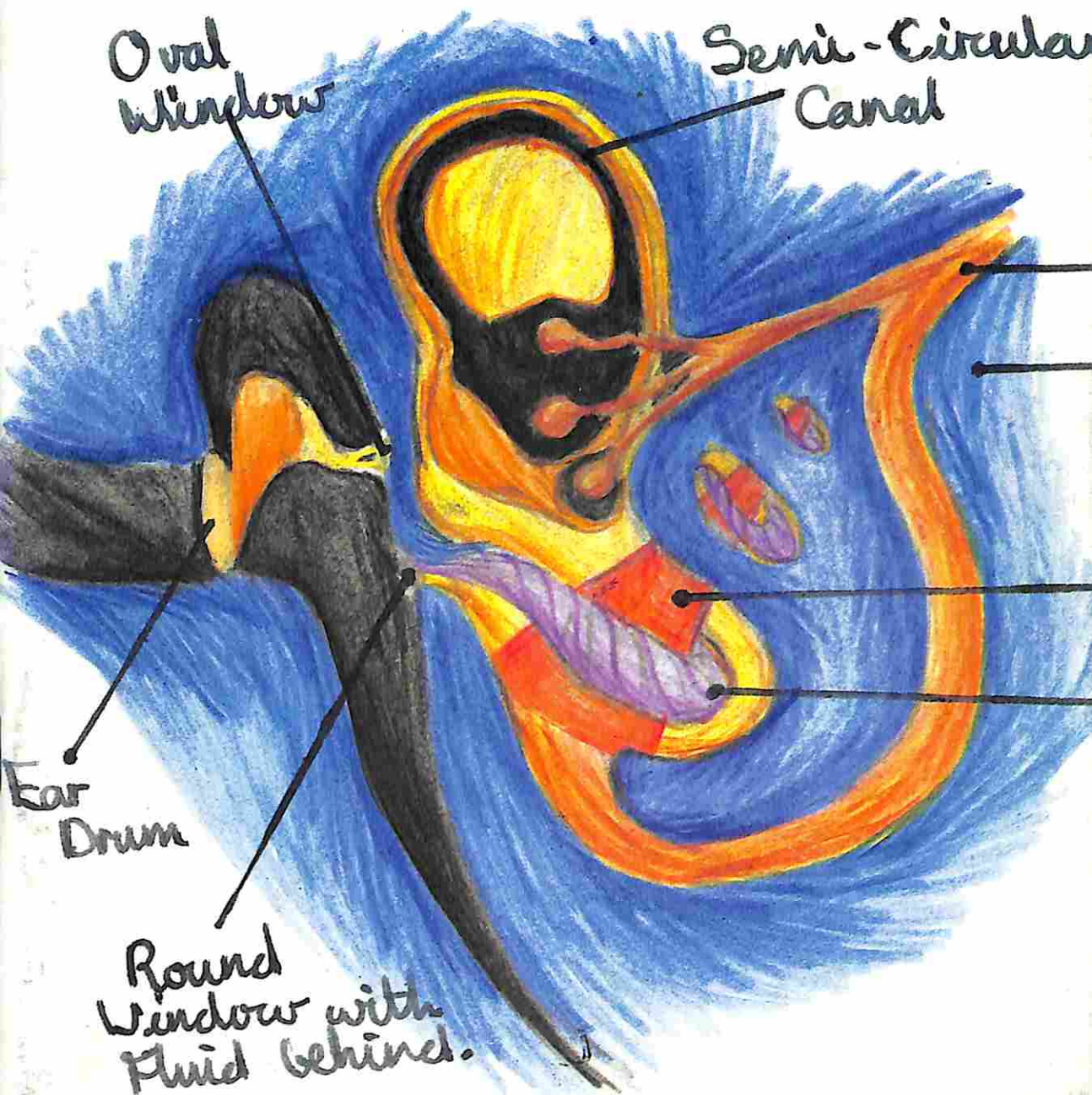


Child and Man

Education as an Art

Winter 1986 Volume 20 No1





Child and Man

Issue theme:
Computers in
Waldorf Education

'If one can experience a really intense interest in each world problem and at the same time is in the fortunate situation of being able to discuss these problems with young people, then the world will speak through one.'

'However ... such conversations have to be full of pulsating, vibrating life, life which stimulates above all the powers of fantasy.'

Rudolf Steiner: From a lecture given in Stuttgart in 1922 in which reference was made to adolescents.

FRONT COVER: *Diagram of the inner ear, from a Middle School physiology main-lesson. The study of the nerves-senses system in a Waldorf Upper School is described in the article on page 14, together with its relevance to the teaching of 'information technology'.*

OPPOSITE: *In such activities as copper work, imaginative powers are cultivated alongside computer studies, providing a balance for the type of thinking necessary for the latter. (see pages 4 and 23-29)*

UNITED KINGDOM: Editor: Brien Masters. Editorial Group: Peter Ramm (Editorial Manager & Advertising), Margaret Shillan (Art Editor), John Docherty (Circulation), Robert Kersey-Green (Treasurer), Tony Brown (Newsletter), Sarah Wakefield (Secretary).

NORTH AMERICA: Alan Howard (Correspondent), Dan Dorr (Advertising).

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Child and Man is a focus for ideas, insights and achievements in Waldorf, Steiner and all truly human education throughout the world.

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Opinions expressed in this journal attach to the respective authors and are not necessarily those of the Editor.

Editorial Introduction

Reports of preliminary preparations for the quadringenary (1988) of the Spanish Armada are already filtering into the press. Hopefully the celebrations will do justice to the extraordinary – legendary one might say – brand of phlegma displayed by Drake on the Plymouth bowling green. The melancholics standing by must have felt the noose of doom tighten unyieldingly several times over; the sanguines must have been jittering with split attention, to the verge of incontinence; and the choleric exploding with frustration.

One meets all four shades of colour – fortunately only in pastel – in the concern repeatedly expressed that Waldorf education, inaugurated in 1919, be sufficiently *up-to-date*. Such concern becomes apparent in parents' meetings, initial interviews, discussions following public lectures and in more formal conversations and exchanges with Education Authorities, the Inspectorate and with Government Officials at all levels. Rightly so.

Nowhere, however, in this respect, is there deeper concern than among the teachers themselves, those who are actually giving the lessons. It falls to them to prepare the pupils for the age in which we live – or, to be precise, for the age in which *they* are going to be living after leaving school. Those pupils, still living, who were the first to receive Waldorf Education are in their eighties. By the same token, the working life of those graduating from Waldorf schools today reaches potentially to the year 2045 A.D.. In spanning that period, they will become fellow-creators in the historical process

As world-citizens, they will be developing their talents as if cultivating seeds in the soil of those faculties which Waldorf education has attempted to make fertile through the years of childhood and youth. *How* does Waldorf bring about that fertility which will allow these seeds of the future to germinate and thrive?

A burning issue

In this number of *Child and Man*, though, we place the question as a vital background to one of the main themes of the day: *Computers in Education*. There have been several comments published by us in the recent past (see 'Computer Games', *Child and Man*, Vol. 19, No. 1), but more is now needed. Information technology, a product of our advancing age, is a phenomenon which has a significant influence on us all. Rudolf Steiner emphasised the importance of giving pupils the basis for understanding such phenomena. This does not remain as mere knowledge or simply become transformed into skill; it strongly affects and supports the human being's personal relationship to the world. It also educates that attitude towards life which can become 'an insatiable thirst' for knowing *and understanding* the world, as personal horizons widen and as discovery of the world increases continually.

Such considerations are important points of reference and help us to keep scientific developments within the context of the whole education. Hi-tech is not something which will come and go in schools like cap badges or government subsidised milk for morning recess. On the other hand, in our well-nigh craze for

resources, it should not be allowed to become the cuckoo in the nest of our teaching methods. There have been many years in which physicists, mathematicians and historians in Waldorf schools have introduced different aspects of computers to their pupils through their respective disciplines. This work has continued in a more or less isolated fashion, though this is not to imply that experiences have remained unshared. Recently, however, there have been several moves to confer, to compare on a larger scale, to ascertain whether a more 'official' statement or recommendation can be made concerning the Waldorf approach to computers in education at various stages. Foremost is the conference (March 1985) which was held at High Mowing with Joseph Weizenbaum present, organised by David Mitchell and others and reported here by Hans Gebert. This, together with the other articles which address themselves directly to the subject, may perhaps be seen as making a contribution towards what would constitute such a statement or recommendation. *Child and Man* would welcome any correspondence which might enlarge on this.

Invasion of the classroom

The point at which we are arriving is somewhat unique in Waldorf history. Initially there were the indications, suggestions, guide-lines and clear-cut statements of Rudolf Steiner, given as a result of his depth of insight and his considerable teaching experience. Then came the indomitable voortrekkers – to whom we also owe a great deal – who put Waldorf onto the world map. Their voortrekking involved much hard work and sacrifice in human terms; in professional terms it involved study, consultation, translating ideas into educational ideals, elaborating and extending Steiner's suggestions, taking indications from lectures and discussions into the classroom, into meetings and into personal preparation. From this we have the art of education which Waldorf has become today

and is still in process of becoming. Meanwhile a multitude of scientific discoveries has found its way into the classroom, into the *Waldorf* classroom in accordance with the basic principles of child development and the resultant curriculum for which Waldorf is well known. The topics of discovery have ranged widely from the latest virus to aeronautical studies in air pressures during trans-sonic flight, or from nuclear research to the ecological consequences of building a dam at Nagymaros. Some may be seen as vociferously epoch-shaking, others as whisperingly modest. Nevertheless, educationally they have all been taken in the exciting stride of being a Waldorf teacher. When, however, something emerges which infiltrates into as many aspects of life as the micro has, it creates something of a revolution in culture and as such cannot help but threaten to *invade* the classroom.

A swarm of questions

This invasion brings with it a swarm of questions, disturbing observations, gut reactions, sharp insinuations, pressure from all sides. There is the strong line taken recently, for instance, by the Scottish consultant psychiatrist, Dr. Prem Misra, who was confronted with young patients suffering from computer addiction with attendant psychosomatic symptoms of extreme mental fatigue and lack of concentration as well as 'back-ache, body pains, dizziness and headache'. He warns: 'There can be no more de-humanising retreat than a computer such obsessions harm young, immature minds'. Or again, Michael Shallis, a staff tutor at Oxford, author of 'The Silicon Idol', attacks the machine from other angles: 'In allowing a teaching machine to take over a large part of the teacher's functions, the pupil loses out on a real relationship with another human being, however fraught with problems that may be. And those problems, after all, are part of education'. He

points out how learning must include 'understanding attitudes, expression, emphasis', and that no machine can provide 'emotional contacts, negative and positive, that take place between people'. Further, the dangers of atrophying other human senses, or of replacing an accountable teacher with an anonymous programmer; also, the ugliness and crudity of the forms it 'draws'. His main condemnation of the machine is its 'denying children their childhood'. Similar views are expressed by Joseph Weizenbaum of the Massachusetts Institute of Technology.

These voices are by no means alone, nor do they illustrate the only approaches. We should not lull ourselves to sleep, however, deaf to their message, with the platitude that computer 'literacy' is essential for the future. Andrew Cowie, a systems analyst within the electrical industry itself, stressed this recently, urging educationists to bear hardware obsolescence in mind and also the 'fourth generation' systems which 'do away with the need to write a program at all'. With the thousands of dollars and yen being spent on research he maintains that 'It makes as little sense to train a generation of computer programmers now as it would have done to train a generation of motor mechanics when the Model T Ford went into production'. (Presumably therefore, the earlier that education launches the child into computer literacy, the greater the damage.) Moreover, he cautions that it puts the future of children in jeopardy and urges that what we need, in common with every other industry and profession, are people with a decent, all-round education'. (*A decent, all-round education!* Prizes, possibly, for bettering this popular portrait of what Waldorf would become, when *Child and Man* is wealthier!)

Doing justic as well as complementing
This certainly clears much of the ground.

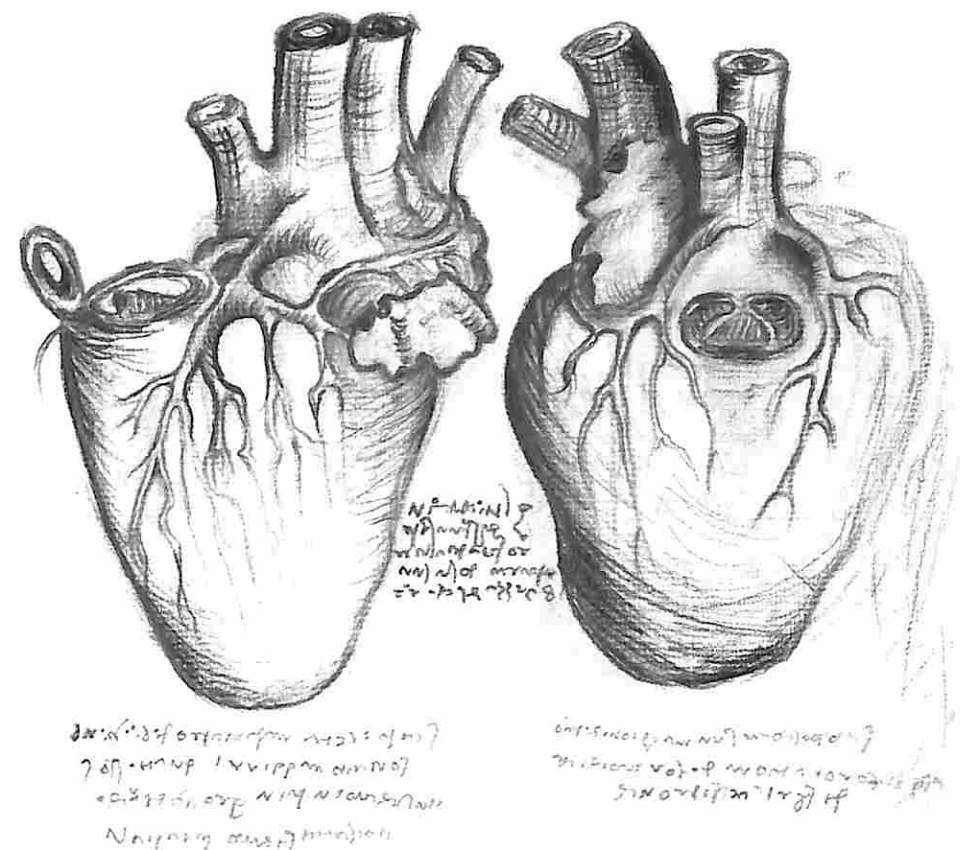
But we are still left with the fact of the importance and the influence of 'artificial intelligence' in our age and the need to incorporate this *appropriately* into education – the technical background of its developing hardware, the foundation of those mental skills required to master its equally developing software and its social and ethical consequences and implications. The pedagogical questions therefore revolve around two main points.

