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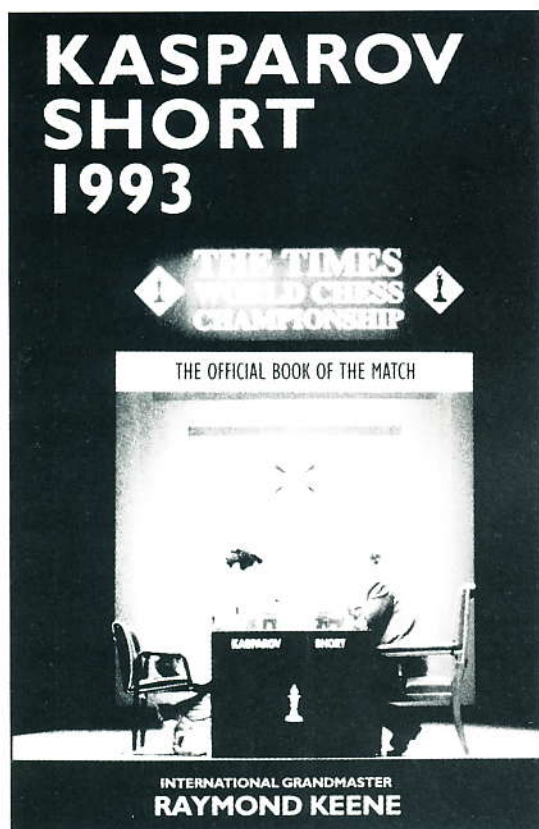


In this issue

- How To Increase Your Baby's Intelligence •
- The Developing Brain •
- Judging the Milk of Humankind •
- Everything You Always Wanted to Know about Babies •

KASPAROV VS SHORT 1993

The Official Book of the Match



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Here is a record of the games with full annotations by Grandmaster Raymond Keene based on the player's own comments after each game.

In this inside account, Grandmaster Raymond Keene, one of the world's foremost chess writers, describes the action both on and off the board. As a Channel Four presenter and *The Times* correspondent he played a key role in the breakaway from FIDE and had exclusive access to both Kasparov and Short during the match.

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SYNAPSIA

EDITORIAL

Rocking the Cradle

The contradiction between free will and determinism is one of those that has run throughout philosophical debate from early times to our own, taking on different forms at different stages. The philosopher Spinoza, for example, in his work *Ethics*, articulated the argument that there is no such thing as free will and that circumstances are ruled by absolute logical necessity; everything that happens is a manifestation of God's nature, and it is logically impossible that events should be other than they are. Other philosophers were less happy with this rigidly deterministic framework which seems to place us in a clockwork universe where 'God' releases the spring at the start of time and we all shuffle along predetermined paths until the spring finally uncoils.

A different aspect of this argument is the nature versus nurture debate. Are we all little more than a distillation of the genetic material of our forebears, or are we capable of being moulded by the influences that we are exposed to in our own environment? Those of a deterministic inclination would probably have it that the most accurate indicator of babies' potential is the genetic hand dealt to them at conception, and there is little that can be done to alter this. Clearly, and particularly in terms of physical development, this is going to be an important factor: if the parents are both below average height, their offspring is unlikely to become a basketball champion. However, in terms of mental development, the brain is capable of assimilating phenomenal amounts of information and, the more it is nurtured, the more it will have the potential to achieve.

In this issue of *Synapsia* we explore the growing body of information that supports the theory that the brain thrives on stimulation and, the more it gets, the more it evolves. This is particularly important at the very early stages of development: in the first six months of its life, a baby's brain doubles in size, over the next two years, it doubles again, and by the age of five, the brain has reached 90% of its eventual adult weight. By this stage, the child's intellectual development has effectively been

completed.

There are many ways by which such progress can be enhanced, and Sue Whiting (in her article 'How to increase your baby's intelligence') clearly outlines the objective of such an approach. It is not to create a child genius who will speak Greek at the age of three or pass maths 'A' level at six, but in the hope that 'my daughter will be an "all-round person" - be musical, linguistic, mathematical, have a good general knowledge and be physically sound. If she can get a good start in every field, she will be able to pursue what she wants to and choose the career which gives her the most satisfaction and fulfilment.'

Every newborn child is a potential Leonardo da Vinci. The great Renaissance sculptor Michaelangelo described his work as 'freeing the image that already existed inside the block of stone', and it is possible to view a child's development in the same terms. The American poet William Ross Wallace wrote: 'For the hand that rocks the cradle, is the hand that rules the world.' Our advice to parents interested in maximising their child's potential is to keep on rocking.

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.

Festive greetings to all Synapsia readers from the editorial team.

The editor welcomes contributions to *Synapsia*. Please contact him at: 23 Ditchling Rise, Brighton, Sussex BN1 4QL.

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The term and concept Mind Map referred to in this publication is a trademark.

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

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Brain News

Luke Strikes Again!

Synapsia Vol 3 No3 featured an interview with nine-year-old chess prodigy Luke McShane, who had recently won the World U-10 and British U-14 Championships. At this summer's Lloyds Bank Masters Luke followed these achievements by becoming the youngest-ever player to achieve an international rating. On the way he defeated American FIDE master Josh Manion with a spectacular queen sacrifice.

The Secrets of Lenin's Brain

In January 1924 Vladimir Ilich Lenin died at his country house near Moscow. As a nation mourned, the Communist Party took the decision to 'take all measures available in current science to preserve the body for as long as possible', reasoning that although the father of the revolution had died, his body must be preserved to maintain an aura of immortality. For two years his brain was kept in formaldehyde, with no plan as to what should be done with it, before a German professor named Vogt was given permission to study it in his laboratory.

Vogt's research, which was later taken up by his pupils Filimonov and Sassikov, involved splitting Lenin's brain into 31,000 pieces and comparing it with other brains. Although thousands of hours were spent in mapping and analysing Lenin's brain, it was not until very recently that any details of the research were allowed to be released, with somewhat anti-climactic results: Lenin's brain weighed 1,340 grams, much less than Turgenev's two-kilo brain, and, according to the director of the Moscow Brain Institute, Dr Oleg Andrianov, the author of the first account of Lenin brain studies, he was not a genius. Apparently, there is not even a clear link between brain structure and intelligence: Lenin had a large frontal lobe and unusually high number of especially big pyramidal neurons, but Andrianov says, 'all we can do is speculate about what that means.' According to Steven Rose (author of *The Making of Memory*), 'You cannot tell from a dead brain whether it belonged to a man or a woman, or even a chimpanzee or a human.'

The Ernst and Young Student Memory Championships 1993

Following on from the success of Memoriad '93, James Lee is organising a student memory championship to take place at Simpson's-in-the-Strand on 19 December.

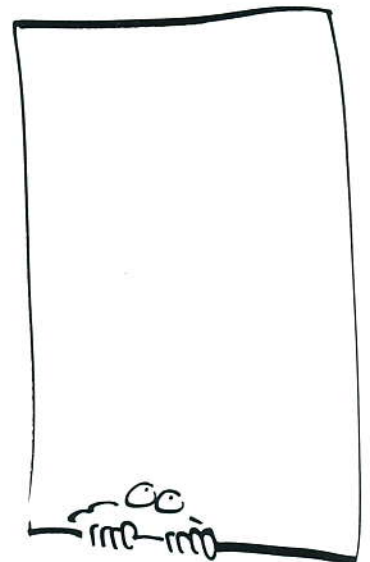
This event, sponsored by Ernst and Young, will be the first of its kind. To date, competitors from Durham University, Oxford University, University of East London, Eton College, Highgate School and St. David's School for Girls in Ashford have all entered.

The schedule is as follows:

- 9.00am Memorisation of 480 digit binary number.
- 9.15am Recall of 480 digit binary number.
- 9.30am Break.
- 9.45am Memorisation of 200 concrete nouns.
- 10.00am Recall of 200 concrete nouns.
- 10.15am Break.
- 10.30am Memorisation of 120 digit spoken number (2 attempts).
- 11.00am Break.
- 11.15am Memorisation of short piece of text.
- 11.30am Recall of text.
- 11.45am Break.
- 12.00pm Memorisation of single pack of cards.
- 12.10pm Recall of single pack of cards.
- 12.20pm End of competition.
- 1.00pm Prize-giving.
- 1.30pm Photocall.
- 2.00pm Lunch.

There is no entrance charge for spectators. However, anyone wishing to come along must get in contact with James Lee beforehand at Flat 3, 123 Canfield Gardens, London NW6 3DY. Tel: 071 625 6899.

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



HOW TO INCREASE YOUR BABY'S INTELLIGENCE

In her article 'Pre-School Learning' in *Synapsia* Vol 3 No 1, Dr Sue Whiting (BCM 318) discussed the ways in which Glenn Doman's studies of children's development were helping both brain-damaged and normal children. Here she recounts her first-hand experiences of using Doman's method with her own baby, Fiona.

How old were you when you first began to use Tony Buzan's educational methods? However old you were, I bet that, sooner or later, you wished that you had started when you were younger. My ten-month-old daughter, Fiona, has already started her

development program. She's not too good with Mind Maps yet (she prefers to chew paper rather than write on it), so we are initially following Glenn Doman's Early Development Programme (for pre-school children).



Why Glenn Doman?

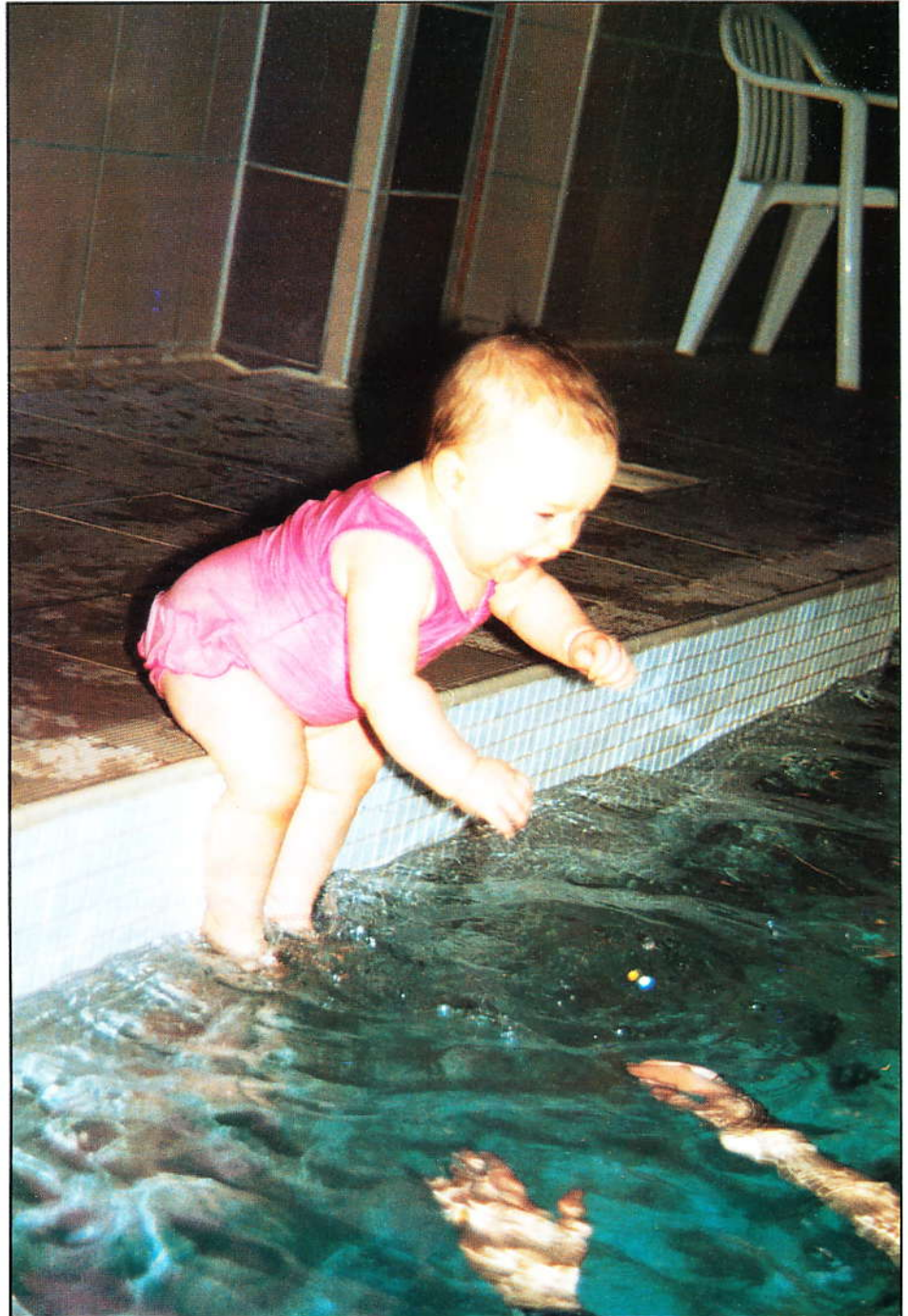
Through his research with brain damaged children, Doman realised that the upbringing of most normal children was done by accident - by the whim of a parent. If the children came from a musical family, they would probably be musical, since they would be growing up in a musical environment. Likewise, academic, sporty, multilingual or artistic parents would probably have academic, sporty, multilingual or artistic children - not because of the genes, but because of the environment. So, by controlling the environment it should be possible to have children who would excel at all these things: hence Doman's 'Renaissance Children', i.e. children for all seasons, mentioned in my previous article.

With Fiona, I am not trying to create a genius who will go to university at the age of 11, nor even someone who will be top of her class at school. Rather, I hope that my daughter will be an 'all-round person' - be musical, linguistic, mathematical, a good reader, able to appreciate art and literature, have good general knowledge and be physically sound. If she can get a start in every field, she will be able to pursue what she wants to and choose the career which gives her the most satisfaction and fulfilment.

Doman's method, being so carefully structured, is a very efficient way to expose children to all different stimuli.

The Different Types of Intelligence

Doman has defined six different types of intelligence: auditory, visual, tactile, mobility, language and manual. These, therefore, are the areas requiring stimulation. Exactly what stimulation would depend on the child's stage of development (there are



seven such stages, called a Development Profile, for each type of intelligence). For example, babies need to 'see' light and dark numerous times before they can successfully follow with their eyes someone walking around in the room. This happens quite naturally with day and night; however, if a bright light is switched on and off in a darkened room, a parent can ensure that there has been sufficient exposure to this type of stimulation. Incidentally, this is how blind children have been taught to 'see' at the Institute for the Achievement of Human Potential, which Doman established.

Fiona's Programme

*How exciting life
must be when
you are ten
months old!*

Mobility

Crawling is probably be the most crucial part of any child's development. According to Doman's research, crawling helps to organise the mid brain. It also develops convergence of vision (the ability of focusing the eyes on an object about a foot away). Indeed, he has found a strong correlation between poor readers at school and children who did not go through a crawling stage in their development. Older children (from three years upwards) with learning difficulties, often benefit tremendously from a crawling 'Programme'. However, why bother to do this when you can help to prevent the learning difficulty from arising in the first place by encouraging your baby to crawl?

Although Fiona has never slept on her tummy, in accordance with today's general recommendations, at other times I have encouraged her to lie on her tummy for short periods of time. Now that she is able to crawl, she is on the floor as much as possible. What a wonderful time she has had: climbing into the dishwasher, emptying the washing machine, chewing clothes out of the tumble dryer and generally emptying cupboards of all descriptions! Whenever she hears a forbidden and child-proofed door being opened, she's in like a shot! How exciting life must be when you are ten months old!

We frequently go swimming - which she loves. It's fun watching her 'jump' into the pool, from a sitting position, while I sing Humpty Dumpty to her. I avoid using a pushchair unless I am walking a long distance. I consider it far more natural and stimulating for her to be in a sling (not a back pack - there are many brain-damaged children at the Institute as a result of an accident from one of these).

