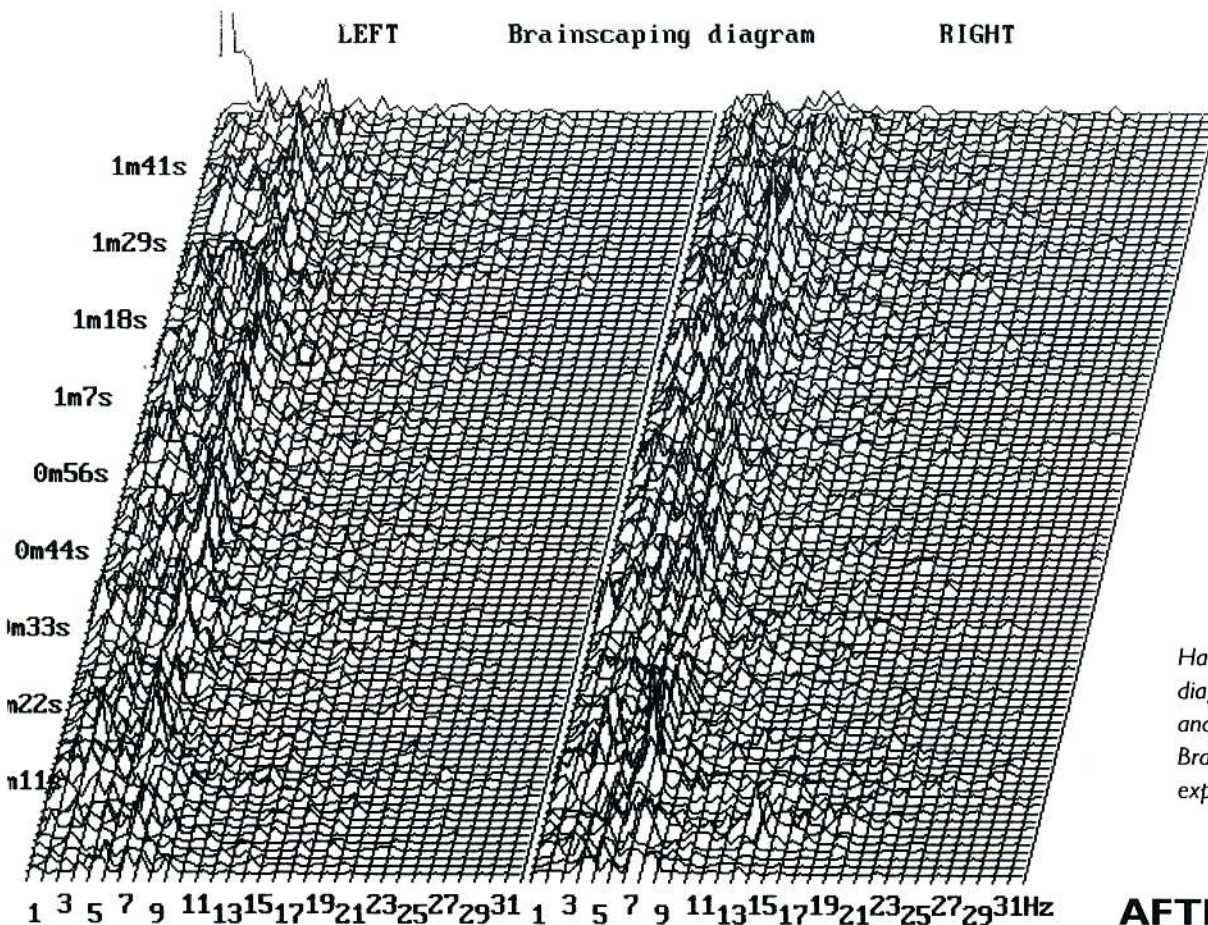
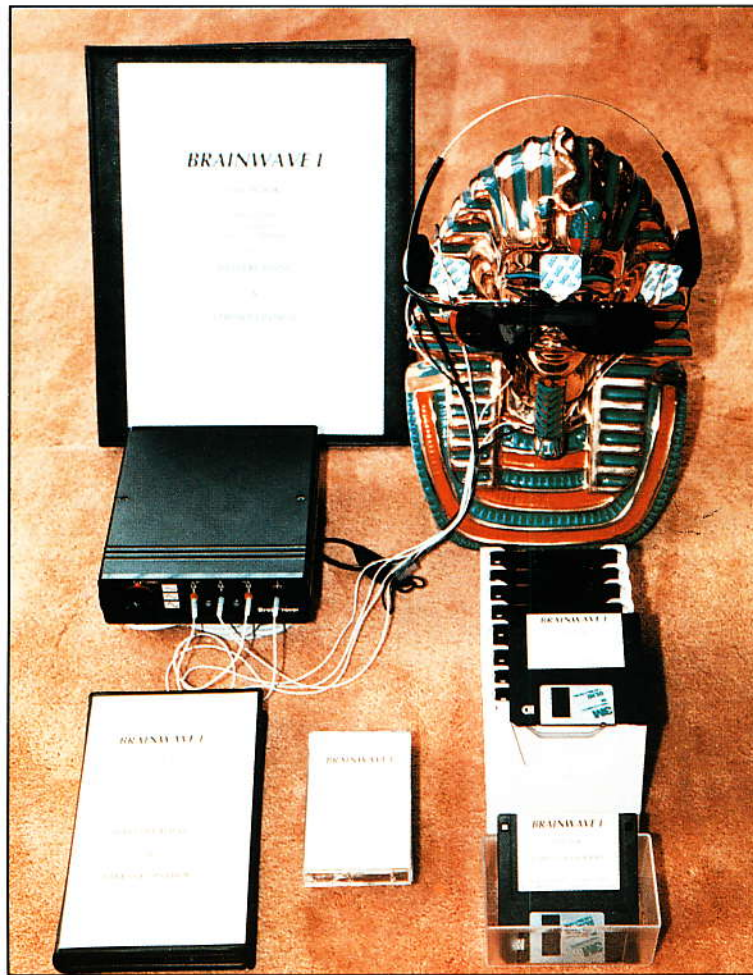
program is ready to bring precisely the above three factors into normal ranges. Then 12 minutes with only four soft gold lights flashing on each eye and soft sounds transmitting into each ear allows the brain to experience balance, relaxation and control.