1) How can we do justice to this truly remarkable invention and its ramifications, which are able to lend us so much aid in our existence, while at the same time we preserve and develop a sense of perspective, proportion and appropriate application?

2) While facing these issues, how can we become clearer what *other* faculties can be developed in education to counter-balance adequately and therefore to complement the mechanical form of thinking which the pursuit of this technology can easily over-enhance?

Looking the first fully in the face will help guarantee that our defence against this classroom invasion will not deteriorate into a mild form of computers-in-education witch hunt. The writers who follow, clearly dispel the notion that Waldorf should be thought of in this connection. Striving for the second will enable us to provide the pupils with an efficacious antidote to being overruled by this type of thinking in their lives.

Margaret Shillan presents the History of Art in the Upper School in this light. There one can see that, through such an approach as she presents, the pupils experience more than beauty. They experience the birth of ideas which lead beyond what is attainable through mere logic – Pegasus with outstretched wings. Logic is rightly applied to what is purely material (which is not to deny our ability to harness it in philosophical



Copy of drawings of the heart, by Leonardo da Vinci. These are taken from a 14-year-old's project on the Renaissance. In themselves, and as an educational exercise, they represent the opposite of the 'crudity' which Michael Shallis refers to in 'The Silicon Idol'.

thought), and adolescents naturally need to come to grips with this. But it is not their only need. Complementing it is the need to wrestle with the deeper questions of existence. Every work of art not only expresses beauty: it is a hieroglyph, telling something of this quest through past ages and into the present. The reading of such hieroglyphs, through a study of aesthetics, enables one to begin to understand the language of the meaning of life, a language which not only sheds light on the past and present but also gives fuller purpose and deepens the sense of human values for the future.

Obviously, there are areas of school life other than a study of aesthetics in which creative thinking can be engaged. Readers might like to suggest some, themselves. The burden of the present issue of our journal, however, must re-

main with the main theme – computers – and the questions being discussed which are connected with it.

Somewhere amongst this sometimes confusing swarm of questions (which buzz and seethe in staff rooms at coffee, in conference halls, in the media and in government publications) is, to continue the metaphor, the Waldorf queen bee, ample, active, alert, the centre – as far as some are concerned – of it all. There are those who may decree that she has not yet been spotted. Even so, the research and experience such as is here described gives the distinct impression that the swarm is beginning to settle; and the march up the slope into the hive has begun, so that a more meaningful, orientated and corporate way of working may become established.

B.M.

A Computer Conference in America

Reported by Hans Gebert

Monthly Detroit is a glossy periodical bought mainly for its excellent coverage of all that goes on in Detroit and its suburbs. The September 1985 issue has also an article about the damage to children through indiscriminate television watching. The article is coupled with an 'Un-TV Guide' suggesting substitutes for the tube. The guide has four sections. The third section, headed 'Using Home Computers', is the important one for our purpose. It is the only section with a picture. This shows two three- or four-year-olds obviously fascinated by a computer and the caption is, 'Computers and kids are a natural combination'. Magazines of the kind of *Monthly Detroit* are very carefully targeted at their readership and the caption of the picture is probably widely accepted by the educated and reasonably affluent members of Detroit's middle class, who are just the people who might send their children to the Detroit Waldorf School. The caption would probably be accepted as a truism in most cities in the United States.

A similar attitude was apparent among educators at a conference on computers for local teachers which I attended recently. It was assumed without discussion that computers belong to the classroom from kindergarten onwards.

The conference had only to decide how to train teachers to use them effectively and to stimulate providers of software to improve their offerings. Douglas Sloan wrote an excellent article in a prestigious educational journal describing and criticising the uncritical acceptance of computers by the teaching profession.¹

Needless to say, in this euphoric atmosphere regarding computers in education, Waldorf schools up and down the country have been pressured to introduce computers too. Parents are frightened that their children will be condemned to a miserable existence in abject poverty if they grow up 'computer-illiterate', and they assume that 'computer literacy' can only be achieved if children deal with computers as soon as they learn to read and write. Many schools have found it difficult to meet this pressure. High Mowing School therefore recognized a very real need when it arranged a conference entitled, 'Computers in the Waldorf High School' from March 22 - 25, 1985.

Why a High School Conference?

As it happened, the conference did digress at times to discuss computers in the Grade (Lower) School. In fact the official report includes the sentence, 'There was a shared conviction that early

computer education constitutes an assault on childhood, and that it robs the children of their rightful kingdom.' However, the title of the conference indicates general agreement among Waldorf teachers that computer education is a task for the High (Upper) School and not for the Grade (Lower) School. In this article it may be useful to outline some reasons for this opinion. A short digression discussing the place of technology in Waldorf schools is necessary to do this.

Waldorf schools were among the first to insist that students should leave school with a general understanding of the major technologies. But what constitutes 'understanding' of technology? An example will make this clear.

Consider the automobile for instance. A non-driver can understand the working of a car and can appreciate the effects of cars on the environment, on the planning of cities, on the lifestyles of populations, etc. etc. Conversely, it is possible to be a competent driver without understanding the working of the car and without ever giving a thought to the effects mentioned above. I would like to suggest that the thinking non-driver has a socially more useful understanding of the car than the non-thinking competent driver. Of course, the car is fully understood only by someone who can drive, who knows how a car is made, who understands the working of the engine and all the other systems, and who has studied the effects of the car on society and environment. Such a full understanding cannot be conveyed at school for more than a very limited number of technologies. Schools must, therefore, choose which aspects of understanding are the most important. It seems clear that this importance is in the reverse order in which the aspects of understanding have been mentioned above. The most important aspect, the appreciation of the social and environmental aspects of the motoring age, presupposes some

understanding of humanity and its relation to the surroundings generally.

To return to the main subject, we can now see the reason for the well established and well tried educational sequence in Waldorf schools. The Grade (Lower) School lays the experiential foundation for understanding humanity and nature. Here students progress from doing to feeling appreciation and then to knowledge. Technology is introduced in the High (Upper) School after the Grade (Lower) School has provided the firm starting position, without which understanding technology would be impossible.

Participation and Organization

Computers are in general a technology among many but introducing them does also present new problems. High School faculties and particularly mathematics and physics teachers have tried to grapple with these problems since the mid-sixties, when it became obvious that *information technology* had to find a place in the already overcrowded curriculum. The conference was, therefore, a very welcome opportunity for exchanging ideas and trying to hammer out common policies. The Waldorf school movement has to be very grateful to High Mowing, for arranging a conference on a very important subject in a very excellent way. The beautiful setting in the New Hampshire hills (even the weather co-operated), the pleasant accommodation and the fine food helped us all to concentrate our energies on the task at hand. David Mitchell, a long time faculty member of High Mowing, and Arthur Fink, a consultant on computer application who runs the computer program at the school and also a Center for Appropriate Computing, planned the conference. They had collected a small but very impressive group of resource persons.

The central figure was *Joseph Weizenbaum*, professor of computer

science at Massachusetts Institute of Technology and pioneer in artificial intelligence research. Many readers will know his book, *Computer Power and Human Reason*² in which he questions many aspects of computer use and in which he points out many dangers of the uncritical application of computers. The others were David Black, Andrew Linnell and Swaine Pratt. Each one works with computers in his main profession and all of them are familiar with Waldorf Schools and are concerned that computers should be used appropriately.

The general arrangements of the conference also contributed very much to its success. There was one full scale lecture given by Professor Weizenbaum. Otherwise, there were short contributions by the resource persons and there was very much time for discussion in small groups and by all the participants together. The thirty participants had all personal experience of some aspect of the problem. All Waldorf High Schools and teacher training institutes in North America were represented and many participants knew each other from previous work together. The organizers have produced a 17 page report which is available from David Mitchell at High Mowing for study by faculties of Waldorf Schools (price on application).

The Present Position

The conference started by surveying what was actually being done in schools at present. No school reported that computer studies were introduced in the Lower School but all Upper Schools, except one, have introduced computer studies in one form or another. Many schools have a good deal of capital invested in a number of micro-computers or in some main frame computers. Both main lesson blocks and weekly lessons are used for the computer courses. Usually the time for computer courses comes out of the mathematics and physics

allocations but time has also been taken from history, languages and art. In two of the schools formal instruction is supplemented by computer clubs.

It will be interesting to compare what is happening at present with the recommendations. The success of the conference can be gauged by the extent to which current thinking was changed and by the way in which even participants with a large investment both in money and in time agreed to quite new recommendations.

Some Important Ideas

I can mention only the most important ideas and arguments which led to the recommendations. Many, but by no means all of them, came from Prof. Weizenbaum's lecture. It would be too cumbersome to mention the author of each idea, which is more apparent in the full scale report, and I hope I shall be forgiven for not giving due credit in every case.

Let us deal first with the considerations meeting the fears of parents who are afraid that their children will suffer greatly in the job market if they are not 'computer literate'. First of all it was pointed out that many people are successful computer users without training. They use computers in the automatic cash dispensers in banks, when they order items in mail order stores, or when buying tickets at many of the large European railway stations. In the future we may use computers in a similar way for shopping and/or paying for our orders. In no case will it be necessary for the user to know how to program the computers. It will be enough to know how to use apparatus similar to a telephone. Telephone and television are ubiquitous in our lives but we do not feel that anyone, let alone children, must be trained to use them.

As and when the writers of so called *fourth generation computer languages* are successful, many jobs in programming

will disappear. Computer designers are on the verge of making computers which will take over many programming functions. Thus many of the lucrative jobs now available after a comparatively short training are likely to disappear. Those who will have to use computers in offices, travel agencies, stores and the like will have the 'user friendly' computers at their disposal which are now coming on the market. Learning to use such computers will be less difficult and less time consuming than learning shorthand and typing.

Regarding preparation for college, Prof. Weizenbaum told the conference of his experience with freshmen at M.I.T. The introductory computer course, which everyone in his department has to take, is flunked more often by those who have had computer courses at school than by those who have not had any direct computer preparation. He puts it down to the fact that M.I.T. selects students very rigorously for intelligence, so that all of them should be able to cope with introductory courses. Those who have had computer courses often have to overcome bad habits and to unlearn primitive techniques which they bring from their previous training. Many have, for instance, learned to program only in Basic which Prof. Weizenbaum called, on another occasion, a 'barbaric language'.

Thus learning to use computers at school is unnecessary and can even be harmful for those who really want to make a career in computers. I expect that these facts will soon be generally realized and parental pressure for computer literacy courses will abate over the next four years.

Undermining education

What will not abate so quickly are the attempts to computerize education. Here we are in a much more controversial area. Questions such as the following are being fired: 'Couldn't the word-processor liberate school children from

the drudgery of worrying about spelling so that they could more quickly develop their creativity? Doesn't the pocket calculator eliminate at last the need for learning multiplication tables? Couldn't many mathematical ideas be taught much better by computers as Seymour Papert advocates?'³

To answer such questions we need first to consider the deeper objectives of education and the nature of the human being. If we educate mainly to give students survival skills in the commercial and political world, many subjects we cover at schools are as redundant as the learning of multiplication tables and spelling seem to be. But are the aims of education really as restricted? Does the effort in learning the tables, for instance, not foster capacities of mind and will which are essential for future efforts of self education and which may, in the last resort, even be useful in the market place in a less direct way? Prof. Weizenbaum pointed out that in learning to write 'abduct' rather than 'apduct' we get a glimpse into what links all the words with the prefix ab-. It was also pointed out that word processors are no help in reviewing the overall structure of a piece of writing and that learning mathematics on a small computer screen 'contracts space, sucking students' attention and consciousness into the small terminal screen'. These questions have all to do with the nature of the human mind which can link the finite individual to the infinite and which can penetrate the deeper secrets of language. These capacities are fostered by (apparently useless) mathematics and by attention to spelling and grammar. The conference seemed to agree that computer instructions tend to limit and confine the mind to the mere useful and the finite.

Personality

These considerations lead into the most challenging questions raised by the com-

puter. While pre-computer technology only replaced the labour of limbs and senses, computer technology seems to replace our minds. Used in conjunction with the older technologies, computers make it possible to construct systems which go a long way toward mimicking the whole human being. Do such systems really replace the whole personality? Or, putting the question the other way round, is the human being nothing but a computer controlled heat engine with some chemical messenger systems? When the conference visited the M.I.T. Artificial Intelligence Laboratory we learned the expression, 'carbon-chauvinism' for those who still think that there is something special, distinguishing the human being from its silicon counterpart.