Auditory

For the month before Fiona was born, I tried my own experiment - I frequently listened to two beautiful pieces of Mozart's music, with which I knew I would never be bored. After she was born, Fiona responded in a positive way to that music. In particular, it seemed to calm her when she was distressed.

I have been teaching her perfect pitch from a very early age, using a perfectly pitched xylophone (not a toy one). Nearly every time she has her nappy changed, I simply play one note and tell her its name. Now she is older, I also show her the note on the treble clef. Rhythms have also been tapped out for her, as well as letting her listen to music at home. We have a different composer or type of music every week - and I tell her the composer's name. How she disliked the Australian Aborigine music! Attendance at her sisters' Suzuki piano lessons and their practices increases her exposure to music. Unfortunately, she regards 'cello practice time as 'Fiona's chase and chew the bow' time! When I sing songs to her, she now nearly always 'sings' with me!

I have naturally talked to her a great deal - but that will be dealt with under 'Language'.

Visual

When she was very tiny, I did the light-switching exercise, mentioned above, telling her 'light' and 'dark'. Further stimulation was then provided by showing her black and white drawings.

From this we progressed to Glenn Doman's 'bits of intelligence'. These are large, clear, precise, discrete, unambiguous pictures (either very accurate drawings or top quality photographs) which are glued onto white cardboard. They are grouped in series of five (later ten) by subject matter; e.g. five or ten different types of dog, or different aeroplanes, or old masters.

By having them all the same size and on easy to handle and durable cardboard, it is possible to show a baby ten related 'bits' in 10-15 seconds. So, instead of wasting time telling Fiona that the picture she saw was a dog, I show her ten pictures in very quick succession of ten different breeds of dogs. Doman's contention is that this method stimulates more pathways in the brain. After each 'showing' I shuffle them so that they are in a different order the next time. This keeps the baby's interest much longer than if they were presented in book form. A group of 'bits' initially starts off with a lifetime of 30 showings before boredom sets in, but this rapidly diminishes. Fiona

Babies have an amazing ability to just absorb language. (Think how quickly they learn English, or whatever native language they speak, from a start point of zero knowledge.)

children from reading by merely printing text in a size which is too small for them. Fiona has now 'read' several simple home-made books and appears, judging by her grins, to have thoroughly enjoyed them. I naturally do not expect her to read out loud - in fact the Institute recommends that young children should never be encouraged to read aloud: it is merely a form of 'testing' which drastically slows their reading speed.

Language

This includes both native and foreign tongues. I have talked to Fiona, treating her as an intelligent human being, from the time she was born. The rhymes I have said to her have ranged from Shakespeare to nursery rhymes. She has enjoyed them all.

French songs in the car and a French tape at home form the basis of her exposure to that language. In addition, I speak to her at set times of the day in French. My French is pretty basic and I often resort to 'ouvre la bouche, ferme la bouche et avale' - but even that has taught her three verbs and a noun! Any French people, from whom I've requested useful phrases, have always been extremely helpful. When she is a little older we shall read French magazines, obtained directly from France by subscription. I have found that with a little practice I can read the 18-month level of magazines quite fluently! My Polish friend, also a member of the Brain Club, speaks to Fiona in Polish in return for a piano lesson, and Fiona has also heard Japanese, Welsh and Russian.

Babies have an amazing ability to just absorb language. (Think how quickly they learn English, or whatever native language they speak, from a start point of zero knowledge.) I'm not trying to make Fiona bilingual, but I hope she will never struggle with languages as I did. Another positive benefit is that her life will be enriched by being aware of other nations, other languages and other cultures. This surely has to be the future way of the world.

Tactile

This type of intelligence will enable Fiona to tell what an object is by merely feeling it. I encourage Fiona to 'feel' different surfaces around the house and I explain what they are. Because of her almost unlimited crawling opportunity, she is exploring most of the time and doing her own laboratory test

on anything interesting: she looks at something and then feels it. It is then shaken and listened to before the quick sniff en route to the mouth for a good suck and taste. Those are the five pathways to the brain, so a baby has learned all it needs to in probably less than a minute.

Manual

At meal times I give her 'finger foods' to encourage her to pick things up with her fingers. I also let her hang from my fingers for about a second at a time. All of this is intended to develop Fiona's ability to do precise work with her hands - in particular writing - in due course.

Conclusion

Most of the techniques I have described can be found in Doman's books (see the appendix). The one week 'Better Baby Course' held at the Institute for the Achievement of Human Potential in Philadelphia explains the background as well as demonstrating the techniques. It's a wonderful opportunity to meet other parents and to see children who have been brought up from birth using Doman's ideas. I think I can honestly say that attending the course was the most exciting week of my life. (I have not yet attended one of Tony Buzan's one week courses!) About 80 people attend each course. Although there is naturally a preponderance of Americans, people come from all over the world. One additional benefit of the course is that it is possible to be on the 'off campus' Programme and receive regular mailings of raw 'bit' material from the Institute. This saves hours of research.

The courses are not widely publicised but, as Salk once told Doman, there is no need for much publicity - the people who are interested will eventually find out about the Institute, and those who are not would never be interested, no matter how much publicity was given. Do be warned, though, that if you attend such a course your attitude and treatment of your children will never be the same again!

Early Development for children is an extremely controversial area. Undoubtedly in some cases it goes badly wrong, but if Doman's guidelines are followed, i.e. only do those things that you are happy and confident doing, present everything in a happy and joyful way, and be guided by what your

child wants, I really can't see there being a problem. Fiona and I are having a wonderful time together. She is a lovely, happy baby and I am very happy with what I am doing.

Doman believes that every baby is born with a potential greater than that of Leonardo da Vinci - so where are we all

going wrong? Why do so few people achieve academic excellence, appreciate the arts and end up with satisfying careers? I regard both Glenn Doman and Tony Buzan as enlightened people who are bringing the world out of the Brain's 'Dark Ages'.



Appendix

Glenn Doman has published a number of books on the subject of pre-school learning, including the following:

How to Teach Your Baby to Read (there's also a reading kit, to save making up the words)

How to Teach Your Baby Maths (kit also available)

How to Give Your Baby Encyclopaedic Knowledge

How to Make Your Baby Physically Superb

What to Do About Your Brain-Damaged Child

How to Multiply Your Baby's Intelligence

These books and materials may be purchased directly from the address below, but I obtained the first two of these titles (published by Jonathan Cape) at large book shops such as Foyles and Dillons. The latter four titles are published by the Better Baby Press and Doubleday and Company in the USA.

The address for the Institute for the Achievement of Human Potential is 8801 Stenton Avenue, Philadelphia PA 19118, USA.

THE DEVELOPING BRAIN

The early development of the baby brain is a period of intense neural activity when brain cell interconnections are being forged at a furious pace. It is never too early for the brain to start learning, writes Netti Pietkiewicz.

Having heard the mother's heart while in the womb, this sound is recognised by the baby and has a soothing effect.

Netti Pietkiewicz, freelance writer and polyglot, feels her flare for languages owes much to her mother having spoken to her as an intelligent adult from birth.

Brain Spurts

The brain takes longer than any other organ to reach its full development, and its growth pattern is markedly different. In most other organs, basic development is completed in the womb. Further growth in size is through cellular division as the body grows. The brain, on the other hand, has its full complement of cells before birth - that is why the heads of babies seem out of proportion to the rest of their bodies.

Research carried out during the last ten years builds on previous evidence that the brain begins elaborating on the connections between cells whilst still in the womb, using spontaneously generated signals. At about eight weeks after conception, the first of the 'Brain Spurts' begins (the term 'Brain Spurt' relates to increased development of the brain). Over the next five weeks the majority of nerve cells are formed. This second 'Brain Spurt' begins approximately ten weeks before birth and continues for about two years after birth. The second spurt is a period of intense activity for the brain cells: interconnections are refined, tuned and expanded. This increase in connectivity results in a rapid growth of the brain. At birth it weighs 25% of its adult weight, at six months it is 50%, at two and a half years 75%, and at five years 90%.

Introduction to the World

Studies have shown that a child responds positively and specifically to the tones of the human voice at birth. A high-speed film of a newborn baby, when slowed down and examined frame by frame shows tiny gestures on the part of the child are synchronised with specific tones and syllables from the parent(s). Sounds other than the human voice produce no such response. This

implies that some linguistic skills are learned while in the womb. Having heard the mother's heart while in the womb, this sound is recognised by the baby and has a soothing effect.

Tom Bower's research on infant perception at the University of Edinburgh shows that a child experiences a three-dimensional world from birth. Using polarizing goggles so that the left and right eye see different images, he created the visual illusion that there was a solid object in front of the baby. Bower found that even newborn babies stretched out their hands to touch the apparent object, but as soon as their hand closed upon empty air instead of a solid object the baby started crying. This shows that at birth a child expects visual objects to be tangible and indicates a simple unity of the visual and tactile senses.

Sight and Sound

Other experiments at Edinburgh have shown that sight and sound are also integrated, the newborn turning its head in the direction of a sound, especially the mother's voice. They have shown that a baby is also born with the ability to recognise smells as pleasant or unpleasant, turning its head toward or away as appropriate.

The newborn child can also recognize a human face. Robert Fantz, a researcher at Western Reserve University in Cleveland, presented day-old children with the choice of looking at a picture of a face, a bull's eye, newsprint, and coloured circles. He found a preference for the human face, most of the babies looking at it far more than the other objects. Mark Johnson of Carnegie Mellon carried out similar tests on infants as young as ten minutes; and observed a marked preference for pictures of faces to pictures

of blank ovals or faces with scrambled features. This implies, according to Johnson, that humans are born with a 'template' of a face which helps us to discern the source of food, warmth and protection.

Babies who are spoken to as human beings rather than just cooed at have a much greater opportunity to pick up language. A rich early environment, where one or even both parents consciously aim to develop their child's sensory experience, can speed up and enhance development. As early as 1952, Aaron Stern decided his daughter, Edith, could benefit from a consciously stimulating environment. From birth, he talked to her as much as possible (not baby talk), played classical music, and showed her flash cards with numbers and animals on them. This technique has been adapted and used by countless other parents, with very positive results.

Ramps, Ladders and Wheels

To assess the effect of a rich environment on brain growth, Mark Rosenzweig, at the University of California at Berkeley, allowed a group of baby rats to grow up in a cage full of ramps, ladders, wheels, tunnels and other stimuli. A second group was left in barren cages. After 105 days the brains were examined, showing the brains of the rats raised in the rich environment to be

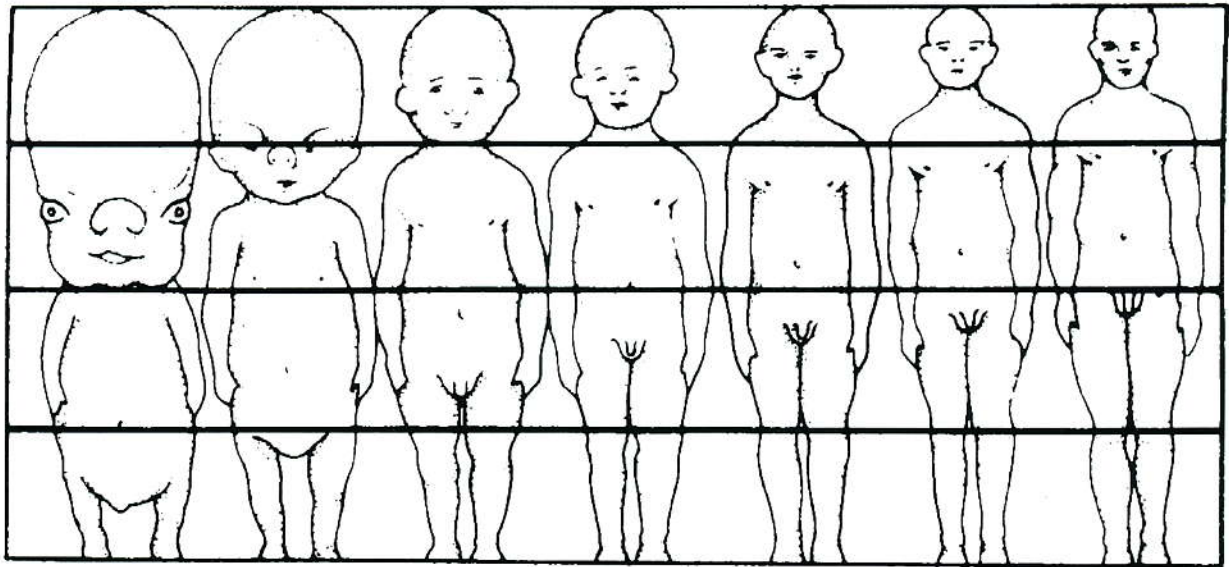
larger than the control group. There were also 15% more glia cells, and the neuron bodies were 15% larger, and, perhaps most importantly, there were more interconnections with other neurons.

The belief in biologically-programmed core knowledge lies at the heart of most baby development research, not only with mathematics and physics, but with other cognitive skills. Just when such a core of knowledge is programmed is as yet uncertain. Since 1988, when a special multi-electrode device was invented at the California Institute of Technology, it has been more possible to detect and measure cells in the brains of mammal foetuses firing impulses to each other, making, tuning and adapting connections while in the womb. Work carried out on such neural activity suggests that it is during the 'Brain Spurts' that the interconnections are developed, rather than each neural connection being stored in our genes. Giving the thousands of connections which need to be formed in the brain, the former theory would need much less genetic information to be stored. It would imply that genetic blueprints are worked on as the baby is in the womb and during infancy.

Nature versus Nurture

The above is a relatively new hypothesis.

Humans are born with a 'template' of a face which helps us to discern the source of food, warmth and production.



2 months (fetal) 5 months newborn 2 years 6 years 12 years 25 years

Relative sizes of the brain and body at different ages.

The main issue is the happiness and fulfilment of the child, and the joy of parenting lies in taking an active part.

Much work needs to be carried out to develop and demonstrate it. It would add a vital new insight into the nature versus nurture debate.

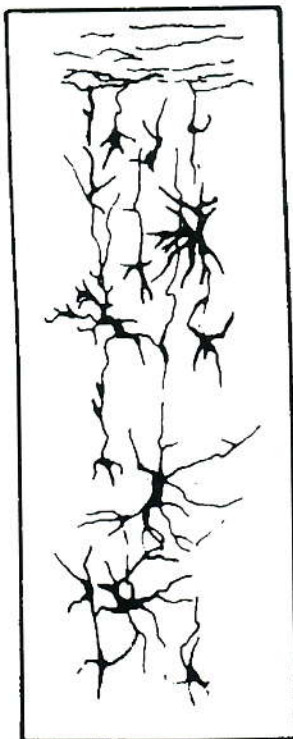
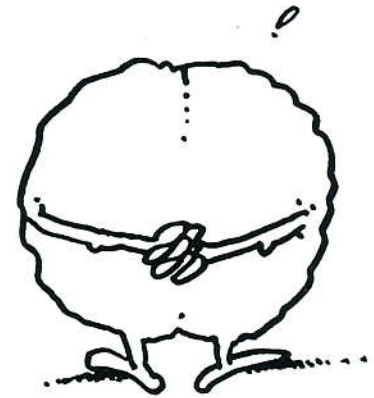
In a field of research which involves a multitude of theories, studies and conclusions, revelations of the potential of babies given the right stimuli will continue to encourage parents. The influence of nurture, however large, gives all parents the chance to help their offspring as much as they can, in whatever way they see fit and feasible.

Whether due to genetic programming, or whether due to the interconnections made between neurons whilst still in the womb and during the critical first few months, our awareness of babies' mental abilities and capabilities is growing. Whatever ways parents find to encourage and enhance their children's mental development, two key points must be considered:

First, continuity must be observed. A child whose abilities are more developed than those of his or her schoolmates may deliberately hold back in order not to

appear different or to avoid jealous derision.

Secondly, care must be taken to truly respect the developing child's wishes and interests. Having invested a lot of time, emotion and hopes, parents must be aware of not putting too much control on how the fruits of their labour are used. The main issue is the happiness and fulfilment of the child, and the joy of parenting lies in taking an active part.