The brain obviously likes what it experiences, stores the new data and is capable of reproducing the states at will.

200 individuals have been tested in the past 16 months; 100% have experienced significant positive changes in brain wave control and balance. Before and after EEGs were taken on all participants.

Information so far collected includes over 50,000 pages of data recorded from the brains of the participants, over 1,300 pages of the transcripts of tape recordings of the voices, discussions and treatments and over 200 hours each of audio and video clips.

The Brainwave 1 kit



Harry's Brainscaping diagrams, before and after his Brainwave 1 experience.

**AFTER**

## AMAZING MEMORY STORIES

### *Total Recall*

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*Toscanini conducted the whole piece, Verdi's Aida, without reference to the score, a practice he retained throughout his career.*

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#### **Sixty Years of Conducting**

The Italian Arturo Toscanini is widely regarded as the greatest ever orchestral conductor. For more than sixty years from the mid-1880s he conducted the world's leading orchestras in a uniquely individual and exciting fashion. His induction to conducting was sensational: Toscanini had trained as a cellist and was touring with an opera company in Brazil in 1886 when he was asked at the eleventh hour to take over the baton due to the unpopularity of the incompetent local conductor, against whom the Italian singers had gone on strike. However, the partisan audience took this as a national slur and chased off the original Italian replacement. In a situation of complete uproar Toscanini was asked to step into the breach and overcome the hostility of the crowd, hardly the most auspicious circumstances for any performer. But his surprise debut, at only twenty years of age, received rave reviews from the highly critical Rio press and was noteworthy for another feat: Toscanini conducted the whole piece, Verdi's *Aida*, without reference to the score, a practice he retained throughout his career. After this initial triumph Toscanini, not surprisingly, conducted for the rest of the tour.

Later Toscanini was to admit to one short memory lapse on that first tense occasion, but this was very much an exception. The pianist and composer Ferruccio Busoni, reported in 1911: 'His memory is a phenomenon in the annals of physiology; but this does not impede his other faculties ... He had just studied the very difficult score of Dukas's *Ariane et Barbe-bleue* and the next morning he was going to take the first rehearsal - from memory!'

#### **Proverbial Memory**

Another witness to Toscanini's powers was the famous composer Igor Stravinsky: 'Conducting an orchestra without the score has become the fashion, and is often a matter of mere display. There is, however, nothing marvellous about this apparent *tour de force*... one risks little and with a

modicum of assurance and coolness a conductor can easily get away with it. It does not really prove that he knows the orchestration of the score. But there can be little doubt in the case of Toscanini. His memory is proverbial; there is not a detail that escapes him, as attendance at one of his rehearsals is enough to demonstrate.'

The impressions of these two important figures are reinforced by many other stories of Toscanini's memory feats. For example, there is the famous occasion in which the NBC had scheduled the Prologue to Boito's *Mefistofele*, only to discover the night before rehearsal that the parts for the backstage band had been mislaid. Toscanini simply sat down and wrote them out from memory. In Vienna he was once challenged to write out the second bassoon part in Act II of *Die Meistersinger*, which he successfully completed.

#### **Eye Signals**

But why did Toscanini feel the need to conduct without a score in the first place? Undoubtedly, because he found it easy to do so, and perhaps also partly because of his short-sightedness, but more importantly because he realised that it enabled him to communicate much more effectively with the orchestra and concentrate on the sound being made than if he was constantly having to refer to the score. Conductors communicate with musicians not only with their hands, but also with their eyes, and Toscanini wanted to use his eyes to signal key messages to the orchestra.

Toscanini did not just recall scores parrot fashion; he also had a clear idea of the exact way the score should sound, and would fine-tune this with rigorous study of even very familiar pieces before each new performance. His absolute dedication and unrivalled musicianship enabled him to conduct some of the greatest performances of the last century, though he remained a modest man: 'I am no genius. I have created nothing. I play the music of other men. I am just a musician.'