While Waldorf teachers have little doubt that computer systems are a poor caricature of human beings, they also realize that these questions divide the minds of our generation. Schools must, therefore, equip their students for retaining balance and sanity in a world torn by such controversies. They must also be equipped to deal with the kind of questions Prof. Weizenbaum asks in his above-mentioned book: 'Where can computers be used appropriately and in which spheres of life have they no place?' Those who work with computers told the conference that computers do tend to change their users, by making them computer-dependent, by forming addictions and by producing computer deification. There is also a real danger that social organization, environment and lifestyle will change to accommodate the computer just as our cities and the countryside had to change to accommodate the car and electricity distribution systems. All technologies have a tendency to become masters, if they are not consciously relegated to be servants of truly human needs. The real challenge of the computer to education is not to make students 'computer literate' but to prepare them for life in a world in

which all these unresolved questions will have to engage their interest and their best efforts to find solutions.

These questions show that Waldorf education is ideal for preparing students for the computer age. All the questions raised have different answers for people with differing ideas of the nature of the human personality and of its task in the world. And is it not one of the main aims of Waldorf education to give every student the wherewithall for gradually forming his or her own peculiar view of humanity?

The Recommendations

Once the position outlined in the last section had been reached, it was not difficult to come up with general recommendations. Perhaps it is best, therefore, to finish this report with the last few paragraphs of the official report which contain them:

'... If we teach about the computer the student must also learn something about himself. All of mankind's accomplishments need to be brought to our students in the right way in order to activate a healthy process in the child.

We don't want our children to idolize the computer nor do we want them to flee from it in terror. We want them to understand it. Taught in the right way, the students will be imbued with confidence. Such teaching fulfils one of Waldorf education's fundamental precepts – to prepare our students for life.'

The conference reached several other practical conclusions about the place of computer work in the High School curriculum:

1. Waldorf teachers in America have a special task to develop the ideas of Rudolf Steiner with regard to what he referred to as 'Lebenskunde'⁴ in the curriculum. It is within the study of 'Technology' that the computer will find its rightful place in our Waldorf Schools. We must be careful not to separate the 'computer' into a deified

The Computer is the Driver?

Computers and the Modern History Main Lesson in Class IX

by PAUL LAW

In Class IX the history main lesson brings history up to the present – to the point where it connects immediately with our own lives. This lesson obliges the teacher to draw his material out of the experience of the pupils: for it is through their concerns that the past becomes intelligible and that a sense of direction in human evolution can be intuited.

Computers are unquestionably a current concern. While planning the main lesson I discussed computers informally with a large number of pupils; and as often with Class Niners, the response tended to be in black and white terms. Computers were linked with values, and the values were experienced as feelings. The anti-group (mostly girls) saw computers as part of the ugly or dead world of 'science': the pro-group (mostly boys, many of whom owned micro-computers) saw them as fascinating, entertaining, glamorous. It is tempting to take these opposite reactions to computers as symptomatic of a polarisation in views of technology in general; but the views can also be seen as different emotional responses to the deeper effects of technology on our image of the human being. For some pupils the scale of technological forces is threatening; for others it is exhilarating. But in both groups there is often an almost weary

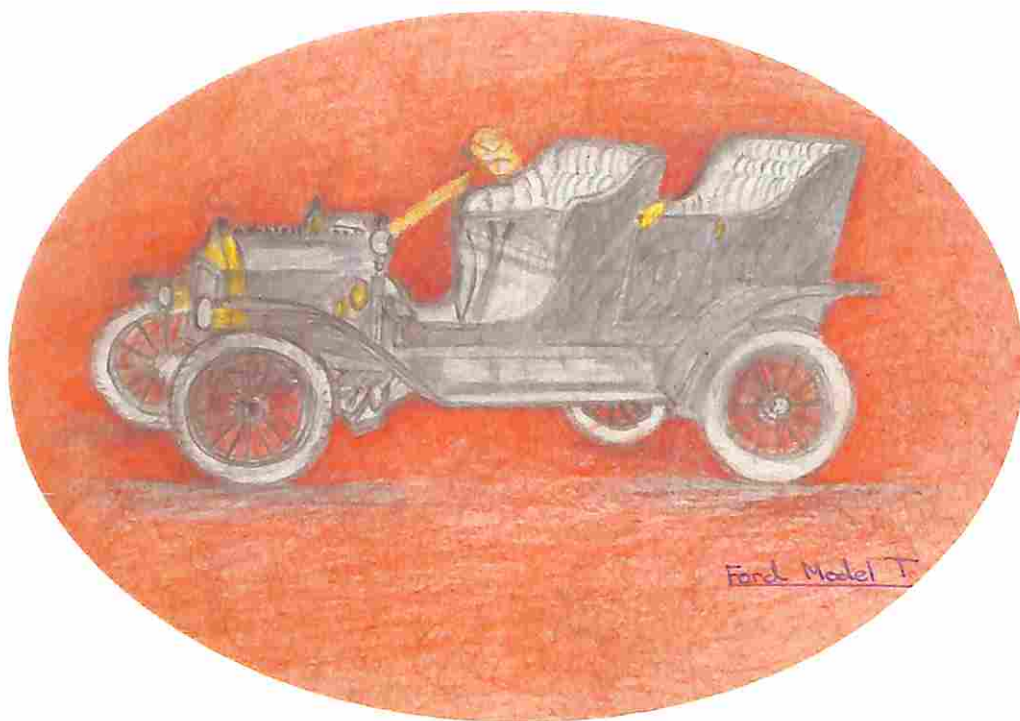
assumption that technological innovation, for good or for bad, will continue to be applied, whether people wish it or not. One pupil remarked that it seemed sometimes as if the human race were inside a high speed train without a driver. Or perhaps the computer is the driver? she added.

Avoiding polarisation

In choosing to deal with the history of computer technology in this main lesson I wished to avoid the polarisation of attitudes already detected, and to concentrate instead on the question of how new technology comes about and the problems of how its effects can be predicted and controlled. I was hoping to demonstrate the need for caution in the way we think about the technology we use. It is difficult for children to realise the importance of such caution, because they lack the perspective of an adult – who can look back on his life and observe how he has become uncritically dependent on acquired attitudes.

I introduced this section of the lesson by describing the development of the motor-car, and the importance of Henry Ford's contribution of the techniques of mass production. Of particular interest to the pupils were

(continued on page 37)



those parts of Ford's autobiographical writings where he describes the ideals and intentions behind his work. The motor-car, for Ford, enhances human status: it gives freedom and mobility to common people, reduces labour, and widens our range of activity. The car is not only a machine for travelling: it is a facet of the image of what human life should be.

But the mass production of cars has had consequences beyond what Ford envisaged. The pupils were aware of the problems of pollution, of the wasteful consumption of raw materials, of the death-tolls on our roads. But we also examined the role of the car in our social life. We saw how the mobility of the automobile has separated the location of our work from our home; it has reduced communities to suburban dormitories, destroyed the life of cities, abolished local schools and shops and social centres.

When we came to study the history of computer technology, the pupils were prepared to have three questions in mind:

- i) What are the intentions of the inventor in building this machine?
- ii) What view of human life does this machine fit into?
- iii) What social consequences can we foresee in its discriminating application and in its indiscriminating application?

People or machines?

Charles Babbage's heroic struggle to construct an 'analytical engine' with 19th. C standards of engineering was the point at which we started. It is the sort of biographical material that has an immediate appeal: a daring conception that failed only because Babbage did not have the physical means to realize it. But how did Babbage regard the 'thinking machine' he set out to build? It was for him a visible image of what he thought

the human mind to be – a machine for the manipulation of quantities. (Babbage's own brain, which was removed for medical examination after his death, in the hope of locating in its structure an explanation for his brilliance, became a symbol for this kind of thinking.) The widespread use of such machines disseminates this view of the human being, and a curious 'feedback' occurs: we begin to speak of ourselves as if we were one of the machines we work with. Not only are computers 'intelligent' and able to 'speak languages'; but we refer to ourselves as being 'programmed' with certain skills or beliefs. The pupils were strongly impressed by the frequency of such 'machine psychology' terms in their own conversation.

When we came to consider the social consequences of computers a number of contributions came from the pupils. One girl had seen a TV report on the use of computers in social security offices. Such 'speaking' computers help applicants to fill out forms quickly and efficiently. But this was not the sole reason for their popularity amongst the people who used them: It seems that many people *prefer* to deal with a machine than to speak with a 'faceless' office clerk. An interesting discussion followed on this, in which the view was expressed that it is not computers that are to be avoided so much as the computer-like qualities of people.

The pupils were not asked to make judgements about computer technology at the end of the lesson. But we did agree on the formulation of a number of principles:

- i) working with machines has subtle consequences on the way we think of ourselves and the way we relate to others;
- ii) before we put a new machine into practice we should spend some time trying to imagine how its regular use will affect us;

iii) we should preserve our right to decide whether to use a machine or not.

Paul Law has teaching experience in both English and German Upper Schools.

A Selected Bibliography

- D. Burnham: *The Rise of the Computer State*
 C. Evans: *The Making of the Micro*
 T. Forester (ed.): *The Microelectronics Revolution*
 A. Hodges: Alan Turing: *The Enigma*
 A. Hyman: Charles Babbage: *Pioneer of the Computer*
 M. Shallis: *The Silicon Idol: The Micro Revolution and its Social Implications*
 J. Weizenbaum: *Faith and Science in an Unjust World*
Computer Power and Human Reason.

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Criterion for WHEN

Nerves and Senses — the human prototype for 'artificial intelligence'

by David Sharman

Growing up with one's nervous system is a slow process of awakening. This may be a somewhat surprising remark as most, if not all, of the nervous system is present at birth, the head being a very large part of a baby. How does the growing child slowly engage in surroundings so that by adulthood the nervous system has reached its full potential? What are the educational implications of this for the Waldorf teacher?

Physiological development: the basis for teaching

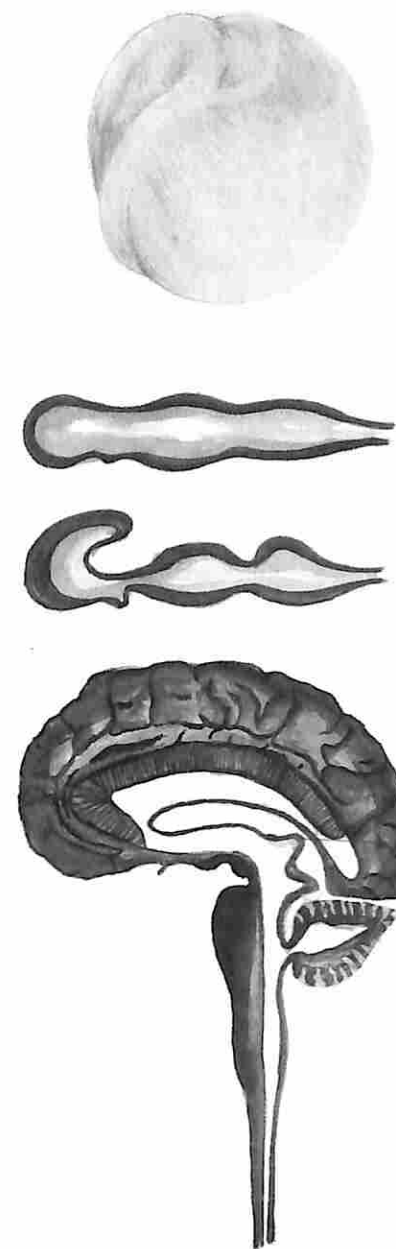
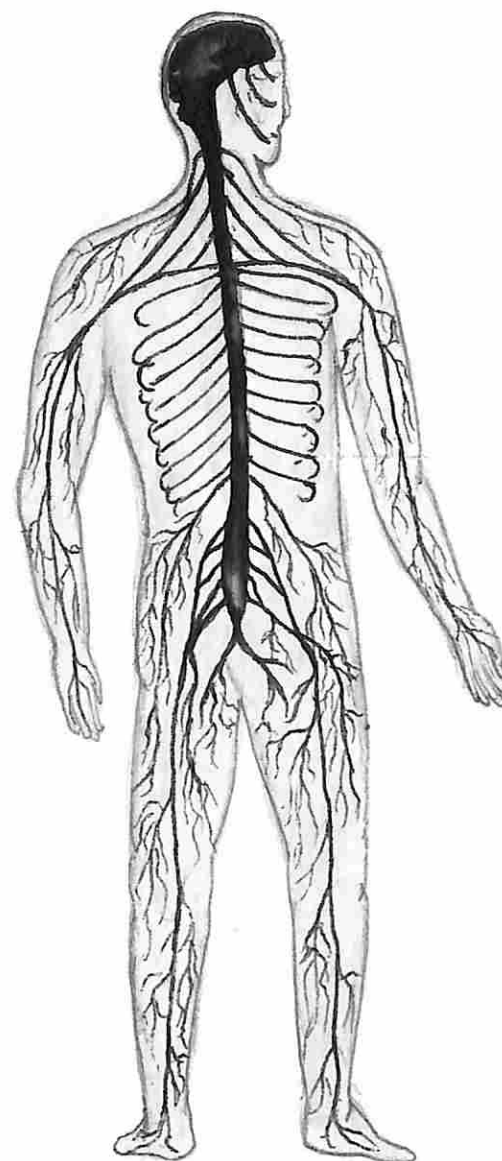
The Waldorf curriculum is built on the child's development so that right educational opportunities are given by both parents and teachers, at appropriate times. When to teach 'artificial intelligence' must take the process of maturation of nerves and senses into account. This process can be seen to evolve within the well-known seven year periods. In pre-school times the child is deeply imitative, active and needs surroundings of quality. Here the nervous system is actively engaged, albeit *in an unconscious way*, in the physical life, so that the baby lifts its head, smiles, responds to the family, crawls, stands upright and walks. Babytalk is followed by astonishingly complex speech. 'What joys to behold!'