At birth

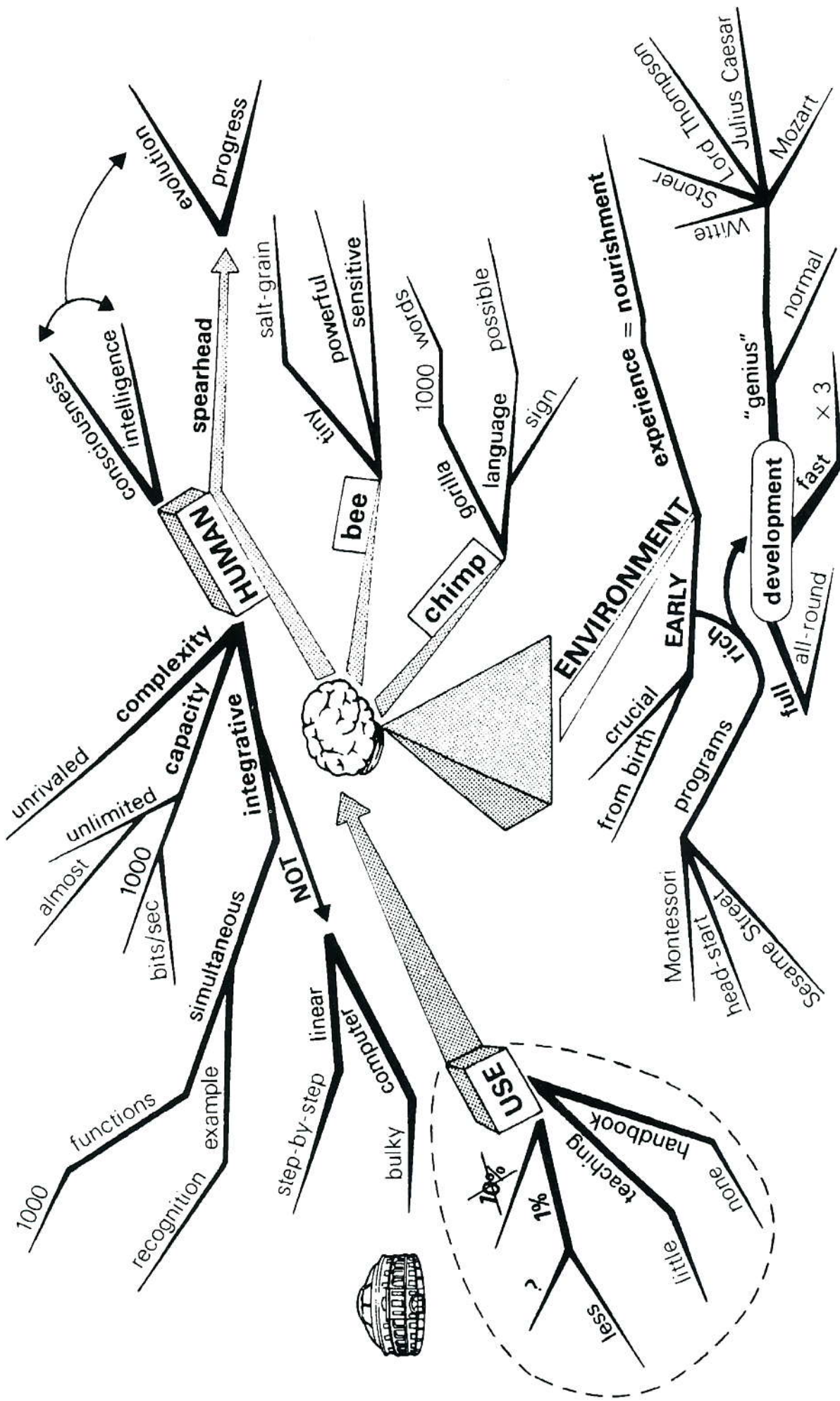


At 3 months



At 15 months

Sections from the cerebral cortex of children at birth, at 3 months and at 15 months, showing the increased number of fibres.



BRAIN OF THE YEAR 1993

This year's list of candidates shows a marked female presence. We profile twelve of the nominations to date, six of whom are young, gifted and female.

Lana Israel

Using Mind Mapping methods, 18-year-old Lana Israel achieved six out of the 13 available first prizes for school science students at this year's International Science Fair. She also walked away with the overall Grand

Lana Israel - Mind Mapping her way to success.



Prize and as a result will be the guest of the king and queen of Sweden at this year's Nobel Prize ceremony. She has obtained a special scholarship to Harvard and earlier this year gave a six-week lecture tour in South Africa as a guest of the country. She is also one of the top five women cross-country runners in Florida as well as being the top goalscorer in the Florida women's soccer league.

Dr Chopra

Dr Chopra's recent book *Ageless Body, Timeless Mind*, has swept into the US best-seller list. The book concerns the use of the brain and thinking to extend life expectancy and explores the concept of global intelligence. Dr Chopra is also renowned for his polymathic knowledge of science and art.

Patricia Breen

In 1989, at the age of 12, Patricia Breen challenged for the World Ladies' Draughts Championship. Her remarkable showing of six wins, six losses and eight draws, amazed the sedate, conservative draughts world. In March 1993, Patricia, then aged 16, scored a sensational victory in the long awaited rematch, beating Mrs Joan Caws by eight wins to one, with five draws, thus becoming the youngest-ever champion. Patricia, from Co. Carlow, in the Irish Republic, is the oldest of three sisters, all of whom are academically bright, especially in mathematical subjects. They are also all gifted draughts players - the comparison with the chess-playing Polgar sisters is irresistible.

Ruth Sheldon

One of the most remarkable chess performances of 1993 was the success of Manchester schoolgirl Ruth Sheldon in the World Girls' U-14 Championship in Bratislava, ahead of a strong field including a Russian

and a Georgian (former women's world champions Nona Gaprindashvili and Maya Chiburdanidze both hail from Georgia). Ruth followed up this triumph with a shared first place in the British (mixed) U-16 Championship and a highly creditable result in the Lloyds Bank Masters, where she sensationally defeated Indian international master Koshy in only 23 moves.

Having learnt the moves only four years ago, Ruth now has a BCF grading of 175 and an international rating of 2040, a figure which is sure to rise when the new list is published in January. Her fearless, aggressive style makes her a force to be reckoned with over the next few years.

Judit Polgar

Seventeen-year-old Judit is the youngest of the three Polgar sisters and has been causing major upsets in the chess world since she was eight. In 1991 she won the Hungarian National Championship and thus became the youngest-ever grandmaster (male or female) in chess history. Bobby Fischer once famously claimed that he would be able to give any woman in the world odds of a knight (i.e. start the game with a piece less) and win. Most chess commentators would seriously question Fischer's chances in a head-to-head match against Judit on level terms, let alone at a handicap. This year, she defeated Boris Spassky (Fischer's opponent in their famous match in 1972) in a match by 5.5 to 4.5. She is currently ranked in the world's top 50.

Jusuf Hariman

Jusuf Hariman is a 38-year-old registered psychologist, corporate accountant, business analyst, writer, and a fourth year law student at Macquarie University in Australia. He was given special permission to do the first three years of law in one year and finished with A grades apart from one B, the law prize as the best student of 1991, and a 100% score for legal debate. This was the first time in the history of the university that anyone had achieved total marks



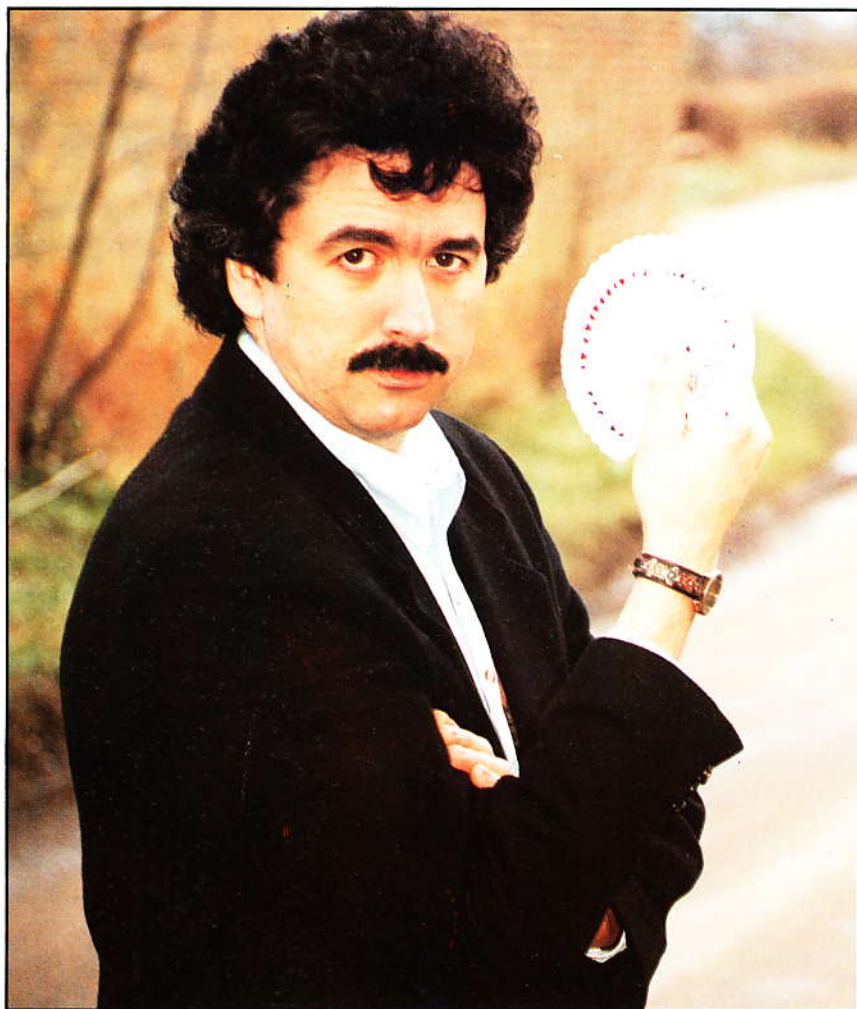
Judit Polgar - youngest-ever chess grandmaster

for that subject. He has written over 80 works on psychotherapy and management, and his name is listed in leading Who's Who publications, including *Who's Who in Australia*.

These achievements did not come easily for Jusuf. He has been suffering from cancer and all types of other health problems. X-rays show that the bones of his neck are degenerating, giving rise to excruciating pain, and he also suffers from a severe form of hypogonadism, the effect of which is similar to extreme diabetes. Jusuf's battle against the odds persuaded Julian Simpole (previous editor of *Synapsia*) to nominate him for Brain of the Year.

Jusuf Hariman - winning against the odds





Dominic O'Brien - the Linford Christie of memory

Sarah Chang

Twelve-year-old American violinist Sarah Chang has just been voted Gramophone Magazine's Young Artist of the Year, in recognition of her remarkable performances in the world's leading concert halls and her stunning first disc 'Début' (released by EMI). Described by Yehudi Menuhin as 'the most wonderful, ideal violinist that I have ever heard', Sarah began playing when she was four, and first appeared with a top orchestra at the age of eight. She made her London début in October last year, when she performed with the London Symphony Orchestra at the Barbican Hall. As *Synapsia* went to press, Sarah was scheduled to make a second appearance with the LSO, performing Paganini's Violin Concerto No 1. A full feature on this remarkable young lady will appear in a forthcoming issue.

Dr Marion Tinsley

Sixty-six-year-old Dr Marion Tinsley is the world draughts champion. He is arguably more dominant in his field of mental expertise than anybody else has ever been in any other field. He has been world draughts champion for approximately two-thirds of his life and during that time has lost the incredibly small total of seven games.

Last year, Dr Tinsley accepted a challenge from the programmers of Chinook, a draughts-playing computer program that had beaten all the other top players, to a world championship match of 40 games. Despite the hectic schedule of four games a day, and the immense mental effort required to concentrate continually against an opponent who could analyse three million positions per second, Dr Tinsley emerged triumphant. Such a performance at the age of 65 is encouragement to anybody who fears that their mental faculties may fade with the advancement of years.

Dominic O'Brien

Dominic O'Brien is the Linford Christie of memory. At this year's Memoriad, he retained his world memory title (first won in 1991) and broke a number of world memory records along the way. Dominic's remarkable memory skills, which he has developed over the short period of five years, are completely self-taught. He has now written a book detailing his techniques. Watch out for a review of *How to Develop a Perfect Memory* in the next issue of *Synapsia*.

Edward Hughes

The story of Edward Hughes is one of remarkable academic achievement. At school, his teachers refused to put him forward for the Cambridge entrance exams as they thought he had no chance to pass and that it would be a waste of the school's money. So, Edward paid for himself, passed the exams, went to Cambridge and eventually graduated with two Star First Class passes and three 2.1s. He was immediately offered a job as a strategic thinker for a multi-national entrepreneurial company.

Edward's full story can be found in *Use Your Head* by Tony Buzan.

Natasha Diot

Sixteen-year-old Natasha Diot from Sunbury is the Women's World Memory

champion. She obtained this title in the recent memoriad in London where in one of the events, text memorisation, she outscored the master himself, world champion Dominic O'Brien.

Garry Kasparov

Thirty-year-old Garry Kasparov has been world chess champion since 1985 and is, by general agreement, the greatest chess player ever, a position he confirmed by defeating Nigel Short this year (see Raymond Keene's report elsewhere in *Synapsia*). As well as successfully defending his title on four occasions, he has also been an extremely successful participant in many of the strongest tournaments ever held. Examples of his achievements are: 12/14 at Tilburg, 9.5/11 at Belgrade 1989, 8/11 at Linares 1990, 10/14 at Tilburg 1991, 10/13

at Linares 1992 and a repeat 10/13 at Linares 1993. These tournaments featured the top players in the world and the last two had a reasonable claim to being the strongest tournament ever held at that time.

Many grandmasters find playing Kasparov a unique experience. The English grandmaster Tony Miles, for example, lost a match against him (by the crushing margin of 5.5 to 0.5) in 1986 and commented: 'I knew I would be playing a strong chessplayer - a very strong chessplayer, and that the match would be very tough. What I did not expect was to be playing a monster with six eyes who could see everything.'



Natasha Diot - Women's Memory Champion.

Garry Kasparov - 'a monster with six eyes who sees everything.'



JUDGING THE MILK OF HUMANKIND

Breast is best. Breast-feeding is natural and delivers exactly the right food at the optimum temperature. It creates a loving bond between mother and child and delivers immunity from illness and infection. It also, according to the latest research, gives children a valuable intelligence boost.

This is what new mothers are told these days - but is it all true? In the past few years, there has been a world-wide debate raging among doctors and scientists as to whether there are magical ingredients contained in breast milk which confer superior intelligence.

The recent findings of Dr Alan Lucas and his team at the Dunn Clinical Nutrition Centre in Cambridge, and published in *The Lancet*, seemed to show that, at eight years old, children who had been given breast milk at birth - whether or not they were actually breast-fed - did better in IQ tests than those given formula feeds.

This extra intelligence seemed to be due to something in the milk, rather than whether the parents were more intelligent or gave more attention.

Dr Lucas' conclusions, based on a sample of 926 premature babies, were hotly disputed by other researchers. Two large-scale studies, one carried out in Melbourne, Australia, and the other at Wayne State University, Detroit, in the United States, found that breast-fed children were brighter than the bottle-fed, but concluded that these differences were solely attributable to the greater intelligence and superior parenting of mothers who breast-feed.

In other words, these researches could find no magic IQ factor in the milk alone. But the implication of these three studies is clear: mothers who really care about the intelligence and well-being of their children will never shove a bottle in their mouths.

During the 1960s, when the fashion for

bottle-feeding was at its height, new mothers had to struggle to be allowed to breast-feed their hospital-born babies. All has changed. Thanks to intense campaigning by the National Childbirth Trust (NCT) Breastfeeding Promotion Group, which recently celebrated its 25th anniversary, and also the American La Leche League, breast-feeding is encouraged at every turn.