Toscanini would not accept that in



producing a perfect performance of a work he was in some way interpreting it: 'I have often heard people speaking of the *Eroica* of Conductor X, the *Siegfried* of Conductor Y, and the *Aida* of Conductor Z. And I have always wondered what Beethoven, Wagner and Verdi would have said about the interpretation of these gentlemen, as if through them their works assumed a new paternity. I think that confronted by the *Eroica*, *Siegfried*, *Aida*, an interpreter, entering as deeply as possible into the spirit of the composer, should only be willing to render the *Eroica* of Beethoven, the *Siegfried* of Wagner, and the *Aida* of Verdi.' A noble intention - in fact Toscanini himself is known to have made some discreet addition and amendments to Beethoven's symphonies, but nothing on the scale of his famous contemporaries Stokowski, Furtwängler and Mengelberg.

Toscanini was also remarkably versatile: he did not just perform Beethoven, Wagner, Verdi and other established composers. During his early years as a conductor he gave world premières to such famous pieces as Leoncavallo's *Pagliacci* and Puccini's *La Bohème* and he later regularly performed the work of Strauss, Debussy and Sibelius.

### Memory Store

At the end of his career it is estimated that Toscanini had 250 symphonic works, 100 operas and numerous chamber pieces and

songs stored in his memory. Late in life he was challenged to recall from memory some of his own youthful compositions that he had written sixty or seventy years before and not looked at since. With only a few discrepancies he remembered them perfectly, text included!

*Arturo Toscanini - widely regarded as the greatest ever orchestral conductor.*



**Use Your Head** suggests that readers might like to duplicate the experiments and methods given in *Amazing Memory Stories* in their own lives and studies. We would also be glad to receive your own contributions about either personal amazing memory stories or those of others.

## INTELLIGENCE ABOUT INTELLIGENCE

### *Powerful Tunes*

Wolfgang Mozart - composer for the mind.

The new BBC2 television series *Big Science* featured two scientists who believe that listening to certain types of music can make people more intelligent. University of California physicist Dr Gordon Shaw examined

brain responses during abstract reasoning tasks and found a pattern of activity resembling that of music. Together with psychologist Frances Rauscher (an ex-professional cellist) he then attempted to find whether

providing music training to young children could improve spatial reasoning skills. The initial results were extremely positive: after 3, 6 and 9 months of lessons the children's abstract reasoning showed great improvement, just as predicted, and the fact that this was the only aspect which showed outstanding improvement suggests that music was not simply arousing them but training their brains.

Encouraged by these results, Shaw and Rauscher then decided to analyse what happens to adults when they listen to music. They compared three listening states: a Mozart piano sonata, a relaxation tape and silence, and tested spatial reasoning after each. Their results revealed that Mozart had an extremely positive effect.

What about other forms of music? Can listening to heavy rock, acid house or rap music have the same stimulating effects as Mozart? Shaw and Rauscher believe not, since these forms do not have the required structural and harmonic complexity. Shaw claims that 'we are born with some of the structure, there are certain natural patterns that can be excited, and when we hear Mozart's music it is pleasing for us because these natural patterns are being excited in our brain while we listen.'

The implications are clear: we need to be educated into classical music at an early age; the earlier the better. In future 'children will be given music lessons not just for music's sake (which is not to say that that is not valid) but also because it enhances higher brain functions,' says Rauscher.



# ANIMAL INTELLIGENCE

*Mowgli examines the insect world*

## A Flowering Attraction

Flowers tempt the brains of honey-bees with many enticements: smell, colour, shape, nectar and pollen. Scientists have now discovered another attraction - for when a bee lands on a flower, it feels a sensation that no one had noticed before, as the surfaces of flowers are textured with microscopic ridges, pimples and plates. These textures are so characteristic that plant taxonomists have been able to use them as a guide for distinguishing different plant groups.

At the University of Guelf, Ontario, Peter Kevan and Meredith Lane tested honey-bees with the petals of the sunflower *helianthus annuus*, and *xylorhiza wrightii* for signs of cues to texture. Sunflower is covered with pimples and *xylorhiza* with long ridges. Both flowers were coated with a thin layer of gold, in order to remove all signs of colour.

The honey-bees were trained to recognise the gold-plated flowers by being rewarded with a drop of syrup when introduced to the flower. Kevan and Lane then tested the bees by placing them in a simple y-shaped maze, offering a selection of the flowers in various orientations (Proceedings of the National Academy of Sciences USA, Volume 182, page 4750).

Throughout the test the bees were easily able to negotiate the maze, consistently knowing the difference between sunflower petals and *xylorhiza* petals. The bees were also able to distinguish between the upper and lower surface and the back and front of the sunflower.

As the scientists studied the bees more closely, they noticed them give their approval to an attractive flower by poking out their mouth parts, as if preparing to feed.