In the Lower School, 7 - 14 years,

life is based on rhythm and authority, education proceeding through the stimulation of feelings for beauty of every sort. One can think of the nervous system now as *awakening to a dream-like existence* compared to its sleepy state in the first seven years. The teacher of human biology in the Lower School — usually the Class Teacher — presents a picture of man as a threefold organism: head chest and abdomen/limb systems. A more detailed study of the digestive and rhythmic systems usually forms part of this presentation, particularly from the point of view of health, hygiene and nutrition.

Next in the Upper School the nervous system comes into its own and should be allowed *to awaken fully*. The young people are surrounded by specialists to stimulate the thinking, reasoning and critical capacities in the search for truth and the development of integrity and self discipline.

The nervous system is studied in the human biology main lessons, with 15 - 16-year-olds, in all its complexities (diag. 1, opposite) and the problems it poses to our thinking. This having been done, the pupil is then 'ripe' in Waldorf terms for studying the *extension* of intelligence as developed in the mechanical world in an 'artificial' form such as we have harnessed



in the calculator and the computer.

Brain and intelligence

The physical structure of the human brain far surpasses anything found in the animal kingdom. Arising from folds of the outer ectoderm cells of the embryo, it later becomes embedded within the body tissues as a tube. (diag. 2, top right). Thus it has the same origin as the skin and the sense organs. During further

development the forebrain rises and overarches in a backward direction to cover the rest of the brain. Thus are formed the large cerebral hemispheres unique to upright man (diagrams 3, 4 and 5). The cellular construction is so specialised that if it is damaged, regeneration is virtually impossible. This nearly inert system is carried within the body, bathed and floating in the cerebro spinal fluid which protects and lightens it.

Neurologists have located and mapped the cerebral hemispheres and shown them to mirror the whole man. They allow us to possess the faculties of intelligent behaviour, memory and conscious awareness of ourselves. Right and left cerebral hemispheres appear to relate to differed capacities associated with the crossing over of nerve fibres in the base of the brain. Usually *right* handedness leads to the use and sophistication of the left hemisphere, and vice versa. With much further research still to be done, it is thought that a logical deductive type of thinking is connected with the left hemisphere, whereas the right hemisphere is connected with artistic and spacial intelligence. What is intelligence? Here is a baffling question for each man has 'a mind of his own'. At one time I.Q. tests were considered viable; now, their limitations recognised, other 'types' of intelligence are seen to be equally valid, eg. spacial, inter-personal (social), sense of self centrality.

'Frames of Mind' by H. Gardener, an American writer, suggests seven types of human intelligence, all equally important but not all equally developed in one human being.

The sense organism

As a human individual gains in achievements the central nervous system can become more refined and developed so that it is within a person's will to become a 'self-made man'.

We cannot get a full understanding of the human process of thinking and intelligence without realising the tremendous importance of the whole system of sense organs — it is in the *backward arching hemispheres* of the brain that the highly developed areas of perception for external stimuli, through the sense organs, are situated. Each sense perception is met by an inner activity of the human soul and, as Dr. Kolisko says, 'reality lies in the dialogue between the two'. Normally, we recognise the five main senses of sight, hearing, taste, smell and touch with com-

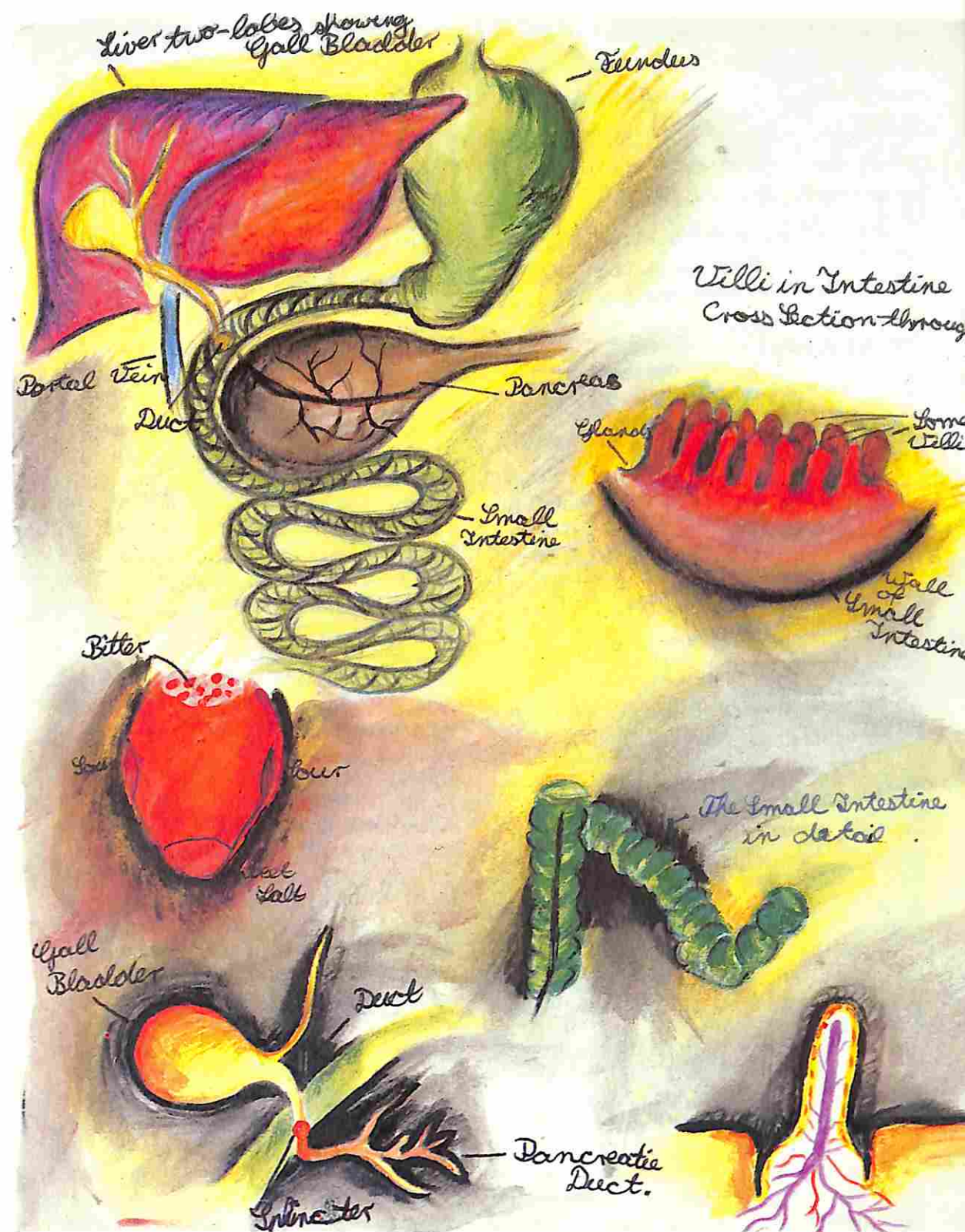
plex physical organs present to receive them. Rudolf Steiner also helps us to be aware of several other senses:— balance, motion, warmth and a general sense of life or well being, all connected with the physical body; and three more spiritual senses — the perceptions of speech, thought and personality.

In all, twelve senses sustain man's awareness of the world around him. In the animal kingdom we find peculiar adaptations where a species has lost its sense of sight due to the lack of stimulation by light, since it has become a cave dweller. Can we see parallels elsewhere? Must the total capacity of twelve senses be continually stimulated in order that a young person grows and matures to have balanced objective judgements? What do machines do to the sense perceptions, particularly at the spiritual level of speech, thought and personality? The extent to which we deprive and dull the senses of our young people by too early and too much exposure to calculators, computers and other machines is becoming a matter of increasing concern.

Sorcerer's apprentice?

The twelve senses might be compared perhaps with twelve points of view and only a true picture of a totality is possible by a summation of the parts — this is the task of the human ego and to be able to do this it must be versatile. Without the ego's activity and versatility, objective judgements and the perception of truth would be impossible. Such judgements and perceptions will become increasingly important if the human being is to remain master of the rapidly advancing artificial intelligence technology which is now flooding the world industrial, domestic, commercial and educational markets. Moreover, much educational research needs to be done if the foundations for this mastery are to be laid *in the right way* at school.

David Sharman teaches in the Edinburgh Rudolf Steiner School.



Drawing from a 13 year-old's main lesson book on Health, Hygiene and Nutrition. (see page 14).

Where do you have Breakfast?

Putting computers into electronic perspective

by ALAN HALL

'Daddy, how do all those people get inside the radio, and do they all have breakfast in there too?'

To such a natural, young child's question I suspect that most adults would find difficulty in giving an answer that both satisfies the child and speaks about the reality of radio transmission. Exactly the same type of questions can arise for television, tape recorders, computers, and all the burgeoning electronic devices which change the local spatial and temporal relationships of natural events. At home as parents and, more formally, teaching in the classroom we have a difficult task to bridge the gulf of understanding between the open childlike perception of 'Daddy, how' to a real understanding of the processes and realities involved in electronic media.

Books abound which explain the details and nuts and bolts of how electronic apparatus works, but the majority is written for the specialist, and most children and many adults are soon lost in the labyrinth of detailed concepts and technical language. In the classroom a group of adolescents can very quickly polarise into a small minority, which has a keen interest and tries to understand, and a large group which simply 'switches off'. Teaching electronics to mixed ability,

mixed interest groups begins to raise very fundamental questions about how we all relate to our new electrical media-culture, and the following thoughts and observations are distilled from classroom and school experiences in teaching pupils aged fourteen to eighteen in recent years.

One of the most common early questions, when teaching electricity, is, 'What is electricity?'

The very question demonstrates clearly that we have a problem in relating to such an entity. The reply to such a question could be,

'What is an apple?'

Answering this question is fairly easy, as we have all seen, smelt, touched and tasted apples. We have seen them growing and understand to some degree at least how they came into being, as we are able to follow the processes of growth. To the questioning adolescent one can then say,

'Then why can we not answer the question about electricity in the same way?'

'Because it is different.'

'In what way is it different?'

'I don't know, it's just different. You can't eat it for a start.'

Moving into the non-sense-perceptible

'Let us try another question then. What

is fear?'

Quite often a lively discussion follows such a question, about situations in which fear has been experienced, but usually not about what fear is. If one presses the question there develops a problem in reaching clarity, although without exception every pupil knows what fear is from direct experience but cannot easily grasp it in thought as an entity. It is more a quality of experience.

Using such a ding-dong question and answer 'Socratic' method can be very valuable in tackling such difficult questions as 'What is electricity?', for one can establish clarity through the pupil's experience of the differences between, in this case, an apple and fear, and electricity is clearly not apple-natured, as we do not have access to it through our senses in the same way as we do an apple. In such a way one establishes through comparison that electricity is not material in the way that we normally experience material things, hence the original question. This is a very important step in understanding, for if it is impossible to get a bucketful of electricity a new question arises.

'If the nature of electricity is not material, then what is it?'

Fear is non-material but real enough for we experience it deeply. So, is electricity in some ways like fear? We cannot experience it like fear, we cannot sense it in its reality for it lies outside our senses. What we can sense are many of the *effects* it produces in our environment. To establish clarity between what we sense as things — apples and so on — and what we cannot sense — electricity, magnetism, radio activity, for example — is vital, for our investigation of the two realms needs to proceed differently. If one establishes that electricity is not accessible to the senses then by what faculty can we so determine what it is?

So one can lead the original question, 'What is electricity?' to a new, very serious question in science, 'How can we

come to understand an entity which is beyond our senses of perception?'

Achieving clarity

For an adolescent struggling to master his thinking this is a challenging thought.

All this may sound rather philosophical and rather tedious, but it seems to me vital groundwork, for almost every text-book in this subject totally ignores this fundamental question in science, telescoping and confusing the material-sensible with the non-material. We have a direct experience of colour but X-rays are totally outside our senses, and yet these are treated as similar entities on the electromagnetic spectrum. All of the entities of which we see only effects, such as radio-activity, X-rays, forces and so on, must be realities but we only experience a shadow and their real nature remains hidden. So at the beginning of a study of electronics one can establish with a class that the answer to the question 'What is electricity?' is clearly 'We do not know what it is, because we do not *appear* to have the means of knowing.' We may be able to develop a means of knowing, but to begin with we are dealing with something of an unknown nature, and as we now base our material culture on its use, serious questions arise about the effects it produces.

Clearly the method of scientific investigation in such a case must be to find the phenomena and effects that electricity produces and to *characterise from these* rather than define. So one can begin a systematic, practical investigation and study in detail the whole range of phenomena, but from the point of view of getting to know about something that at the outset seems to be unknowable.

Changeable models move towards the reality

A good example is the connection that

exists between magnetism and electricity.

Everyone has handled magnets and the idea of a magnetic field is familiar enough as you can feel the effect of the field on a piece of iron. But what is a field? The iron of the magnet clearly has an influence beyond the limits of the iron just as the solid earth has an effect beyond its surface. Let us call this sphere of extended influence a magnetic or a gravitational field. In this moment we cross a vital divide between observation of that which is accessible to our senses and the *ideas we create* of that which remains hidden from our senses. The concept of a field is a very useful one having a very wide range of application and is a vital crutch to our understanding, but it is an idea that describes a quality or property of space and does not necessarily describe the reality that produces the quality. So one can show that to reach into those areas that are not accessible to our senses we need to create ideas or models in our thinking, such as a field of influence. However, these are only models and *not realities*.