The La Leche League is particularly militant about breast-feeding, with its insistence that feeding should be completely baby-led, and continue until the child wishes to stop. This means that it is not all that unusual for toddlers and even two and three year olds still to be breast fed.

Any new mother who finds breast-feeding difficult or who is not sure she wants to become a 24-hour milk-dispensing machine can now contact, free of charge, a breast-feeding counsellor, who will come round to her house to persuade her to give her baby 'the best start in life'.

But does all bottle and no breast really make for dull children? Dr Lucas, the head of infant and child nutrition at the Dunn Nutrition Unit, denies that he is trying to give mothers yet one more thing to worry about.

He says: 'Our study has stimulated an enormous amount of debate, but what many press reports chose to ignore, is that our study concentrated solely on premature babies.

'Our data shows very strongly that there is a definite relationship between receiving breast milk and subsequent IQ even after making all the adjustments for the social class and intelligence of the parents - for premature babies.

'As some of these babies were fed with expressed breast milk because they were too weak or too small to suck, it seems to us that breast milk, and not just breast-

Researchers have suggested that breast-feeding may make brighter children. What should mothers believe? Independent journalist Liz Hodgkinson reports.

feeding, is important for subsequent cognitive development.'

A number of ingredients in breast milk, such as special fats and thyroid hormone, are thought to be important for brain development and are not present in cows' milk. Formula feed manufacturers have been unable to introduce these fats into their products, as they turn the milk rancid.

'At the moment,' Dr Lucas says, 'we can say that there is compelling evidence that breast milk itself enhances the intellectual development of premature babies - but no actual proof.'

'We simply don't know whether there is any similar benefit for full-term babies, as we have never carried out any such studies. There seem to be strong health advantages of breast milk for pre-term infants, but all may be different for full-term babies.'

'There is as yet, no hard evidence whatever that bottle-feeding in the West damages babies in any way, or puts them at a disadvantage.'

Shirleyanne Seel, the deputy head of policy at the National Childbirth Trust, has been a breast-feeding counsellor for many years. She says: 'Research undertaken two years ago clearly showed that breast-fed babies suffer less from gastroenteritis, but evidence for long-term benefits is much less clear cut.'

In fact, a paper in *The Lancet* in May, 1988, said there was little evidence that breast milk did confer any significant long-term health benefits to babies.

'At the same time,' Ms Seel says, 'we feel it is the baby's right to be fed with the best possible food.' She confirmed that it is mainly the older, middle-class mothers opting for the breast. 'Although at the NCT we are working hard to change the overwhelming middle-class image that breast-feeding continues to have.'

The latest statistics from the Office of Population, Census and Surveys, published in 1988, shows that only half of all babies are breast-fed beyond two weeks.

Sixty-nine per cent of first-time mothers now try breast-feeding, although many choose to bottle feed second and subsequent children. Breast-feeding counsellor Mary Small, whose book *The National Childbirth Trust Book of Breastfeeding* was recently published by Ebury Press, is concerned that mothers who bottle-feed should not feel that they have failed.

She says: 'While I can't personally believe that an artificial substitute can be better, it is certainly the case that middle-class mothers at least are intensely pressurised into breast-feeding these days.'

'No baby will benefit from a mother who hates every minute of breast-feeding. Career mothers have been made [to feel] guilty if they hurry back to work rather than continuing to breast-feed - but the statistics show that stay-at-home mothers are, if anything more likely to bottle-feed after a couple of weeks.'

Dr Mike Woolridge, of the Breastfeeding Clinical Support Service at Bristol University, says: 'I would love to be able to tell mothers that their babies will be more intelligent if they are breast-fed - but at the moment the evidence we need is just not there.'

'As a zoologist, I implicitly believe that breast must be best, but there are simply no studies that show an overwhelming long term advantage either in terms of health, intelligence or personality. The studies carried out so far assume a cause and effect - but for all we know, there may be no actual correlation at all.'

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BABY SNAPS: EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT BABIES ...

To what extent is it possible to influence the development of a baby's brain, both during and after pregnancy? What is the current thinking on the nature/nurture debate? Andrew Kinsman, member of the *Synapsia* editorial team, examines these and other questions.



First Signs of Intelligence

According to Dr Joan Freeman, a lecturer at London University, a baby's intelligence may be established as early as three or four months. There are obvious practical difficulties in testing intelligence in children of very early age (two commonly used methods are the ability of the baby to pay attention to something it finds stimulating and the length of time the baby is able to remember things), but many researchers believe that they already have potential for high achievement in their first two years. Babies who are already imitating accurately and regularly reaching successfully for objects could be demonstrating the first signs of great achievements in later life. After conducting a 15-year study of gifted children in the UK, Dr Freeman observed how they frequently showed signs of exceptional concentration, memory and verbal skills and came to the overwhelming conclusion that 'it is never too soon to start helping children develop their abilities. Much of a child's intellectual future can be enhanced by stimulation and interaction with language - not just in passing, but systematically.' (For more about infants' memory, mathematics and language capabilities, see Intelligence about Intelligence in *Synapsia* Vol 4 No 1.)

Infant Reading Habits

Early findings from a Book Trust experiment launched last year, involving 300 babies in the Birmingham area, suggest that reading to babies less than a year old can help their future reading development. Apparently it makes no difference whether

the reading matter is a thousand-page novel or a telephone directory: similar results are obtained regardless of intellectual content.

The Bookstart programme, monitored by the University of Birmingham, was modelled on an American scheme which had already appeared to demonstrate the literacy benefits of early exposure to literature. The intention was to 'instil a positive attitude towards books as a source of pleasure, rather than expecting the child to read earlier,' says Christine Shaw of the Book Trust. 'The project may well prove that if you start using books at a young age, then your ability to read is enhanced, but that is not the main thrust. The evaluation of the project reinforced the message that six to nine months is certainly not too young for children to look at a book with their parents.' Clearly there are substantial benefits for both low income and better off families in creating a 'book-friendly' household environment.

Smart Babies

Dr Freeman is also a member of the growing school of thought that parents can influence their babies before they are born. This theory has recently been worked into 'a comprehensive programme of prenatal stimulation' by Californian obstetrician F. Rene Van de Carr and psychologist Mark Leher, co-authors of *Prenatal Classroom*. Their simple step-by-step guide starts by playing learning games with a developing foetus five months after conception and includes other exercises such as talking directly to the foetus through a tube pressed

'The evaluation of the project reinforced the message that six to nine months is certainly not too young for children to look at a book with their parents.'

against the mother's abdomen and shining a flashlight through the abdomen. Van de Carr claims these exercises 'stimulate the brain areas responsible for socialisation and increase the baby's ability to give and receive affection,' so that parents may improve their child's lifetime intellectual capacity.

Van de Carr's approach has met with a sceptical response in some quarters: 'Americans are determined to do what's good for their children, so there will be a market for a book that tells you how to have a healthier, happier, smarter baby,' says psychologist Anthony DeCasper from the University of North Carolina. 'But I haven't seen any independently refereed scientific papers supporting Van de Carr's claims.'

Sleepless in Seattle

A more conventional way in which women have tried to influence the foetus in their womb (and one described in more detail by Sue Whiting elsewhere in this issue) is by playing classical music constantly at home, in order to exercise the baby's brain. Now there is even a special contraption which delivers sonic patterns to unborn children. This so-called cardiac curriculum has been designed by Seattle development psychologist Brent Logan. It consists of a belt with two speakers in a pouch, which is fastened around the mother's abdomen, together with a series of 16 cassettes which play a progressively more complex pattern of sounds similar to a heartbeat.

Some American users have found the curriculum remarkably effective. One woman who used it during pregnancy claims that her 21-month-old daughter is now playing with toys designed for children twice her age, whilst another is so convinced by the method that she is now using it for the third time. In 1990 a sample of 50 of the youngsters whose mothers had used it were given standardised language, social and motor-skills tests and achieved an overall score 25% in excess of the US norm. However, it is not clear what proportion of this was due to the method and what was simply down to the fact that the parents were obviously firmly committed to nurturing their babies from the start. In any case, as Dr Kathryn Clark, a San Francisco obstetrician points out, although prenatals do respond to sound, 'we don't necessarily

know that they like it. They might want to get away from it.' A foetus needs its kip like everybody else!

Genes and Environment

New research into identical twins has produced some controversial material for the 'nature versus nurture' debate in children's development. The University of Minnesota research team, led by Thomas J. Bouchard, began their rigorous study in 1979 and have now studied 105 sets of identical and non-identical twins reared apart, from around the world. Their findings, recently published in *Science* journal in America, were that 70% of IQ, 50% of personality differences and 40% of job interest variations can be accounted for by genes, with environment accounting for the other differences. This would suggest that nature is the key factor in determining a child's intelligence and personality. That is not to say that parents' behaviour (whether beneficial or harmful) cannot affect them, simply that in most cases it is not the key factor. Mr Bouchard said: 'We think of each pair of identical twins as one piece of music played by two different musicians. You'll always be able to recognise the piece because nature writes the score. Environment is responsible for the playing technique.'

An intriguing corollary to the Minnesota results has been put forward by Dr Sandra Scarr of Virginia University, who has suggested that one reason why there is such a strong correlation between genes and a child's intelligence and personality, is that we are actually driven by our genes to create our own environment and are not just passive victims of it. She believes that right from birth children provoke different responses from people, depending upon how their genetic make-up presents itself, and this causes them to be treated differently from one another. She agrees with Bouchard's general conclusion: 'Parents can make a great difference to a child's sense of ambition or self-esteem. But the evidence from identical twins raised in different families, and the fact that children raised in adoptive families from birth show no correlation of intelligence with other members of the family, tell parents they really should not worry if they go to the ball game or the museum with their children.'

These conclusions are not, however, supported by some of the other evidence on



In 1990 a sample of 50 of the youngsters whose mothers had used [the cardiac curriculum] were given standardised language, social and motor-skills tests and achieved an overall score 25% in excess of the US norm.

~~EXERCISE~~

HYPOTHALAMUS REGULATES

RESEARCH VALID?

? BIOLOGICAL SEXUAL ~~FIXED~~ BIRTH... CONTINUES ERGO: SOCIAL?



FIRST INTELLIGENCE SIGNS

BY < 4 MONTHS
= IMITATING ACCURATELY
(EXCEPTIONAL CONCENTRATION
REACHING OBJECTS SUCCESSFULLY
MEMORY
VERBAL SKILLS

why



INFANT HABITS

snaps

ZEAL



PRENATAL

READING? < 1 YEAR OLD
GOAL: INSTILL +VE ATTITUDE
LANGUAGE INTERACTION
AIDS FUTURE READING

PRODUCES + STIMULATION
TALKING DIRECT
FLASHLIGHT
? SCEPTIC

SOCIABILITY

researchers, Dr Rob Collins of the Jackson Laboratory at Bar Harbour, Maine, concluded that 'parents give their children more than their genes: they give them culture, training and values, and observation is just one additional mechanism.' Suzuki was thus able to establish that behavioural traits are not simply caused by genes or by environment, but by the interaction of the two, with an element of chance thrown in for good measure.

Does He Take After His Mother?

Professor Gillian Turner, a geneticist at Sydney's Prince of Wales Children's Hospital, has published some controversial research which further fuels the 'nature versus nurture' debate. Her preliminary blood tests of 15,000 NSW schoolchildren with intellectual disabilities enabled her to identify 19 families with a history of mental illness, from which Dr John Mulley of Adelaide Children's Hospital pinpointed two sections of the 'female' X chromosome responsible for mental illness. Since males are provided with a Y chromosome from their father and an X chromosome from their other,

whilst females take an X chromosome from both parents, this would suggest that men are more likely to suffer from mental retardation because they do not have a second X chromosome to balance the defective gene. Turner speculatively reached the conclusion that women, who carry two X chromosomes, have more well-rounded and adaptable minds: 'They are more likely to be good at most things, but you don't see examples of the extremes. They are less likely to be extremely intelligent or unintelligent.'

Turner's findings also suggest that boys owe their intellectual ability to their mothers and little to their fathers, as she believes that the X chromosome is a key genetic factor in determining intelligence. However, feminist lawyer Jocelyn Scutt has criticised Turner's suppositions: 'We've been told for hundreds of years that biology dictates intelligence. I believe your environment has more to do with it than any other factor. Women are intellectually well rounded, but that's because of the more diverse lives they lead.' Clearly understanding of the effect of genes on intelligence still has a long way to go.

Accelerated Learning

Neil McKee, *Synapsia's* resident Mind Mapper, is running an open course of eight seminars leading to NVQ style assessment. The venue is the Enterprise Training Agency, 3rd Floor, Holdsworth House, 65-73 Staines Road, Hounslow, Middlesex, TW3 3HW (Tel 081 572 9733).

The cost is £100 per seminar, the dates are all Saturdays, and the courses run from 09.30 - 16.30.

Details are as follows:

Radiant Thinking 8 January 1994

An exciting introduction to the most magnificent mental literacy tool of all: the Mind Map, and the art of Radiant Thinking.

Radiant Remembering 15 January 1994

If you want or need to improve your er ... memory, don't forget to come!

Radiant Reading 5 February 1994

The seminar to help you obtain reading speeds of over 1000 words per minute, with comprehension.

Radiant Speaking 12 February 1994

Get those butterflies adding grace to you lips instead of

wreaking havoc with your discomfort zone! This develops the art of whole brain presenting.

Radiant Selling 12 March 1994

Sell yourself, your products, your ideas, your message, your dreams - with integrity, and without manipulation. Selling made safe, successful and satisfying.

The Accreditation Game 19 March 1994

The best way we know for you to integrate your skills and gain mastery. Put it all together with your fellow learners and lock that learning down! This guarantees you the maximum return on your investment and can lead to trainer training if desired.

While these courses combine Accelerated Learning Systems Ltd. approaches with those of Tony Buzan's unique technologies, we wish to make it clear that the approaches are *distinct*, and that their combination in this programme in no way suggests any business association.

For further information, Neil McKee can be contacted at 84B Chapel Lane, Sands, High Wycombe, Bucks HP12 4BS (Tel/Fax 0494 536981)

A MATCH OF TWO HALVES

Earlier this year Britain's strongest-ever chessplayer Nigel Short defeated Dutch grandmaster Jan Timman in Spain. This triumph gave Short the right to challenge Garry Kasparov for the World Chess Championship in a match played at London's Savoy Theatre. Grandmaster Raymond Keene OBE (BCM 275), a prime mover in the organisation of the match, reports.



The great match between Kasparov and Short is over. After a dubious start, in which Nigel played too impulsively and was rocked back on his heels by the shock and force of the champion's brilliant strategy, the British representative has acquitted himself honourably. It is clear that Kasparov dominated the early games, but although Kasparov should have won game one on the general run of play, how different it might all have been if Nigel Short had not lost on time after he had recovered his poise from Kasparov's initial onslaught. That said, the first part of the match was clearly Kasparov's. Indeed, the entire contest divides neatly into two halves.

Over the first ten games, Nigel played well, but Kasparov played superlatively, investing every single decision with the immense dynamism and energy of which he is capable when operating at full power. During this phase, Nigel seemed incapable of scoring a direct hit, the nadir being game ten, a brilliant performance by the English grandmaster, involving a sacrifice of his queen, in which the win ultimately vanished through a grotesque series of time-trouble blunders. Try as he might, during the first half, Nigel also found it virtually impossible to survive as Black against the champion.

From game 11 onwards all this changed. During the second half of the match, Nigel achieved an equal score, something no-one else has done against Kasparov in match play, apart from Anatoly Karpov. Short lost just one more game, number 15, when his nerve gave way and he abandoned the centre in an inferior, but tenable position, and in the very next game Short struck back decisively to score his victory. The



impression given by the final ten games was of a match between two equals. Short was clearly maturing by the minute, and perhaps the most remarkable thing about his play was the absolute absence of any feeling of demoralisation on his part. In the past, when suffering catastrophic match defeats against Fischer and Kasparov, the psyches of such notables as Larsen, Taimanov, Petrosian and Miles have simply collapsed. Short, in extremis, on the other hand demonstrated a will of iron over the final ten games.