Further investigation has shown that insects negotiate surfaces by using special hairs on the tips of their antennae and various other parts of their bodies. The size and spacing of the texturing of the petals' surfaces matches the size of these sensory hairs. Honey-bees also use these hairs at the tip of their antennae to feel the thickness and smoothness of the wax walls of

their honeycombs.

It is hypothesised, also, that the difference in textures inside a flower could well guide the honeybee to nectar, just as the more familiar coloured 'nectar-guides' provide visual clues in many plant species.

All of this raises the question of the importance of touch in other interactions between insects and plants, e.g. the laying of eggs on leaves by moths and butterflies.

The range of temptations that flowers offer the honey-bee is remarkably similar to the range of skills attributed to the human cortex.

## Insects in the Driving Seat

The average insect is as good at communicating with others of its species as are human car drivers at communicating with each other. So says the International Symposium on Automotive Technology and Automation.

The experimental evidence was gathered by Masayoshi Aoki, of Seikei University, Tokyo. Once human drivers are isolated in their vehicles and prevented from talking or arguing with each other, they have five main ways of communicating, says Aoki.

1. Flashing headlights - the most popular.
2. Switching on emergency lights.
3. Switching on indicator lights.
4. Sounding the horn.
5. Raising a hand.

In terms of communication, the methods were poor. Flashing headlights, used by more than a quarter of respondents to Aoki's survey, had contradictory meanings. Drivers who flashed their headlights at each other might mean that they were going to give way, or might contrarily mean that they were going first.

Hermann Knoflacher of the Technical University of Vienna said that the research showed that drivers' communications were 'similar to the information system of insects'.

Was Knoflacher being unkind to the insects?! Mowgli has noticed no unintentional insect collisions. Who really are the better drivers, insects or humans? We look forward to *Use Your Head* readers' responses.

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*The range of temptations that flowers offer the honey-bee is remarkably similar to the range of skills attributed to the human cortex.*

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# ERNST & YOUNG STUDENT MEMORY CHAMPIONSHIPS

**On Sunday, 19 December the Ernst & Young Student Memory Championships took place at London's Simpson's-in-the-Strand. The whole event proved to be an outstanding success. Organiser James Lee reports.**

The seven finalists of the first Student Memoriad had to tackle a battery of mental tests: the memorisation of 480 binary digits, a list of 200 random words, forty lines of a previously unseen poem and an entire pack of randomly shuffled cards. The hardest test of all was the memorisation of 120 spoken numbers read out at a speed of one every two seconds!

After a gruelling four-hour challenge, Jonathan Hancock from Oxford University emerged the winner, memorising virtually everything perfectly. James Lee from Durham University came second and Natasha Diot, the only female competitor, was third. The youngest competitor, Alastair Levy, came an honourable fifth.

*Winner Jonathan Hancock receiving his prize from Ernst & Young representative Steven Young.*





From left to right: Jonathan Hancock, Alastair Levy, James Longworth, Natasha Diot, James Lee, J Holmes, J Gauntlet-Gilbert.

	Binary	Nouns	Spoken	Text	Cards	OVERALL
<b>Jonathan Hancock</b> <i>Oxford University</i>	480 1st	80 1st	91 1st	89 1st	4:38 1st	<b>1st</b>
<b>James Lee</b> <i>Durham University</i>	225 2nd	20 6th	34 2nd	71 4th	7:54 4th	<b>2nd</b>
<b>Natasha Diot</b> <i>St Davids</i>	90 5th	40 5th	16 6th	76 3rd	7:43 3rd	<b>3rd</b>
<b>J Gauntlet-Gilbert</b> <i>Durham University</i>	60 6th	60 2nd	19 3rd	35 5th	7:13 2nd	<b>4th</b>
<b>Alastair Levy</b> <i>Highgate School</i>	150 4th	50 3rd=	10 4th	78 2nd	41:00 7th	<b>5th</b>
<b>James Longworth</b> <i>Eton College</i>	60 6th	50 3rd=	10 5th	78 6th	27:22 6th	<b>6th</b>
<b>J Holmes</b> <i>Kent University</i>	210 3rd	0 7th	16 7th	18 7th	8:25 5th	<b>7th</b>

The 'binary', 'nouns' and 'text' events involve remembering random sequences. The 'cards' event scores the time taken to correctly remember an entire pack of shuffled cards. The 'spoken' event requires a sequence of digits to be remembered as they are read out at the rate of one every two records.

# GENTLEMEN OF JAPAN

**Japanese popular culture has a habit of becoming just as big in the West, as anyone who has used a Nintendo or a Walkman can verify. Could the same be about to happen with shogi? Raymond Keene and Les Blackstock investigate.**

In the past few years, sumo wrestling has become widely popular as a spectator sport in the west. Now Japan is exporting a more esoteric, indigenous pastime as increasing numbers of occidentals are taking up shogi, the Japanese national board game and their version of chess. In Japan there are a staggering 19 million regular shogi players, every newspaper has a daily column and tel-

evision offers a weekly instructional programme of ninety minutes duration. Sponsorship, which comes mainly from newspaper syndicates, is big business, with top professionals earning something approaching £1 million in one season. Earnings derive from prize money, salaries, game fees and royalties from books. Top shogi players are sufficiently well known to feature regularly

*World Shogi Championship, London 1992.*



## How Shogi compares with Chess

Shogi is played on a 9x9 board with 20 flat, wedge-shaped pieces per side. It has many elements that will be readily recognisable to the devotee of chess. In both games the aim is to checkmate the opposing king. Shogi players each have a king, a rook, a bishop and nine pawns, all of which move in the same way as their chess counterparts, but the knights are more restricted in scope. Additionally the shogi board sports the romantically named golds, silvers and lances, with moves that have no direct parallel in chess.