Such ideas as these need to grow out of direct experimental work and take quite a time to build up with a class. Having firmly established, after many a struggle, the idea of a magnetic field being an extension of the magnet, many pupils are completely bewildered by an experiment that shows the presence of a magnetic field without any magnet, and without north or south poles. The picture that we carefully built up of the field as the extension of the iron of the magnet is clearly inadequate, and our model needs to change to fit the new phenomenon of a magnetic field round a copper wire connected to a battery. This is often quite difficult for many pupils as they now have to picture the field without a focus, and it is a good example of a common process in scientific investigation, demanding inner flexibility.

Understanding dissolves bewilderment ...

Further experiments can show that magnetic fields can be transformed into electric fields and that electric fields can be changed into magnetic fields which again demands a revision of our idea of the field for we see that it can metamorphose and take on different properties. These two phenomena we called magnetic and electric fields, and they have an intimate reciprocal relationship like a glove turned inside out; each field can suddenly become the other but it cannot be both at once.

Every telephone call, every radio broadcast, every television image, every electric drill, every washing machine depends upon the application of this fundamental discovery, namely the reciprocal transformation between the electric and magnetic fields.

This is a real touchstone for our understanding that requires no detailed specialist knowledge in order to be understood and yet is fundamental to so much electrical equipment that we handle. Such knowledge can help to create a sense of orientation and fundamental understanding in a world of bewildering complexity.

Let us use this in the example of radio. If we look inside a radio it is a mass of wires, little cans, blobs, bits and pieces and we instinctively say, 'How on earth does it work?' Well, all you really need to make a working radio is: a milk bottle, a length of wire, two pieces of kitchen foil, an old polythene bag, a rusty razor blade, a piece of coke, a telephone ear-piece and a water tap. It is possible to make this odd collection of bits and pieces appear to play music or to speak. I should mention that if you try this the razor blade and the coke are very temperamental and are better replaced with a diode. However, it is possible to get such a radio receiver to work and all the components are familiar, everyday things, and so the mystique about

electronics begins to dissolve. Eighty turns of wire wound on a milk bottle is just a coil of wire, and a sheet of polythene sandwiched between two sheets of kitchen foil is all there is to a capacitor, and these two components are at the heart of every radio transmitter and receiver. If the two ends of the coil are connected to the two sheets of kitchen foil a loop is created which has unusual electrical and magnetic properties. The coil of wire can briefly store a magnetic field and the polythene sandwich can store an electric field, and since each of these fields can transform into the other an oscillation between the two can be set up. This is a simple oscillator, like a pendulum that changes from blue to red as it swings from left to right, but in this no **THING** moves: all that changes are the two fields, and this at a very high rate of maybe millions of cycles a second, the rate depending on the physical size of the coil and the polythene sandwich. This oscillation is the 'heart-beat' of every radio and its rate determines which programme you hear, either by changing the coil size with the waveband switch or moving the foil of the sandwich apart, which you usually do with the tuning knob. Both of these adjustments work well on the simple model and the 'knob mentality' with no idea of what one is really doing changes to one of understanding simple processes of physical and non-physical change.

Of course, other experiments are needed to understand fully the process but by using such fairly simple means it is possible to *go to the heart of a complex technical apparatus and understand the basic processes* without getting lost and bogged down in highly technical language and detail, which are for the specialists. Such a level of understanding the world around us is, I think, essential on the journey through childhood into adult life.

... and dispels fear

Although everyone today listens to the radio and it is a familiar experience, every time a pupil makes such a rudimentary radio, the moment it works is one of great excitement and disbelief that an array of such simple apparatus can really work. The sense of achievement helps to dispel the fear of the electrical unknown which I find is one of the biggest barriers for pupils to overcome.

One of many pieces of equipment tucked away in the back of my laboratory is a transparent box full of invisible magic glasses. On occasions I issue these with great ceremony to the class telling them to put them on with great care. These glasses are capable of making the invisible visible under my direction. So if I give you a pair of these now and ask you to put them on, decreeing that all you will see will be magnetic fields, what do you see? Firstly you will see a faint haze all round you caused by the earth's magnetic field. Then, if you are in the kitchen, you will probably see some quite bright blue (all magnetic fields are in shades of blue with these glasses) small areas on the kitchen cupboard catches and the fridge will have a halo round the outside of the door where the magnetic sealing strip is fitted. Suddenly there is a brilliant flash of pulsating colour from the washing machine, and so we could go on. The whole world is engulfed by active magnetic fields, part natural and part man-made, and the same is true if I change the glasses now to see only electric fields. Every washing-up bowl, every telegraph wire, every cloud in the sky is scintillating with dynamic electric fields, again part natural part man-made.

Computers

One radical and far-reaching change in the appearance of the electric fields

that you would have seen with your magic glasses would have been the arrival of many compact, rapidly scintillating patterns located in homes, offices, banks, factories and schools all over the industrialised world. These would be surrounding the ubiquitous computers of our time. There would also be slightly less compact but highly complicated magnetic patterns, but these would not be in such a frenetic state of activity. For most people this latest brain child of mankind appears brilliantly clever but remains a closed book in the way that it works. The detailed understanding is for the highly trained specialist, but the overall grasp of basic functions is for everyone.

For the first time in our electrical history we have produced a machine which has gone a long way in separating the electrical and magnetic field effects, and we only now begin to use electricity as such rather than using it permanently wedded to magnetism, as in the electric motor for example, and hence its real nature becomes more apparent.

Using your special glasses, look first at the reels and discs that are used for storage of computer information, for these are static patterns and easier to understand than the whirlwind of electrical change. What you see are millions of tiny patches of magnetism and between them small spaces. That is what the storage of computer data really is, and has nothing whatever in common with the names and addresses, for example, that we store in a computer, except that the two are connected by a code. The code is very similar in principle to that invented by Morse in 1832 at the very beginning of the electrical era. All the letters of the alphabet, punctuation and numerals 0 to 9 are represented by a series of three types of symbol; a dot a dash and a space. Using this any written words can be encoded and decoded but the process is slow and laborious.

'Decoding' Codes

The code used in most computers consists of only two symbols or a binary code as it is called. The symbols could be anything you like, a flash of light and darkness, a bang and silence, A and B, A and 'No A', 6 and 9 or even 0 and 1. The latter is the usual short hand symbol. In the computer 'memory' this code can be represented by a patch of magnetism followed by a non-magnetic space, or in the active part of the machine by an electric field and no electric field. These two representations of the binary code as electric and magnetic fields are at the very heart of almost every computer. The magnetic patterns on tape or disc form a permanent record, while the electric fields are a transient dynamic process of change. These changes happen at very high speed, and are pre-ordained by the design of the machine, the codes in the magnetic memory, and the actions of the machine operator.

It is rather like playing a piano. The music is a very complex permanent coded record, like the magnetic memory, the player is the machine operator, and the string vibrations created in rapidly varying patterns are the electric fields in the machine.

The huge leap forward that computers have taken is that they can to some degree play their own tunes automatically, and this they can do at unbelievable speeds. This process *mimics the processes we ourselves go through as we juggle with our own thoughts*, which shows new characteristics of the nature of electricity.

Similar to the nervous system

Over the past 150 years or so we have spun round the earth a vast complex web composed of billions of miles of wire, under the oceans, through our cities into our homes. Just keep your glasses on and go for a walk in your nearest town or city, but this time the glasses will only show you wires. Every lamp-post, office, shop and factory is a

On the Wings of Pegasus

Experiencing Art in Class Nine

by MARGARET SHILLAN

Beyond the often aggressive, revolutionary, moody or strangely dressed (often in black) Class Nine pupil, a great sense of beauty lies, waiting to be awakened. I remember a boy in Class Nine, wearing no shirt, a leather waistcoat, spiky hair and huge chunky bracelets. He argued about everything we saw in the study of Art main lesson. Four years later he came up to me in a bookshop, invited me to a coffee and told me he was going to work in Florence 'because of all the art there'.

How can one really help adolescents to experience the consciousness of another epoch? How can one help them to see that the history of art is the innermost biography of the human race? And that beauty in art has a different form and meaning in each age? This quest is the transformation of the search for beauty in nature, which has already been made with the younger children.

The origin of art

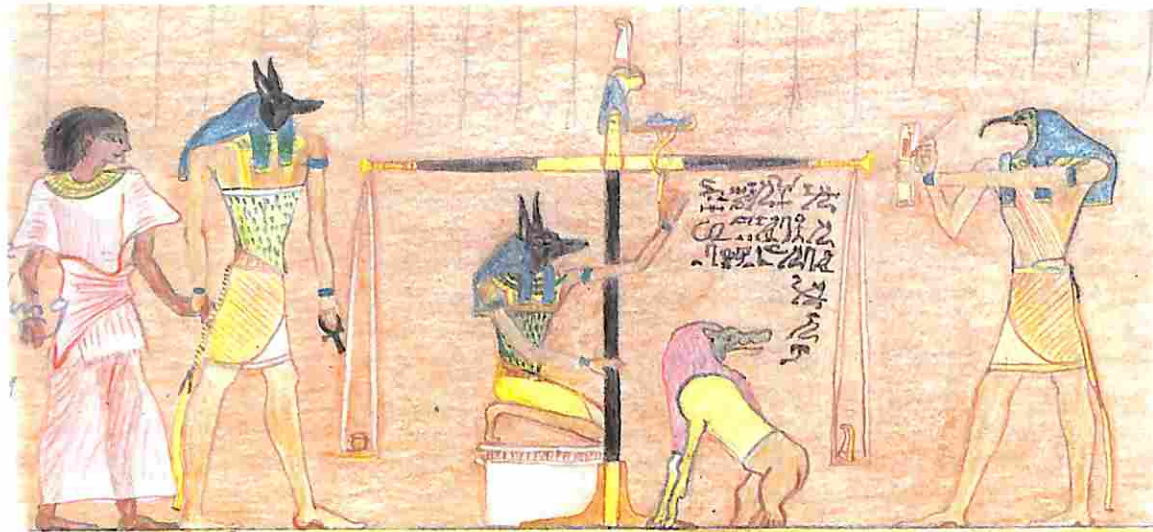
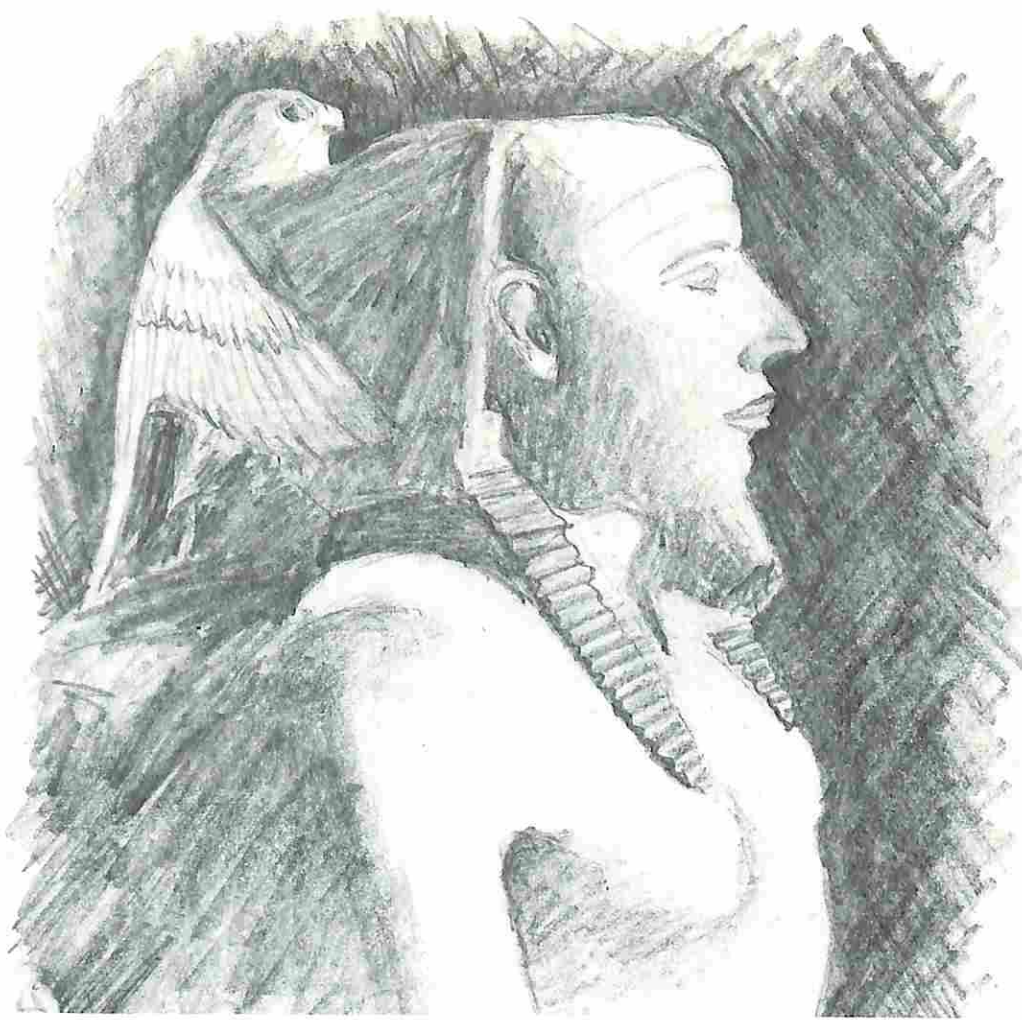
A work of art begins with an experience, which originates in the spiritual world. What is the experience of Egypt? How can a twentieth century teenager understand it?