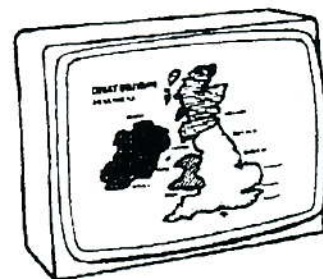
It is worth remarking, that the pre-match ratings for the two should have been respectively 2815 for Kasparov and 2665 for Short. Short's actual performance rating during the match was in fact 2715, evidence that he over-achieved. Earlier this year I pointed out that Nigel Short's rating, based solely on qualifying matches, was close to 2718, and this final statistic backs up such an assertion.

The quality of the play drew praise from the chess fraternity around the world. One passionate fan was Professor Jonathan Schaeffer of the University of Alberta, Canada, who said: 'I have followed the Kasparov - Short match more closely than any other world championship match since 1972. The reason is not the PCA/FIDE dispute; it is the games! I have never seen such

an exciting series of games. Short, despite the lopsided score, deserves tremendous credit for his fighting spirit. With a few breaks this would be a much closer match.' Professor Schaeffer is well-known to readers of *Synapsia* as the mastermind behind Chinook, the draughts-playing computer which last year in London challenged the world draughts champion, Dr Marion Tinsley, for his world title.

The following game is one of the most exciting from the match. Grandmaster Robert Byrne waxed lyrical about this game in the *New York Times*, writing: 'One lightning bolt after another from Nigel Short's sinister laboratory struck Garry Kasparov's formation ... but though the Russian bent dreadfully, he did not break. Hammer met anvil early in the play, throwing off sparks when Short advanced aggressively and Kasparov struck back, stroke for stroke. But Short's amazing series of sacrifices, first a bishop, then a knight, then one rook, then the other did not get him a victory against the indomitable Kasparov, who defended as though he had a lightning rod at the board.' It is a testimony to the fire and brilliance of the games in this match that normally prosaic technical commentators are moved to poetic descriptions in place of dry analysis.

Peter Stothard, editor of The Times, makes Garry Kasparov's first move against Nigel Short while Raymond Keene looks on.



Channel Four have announced that nearly a quarter of the adult population of Britain have tuned in to watch Nigel Short and Garry Kasparov battle for the title of Times World Chess Champion. The first programme attracted over two million viewers. Chess was the highest rated programme this year on Channel Four in the 8pm slots.

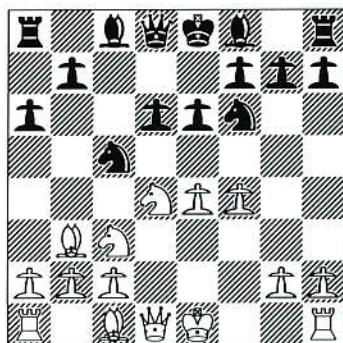
Times World Championship, Game 8

White: Nigel Short

Black: Garry Kasparov

Sicilian Defence

**1 e4 c5 2 Nf3 d6 3 d4 cxd4 4 Nxd4 Nf6
5 Nc3 a6 6 Bc4 e6 7 Bb3 Nbd7 8 f4 Nc5**



9 e5

Short tries to improve on game six where he played 9 f5.

**9 ... dxe5 10 fxe5 Nfd7 11 Bf4 b5 12
Qg4 h5 13 Qg3 h4 14 Qg4 g5**

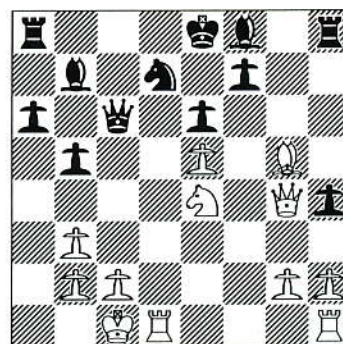
A risky move. Kasparov shreds his kingside pawns with the intention of wiping out White's centre.

15 0-0-0!

Short: 'It is much too dangerous to now

accept the sacrifice of the bishop I am offering. If Kasparov had played 15 ... gxf4 I would have smashed my way through to his king with 16 Nxe6 Nxe6 17 Bxe6 Qe7 18 Bxd7+ Bxd7 19 Qf3 Rc8 20 Nd5 Bc6 21 Nf6+ Qxf6 22 exf6 Bxf3 23 Rhe1+ and I would have an overwhelming position.'

15 ... Qe7 16 Nc6
This is the best continuation of the attack. It was tempting to play 16 Bd5 but the reply 16 ... exd5 is not clear at all.
**16 ... Nxb3+ 17 axb3 Qc5 18 Ne4
Qxc6 19 Bxg5 Bb7**



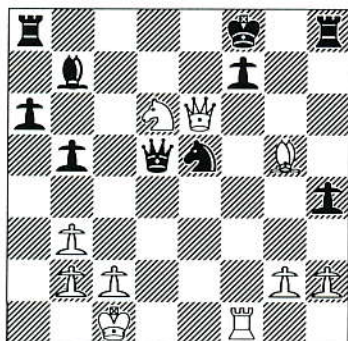
20 Rd6!!

Kasparov: 'A great move by Short to keep the initiative. He is a piece down so he must do something quickly.'

Garry Kasparov, hard at work, failing to notice Princess Diana.



Short: 'Kasparov had overlooked this blow. If now 20 ... Qxe4 21 Rxe6+ fxe6 22 Qxe6+ Be7 23 Qxe7 checkmate.'
20 ... Bxd6 21 Nxd6+ Kf8 22 Rf1 Nxe5 23 Qxe6 Qd5



24 Rxf7+

White can play 24 Bh6+ Kg8 25 Rxf7 Qxe6 26 Rg7+ Kf8 27 Rf7+ Kg8 28 Rg7+ with a beautiful draw, but Short wants to win.

Short: 'Kasparov must accept my sacrifice of my last remaining rook. If he tries to run away with 24 ... Kg8 then 25 Rg7++ Kxg7 26 Nf5+ Kf8 27 Qe7+ ;Kg8 Qg7 checkmate. I could have played 24 Qf6 Rh7 25 Rf5 but after 25 ... Qxg2 White's king becomes exposed and there may be perpetual check. I didn't look closely at this



since I was sure that the attacking method I chose would win but I certainly agree it is dangerous for Black.'

24 ... Nxf7 25 Be7+ Kg7

Short's violent onslaught has left him a mass of material down. If his attack does not break through, or if he cannot force a draw by perpetual check, then he will inevitably lose.

The first recorded instance of a member of the British Royal Family ever attending a chess event. The one man in the theatre who seemed totally oblivious of this historic occasion was Garry Kasparov, who later apologised for his lèse-majesté: 'I am very sorry. No, I didn't notice the princess. The game took too much of my concentration.'

THE WORLD CHAMPIONSHIP 1886-1993

The roll of honour of champions, whether recognised by the world community at large, by FIDE or by the PCA, now reads as follows. In that roll of honour, Kasparov holds a special place, while Nigel Short joins those illustrious challengers, such as Johannes Zukertort, Mikhail Tchigorin, Siegbert Tarrasch, Karl Schlechter, David Bronstein and Viktor Korchnoi, those immortals of chess, who have given of their best, but still failed to wrest the supreme title.

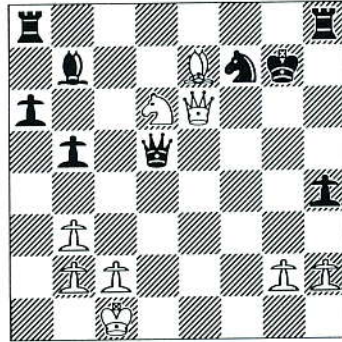
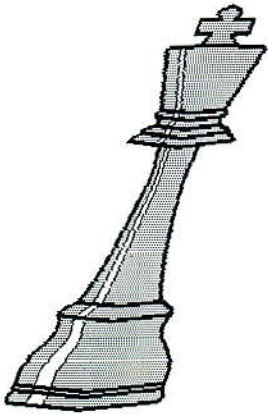
Champions

- 1886-1894 W. Steinitz (Austria)
- 1894-1921 E. Lasker (Germany)
- 1921-1927 J. Capablanca (Cuba)
- 1927-1935 A. Alekhine (Russia/France)
- 1935-1937 M. Euwe (Holland)
- 1937-1946 A. Alekhine (Russia/France)
- 1948-1957 M. Botvinnik (USSR)
- 1957-1958 V. Smyslov (USSR)
- 1958-1960 M. Botvinnik (USSR)
- 1960-1961 M. Tal (USSR)
- 1961-1963 M. Botvinnik (USSR)
- 1963-1969 T. Petrosian (USSR)
- 1969-1972 B. Spassky (USSR/France)
- 1972-1975 R. Fischer (USA)
- 1975-1985 A. Karpov (USSR/Russia)
- 1985- G. Kasparov (USSR/Russia)

Challengers

- 1886 J. Zukertort (Prussia)
- 1889, 1892 M. Tchigorin (Russia)
- 1890-91 I. Gunsberg (Hungary/UK)
- 1907 F. Marshall (USA)
- 1908 S. Tarrasch (Germany)
- 1910 D. Janowsky (Poland)
- 1910 K. Schlechter (Austria)
- 1929, 1934 E. Bogolyubov (Russia/Germany)
- 1951 D. Bronstein (USSR)
- 1978, 1981 V. Korchnoi (USSR/Switzerland)
- 1993 N. Short (UK)

The challengers listed are those who failed to go on to claim the ultimate title.



26 Qf6+ Kh7 27 Nxf7 Qh5 28 Ng5+ Kg8 29 Qe6+ Kg7 30 Qf6+ Kg8 31 Qe6+ Kg7 32 Bf6+ Kh6 33 Nf7+ Kh7 34 Ng5+ Kh6 35 Bxh8+ Qg6 36 Nf7+ Kh7 37 Qe7 Qxg2

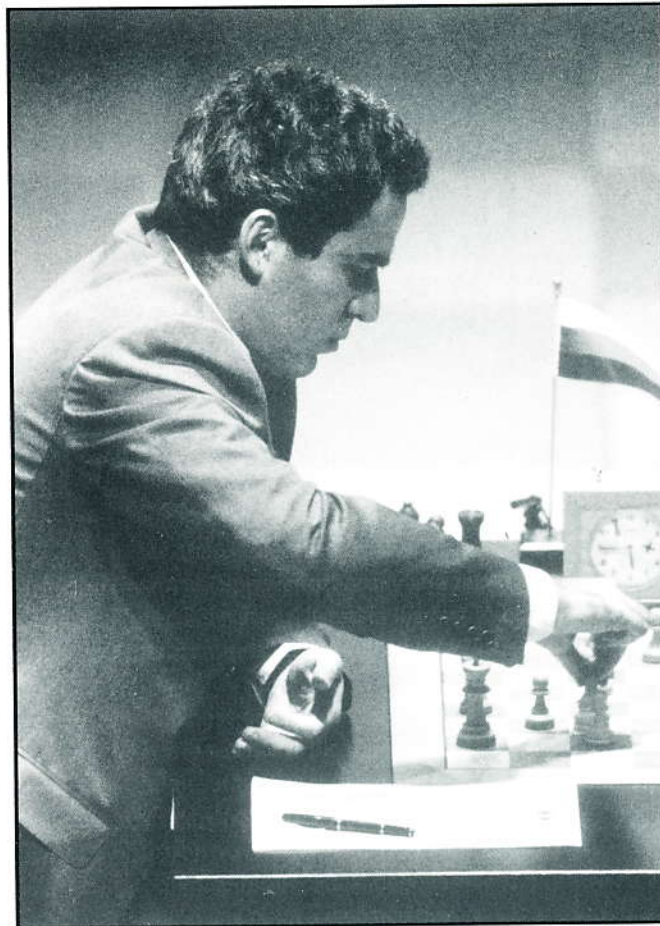
Kasparov: 'I played this quickly in Nigel's time-trouble and it is a very difficult move

to meet because the black queen suddenly bursts on the scene and starts to threaten the white king. Nevertheless, it is a serious mistake which throws away the draw. I should have played 37 ... Kg8!! meeting 38 Ne5 with 38 ... Qh7 or 38 Qxb7 Rf8 39 Ne5 Rf1+ 40 Kd2 Qd6+ and Black will capture the h8-bishop and will not lose.'

After Kasparov's move Short glanced nervously at the clock several times. In acute time-trouble he seemed confused by the multiplicity of possibilities.

38 Be5?

Kasparov: 'Short was in severe clock trouble here so it is not surprising that he chooses a move which defends his pawn on h2, as well as threatening several deadly discovered checks to my king. Here, however, is where Nigel may have missed his one chance to win. After 38 Bd4!! the

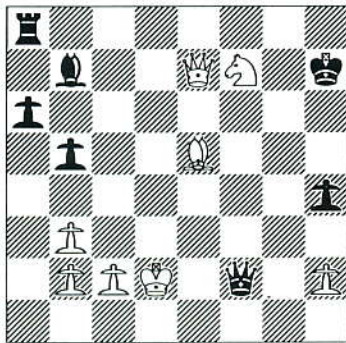


Garry Kasparov - rocked Nigel Short back with the force of his brilliant strategy

12½

	First Half										
	1	2	3	4	5	6	7	8	9	10	
Kasparov	1	½	1	1	½	½	1	½	1	½	7½
Short	0	½	0	0	½	½	0	½	0	½	2½

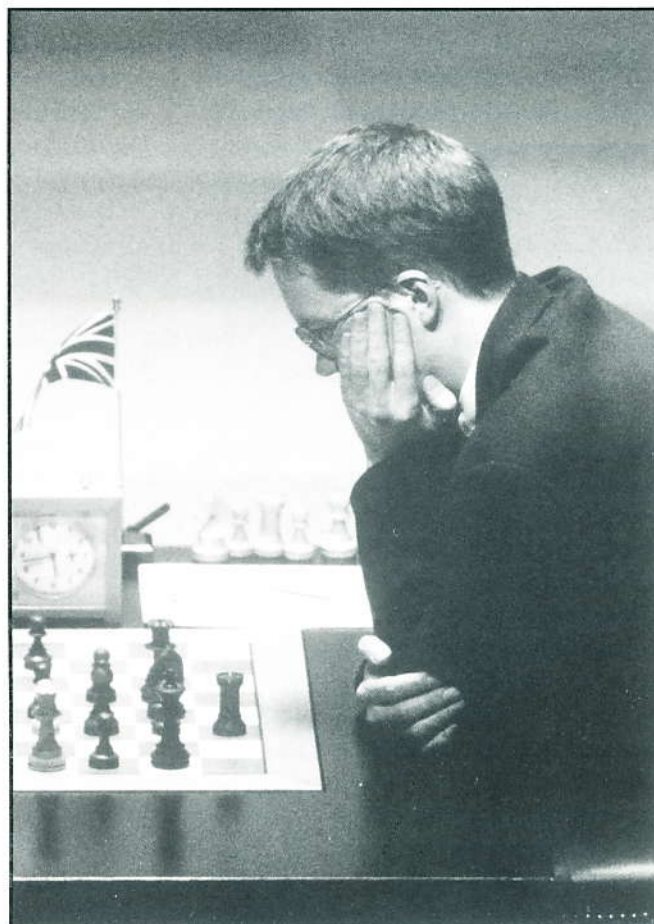
f2-square is covered, therefore my queen is denied access to it and I cannot get a draw by perpetual check against Short's king. For example 38 ... Qh1+ 39 Kd2 Qxh2+ 40 Kc3 Rc8+ 41 Kb4 Rc7 42 Qf6 and White wins.'
38 ... Qf1+ 39 Kd2 Qf2+ 40 Kd3 Qf3+ 41 Kd2 Qf2+ Draw agreed



The smoke has cleared, the time control has passed, and the game now ends in a draw by perpetual check from the queen. Short's king cannot scurry over to the queen's flank and nestle behind Black's forest of pawns.