Most shogi pieces have the power of promotion, which in chess is confined to pawns alone, but undoubtedly the most striking feature of the Japanese game is the 'drop' which allows a piece captured from an opponent to be dropped back onto the board at strategic moments to reinforce attacks and defences. Captured pieces in shogi never vanish permanently from the board but instead defect to the enemy. This perhaps indicates that when shogi was being developed it accurately reflected the behaviour of real-life Japanese mercenary armies on the battlefield.

There is no castling move, but each player constructs his own castle by surrounding his king with defensive pieces. Perpetual check is not allowed although draws by repetition are possible, if uncommon. An even rarer form of draw, known as 'jishogi' can occur when both kings reach safety deep in the enemy camp. In games between players of different strength it is usual for the stronger player to give his opponent a certain number of pieces handicap. Unlike chess, but like go, handicap games work well in shogi and have their own extensive corpus of opening theory.

in TV advertising, promoting a range of products. In Japan the public image of shogi combines the popularity and glamour of snooker with the intellectual rigours of chess.

Shogi does have common roots with the western game of chess as we know it today. A branch of chess reached Japan in the eighth century AD and underwent 'improvements', much as chess did in the west. In the mid-fourteenth century stronger pieces were introduced to the shogi board and promotions and 'drops' were added. The earliest game score extant under the present rules was played in 1607 and in 1612 a Board of Shogi was set up and the leading players were awarded handsome annual salaries from the government. These players formed an hereditary caste in society, they and their descendants (by birth or adoption) studied shogi as a full-time pursuit and entertained the Shogun annually on the 17th November in the ceremonial 'castle' games played in the Edo Palace. The leading player of the day was recognised by the title Meijin, which was a lifetime appointment. This system continued until 1862.

At the end of the last century newspaper proprietors took over as the patrons of the top shogi players and there followed a period of factionalism concerning entitlement to the Meijin title, which was only settled after the foundation of the Japanese Shogi Federation in the 1920s. (This might be compared with the Campomanes/Kasparov - FIDE/PCA tensions on the contemporary

chess scene.) In 1937 the title of Meijin became the property of the Federation, who arranged for annual title matches, thus ushering in the modern tournament scene.

The newspapers retain a firm foothold in the shogi world by sponsoring professional tournaments. This gives them the exclusive rights to publish the game scores from these events. At present, the most lucrative annual tournament is called the Ryu O, the winner of which receives 32 million yen (around £200,000).