Working with what Steiner's insight is able to reveal, that the development of each human being recapitulates the whole of human history, we can recall in the

class how a little child starts life. How there is a time when it lies dreamily at one with its surroundings, open to the whole universe. Then it has to focus more and more on its own body, on the great moment of standing upright, and, with the first saying of 'I' around three years old, an awakening of its own individuality. We walked in imagination along a great avenue of crouching sphinxes emphasising the horizontal, and then were faced with the tremendous obelisks, pylon, walls and tall, narrow doors forcing one into the body, verticality and consciousness.

Just as the house or temple has always expressed how the human spirit experiences its earthly dwelling place, the body, in Egypt it is the tomb. To enter the tomb means to enter the body. A Pharaoh started planning his tomb at fourteen and the paintings in it were seen by no living person other than the painters. Today art is for everyone and everywhere with picture galleries free and open for all to visit. It is even within most people's experience to be an artist.

Can we experience anything of the silence and monumentality of Egyptian sculpture? We tried sitting in the class in those positions. The upper part of the body erect with the head straight. The arms close to the body, one at right angles across the chest or with the fist



15 year-olds choose details from the art treasures of the world for drawing alongside their essays describing the changes in human consciousness over the ages. Top left: The side view of the statue of Kephren in which the gaze of the pharaoh is 'explained' by the position of the Horus bird as the spiritual source of inspiration. Bottom left: Art from an Egyptian tomb, stimulated the question: For Whom? Top right: from Botticelli's 'The Birth of Venus' in which the inwardness of the Renaissance is apparent. Bottom right: Millet's 'Angelus' is a fine example of how painters, in coming fully away from religious subjects, were drawn through the genre element to an enlightened perception of the individual worth and potential of each human being.

clenched on the leg, the other resting horizontally on the upper thigh, all the way to the open palm. The eyes gazing into infinity. A silence fell on the room, a faint echo of that great, monumental silence hovering over the desert.

Another great threshold experience was portrayed in the Sphinx, where the head was raised, overcoming the animal nature of eagle, lion and bull – images that will later transform into the four symbols of the Evangelists. We tried to characterise the qualities in bull and lion, the strength, the courage, how they manifest in different examples. When we came to the eagle and pictured how some people live in inspirational ideas, their thoughts soaring and swooping, one of the pupils said 'That sounds like Mr. Masters' (their old class teacher)! In the poems they wrote on the sphinx something of its age-old mystery emerged.

Stepping from Egypt to Greece

What a tremendous change comes with Greece. To appreciate it fully one needs to work with contrasts. The temple, instead of being inward, turns outwards, standing on top of a hill, and can be seen and experienced by everyone, wherever

they are. Now there is a wonderful balance between inner and outer, gravity and levity, with the pillars holding the balance. As the pupils draw the Parthenon they see that the struggle of man and beast takes place in the middle realm, round the metopes, where the centaurs picture a further freeing from the animal nature. We looked at the difference of myth, expressed in pictures – as in the Egyptian story of Isis and Osiris with the strong image of Set making the chest that would exactly fit Osiris – and the birth of concepts and thinking in Greece, thinking, which the Greeks also directed towards the meaning of the images of their mythology. Over the gates of the Delphic Oracle were two statements: 'Man is the measure', and 'Nothing too much'. We discussed what this could mean.

In Greece the gods and goddesses walk with people; they even have emotions! We see this in the sculpture of Grieving Athene. In Egypt there was no sadness. When we studied the sculptures we saw free movement, and poise and balance, as with Zeus throwing a thunderbolt. One of the pupils stood in that position, and we saw how different it was from



Page 26. A 14 year-old's impression of Classical Greek Sculpture, with its flowing form as compared with the emergence of new elements in the Hellenic period – page 27. In the Laocöon the change is illustrated well through the greater predominance of the physical body on the one hand, and on the other, the soul element visible in the gestures and facial expressions of the three figures.

Egyptian sculpture. Even the garments flow around the figures showing us the joy of being born on the earth.

To watch a child of ten or eleven in movement is perhaps the nearest we can get to experiencing Greece. Maybe because it is something in them that they have so recently lost, the young people of Class Nine often find it hard to relate consciously to Greek art. But the memory can be evoked, the statue of Apollo from the Temple of Zeus in Olympia re-appearing, as it were, in Michelangelo's David where it speaks very directly to them.

Only the resurrection

We passed through the Triumphal Arch of Rome to Christian Art. As one of the girls wrote 'The first place where the Christian worshipped was underground where there was no sunlight and only candles. It was like the seed of a

flower waiting to grow! In those early images of Christianity, and also in Ravenna, the Crucifixion was never portrayed, only the Resurrection'.

With the mosaics of Ravenna we are drawn inside the building again. But now it is both priest and layman. The basilica leads us towards the altar where the priest faced the congregation, speaking out of the shining gold and brilliant colours arched above his head.

The tradition established by A. W. Mann at Michael Hall, of taking Class Twelve on an art tour in Italy at the end of their schooling, starts in Ravenna. At the outset one realises how important it is to experience the total work of art – the mosaics *in* the architecture. When one adds to that the singing the class always brings there, it is a far fuller experience than looking at a book or seeing a slide.



The vaulted ceiling of the Mausoleum of Galla Placidia, Ravenna.

I recently went to the Catalan Museum in Barcelona where the Romanesque frescos have all been stripped out of the tiny, remote churches they were painted for and put in brightly lit rooms with the buzz of air conditioning all around. It would be unthinkable to experience the Mausoleum of Galla Placidia like this. It always makes a tremendous impression on a class when we just fit in to this tiny jewel-like cruciform building, shut the door and only have the amber light filtering through the

alabaster windows. Every inch is decorated with mosaics and gradually one is drawn beyond the gold stars and the blue vault. This is a place for very quiet singing.

New Perspective

A step further, 'Renaissance Man' looked into the earth with open eyes. He stepped gradually more and more firmly onto it and the blue sky appeared for the first time above him. When looking at these pictures with the pupils it is an

awakening task just to describe what one sees. First of all we do it in the group where one can open the eyes of another. Then we do it individually in the form of a drawing, which is perhaps the closest looking one can do. We became conscious together of the totally new look in the eyes of a Dürer portrait or Leonardo's 'Lady with the Ermine', where we see completely self-aware, centred individualities. How different from the gaze in Egypt. We looked at the figures of Giotto, particularly his cycle on the life of St. Francis, who was perhaps the first great materialist directing his vision to the individual and life on earth. These figures still hover with their feet hanging, even though the sky is blue. Fra Angelico brings a soul mood of inner devotion with his frescos of San Marco Monastery. One pupil sensed this, writing, 'John is lying on Christ's chest to hear the secret story'. Masaccio paints Adam and Eve and Peter standing firmly on the earth bathed in light and shade.

The space becomes deeper and deeper and the laws of perspective come in. Modern science begins. It is always a real revelation, particularly to the boys, to see the hundreds of detailed scientific drawings of Leonardo often foreshadowing later inventions by several hundred years. Leonardo also brings wisdom, imagination, inventiveness, shown perhaps more than anywhere else in his Last Supper.

Michelangelo with his tremendous output and tireless activity shows us the human body in every possible way; from the watchful David, all his energy held back, to the polarities of Dusk and Dawn, Night and Day in the Medici Tombs; from the tranquil young early Madonna in his first Pieta to the half-finished slaves and almost unbearable weight of the late Pietas. The Sistine Chapel contains the story of creation from Genesis all expressed in figures. For Michelangelo the human body was something divine.

From the strength and power of Michelangelo's form it is good to contrast the glowing colours and gentle feeling of Raphael's Madonnas and Vatican paintings. Here is an inner world of tenderness and spirituality which can speak directly to our feelings.

After immersing ourselves in the Italian Renaissance it is often a big shock to the class to look at Northern Art. Grunewald, especially, with the exaggerated realism and tortured detail of his Crucifixion in the Isenheim Altarpiece. And yet one needs to go through that experience in order to appreciate fully his Resurrection picture where the overcoming of death is shown as a sunrise, with the most magnificent aura of light surrounding Christ.

Enlivening experience

At Michael Hall we have continued the study of Art in Class Eleven with Romantic Art, and the same theme as that of Grunewald can be taken up with Van Gogh. His early pictures took up subjects that were poor, old or ugly. He looked for truth rather than beauty. Yet he was able later to transform his paintings into light and colour through his suffering. In reading from his letters to the class I caught the absolutely intense concentrated look some of them had as they listened.

We also take a main lesson on Modern Art in Class Twelve. Here the questions confronting artists in this century are looked at from the point of view of Mankind crossing the threshold. There are moral questions as well as aesthetic ones, and we see more and more that the study of art is related to the innermost core of our being.

The history of art is to do with experiencing, not with answers.

After teaching in Lower and Upper Schools, Margaret Shillan is now engaged in Teacher Training, at Emerson College and in the Michael Hall Education Seminar.

No-one There

Computers in the education of young children

by ANDREW WOLPERT

The tasks young children perform at school are important not only because of their content but also because of the processes involved. In early encounters with literacy and numeracy the following four factors might be identified as important experiences and criteria:

creativity
aesthetic sense
coordination (visual - mental - manual - conceptual)
staying power and achievement

There is no doubt that all of them can be catered for on a computer, but it may be worth examining whether they remain essentially the same phenomena as when experienced with pen and paper.

The first obvious difference is one of directness. A child who picks up a pencil and forms a letter is not only directly doing something, but is also conscious of the whole process which he is in command of. If his hand slips he knows why the letter turns out misformed, if he tries hard to make a perfect letter and succeeds he experiences the direct consequences of the effort he has made, if he wishes to experiment on a whim, the tool in his hand responds directly to his impulse. The experience of forming the different letters is directly related to the different visual and sensual

experience, whereas there is no obviously different experience in pressing different keys to produce obviously different letters on the VDU. Starting a new line and a new page are activities the consequences of which are directly related to the effort and actions undertaken to bring them about. On a computer this is not so, and there is no experience of commensurateness of action and result. This may be of no consequence for an adult who makes the necessary adjustments in the concepts he forms about what takes place when he operates a computer. A young child who is still learning about the world might suffer if he is deprived of seeing directly the elementary connections between the quantity of his investment in an activity and the quantity that results from it. I am sure it is important for a child to be aware of the direct relationship between a decision, the act of will to carry it out, the physical force to do it, and the visible consequence of having done it. Working with a computer translates the decision to do something into a visible result with a very different experience of will and energy. This surely will also be a most valuable experience for the older child who has already formed concepts based on his direct interaction with the world through activities that he could

properly feel were his own.

In an age of increased mechanisation and distance from nature that sustains us, the need for a young child to have as many direct experiences as possible might be thought particularly important so that he has a healthy compensating grounding to be able to live a healthy life in an increasingly artificial environment. There is of course nothing whatsoever wrong with piped water, but we would not like a child to be allowed to remain long with the idea that the tap produces the water. Of course children use all sorts of machines and mechanical and electrical devices before they are able to understand what they are and how they work, and rightly so. However, it is surely also important for them to have many experiences of direct interaction with primary unelaborated elements during their formative years, not least to enable them to build concepts from first principles for themselves then to be able to understand how machines work.

Activity-quality-result

All this is particularly relevant to the child's experience of writing. If our experiences of the physical world to any significant extent shape our capacity to use language and thinking, then the risk of being manipulated by someone else's preformed thought structures can surely be at least reduced if not avoided by what could be seen analogously as plenty of early exposure to simple building blocks before the advantages of certain prefabricated units are made known to the child. If it is true that children need some direct, non-mechanical experiences, then surely the most previous field of language and thought are the obvious ones in which the transition from simple to complex tasks should be a totally and directly visible progression of which the child is in conscious control. Precisely because language is the medium of self-conscious-

ness and of social intercourse (and therefore man's most vital faculty in his struggle for self-expression and personal and political freedom) should all aspects of its early acquisition be bereft of anything that might interfere with the child's conscious grasp of what he is experiencing and with his power directly to affect what he is engaged in. By analogy I would say that for a child to begin playing music on the violin is quite a different experience from on a piano. At the early stages the experience of the processes involved in making a note or forming a letter are perhaps more significant than the musical quality of the note or the calligraphic perfection of the letter. The computer's value is based on the need for results of processes and in this way is an invaluable tool for us. However, this emphasis on results is misplaced in the education of young children. If education is thought of as imparting quantities of information and skills that are measured by the accuracy of their fruits, then there is no basis for objecting to computers from the earliest age. However, if education is considered as the fomenting of processes in which children actively transform information into knowledge and acquire skills that are regarded as valuable for their formative functions as well as for their ability to produce results, then it is not true that the more you can do and the earlier you can do it the better educated and equipped for life you are.

Language and creative social relationships

The areas in which creativity, effort, staying power, and the joy of achievement are most enjoyed by me are two: my thinking life and my relationships with other people. These are both areas in which there are no mechanical aids and in which the activities and processes are very closely bound up with the ends they seek to attain. If children are going to be able in later years to translate their first and formative encounters with

these phenomena into their thinking and social life (where anything mechanistic would be out of place), it is perhaps particularly important that there should have been no hint of mechanism when they first learn how to try and try again in the acquisition of that very skill of language which they will rely on most in these fields. Of course perseverance, ingenuity, originality, and satisfaction are all experiences well known to those who work creatively with computers, but perhaps we should consider the effect on a young child's experience of these things if it is accompanied by simultaneous experiences of reliability of a mechanical process with known predetermined potential that produces identical results irrespective of the degree of consciousness, seriousness, motivation, or real interest. An adult is capable of a certain objectivity which may protect him from the illusion of amorality: a child, with his subjective involvement, might benefit from being able to see the consequences of these differences which the VDU does not show.