Chess Crazy

So ends the greatest chess extravaganza, that London, indeed, the entire United Kingdom, has ever seen. For two months, with an avalanche of press coverage, wall-to-wall television on Channel Four and BBC2 and a promised deluge of books on the event (Batsford, MacMillan, Cadogan, BBC, Hodder and Stoughton) the country has literally gone 'chess crazy'. We may never see its like again.



Nigel Short - recovered his poise after the initial onslaught

		Second Half										
		11	12	13	14	15	16	17	18	19	20	
Kasparov		½	½	½	½	1	0	½	½	½	½	5
Short		½	½	½	½	0	1	½	½	½	½	5

7½

AMAZING MEMORY STORIES

Word of Mouth

In other words, the child's memory is perfect ... This accuracy of narrative memory suggests that the way in which earlier tribes have passed on information may be an almost perfect one, especially if the information is presented in an imaginative and creative way.

Native Tales

In the annals of the history of anthropology, the literature is scattered with references to the 'primitive' method of passing on information from person to person and from generation to generation. The method used throughout the world was primarily storytelling, with no written material to help.

Anthropologists understandably assumed that such a method was far less efficient than the more modern methods of printing, in which the information could be transcribed perfectly, and thus passed on in its original form. Recent observation and research has suggested that perhaps exactly the opposite was true.

Examining the way in which 'modern man' uses literature, it has been observed that a common trend is to wish to rewrite it, in order to stamp the author's own interpretation on the ongoing 'formal memory' of the race. Thus written history has become revised, or completely reinterpreted, and the original fades into the dusty mists of the back shelves of large libraries.

The assumed disintegration of the original spoken tale over generations, on the other hand, is now being seriously questioned. Think, for example, of telling a very small child a fairy tale three or four times. Having done so, tell the child exactly the same story with one word different. What is the reaction of the child?

Invariably an instant 'that's the wrong word' or 'you've used the wrong word!'

In other words, the child's memory is perfect, and it will not allow any variation from its original story. This accuracy of narrative memory suggests that the way in which earlier tribes have passed on information may be an almost perfect one, especially if the information is presented in an imaginative and creative way.

Thus you see that, like Homer's Iliad and Odyssey, the great memory stories are at the same time great creative inventions.

The more you train your memory, the more you train your creativity. The more you train your creativity, the more you train your memory.

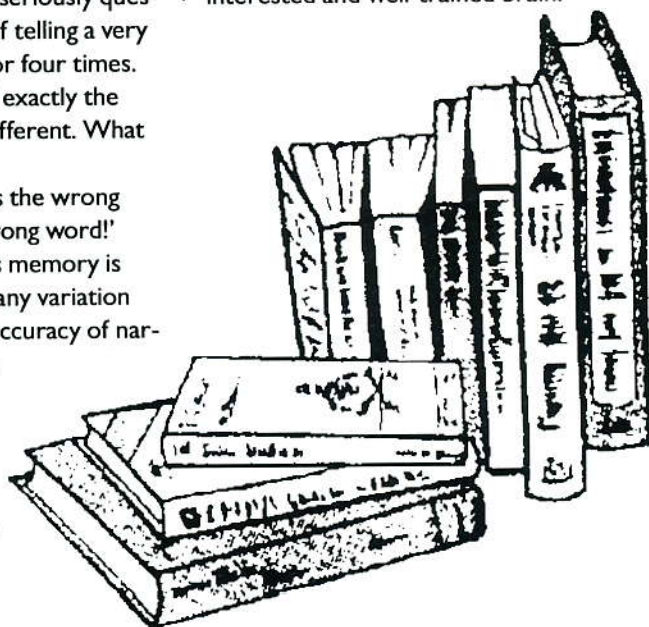
Twelve Volumes

Once upon a time in Poland, and in a few special areas still remaining today, the Chass Pollak Jews of Poland would, as part of their regular training and everyday practice, memorise the exact position of each word on every page of the gigantic twelve volumes of the Talmud - their bible.

Similarly, in India, the entire volume of the Vedic scriptures, a work even larger than the Talmud, was passed down only by memory.

These marvellous feats of memory were considered commonplace and automatic as long as the religious student was interested in the subject, and learnt the memory principles for these scriptures appropriately.

Thus memorising 'millions' of pieces of data is, historically, a natural function of an interested and well-trained brain.



Synapsia 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 love to receive your own contributions about either personal amazing memory stories or those of others.

THE TIMES BRITISH SCHOOLS' CHESS CHAMPIONSHIP

A Tense Win for Truro

This year's final of *The Times* British Schools' Chess Championship ended in a thrilling finish, when Truro School beat Haberdashers' Aske's by 3.5 to 2.5. It was Truro's best result since Michael Adams, the highest-rated British player after Nigel Short, last played for the school four years ago. Truro have reached the final stages in four of the past five years.

Haberdashers', with a slightly younger average age, defended valiantly in their first final of the nationwide competition, held at the Charing Cross Hotel, London. Third place was taken by Manchester Grammar School, who defeated Royal Grammar School, Newcastle, 4-2.

With draws on the first two boards, and Haberdashers' board four, Paul Saffer, 16, winning his game against Truro's Paul Hayes, 17, everything depended on the last three games to finish. As time ran out, the arbiters decreed that these games should finish in a 'sudden death' ending with only five minutes for each player to complete his moves.

An extraordinary struggle, lasting 105 moves, developed on board three between Jonathan Davis, 16, of Truro, and David Gibson, 14, of Haberdashers'. Davis launched a sacrificial attack but lost his way and came perilously close to losing, but in a queen versus rook ending, Gibson was unable to demonstrate a win within 50 moves and the game was declared drawn.

On board five, Truro's Jack Seale, 14, defeated Sural Bhan-shaly, 14, and in the last game, Richard Kemp,

13, won against Gabriel Gottlieb, 15, when the latter ran out of time and forfeited the game.

Some 400 teams from all over Britain had competed in 25 regional zones. Interest this year has been stimulated by Nigel Short's successes on the world stage.

The unsung heroes of the schools' championship were the teachers who manage the teams. Michael Simpkin of Truro, for example, showed little sign of nervousness while, as he said, his team won 'by a whisker'.



THE TIMES BRITISH SCHOOLS' CHESS CHAMPIONSHIP

Organised in association with the
BRITISH CHESS FEDERATION

BRAIN TRUST ORDER OF MERIT 1987-1993

Place	School	1st (10)	2nd (8)	3rd (6)	4th (4)	Last 8 (2)	Pts
1	St. Paul's, London	3	1	-	-	1	40
2	Truro	1	2	1	-	1	34
3	Manchester Grammar	1	1	1	-	1	26
4	Royal Grammar, Newcastle	-	-	1	2	2	18
5	Queen Mary's Grammar, Walsall	1	-	1	-	-	16
6	Nottingham High	1	-	-	1	-	14
7	Abingdon	-	1	-	-	1	10
8=	Haberdashers' Aske's, Elstree	-	1	-	-	-	8
	Sutton Manor	-	1	-	-	-	8
	Hymers College, Hull	-	-	1	-	1	8
	Antrim Grammar	-	-	-	2	-	8
12=	City of London	-	-	1	-	-	6
	Milfield	-	-	1	-	-	6
	St. Columb's College, Derry	-	-	-	1	1	6
15=	Greenwood Academy, Irvine	-	-	-	1	-	4
	King Edward VI Camphill	-	-	-	-	2	4
	King Edward VI Southampton	-	-	-	-	2	4

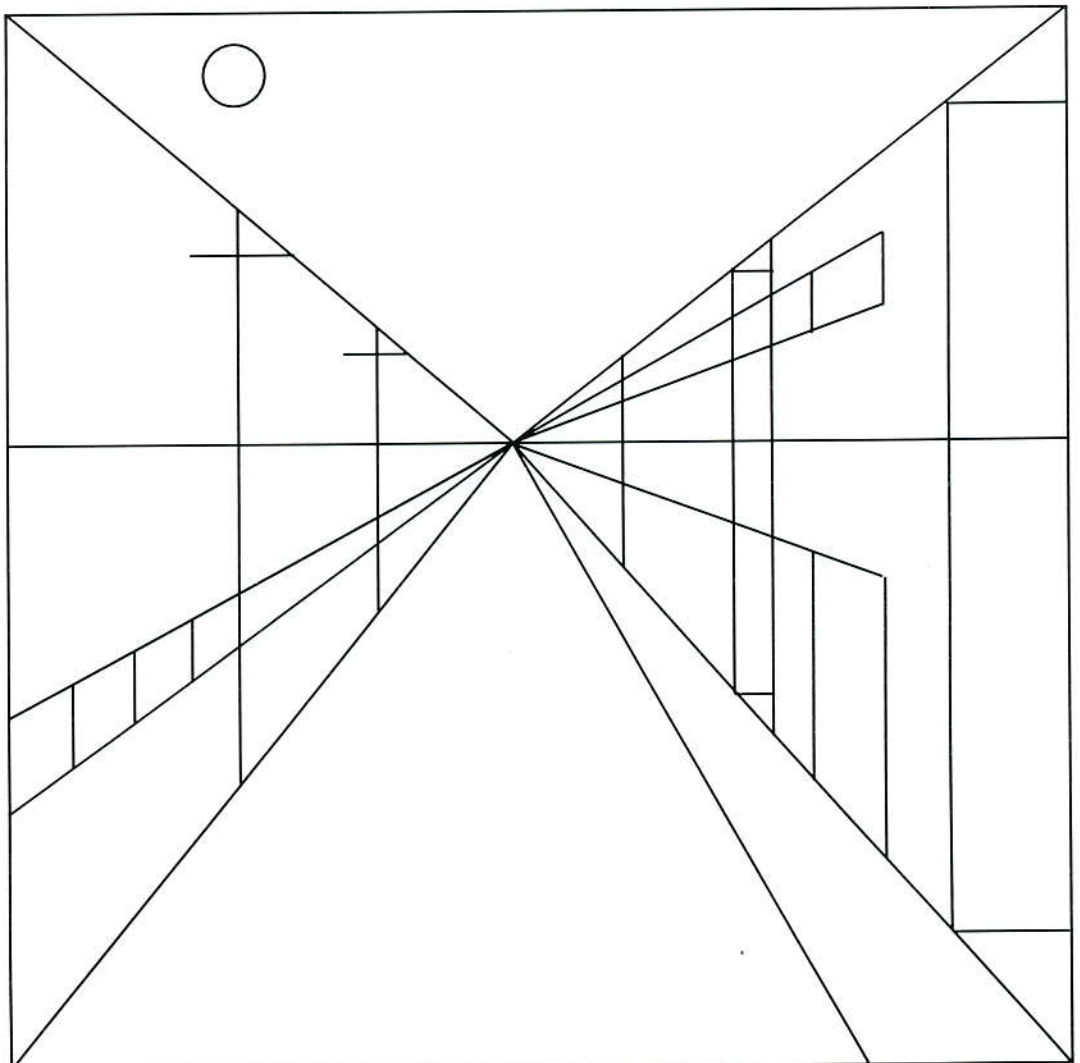
Drawing is Natural

In the last issue we looked at the basic lines drawn on paper which give an illusion of three-dimensional perspective. Following on from her previous article, Lorraine Gill (BCM 49) here recalls an incident which left a lasting impression on her memory as to the uniqueness of our individuality, and offers some useful perspective rules.

During my training as an artist, I had been working for a whole month on a painting, trying painfully to make it accurate and in proportion. In adding the final touches, a teacher came to criticise my work and check its perspective. She measured, and to my dismay announced that the perspective was inaccurate by 2" throughout. Another teacher added that it did not matter and

that the work as an object was a decent painting.

I decided to follow the first teacher's advice and change the entire picture by her reckoning; but after measuring until I was cross-eyed, and not seeing what she could see, the revelation hit me like a bolt out of the blue: the first teacher was 2" shorter than me!



Creating perspective with lines relating to a vanishing point.

The Basic Rules

The rules of perspective are tools to work with in order to convey our choice of what we wish to draw. There are three basic lines: the diagonal (giving the illusion of distance); the vertical (for all uprights); and the horizontal (lines parallel with your horizon line).

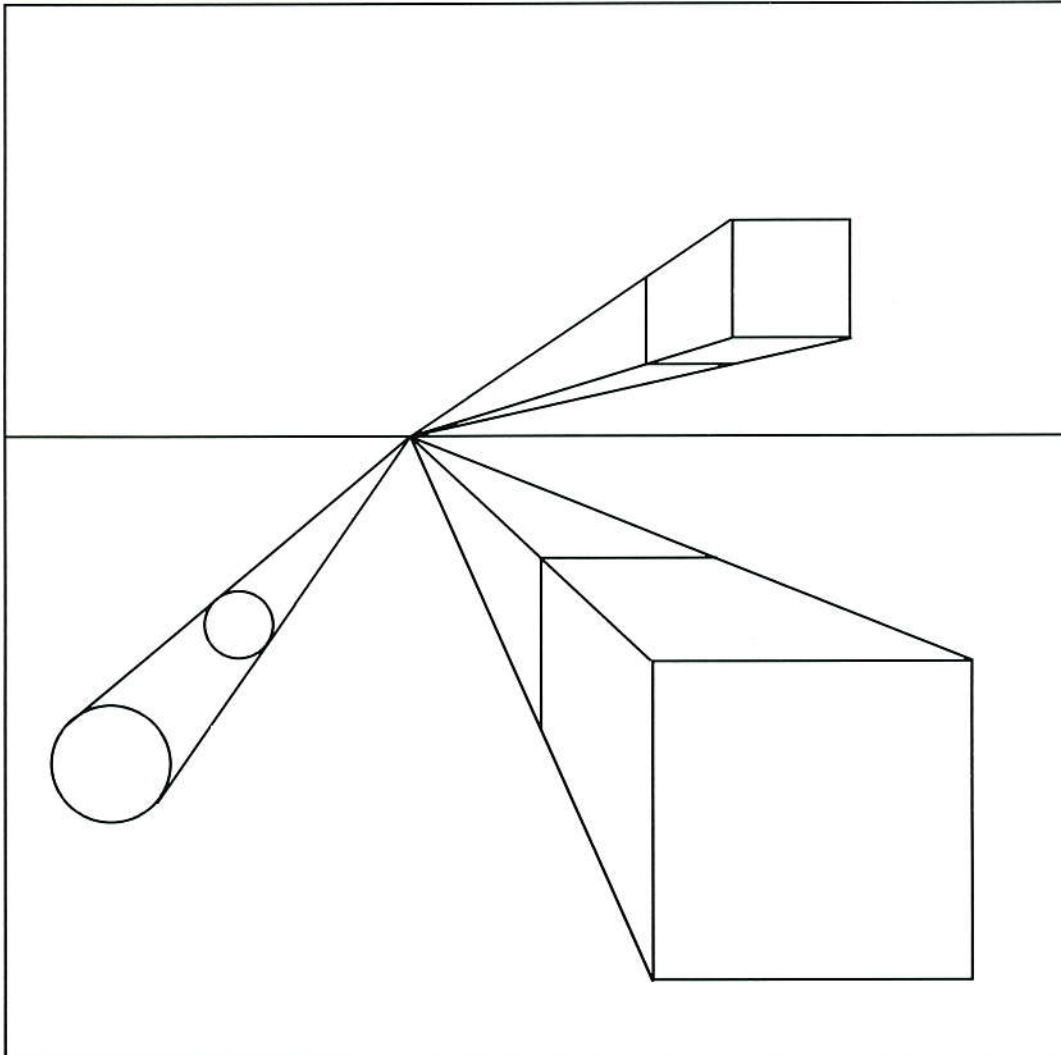
The illustrations set out below show you the effect of using your lines to make familiar images 'come alive'. After using your basic rules, rub out the structural lines and you will see how simple the exercises are.