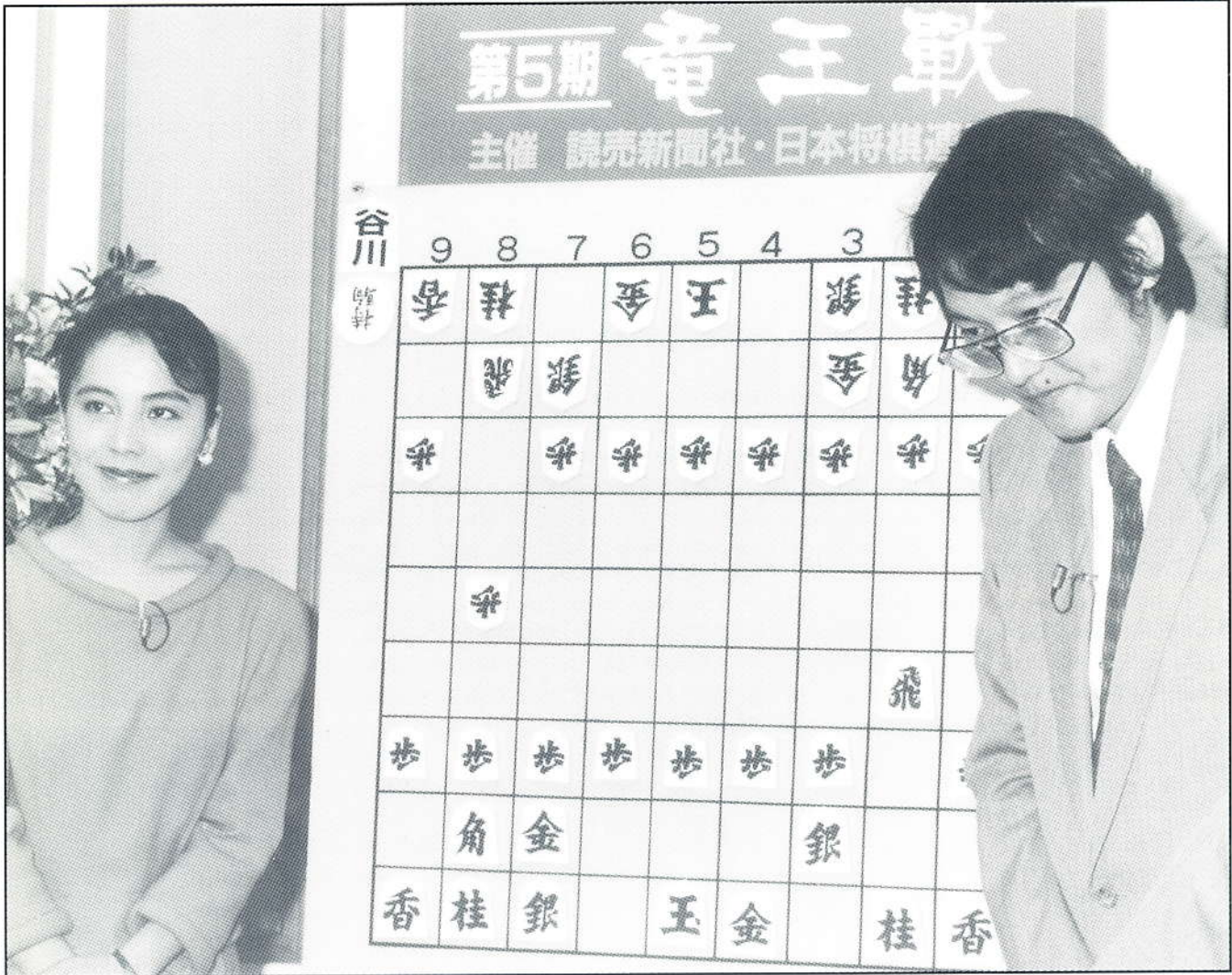
Currently there are about 128 professional shogi players in Japan, who compete for the Meijin title in league matches, with promotion and relegation. A new player enters the lowest league and must work his way up, taking at least five years to qualify for the Meijin match. The most recent match was fought between 27-year-old Tanigawa Meijin, who first took the title at the age of 21, and Nakahara Kisei, who at 42 has held the coveted Meijin title no less than 12 times. The up-and-coming young Habu has, at the age of 19, the best winning career percentage of any top player and recently became the youngest title holder in the history of the modern game.

At the level of top title matches each player is allotted an astounding nine hours thinking time. When this allocation is used up he is given so much time per move, usually a minute, and this is known as byoyomi, literally 'second-counting', as the time-keeper counts out the time aloud. The time taken to complete a top-class game contributes to the general aura of intellectual

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*In Japan there are a staggering 19 million regular shogi players, every newspaper has a daily column and television offers a weekly instructional programme of ninety minutes duration*

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The commentary room at the 1992 World Shogi Championships.

concentration that is associated with shogi. This association is reinforced by the kneeling posture adopted by professional players, who traditionally play on free-standing boards placed on the floor, with piece stands for the captured pieces. Visually this is indeed the complete antithesis of sumo wrestling! Nevertheless, shogi is hugely popular and its top adherents are revered as glamorous public figures with much higher profiles than their chess counterparts in the West.

In the west shogi is still very much in its infancy, but official organisations have already sprung up in the United States, Holland, France, Belgium and the UK.

### Want to Play?

Anyone whose appetite has been whetted and wishes to find out more about this fascinating game can visit the London Shogi Club which currently meets on Tuesdays at 7pm at East West Centre, 188 Old St, London EC1. Alternatively, further information about shogi can be obtained from the British Shogi Federation, Membership Secretary, 31 Simons Close, Tilehurst, Reading, Berkshire RG3 6GA.



# GREEK ISLAND UNIVERSITY

*Picture the bluest blue shown up against brilliant white buildings, sandy coves and clusters of small houses. Wafting on the gentle, warm Aegean sea breeze comes the aroma of grilled fresh fish and seasoned local vegetables. The only sounds, the lap of the waves tickling the shore line and quiet conversation and laughter between friends.*

*You are surrounded by history, the Kyklades (meaning ring, the shape made by the 34 islands) are where Leto fled to give birth to Zeus's offspring; Artemis and Apollo. Our island, Paros, mined for its beautiful marble, was the chosen home of Archilochos while fleeing from battle. His actions, and subsequent poetry, gave rise to the quote 'Live to fight another day', a philosophy which has helped Parians to survive. Later Paros was a part of the Roman Empire; invaded by Arab pirates; ruled by Venetians; then invaded by Turkish pirates who took and sold 6,000 Parians as slaves. Life is calmer nowadays, the only invasion being that of the Brain (aka Use Your Head) Club 4th annual University!*

*The Greek Island University will combine local discovery with lessons on the exploration and development of mental abilities, game-playing (chess, go etc.), swimming, discussion of worldly matters, relaxation and reading. A typical day might be:*

*7.30-8.30 general exercise - stretching and swimming*

*8.30-9.30 breakfast*

*9.30-1.00 morning session - mental training*

*1.00-2.30 lunch and discussion*

*2.30-7.30 free time including optional small group or individual activities*

*7.30-9.00 dinner and discussion*

*9.00-??? evening celebrations*

*Come to Paros to relax your body, inspire your mind, warm your heart and refresh your spirit.*



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Other considerations: .....