One of the principal objections to television in general is that it induces a certain passivity which is particularly pernicious in its effect on children. Apart from the fact that computer activities involve a television screen which is anyway far too prevalent in most children's lives today, the whole problem of passivity is given an ugly twist in the case of computers. Far from being passive, the child who plays computer games or operates learning programmes is stimulated to a high degree of visual, mental, and emotional activity, and also some degree of physical activity as well. The problem lies in the fact that all this activity is based on the illusion of communication. If we recognise that dogs can sense the fear they induce in people, then we must surely recognise that children, who are particularly impressionable, sense the mental and emotional states of their interlocutors.

What then must be their experience of linguistic intercourse that consists of apparently personal responses which appear to recognise the individuality of the being operating the computer, and yet do not proceed from an individuality that the child can make a soul connection with? Who really believes that all that passes between two people in a conversation can be reduced to audible linguistic components and visible gestures and facial expressions? I most certainly would not want my son to be introduced to or significantly encouraged to develop the skills of language, for me the most precious of human activities, through a medium in which there was no experience of the other individuality. One might well answer that in a normal family and school environment a child would get plenty of "real" encounters and that the benefits of controlled doses of "artificial" encounters far outweigh any possible harm they could do. I believe this is the case with adult learners, and it is on that basis that I use the AAC language laboratory with adult learners, but the criteria for children in their formative years must be different. Just as even small amounts of toxic and other poisonous substances are far more harmful to a growing body than they are for a grown one, so also do these psychological considerations weigh more heavily with a young mind and soul in which faculties are being developed for life.

Urban violence – high risers

So much of what is wrong and untrue in the world exists because it is convenient to see things in compartments and not to make the connections which would reveal the lies and egoism that lead to wars, dole queues, battered wives, and cuts in public services. Only now is it officially recognised that high rise blocks lead to urban violence, frustration, and family breakdowns. An honest assessment of the criteria that led to their

construction together with an image of the dignity of man in his environment could never have allowed them to be built in the first place. Most of the arguments advanced for the introduction of computers in primary schools are tacitly based on the concept that education consists of imparting quantities of information and that the earlier you start and the quicker you can do it the more time you will have to do yet more of it. That education is a matter of stimulating processes and that there may be optimum learning rhythms for the acquisition of certain skills are questions that remain largely ignored in orthodox pedagogy.

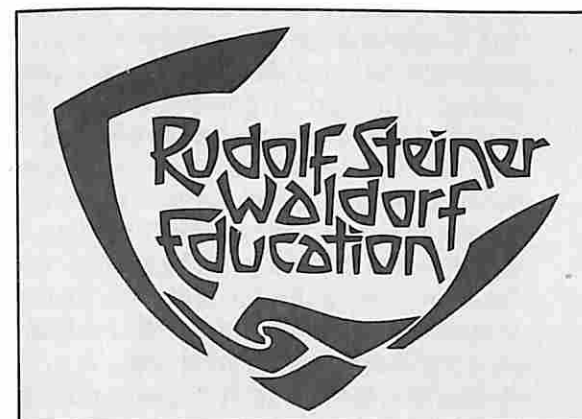
The advantages of using word processors to help children overcome the frustration and demotivation of not being able to produce correct and pleasing written work seems unanswerable until one discovers that most of the original frustration and demotivation arises in the first place because these children are expected to be able to perform skills and produce material that do not accord with the optimum learning rhythms for their age. The fact that some children CAN be taught to do certain things does not mean that that is necessarily the best thing for either them or for other children to be doing.

Fear Exploited

There is a much quoted argument that because so many of our social, economic, and commercial activities will be computerised it is essential for our children to get as much of a head start as possible. This quite unjustifiably exploits people's fear of their children being deprived of the key to future social and professional success. However many day to day transactions become computerised, one will not need to be able to do more than follow a series of simple instructions on a keyboard to effect them, much like the skills required to operate the already widespread service tills at high street banks.

This article has confined itself to the considerations affecting computers in the education of young children. In the case of adolescents and adult learners different factors need to be taken account of. Not just as a teacher, but also simply as a citizen in society that is becoming increasingly dominated by the computer, I am certain that only by bringing an adequate level of consciousness to this phenomenon and then by working with it actively can I begin to meet my spiritual and earthly responsibilities.

Andrew Wolpert teaches English to foreign students in London. As a parent, he has a deep interest in Waldorf education.



2nd Edition:

This booklet, introducing Rudolf Steiner – Waldorf Education, produced by the Steiner Schools Fellowship, is appearing in the New Year as a special edition for North America. The front cover is in glowing red and yellow and leads into a 24 page text liberally and colourfully illustrated. Copies, price \$1.75 plus p. & p. from Wynstones Services Ltd., Whaddon Green, Gloucester, GL4 0UF, UK.

Rudolf Steiner or Waldorf Schools in South America

by RON JARMAN

The above double title is not only one which is found useful in the U.K. It is singularly appropriate in Latin America. Today Quito boasts a pair of steadily developing schools – 'Escuela Rudolf Steiner' and 'Escuela Waldorf'. Both have nearly 100 children up to age 11, keen teachers and supportive parents. Whilst the education given in each school is soundly based on Steiner principles, they work in different ways. How good it is that every one of our schools in the world has an individual quality and is not a mere copy of a long established mother school.

Celebration of the Christian festivals of the year are very important in Waldorf schools. Moreover, these relate quite closely to nature in our North Temperate Zone; but this relationship presents quite a problem within the tropics. You can't really talk of differences between summer and winter in Peru, Ecuador and Colombia. Even in most of Brazil the differences are quite small – their 'winter' easily exceeds in salubrity a British 'summer'! In Quito, almost 10,000 feet above sea level but right on the equator, our schools have to pay attention to the qualities of the parts of the day (early morning, midday, sunset and night) instead of to the four seasons of the year.

Lima has a flourishing Waldorf school of 240 pupils and at present reaches up to Class 6. Its beautiful school buildings were designed by an anthroposophical architect. In an outside space between a half ring of airy classrooms there is an open air theatre with raked seating. (The last real rain to fall in this part of Peru occurred over 12 years ago!) Music is particularly well developed in the school, which also forms a seed-point for musical initiative in the whole city – a fine example of how Waldorf schools everywhere should help the cultural life in the community at large.

In Santiago (Chile) there are also two schools. The original school (Colegio Giordano Bruno) with its 250 children reaching up to Class 6 has a lovely stone building with wooden gables. Its young teachers, nearly all women, are gifted in the visual arts and eurythmy – a great asset for class teachers. The new second school (Colegio Rudolf Steiner) has transformed a private residence and in the play area the climbing apparatus formed from old tree trunks and ropes is a joy for the children. One experiences great warmth and friendship in the teachers and parents. Numbers in the school are growing (about 150) and the oldest children are 10 years old.

One of the most endearing qualities

of sunny Brazil is the country's complete lack of the colour problem. The largest Rudolf Steiner school in the continent stands in Sao Paulo. In its Sala dos Professores (one of the few remaining Waldorf staff rooms where one can still smoke a pipe!) there are all colours of skin from jet black to yellow, brown, red and white; it is the same with the children. A Class 8 play 'O Principe Constante' given on 3 successive evenings to a packed large auditorium from a very beautiful stage set was a non-stop two hour drama. The children's breath-stream-born speech was the clearest and strongest that I have heard in any Waldorf school anywhere. This school, once a German speaking school, is now wholly Brazilian, although a few teachers from Germany and Switzerland still make their rich gifts to the teaching of Classes 9 to 12 (particularly in the arts

(Continued from page 22)

labyrinth of coils of wire, each positioned carefully by hand in the correct place to perform a specific function. Quite a sight, isn't it? What is it all for? It controls power from power stations to our machines and it communicates information from place to place with telephone, radio and television. At least the wires don't, but the electric and magnetic fields do, but these are only our ideas, our models of what is really active. What has happened for us is that the world has shrunk and become one place.

An electrical system that allows almost instant communication between far-flung places has a similar function to that of the nervous system in an organism. Awareness of what is going on in the world and the ability to communicate instantly are what we are all experiencing as the network rapidly develops. No piece of electrical equipment really

of painting, modelling and the setting of precious stones) and in the well attended seminar courses (50 student teachers). There are parallel classes throughout in this school of almost 1,000 pupils, where shining eyes, rich feelings and gay rhythms are never absent.

In addition, the fine younger school Colegio Micael and the splendid venture Monte Azul in a Sao Paulo *favela* as well as 5 Waldorf kindergartens indicate the growth of Steiner education in this city. Rio de Janeiro has kindergartens too and a new school has begun in Florianopolis.

There are also schools in Colombia, Buenos Aires and Montevideo. It is so encouraging to witness Waldorf growth in a continent over three times the size of Europe.

exists in total isolation but is all part of this gigantic world web and if we consider a radio and examine only one instrument alone it is rather like examining one leaf on a tree. A radio only has meaning when it is related to the whole communications network and is really only one focus of the whole system.

The answer to the six year old's question 'How do all these people get inside the radio?' is not perhaps to imagine that we have to compress everyone into one specific box, but rather to expand our ideas of the global nature of the electrical culture, and then, why yes, we even all have breakfast inside, too.

Alan Hall teaches Science in Wynstones' Upper School. He has made a special study of where modern scientific developments impinge on the life of the child.



Parents and teachers often collaborate to create the right mood in which festivals can be experienced: here, an Advent transparency.

Parents' Forum

In place of Correspondence, as announced in Vol. 19 No. 2, in this issue we are introducing a new feature. Below, Carol McCarthy, a parent in Honolulu, Hawaii, describes her impressions of the Advent Festival at the Honolulu Waldorf School. We hope this will encourage other parents to write in. A good photograph would always be a welcome bonus. Ed.

A Child's Christmas at Mohala Pua

Christmas past steamed by like ships in the night. A serenity was lost to frenetics over presents; reverence to tinsel worship. I can remember, though, wincing-cold Christmas Eve drives into the heart of New York City to the church where my parents married — a multipewed-and-columned cathedral filled with the musk of incense and old ladies' squeaky-whispered rosary prayers. The ritual of the mass and the warmth of nesting between my parents in the pew inevitably put me at peace — and to sleep. A few passing words about a tiny baby in Bethlehem linger in my memory.

For Honolulu Waldorf preschool/kindergarten children, Christmas memories begin at the end of November. Each morning the children and their parents witness a felt-cloaked and woollen Mary and Joseph making their way over moss hills and valleys studded with earth treasures. A gem sparkles here, wood adds its mellow charm there. The first red advent candle glows in a ring of green cypress, illuminating wonder on small faces. Each year holds

renewed anticipation, renewed hope for the couple 'travelling' from Galilee. Parents, teachers, and children sing such gentle carols as 'Over Stars,' 'Susani,' 'Bring a Torch Jeannette, Isabella,' and 'The Holly and the Ivy.' A choir of small voices chimes glorious choruses. The children grow into the lyrics until lyrics and child are inseparable.

Joseph and Mary soon settle in the manger and prepare their heart-shaped pod cradle. The advent garden continues to come alive with the star-journey of the three wise men, also fine wool and felt figures. Awe awakens each child every morning.

As I watched with my own wonder growing, I felt an inner calm. If I were to call it a color — it would be amber. If I were to name the feeling — it would be reverence. Yes, deep reverence. Why there, in the Honolulu Waldorf kindergarten, did I experience a rebirth of an ancient comfort? Perhaps it's the aura of candlelight, the softness of the figures, the sparkle in nature's gems, the loving guidance of remarkable Waldorf teachers, the presence of ohana, or all of these. For one half-hour each morning, we take a respite from the assaults of everyday business — a respite that heals. That magic continued for my daughter, Kim, through mid-July with requests for the Christmas story, the friendly beasts, and lambs wool to make a new baby Jesus.

The peace of these memories is healing balm in our lives. My daughter will carry them in her heart through all seasons.

by Carol McCarthy

(continued from page 10)

study of its own.

2. American Waldorf High School teachers should plan an entire conference on 'Technology in the Waldorf High School Curriculum' in the near future.

3. Certain aspects of computer work might be offered as elective courses in Eleventh or Twelfth Grades, but not before. It is an interesting statement about the conference that we did not map out such courses at any level or detail. Almost no time was spent on such questions as the 'best' computer language for school instruction.

4. Hands-on work with the computer needs to be balanced with examination of the computer in a social⁵ and spiritual context.

5. Most of the work with computers in High School should be integrated into other subjects — rather than being offered in separate computer classes. The history and development of the computer fits naturally into the history of technology; computer languages relate to other languages; principles of computer operation might be taught as part of physics or math; similarities and differences between the information processing in man and machine can be taught in physiology; moral and ethical issues involving computer usage can be considered along with other contemporary problems. Computers must be recognized by all teachers throughout the school, regardless of their subject.

Ultimately, perhaps, we learned from this conference that we must not apologize about what we stand for. We must not succumb to the temptation of finding relief from today's pressures.

Many teachers had arrived at the conference asking whether Waldorf High Schools at this time should avoid student involvement with computers. As the conference concluded, many of us were repeating Joseph Weizenbaum's suggestion that computers should only

be taught as part of such a broadly based program as is offered in the Waldorf curriculum. And Waldorf Schools may be, in fact, the best places to teach computers, because 'nowhere else does a true image of the human being exist to counteract the computer's 'bedevilling' influence'.

This account of the conference is probably colored by my own ideas and prejudices. I hope these will not blur the fact that the American Waldorf School movement is tackling an important study resolutely.⁶

After having taught math and science in Waldorf High Schools, Hans Gebert now lectures at the Waldorf Institute, Southfield, Michigan.