Playing games using your tool of perspective to create futuristic cubes in space or cylinders is fun: just make sure

that your verticals remain constant and your horizontal lines parallel with the horizon; after this, rub out your horizontal lines parallel with the horizon; finally, rub out your structural lines as before.

In the next issue we shall look at shading and the natural laws governing it, which give an even greater illusion of solid objects in space. Why not look for the perspective lines 'in reality' around you? After all, your eyes are the recorders to your brain, the processor of your visual data in everyday life!

Artist Lorraine Gill has already had ten one-woman art exhibitions, featured in three books on great personalities and artists, appeared on BBC Television in a programme on Sir Henry Moore and has written two books: *The Nature of Perception* and *How to Draw*.



Creating blocks and cylinders from a simple horizon line and vanishing point.

POETRY CORNER

WE ALL WON THE RACE!

*Thousands and thousands of dear little sperm
Ejected from Daddy-to-be
To the uterus up the vagina
They're swimming for life, literally!*

*Inside their potential Mum's body
The x's and y's rush for place;
An egg is awaiting the winner
Of this most remarkable race.*

*The winner at last beats the others
And a boy or a girl is begun.
Maybe two or more make a dead heat-
Then the parents are in for some fun!*

*The point I am making's important.
Remember that YOU came in first.
So right from the very first moment
You all were the BEST, not the worst!*

*So no-one should feel they're inferior
Because you know that's not true
So listen, you self-deprecators-
This verse has been written for YOU.*

Jean Buzan

Answers to Wilf's Mind Quiz No 1, published in this year's Spring issue.

1. Alan Turing, in his famous essay 'Can Machines Think?', discusses dialogue between a human and an unknown - who may be a computer disguised as a man.

2. Mozart wrote *The Marriage of Figaro* - a comic opera based on a play he knew. Rossini wrote *The Barber of Seville* - a comic opera based on an earlier play by the same original author (Beaumarchais) and featuring the same character - Figaro.

3. If the Question and Answer are both correct, this means that the one who formulated the question works with a radix thirteen numbering system (rather than our radix ten - or decimal - system).

4. The King of Hearts, in Lewis Carroll's *Alice's Adventures in Wonderland*, invoked rule forty-two ('every person a mile high must leave the courtroom') to cut short Alice's interference in the trial of the Knave of Hearts.

5. When VAT (Value Added Tax) was fixed at 15% you could calculate what portion of a total amount was tax, by multiplying by 3 and dividing by 23. Now that VAT is 17.5%, the trick is to multiply by 7 and then divide by 47.

6. Shakespeare was 46 when the Authorised version of the Bible was published (1611). The 46th word of the 46th psalm is SHAKE. If that doesn't convince you, consider that the 46th word from the end of that psalm (not counting the final 'Selah') is SPEAR. Now you know.

7. The programming language ADA is named after Ada Lovelace - the patron of Charles Babbage who first described the process of programming a computer. (She was Lord Byron's daughter.)

8. Wanda Seldon is the adopted granddaughter of Hari Seldon - founder of the Foundation in Isaac Asimov's long series of science fiction books. (She herself was the founder of the Second Foundation, it seems.) Kathy

Seldon was the dancer and film extra in the film *Singin' in the Rain* (played by Debbie Reynolds) who displaced the glamorous Lena Lamont because she had a pleasant voice. Seldon is Kathy's maiden name. Since Wanda's father was only an adopted Seldon, Wanda cannot be a descendent of Kathy's father.

9. The Ancient Mariner was cursed to wear an albatross around his neck; 'albatross' is the extremely poor English transliteration of the Spanish word 'alcatraz'. Surely you remember the famous prison on Alcatraz Island in San Francisco Bay!

10. John Wyndham and Lucas Parkes are both pen-names of John Wyndham Parkes Lucas Benyon Harris. It seems he collaborated with himself!

11. Flavius Josephus wrote *The Jewish War* in Latin and/or Greek; both versions exist, and both languages were in use in Rome when he wrote it.

12. Not too difficult to prove (given a little more room); take it from me that even numbers predominate in Pascal's triangle - except in its first few rows. The odd numbers, connected by pencilled lines, make a tiny Sierpinski skeleton. Their proportion amounts to very close to ZERO percent.

13. Diane Keaton won her Oscar for her performance in the Woody Allen film *Annie Hall*. Surely it is no coincidence that her real name is ... Annie Hall!

14. Sir Thomas Beecham delivered this description of Beethoven's Seventh Symphony.

15. Danny Thomas and Neil Diamond failed to distinguish themselves in two separate unsuccessful remakes of the film *The Jazz Singer*; the original, starring Al Jolson, is forever enshrined in memory as the first major 'talkie'.

WILF'S XMAS QUIZ

Twelve Days, Twelve Questions

1. We all know the Dickens classic *A Christmas Carol*, featuring the ultimate anti-hero Ebenezer Scrooge; but which was the eponymous carol?
2. For which musical instrument was the melody line of *Silent Night* originally scored?
3. One legend has it that the gifts of the magi to the baby Christ were used as follows: Gold to pay for the hostelry fee for the stable; Frankincense to make the stable tolerable to the nose; and Myrrh as a baby lotion. How can this legend be refuted?
4. While on the subject of the magi: where will you find a cathedral marking a visit by those personages to Europe?
5. The Grand Pas de Deux from the *Nutcracker* ballet by Tchaikovsky - a Christmas delicacy if ever there was one - is much loved for its beautiful melody. Maybe you have not spotted that the main theme is simply a descending major scale: doh/ti/la/soh/fah/mi/re/doh. Coincidentally another

famous song associated with Christmas is based on the same simple pattern of notes. What is it?

6. Small children often confuse the Biblical hero Joseph (son of Jacob) with Joseph the husband of Mary, though they are separated in time by at least 1500 years. You may not have noticed that the two men have more than their given name in common. What other major characteristic applies to both Josephs - but not to very many other people?

7. Selecting a tree from the forest; cutting it down, bringing it home, securing it, dressing it and decking it with bright colours. This familiar custom came to Britain only last century - or so say the history books. But where will you find this form of celebration in the Bible?

8. The film *Home Alone* and its even more violent sequel *Home Alone II* have both become Christmas favourites.

Coincidentally another pair of recent films - an original and its sequel - has become associated strongly with Christmas, and this pair features even greater mayhem. What films are these, and what connection is there with Christmas?

9. Why do we kiss under the mistletoe? (or 'kisstletoe' as it is known by some children). What is the connection with Christmas?

10. Programmers and mathematicians will be delighted to know that there is a strong link between Hallowe'en and Christmas - as a matter of fact, they are mathematically equal! How is this so?

11. Russian Orthodox families celebrate 'little Christmas' around January 5th or 6th (it varies): the explanation, please?

12. Why are there twelve days of Christmas? Which is the first day?



Don't write in ... it's just for fun!

Wilf Hey (BCM 854) is disk editor of *PC Plus* - a best-selling British computer magazine. He also appears in *PC Answers* (a sister magazine) and *Virus News International* (a specialist computer security magazine). He lives with his wife Barbie and two cats (Claudius and Nero) in Bath in the West of England.

STARTING A BRAIN CLUB

James Longworth Explains How

We realised that it would be difficult to start a society at Eton, especially an intellectually challenging scientific one like the Mind and Brain Society, but we knew that it would be possible, and we were determined to make it the most successful society in the school. Whether we were mad or simply enterprising I still do not know. We have lost many hours' sleep worrying about cancelled speakers, praying that people would turn up to our meetings, or generally panicking about lack of funds, but we have both gained an enormous satisfaction from the end results. We are now the proud owners of a 350 strong society, probably the largest Use Your Head Club around.

Some two and half years ago I befriended Jonathan Montagu, one of Eton's finest academics. It was immediately obvious that we had an enormous amount in common. We both enjoyed music, swimming, and most important, any subject connected with that great 'super biological computer', the human brain. It was from this latter interest that sprung what was soon to become Eton's most popular society, the Mind and Brain Society. We designed letterheads, invited speakers, and prayed. We were lucky enough to get Dr Bob Stephenson, the Head of Science, and a leading researcher in the field of the biochemistry of memory, as our master-in-charge. I am sure that without his support and authority the society would never have taken off. It all went remarkably smoothly, and just over a year ago we had our first speaker, Benjamin Zander, Conductor of the Boston Philharmonic Orchestra. Even we were amazed by the 250 strong crowd that turned out. The Mind and Brain Society was born a star.

Since then we have gone from strength to strength. The guests that we have had to speak to us have all been leading authorities in their chosen fields. The list last year included the following: Benjamin Zander - *Everybody is a Musician*; Dr McGinley - *The Criminal Mind*; Tony Buzan - *Brain Training and Mind Mapping*; Raymond Keene - *Who is the Greater Genius: Fischer or Kasparov?*; Dr Gordon Claridge - *Sounds from the Bell Jar*;

Creativity and Madness!; Dr Helga Drummond - *Power: How to Gain and Use it!*; Lynn Collins - *Speed and Range Reading*; Professor Margaret Boden - *Creativity and Computers*; Vanda North - *Positive Thinking, Synergy and Skill Development*; Professor Gregory - *Visual Illusion and Truth*; and our very own Dr Bob Stephenson giving one of our best lectures entitled *It's a funny sort of memory that only works backwards*.

The quality of our speakers has been exceptional so far and we do not intend to stop there! In fact, this year we have another ten speakers who are just as famous as last year's! These include: Dr Jonathan Palmer - *Stress on the Racetrack*; Dr Leslie Morrish arguing that *Behind Every Crooked Thought Lies a Crooked Molecule*; Dr Brian Bates - *Voodoo and Witch Doctors* and many more.

I have enjoyed every moment as a co-founder of the Mind and Brain Society at Eton College and I would encourage anybody in any business, or at any university, school, village, town, or city, to wholeheartedly consider starting a society of their own. It builds self-confidence, raises self-esteem, increases personal organisation, and means that you gain the respect of your friends, family and all in authority. I have found talking to the speakers both stimulating and fascinating, and I would like to publicly thank those of them that read this publication. Without the support of the Brain Club we could not possibly have become so successful.

In return, I would like to offer my services to anybody who is considering starting a Use Your Head Society. I can help by suggesting speakers, giving addresses, recommending methods for raising funds, or overcoming authorities. Do not hesitate to contact me at the address below. When it comes to starting a society I have been there, done that, and got the T-shirt! I look forward to hearing from you with any suggestions, questions or comments. In the meantime I hope that I will be able to meet more Brain Club members in the forthcoming year. Have a very mentally stimulating Christmas, and a brain friendly 1994!

'To start a society of that nature at Eton would be like trying to eat toffee without any teeth ... possible, but very painful!'

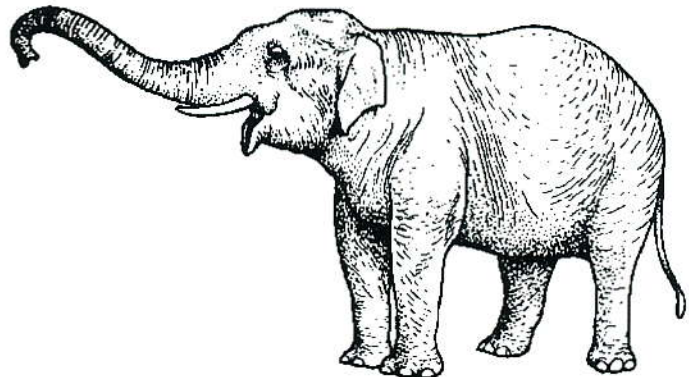
James Longworth, co-founder of the Eton Mind and Brain Society, decided to take up the gauntlet. Here he introduces the Society, himself, and fellow-founder Jonathan Montagu to Synapsia readers.

ANIMAL INTELLIGENCE

Twenty Memorable Facts about Elephants

1. The elephant has the largest brain of any land animal.
2. Desert elephants in Namibia can find watering holes more than 100 miles apart several months after they last visited them.
3. At Munster Zoo in the 1950s, Bernhard Rensch taught a five-year-old Indian elephant to single out the correct choice among 20 pairs of cards. A year later, the elephant was still able to remember the same choice.
4. Leslie Squier, a psychologist at Reed College, Oregon, gave three female elephants 'visual discrimination' tests in 1964. A fire destroyed the original results, so he repeated the tests more than eight years later; the elephants remembered exactly what to do.
5. Zoo elephants can learn up to 100 commands, master tricks, and are then able to recall them indefinitely.
6. The adage 'elephants never forget' was coined in 1904.
7. The elephant is the largest land mammal; a fully grown African bull elephant weighs up to five tonnes and stands 3-4 metres high.
8. Elephants can be found at altitudes ranging from sea level to 3,300 metres up Mount Kenya.
9. Elephants are excellent swimmers, using their trunks as a snorkel. A daily bath is the norm, followed by an all over mud or dust treatment to protect their skin from the sun and ticks, and to keep it soft and supple.
10. An elephant's trunk has about 100,000 muscles in it, with a powerful sense of touch as well as smell. Trunks are strong enough to lift a heavy log, yet sensitive enough to pick up one seed at a time from the ground.
11. Elephants communicate over vast distances by means of infrasonic rumbles which are generally below the level of human hearing.
12. Elephants use their tusks, which are elongated incisor teeth, not only as weapons, but also for digging up earth and finding water.
13. Female elephants live in family herds led by the matriarch who passes on the knowledge she has accumulated; knowledge of seasonal water sources, temporary food supplies, sources of danger and ways of avoiding them etc. This experience is handed down from generation to generation. Although the average family herd consists of around eight elephants, loosely related family groups may join together. Herds of up to 200 have been known to congregate in very dry areas.
14. When they reach maturity, male elephants leave the herd to live either alone or in a bachelor herd.
15. Females start to have calves in their early teens, whereas males are unlikely to father offspring until they reach their early 30s.
16. The gestation period for elephants is 22 months, with one calf being born every 3-4 years in favourable conditions.
17. Baby elephants usually stand within 30 minutes of birth, and after 48 hours they can move well enough to keep up with the rest of the herd. The calf can drink up to 50 pints of milk a day until it is weaned at the age of two.
18. An elephant's natural lifespan is around 60-70 years.
19. When a herd is faced with danger it forms a defensive circle with the adults facing outwards and the calves protected inside the ring.
20. Elephants often stay with a dying elephant until the end, caressing it with their trunks and making soft rumbling sounds.

Synapsia would like to thank Charles Mayhew of Tusk for permission to use extracts from his material.



LAYANG LAYANG – THE MEMORY ELEPHANT

The Brain Foundation recently adopted Asian elephant Layang Layang at London Zoo. Synapsia reports on the zoo's 'Adopt an Animal' programme and the battle for the survival of the elephant.

Adopt an Animal

London Zoo is one of the world's leading conservation organisations, working to help endangered and threatened species. As many different species as possible in captivity are bred there, often in collaboration with other zoos in Britain and

abroad, and sharing knowledge with keepers and vets in other countries. They also aim to tell people as much as possible about how animals live and what needs to be done to ensure their survival, and run an adoption programme for people to contribute towards food, veterinary care and facilities for the animals.

Raymond Keene, Tony Buzan and Dominic O'Brien with Layang Layang.



Elephant Survival

The recent adoption by the Brain Foundation of Layang Layang ('The Memory Elephant') provides a timely opportunity for *Synapsia* to look at the survival of the elephant.

Elephants, due to their size and strength, face only one predator: mankind. As the human population increases, man takes more and more land to build towns and cities, and to grow food. Elephants are then left with too little room, crowded together in unsuitable areas so that forests soon become grasslands and grasslands become deserts.

As we all know, elephants are also slaughtered for their ivory. In 1976 the total ivory traded was thought to have come from 100,000 dead elephants. They could now be extinct within 20 years.

The only solution is a responsible management programme (and, in the case of Asian elephants, a captive breeding programme), based on knowledge and driven by goodwill, and it is this programme which London Zoo is promoting.