For further details and to reserve your place, please write to Buzan Centres Ltd, 37 Waterloo Road, Bournemouth BH9 1BD; or Fax 44 (0) 202 534572.

### ANSWERS TO WILF'S XMAS QUIZ (Vol 4 Nos 3/4)

1. Dickens' *A Christmas Carol* was 'God Rest You Merry Gentlemen'; it appears, by the way, that he believed the implied comma came *after* the word 'merry'.

2. The melody line for *Silent Night* was scored for guitar; its composer was a parish priest (in Austria) who had not received the promised new anthem from the big city, before his village became snowed in for the holiday. He sat down and composed this popular song as a replacement for his congregation to sing. He scored it for guitar so that he could play it himself.

3. The gold and frankincense might have been useful for the stable, had the magi arrived within a day or so of the birth of Jesus. When they arrived in Bethlehem, though, they found Mary and Jesus inside a house (Matthew 2:11). Herod had been advised of the birth of Jesus by these wise men, and apparently believed that by this time Jesus may have been as much as two years old (verse 16).

4. You will find the alleged relics (bones) of the magi in the 13th-century Gothic cathedral of Cologne, Germany. They were moved from Rome in the 12th century, where the magi (first identified as three in number) apparently retired.

5. The familiar tune of *Joy to the World* is simply a descending major scale!

6. As any devotee of West End musicals will know, the hero Joseph was renowned for his interpreted dreams ('any dream will do' was his catchphrase, according to Tim Rice). In the Christmas story in Matthew's gospel, Joseph the husband of Mary had four such dreams.

7. This little scene of erecting a decorative tree is depicted in the Book of Jeremiah. However you should notice that the prophet says that this is a 'worthless custom', nearly equivalent to erecting an idol!

8. The films *Die Hard* and *Die Hard II* depict the violence that ensues as off-duty policeman Bruce Willis single-handedly rescues his wife from terrorists ... on successive Christmas Eves!

9. Why mistletoe? Well, it's not entirely simple: mistletoe was a sacred

symbol to Druids and the like - and only mistletoe could kill the Norse god Baldur. The Druid priest would marry a couple from his parish under mistletoe, using it to symbolise fertility: you see, those two berries at the stem were thought to resemble ... no, I'll be delicate and leave it to your imagination. Later, Celtic Christians used a sprig of mistletoe as a door decoration, and so these two uses appear to have combined.

10. Hallowe'en and Christmas equal? They are if you write the equation OCT 31 = DEC 25. You see OCT refers to the 'octal' radix (where each column in a number is worth *eight* times as much as its right-hand neighbour) and DEC refers to the 'decimal' radix most of use each day. You will note that '31' is the octal equivalent of the decimal number 25, so OCT 31 = DEC 25.

11. You may remember that back in the middle of the 18th century, the British Empire finally corrected the calendar and got rid of eleven excess days that had accumulated over the centuries (too many leap years). Catholic countries had done this correction a long time before, but Anglicans didn't like to admit that Pope Gregory had a good idea in his calendar reform. The Russian Orthodox church has been even more consistent in its sticking to the old calendar. 'Little Christmas' is still December 25th - but only inside the Russian church. Don't worry - in about 1,300 years our calendars will align again (ours will have lapped theirs by one year). Before the Russian Revolution, the whole country used the old calendar; this is why the anniversary of what they called 'the October Revolution' takes place in November!

12. The twelve days of Christmas owe their existence to the Church calendar. The 'first day of Christmas' is 25th December itself. Christmas is at the end of Advent, and twelve days later the next season - Epiphany - begins. Epiphany is the festival celebrated on 6th January, celebrating the visit of the Magi. Being so close to Christmas itself, the festivities of the season blurred the original meaning of the dates. The festival of Epiphany continues in two references I know of: the superstition that the Christmas tree must be removed by 6th January, and the name of Shakespeare's comedy, *Twelfth Night*.

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# USE YOUR HEAD CLUB NEWS

## Headboard

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### BRAIN TRUST DRAW

As further support to the objectives of the registered charity 'Brain Trust Limited' (Reg. No. 1001012), the Council of the Trust is pleased to announce the launch of a quarterly draw with many attractive prizes.

The proceeds of the draw will be devoted to supporting of the objectives of the Trust which include:

- Research into learning how to learn
- Research into thought processes
- Developing thinking processes
- Improving memory techniques

It is intended to achieve as much publicity as possible for these works, which, in the light of increasing emphasis on improving employee performance, are becoming increasingly important to us all.