The London Elephants

There are three elephants at London Zoo, all of which are part of the European Captive Breeding Programme. This programme



Tony Buzan receiving the certificate of adoption.

requires a great deal of time (an elephant's gestation period is approximately 22 months), effort and expenditure. However, it may mean the difference between existence and extinction as far as the Asian Elephant is concerned. The Brain Foundation is delighted to be involved in supporting the activities of London Zoo and the European Captive Breeding Programme.

Layang Layang


Malaysian elephant Layang Layang was found abandoned after her herd had been driven off a plantation in 1984, and was brought to London the following year. She was then adopted by Dilberta, another female elephant, who was very protective towards her. Young female elephants are always attracted to calves, even those from other families.

Nature's great masterpiece,
 an elephant,
 The only harmless great thing.

The Progress of the Soul,
 John Donne



The Zoological Society of London

<p><i>gratefully acknowledges that</i></p> <p>The Brain Trust on behalf of the Use Your Heads Club</p>	
<p><i>has adopted</i></p> <p>Layang Layang the Asian Elephant</p>	
<p><i>at London Zoo Regent's Park, London</i></p>	
<p><i>Date</i></p> 	<p><i>Signed</i></p>  <p><small>DIRECTOR OF ZOOS</small></p> 



MEETINGS OF MINDS

Recent Brain Club Events

The Brain Club Conference

Those attending the 1993 Brain Club Conference were treated to an extremely interesting and memorable day, devoted to a topic much in vogue today: 'Healthy Mind, Healthy Body'.

Sadly, one of our key speakers, Professor Michael Crawford, was unable to be with us on account of the tragic death of his wife. However, very much at the last minute, Wendy Doyle, Professor Crawford's colleague from the Institute of Brain Chemistry and Human Nutrition, stepped in. We were very grateful to her for doing so, and she gave us an excellent presentation, more of which later.

Sir Brian Tovey chaired the Conference, and Tony Buzan was our Keynote speaker, opening the day in his usual inspirational and charismatic manner, setting out the Brain Club's past achievements and looking ahead to future events. He spoke about plans for *Synapsia* and introduced our new editorial team, Byron Jacobs and Andrew Kinsman. Byron spoke about his aims and aspirations for *Synapsia*. (Those who have seen the summer edition and this one will, by now, have proof of his determination to live up to the policy which he expounded so lucidly at the conference.)

As mentioned earlier, Wendy Doyle gave the next presentation, on the unfortunate number of low-weight babies born to mothers who do not have a well-balanced diet. Low-weight babies are a serious problem in poor city areas because they are usually born retarded or deformed in some way. She displayed a number of slides which demonstrated research done by the Institute comparing two areas - Hackney and Hampstead, one relatively poor, one relatively prosperous. It was fascinating to see with our own eyes that, yes, indeed, the right nutrition does make all the difference. Folic acid is one of the ingredients essential for the healthy development of the foetus, and this seemed to be missing from the Hackney mothers' diet. Nutrition is now such an exciting area - hardly a day passes without some new revelation in the press

about how important a well-balanced diet is. Certainly, Wendy's presentation gave us a great deal of food for thought! (Incidentally, readers may like to know that the Institute of Brain Chemistry and Human Nutrition has been selected as the Brain Trust's 'Charity of the Year', and has already received a donation from the Trust accordingly.)

During lunchtime, Tony took a party from the Conference to London Zoo to meet Layang Layang, the elephant which has been adopted by the Brain Trust and now renamed 'The Memory Elephant'. (More information on the elephant adoption can be found elsewhere in this issue.)

After lunch, and to help keep us awake, James Longworth, joint founder (with Jonathan Montagu) of the Eton 'Use Your Head' society, gave a very witty and light-hearted talk about 'words'. Anagramming names was a particular passion!

James Lee, a member of the Council of the Brain Trust and Director of Education, spoke about his achievements in helping to start and develop 'Use Your Head' Societies in universities and schools. A very stimulating and motivating account.

During the ensuing interlude, Natasha Diot showed us the print of David Shepherd's beautiful painting of elephants, which had been presented to her as a prize for her achievement as Woman Champion of the 1993 Memoriad.

David Wilkie, a Vice-President of the Brain Trust, then continued the theme 'Mens sana in corpore sano' by talking about how he prepared for major swimming events. His account of how he became a totally dedicated world-class swimmer was fascinating. He also gave us a little insight into the early part of his life which was spent in Sri Lanka, and where he developed a lifelong love for elephants (you will remember that it was David who donated the beautiful sculpture as first prize to the winner of the Memoriad).

Speaking of the Memoriad, our final item of the day was a panel made up of some of those people who had taken part this year,

The 1993 Conference was held at The Naval & Military Club in London on Saturday, 4 September. The theme of Healthy Body, Healthy Mind was explored by a wide range of speakers. Lady Mary Tovey reports for *Synapsia*.

including Dominic O'Brien, Vanda North, Ken Wilshire and Natasha Diot. They spoke in turn about their own preparation for the event: what food, what exercise, how much rest, etc - all good tips for those of us planning to enter next year's event!

Satellite events included a preview of *The Mind Map Book* and a photographic review of the Memoriad, produced and presented by Dunja Dinic.

Our day ended happily at a little Italian Restaurant in Curzon Street, where we were joined by Peter Russell - a very nice surprise to round off what had been a great day, highly stimulating. We look forward very much to next year's event in June. Please watch *Synapsia* for details.

Somerset Meeting

A most enlightening talk was held at Greenham Hall, Somerset, courtesy of Peter and Caro Ayre, on 18 July 1993. The meeting was attended by a record-breaking 96 people who turned up to hear keynote speaker Tony Buzan's presentation on motivation.

Tony spoke on the brain as a synergetic



system, creativity, how to learn, mimicking and achieving success. He went on to talk about his new book, *The Mind Map Book*, which was reviewed in the previous issue of *Synapsia*.

The Somerset Brain Club has experienced a substantial increase in members, and this was the largest Brain Club meeting ever held. One family, the Diots, had travelled from Surrey, but were outdone in distance travelled by the Doctor from Poland who was visiting the British Institute for Brain Injured Children. We would like to thank everybody who came.

Natasha Diot, David Wilkie and Sir Brian Tovey exhibiting a print of David Shepherd painting of elephants - Natasha's prize from the 1993 Memoriad.

George Nichols (BCM 862) reports on the Brain Club Southwest Meeting.



Lynn Collins taking time out to do some promotional work.

BRAIN CLUB RUNNING COURSE

An Exciting Break with Paul Collins

Are you a runner who wants to:

Improve your running style; learn to run without injuries; receive Alexander Technique lessons from the only teacher in the world who also has been a world-class runner; examine the relationship between running, the Alexander Technique and Radiant Thinking; do all of this in beautifully comfortable surroundings in Somerset with your fellow Brain Club members?

If that is the case, and you are able to run 5 km in 30 minutes, then read on!

We are pleased to announce the 1994 Brain Club Running Course, to be held at Greenham Hall, Somerset, England, from August 1-4.

Runners will all stay at Greenham Hall. The programme consists of a pre-run warm-up and run each morning in a different location to offer the widest range of running experience. Afternoons will be taken up by individual Alexander lessons, leaving participants plenty of free time to enjoy the delights of a West Country holiday. Each evening there will be a talk which will review the day's work and go on to explore the connections between running and Alexander, Alexander and Buzan, Radiant Thinking and running.

In between these activities participants will enjoy the delicious runners' lunch and afternoon tea with home-made scones provided by Caro Ayre, our hostess at Greenham Hall.

Ample time is allowed for discussion and questions. The course will be limited to ten people so that individual problems can be

addressed.

This course is being offered by Paul Collins, eminent Alexander Technique teacher, former Olympic runner and BCM 373. Raised in Canada, Paul was the Canadian marathon champion from 1949-52. In 1950 he won the New York Marathon and came 5th at the Commonwealth Games in New Zealand. In 1952 he represented Canada at the Olympic Games in Helsinki, finishing 19th. That year 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.

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 yrs) for 200, 300 and 400 kms; plus three, four, five and six-day records at the 3rd Annual Six-Day Race in Nottingham. In April 1986 Paul ran a new personal best of 117 miles in the Preston 24-Hour Race, for fifth place overall. Since then he regularly competes in 24-hour races, generally completing over 100 miles each time.

Paul comments, on this exclusive opportunity for Brain Members, that 'each person will be encouraged to examine and change radically their thoughts about walking and running, and about human movement in general.'

Tony Buzan says, 'Paul Collins is a great teacher. His teaching changed (perhaps saved!) my life.'

More details will appear in the next issue of *Synapsia*. Please contact Paul at 4 Mount Pleasant, Wellington, Somerset, TA21 8DA, Great Britain (Tel 0823-667685), if you have questions about the course before then.



Why not organise your own Brain Club course? Please liaise with the Brain Foundation office.

BRAIN CLUB NEWS

Cell Net

THE BRAIN TRUST CHARITY DUCK RACE 1993

Hi folks,

Here I am again after another race to report on the action. My pals and I had a change of venue this year; we went further downstream, past Marlow to a little hamlet called Bourne End.

The weather was rough, and I mean rough! The National Rivers Authority had advised the organisers not to release us as there was a gale warning, 70mph winds and heavy rain. At this time we were still nice and warm in our sleeping bags but all the spectators were getting rather wet. When 'The Bounty' opened things started to liven up; the prizes were getting wet, the spectators were getting dry, and it was suggested that it was time that the ducks got wet. We knew we were in for it.

An hour after schedule, Teri, Tony, Richard, Paul, Peter, Barry and lots of other helpers decided to cast off and take us to the start, which was not the prepared one, so all our training was in vain. We were unceremoniously dumped overboard, probably due to the fact that all were getting wet and they wanted us to suffer as well.

We had lots of trouble at first as the current was downstream, the wind upstream and half of us were still asleep. After lots of pushing and shoving, the boats were turned on us, dividing and separating, like churning tickets in a tombola, not very pleasant but it did give us room to manoeuvre. The expected winds did arrive and we were swept all ways, sideways and anywhere bar where the organisers wanted us to go. It was great fun to watch, everyone trying to keep us on course.

The winning duck was picked up by Peter Lea on board 'Kaper' and then it got very exciting as they tried to catch the next 49 over the line. The owner of the winning ticket was a grandmother who lives in Bourne End and she will be spending a week in a villa in France, thanks to Brian and Jenny Lee who donated the prize.

I was not lucky enough to be among the first 50 winners. With the rest of my pals I was being swept downstream by the winds. The Ordinary Boaters Club, who help every year, chased all over the river for over an hour to prevent us getting as far as Cookham and the Weir!

My thanks go to all those who supported the race this year and for the £1,000 which you raised for the Trust. My thanks also go to those who donated prizes: Rank Xerox Marlow, Volvo UK Marlow, Tektronix Marlow, Brian and Jenny Lee, The Compleat Angler, Da Ciro's Restaurant, Simpson's-in-the-Strand, WASP Marketing, BBC Books and Tony Buzan.

This report was written for me by Teri and Lesley Bias (BCM 30) because I ain't been to school!

Inaugural Meeting of Marlow Cell

Tony Buzan led the inaugural meeting of the Marlow Cell of the Brain Club, which was held in the dramatic surroundings of the European headquarters of Rank Xerox on 23 September, reports Nigel Temple. As ever, Tony proved to be energetic, creative and thought provoking! In the short time available, we discovered how the brain can come up with an infinite number of solutions to a problem; learnt about the characteristics of the left and right sides of our brains; and mastered a simple technique for learning a list of objects.

Tony chose the planets as an example of such a list. On the first test, few of us managed to get all their names right - never mind the order they are in. However, within a few minutes, he showed us how to remember the sequence and size of all nine, in such a way that makes it difficult to forget them! The subsequent test showed a dramatic improvement in recall.

During his talk, Tony discussed Mind Mapping; the great brains; and the limitless mental potential that we all have available. All too soon, the evening ended, and we were left to ponder the new world view that Tony had unveiled to us.

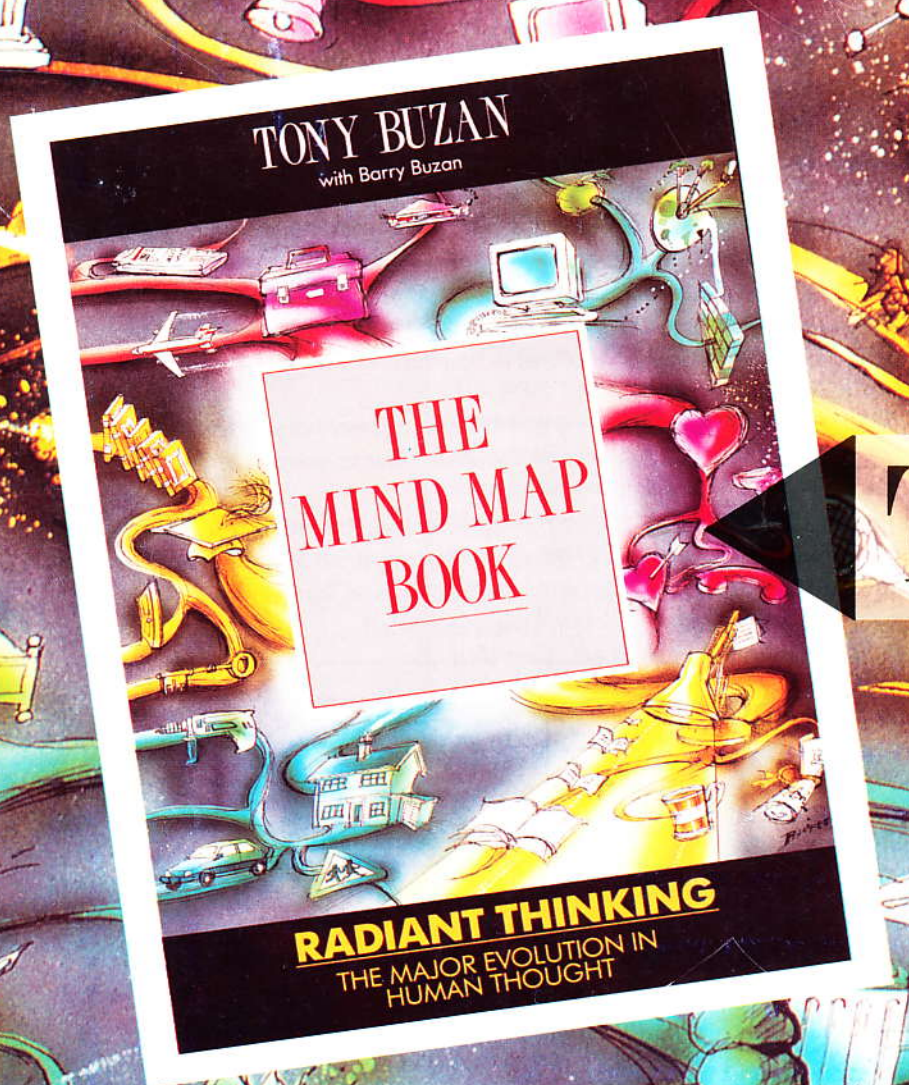
Thames Valley Cell

The Thames Valley Brain Cell held its second meeting at Rank Xerox in Marlow on Thursday, 28 October, when approximately 40 members and friends heard Mind Mapping explained by Ian Docherty, and Nigel Temple told us about how he uses Mind Mapping in his public relations business and personal life. Examples of Mind Maps by members were on display. Meetings are held on the last Thursday of each month, but a special Party will be held in December, and you can ring the Brain Club office for the date and details.

London News

1993 has been an exciting year for the London Brain Club. The October meeting, at which Tony Buzan gave an extremely entertaining and fascinating talk on learning languages, and Dominic O'Brien performed a wonderful demonstration of visualisation techniques for memory, was particularly well attended. The evening was rounded off by an enjoyable meal at a local Thai restaurant.

UNLOCK THE POTENTIAL OF YOUR BRAIN



THE KEY

The Mind Map Book is published by BBC Books.
Hardback £16.99 ISBN 0563 36373 8
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