Draw tickets will be on sale from mid February and will be priced at 50p each. Any support by way of prize donations or help in selling the actual draw tickets themselves would be much appreciated by all of us on the committee. Suggestions as to how to maximise ticket sales would also be welcomed, as would nominations of particularly worthy endeavours that these funds might support.

If you would like to support this venture please write to the Brain Trust Draw Committee, c/o Tony Buzan, Harleyford Manor Estate, Marlow, Bucks SL7 2DX (Tel: 0628 482765).

### LONDON NEWS

The busy London cell's diary for the next few months includes the following:

March 18 Group Practice: Mnemonics and Mind Maps

April 22 Thinker's Guide to Money

May 20 Group Practice: Mnemonics and Mind Maps

June 17 Evening with Tony Buzan

For further details please contact Michael Roman-Pintilie, 93 Fox Lane, London N13 4AP (Tel: 081 886 7106).

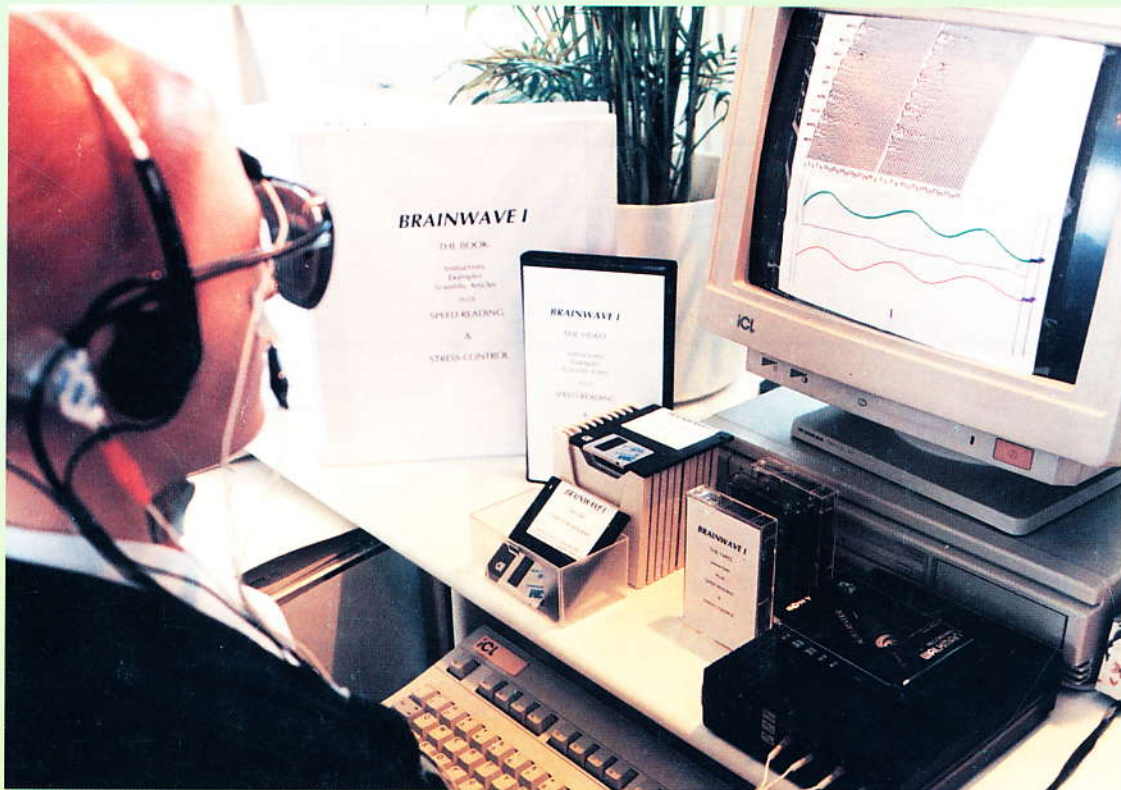
### NEIL McKEE SEMINARS

In the last issue a series of seminar days run by Neil McKee was announced.

Neil has requested us to point out that the title 'Accelerated Learning' was in error. All of those with 'Radiant' in the title are Buzan Centres Ltd validated training and have nothing to do with Accelerated Learning Systems Ltd.

### MENTAL WORLD RECORDS

Material for the forthcoming *Book of Mental World Records* is currently being compiled. If you know of any achievements which should be included, please contact Tony Buzan, c/o Harleyford Manor Estate, Marlow, Bucks SL7 2DX (Tel: 0628 482765). The closing date for submissions is 31st March, so if you plan to memorise your local telephone directory, please do it quickly!



## **BRAINWAVE 1 IS FINALLY A REALITY**

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*Forbes - (the worlds' premier Business Magazine)*

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4. IQ increased 10%-30%.
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6. Students grades up 3 levels, i.e. C's to A's or D's to B's.

**Conclusion:** Optical acoustical brain training equipment used properly and with correct frequencies increases learning and memory very substantially.

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According to Maxwell Cude, author of The Awakened Mind (over 4,500 EEGs tested) "To achieve an Alpha frequency of 9 Hz requires two to five years meditation experience. With ten to twenty years' practice we find the Alpha frequency around 7 Hz".

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