References

¹ Sloan, Douglas. 'On Raising Critical Questions about Computers in Education,' *The Teachers College Record*, Vol. 85, No. 4 (Summer 1984). Also in, *Computers and Education: Critical Perspectives*, Teachers College Press, 1985.

² Weizenbaum, Joseph. *Computer Power and Human Reason*. San Francisco: W. H. Freeman & Co., 1976.

³ Papert, Seymour, *Mindstorms*. New York: Basic Books, 1980.

⁴ The word, 'Lebenskunde' is difficult to translate. Steiner visualised a subject going right through the school or at least from Grade 6 onwards in which the students would be introduced to what happens on the farm, in factories, in offices, in parliaments and law courts, etc. This subject still needs further development.

⁵ See article by Paul Law, page 11.

⁶ Parallel, major work is also being done in the U.K. and Europe.

Books

Commentary on the Old Testament Stories by Roy Wilkinson. Henry Goulden. Paper 87 pp. £3.95.

If one premises the numerous revelations made by Rudolf Steiner as a result of his spiritual investigations and takes them to heart and gives them credence, then one could think of Roy Wilkinson's Commentary as a common sense approach to the many problems posed by the Old Testament Stories.

Roy Wilkinson as an anthroposophist has added his interpretations to the scholars' knowledge of the history of the Old Testament, and the result is often fascinating, thought provoking and enlightening. The chronicle of the Hebrew People as given in the Old Testament is a life time's study and so in a commentary of 87 pages one must not expect too much. 'With the exception of the Creation, where the actual Biblical text is given, a summary of each story is given, followed by its background and significance'. One could wish that chapter and verse for each story were provided. In addition to helping the reader quickly find one particular story or another, it could be an encouragement to read the Bible account. Many versions of the Old Testament stories are available, some beautifully told, but nothing compares with the fullness of experience to be gained from the Biblical account.

The author's notes on the Names of the Divinity are helpful. 'Where the word God is used, it refers to the Elohim (also designated Spirits of Form or Exusiai); the Lord God is Jehovah Elohim, the member of the hierarchy of the Elohim on whom devolved the task of furthering earth development', and a third expression, the Lord is simple Jehovah.

The commentary is particularly helpful where a story changes from the sense world to the supersensible, for example, when the Lord speaks to Abraham and Moses and Samuel; so, too, where the miraculous is part of the story, as when Aaron casts down his rod and it becomes a serpent. The consideration given to the various events varies. I liked particularly the author's treatment of Moses and of Elijah and Elisha. I wished he had had more to say on David, a figure who has stirred the imagination of countless generations.

The commentary is clearly laid out and the notes on any particular story easy to find. It is a very useful reference for anyone with limited time for reading; it is also a stimulus to study in greater depth the Old Testament and Rudolf Steiner's spiritual interpretation of many parts of it.

Frances Woolfs

Art and Human Consciousness, Gottfried Richter. 271pp. hard back. liberally illustrated B & W. Floris Books £16.95 and Anthroposophic Press.

'Every work of art is a symbol, a hieroglyph of a human experience.' So states Gottfried Richter in his brief introduction to this major work, clearly declaring

thereby his approach to the subject of art history. It is evident, moreover, that having 'read' one of the hieroglyphs, he must have continued to treat it as if there were much more still to be read. Only such an inner attitude towards the art treasures which have survived successive civilizations, could have given rise to the insights with which the book abounds, insights which he is able to convey in a refreshing variety of ways. Sometimes with a word: he epitomises the sculpture of Egypt (of whatever size) as being 'monumental'. Sometimes through brilliantly perceptive characterisation: to go through the portal of an Egyptian temple was more like going 'through a wall' than through a door. Sometimes by focusing so strongly on the pictorial and its associations that it becomes self-eloquent: the bull carrying 'the sun through Egypt'. Sometimes by a remarkable sense of timing: the pyramids' decline is concurrent with the appearance of the sun-temples. Sometimes through an acute awareness of context: Egypt's move 'into the rock' signifying how the earth became 'the grave of the cosmos'.

The above examples refer only to one great period. Richter is able to contrast it illuminatingly with its contemporary civilizations in Mesopotamia, Palestine and elsewhere. He then conducts us stage by stage through successive epochs, right down to the present, so that we discover the essential harmony between architecture, sculpture, painting and mythology – the harmony of the human consciousness which creates them. Thus the work is not merely that of a discerning art historian, it becomes a vast tour of the developing consciousness of humanity, an understanding of which many people today are thirstily seeking for.

Teaching as a Lively Art – Marjorie Spock, Anthroposophic Press 137 pp.

Anyone who has ambled along a Devonshire lane will be familiar with its two main attractions: the beauty of its high banked hedgerows on either side, and the welcome unexpectedness of its gateways with their distant views of the landscape. Reading Marjorie Spock's book as a journey through the Class Teacher period in a Waldorf School – which it mainly is – is a similar experience. In eminently readable style, she gathers an attractive bunch of details from the highways and byways of the so-called Waldorf curriculum, but there are also those moments when she stops to lean on the gateway of her experience, revealing a landscape particularly rich in the realms of colour, of language and of nature. These moments are invaluable for the teacher.

For parents and teacher alike, however, or anyone interested in the age, the very strings of childhood tremor through the breath of this writer, like an Aeolian harp. By this and in her last two chapters on the teacher's attitude towards the child, she demonstrates what is the very ground from which Waldorf education springs. The book would have even more general value if it extended either way into Kindergarten and Upper/High School. Could this be envisaged in plans for a further edition?

The Anthroposophical Approach to Medicine Husemann/Wolff. Anthroposophic Press. 401 pp.

Though this book is part of an in-depth study of anthroposophical medicine (the other volumes are not yet translated), there are many insights expressed within it which are invaluable for both parent and teacher. Particularly is this so as childhood becomes more complex as a result of modern life. The sections on child development, diet and childhood diseases are naturally of special interest, but the entire work can be read in the context of the ongoing study of the human being upon which Waldorf education is based. It is this which brings the two professions of doctor and teacher into closer partnership. Just as 'medicine becomes wax in the hand of the medical artist' (p. 302) so one could say that the curriculum becomes wax in the hand of the educational artist. This book can undoubtedly help such an ideal become practice. Whenever it is able to do so, then will education shine as the 'second sun, warming and streaming through the whole of the human organism' (p. 113), to which Dr. Matthiolus, one of the authors, refers.

Irische Elfen-Märchen (Fairy Legends and Traditions of the South of Ireland) Translated by the Brothers Grimm Published by Verlag Freies Geistesleben 280 pages with an epilogue by Konrad Sandkühler

When, in 1825, the first collection of Irish Fairy Tales was published in London under the title 'Fairy Legends and Traditions of the South of Ireland', the Brothers Grimm – having completed their world-famous German Fairy Tales some twelve years previously – immediately set to work translating them into the German language. And now, well over a hundred and fifty years later, they have been brought to light again by this new edition.

The book begins with a most interesting and informative description of the different types of Irish and Scottish fairies with their greatly varying characters and relationship towards the human race. ('... They are angels, cast out of Heaven, who have not sunk as deeply as hell ...' 'For human eyes they are invisible, especially during daytime, and since they might be present in human company and able to hear what is being said, people are cautious when speaking about them, referring to them as 'the good folk' ...')

Then follow 27 out of the original 38 fairy-tales of the collection. As they are quite short, they are ideal for savouring, one at a time, just before going to sleep at the end of a busy day – if the reader is inclined that way.

Comparing the translations of the well-known tale 'Lusmore at Knockgraston' ('Fingerhütchen') with the original English publication, one cannot help feeling great admiration for the way this has been done – on wings of phantasy and yet remarkably close to the original text. However, in general the style of these stories hardly ever reaches the glorious heights of the Grimms' German Fairy Tales, in which the authors obviously were more in their element and certainly more on home-ground. Now and again the sun breaks out, as it were, and one catches one's breath at suddenly recognising the masterful strokes of the two great collectors.

The jacket design by Walther Roggenkamp creates just the right atmosphere and is a stimulating invitation to dip into this new book.

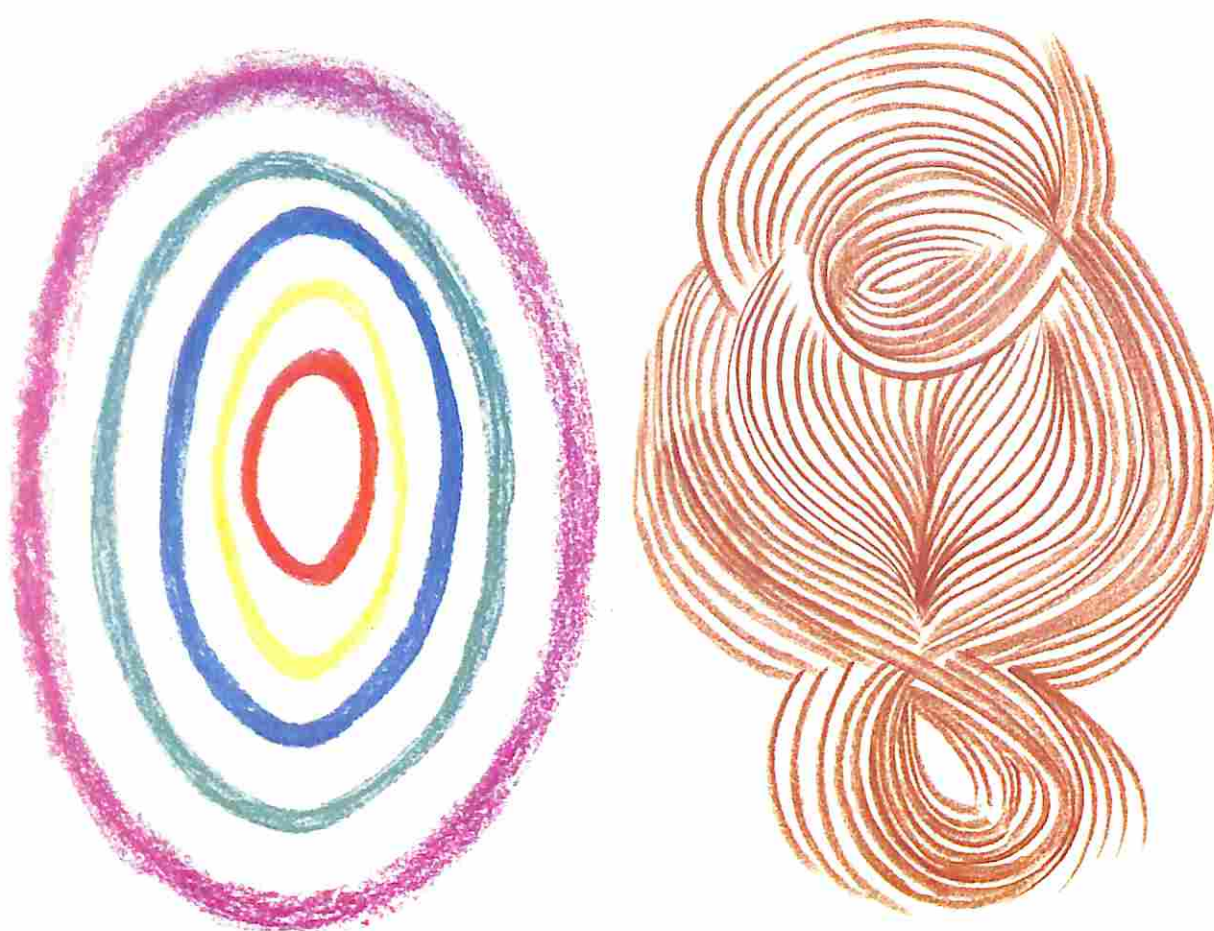
Roland Everett

Am Rande Von Atlantis Von Irischen Heiligen, Helden und Druiden, by Erika Dühnfort Verlag Freies Geistesleben (On the Edge of Atlantis – Tales of Irish Saints, Heroes and Druids) 232 pages, including bibliography, glossary and notes

This collection of stories from Ancient Ireland is interspersed with helpful comments by the authoress, throwing light on what otherwise might be a little difficult to take for a twentieth-century reader. In the introductory chapter, headed 'Atlantis', she describes her experiences while rambling along the south-western coasts of Ireland where, walking through fog and swirling mists, dream and reality, the undying memories of an ancient past were re-echoed and brought to life in her. These she found high-lighted in the numerous stories that follow, including legends of the two Kierans, of Patrick, Brigit, Brendan and Columcille – Columba. Important themes in Celtic life are elucidated by these legends, such as the power of the human word (illustrated by the famous verbal contests of bards and druids, a last reminder of which can still be found in present-day Welsh Eisteddfods). We learn that Ogham letters were carved for the sake of radiating spiritual power rather than as a means of writing messages, and that anything written down was looked down upon as having the effect of weakening the memory, the most precious gift linking the present to the past. And yet, when in the sixth century, books were eventually copied by Irish monks, they became such precious treasures that Columcille even fought a bloody battle for the right of retaining a book which he had secretly copied. Due to the awareness of spiritual-cosmic events among bards, druids and initiates, Ireland was one of the very few countries in the world where paganism was superseded by Christianity without bloodshed or the suffering of Christian martyrs. Christ, the Lord of the Elements, was recognised to be the same Divine Being, both before and after His earthly incarnation. (See the story of St. Bride.) In the voyages of Brendan, the great sailor, the veil between spiritual happenings and their earthly counter-pictures becomes almost transparent, making his adventures into a veritable 'Christian Odyssey'. St. Columba's generally well-known legends end with a worthy epilogue given by Fintan, one of his fellow monks: 'Columba of Iona cannot be compared with famous philosophers or great scholars, but very much so with the patriarchs, prophets and apostles. In him, the Holy Spirit was working ... He was wise among the wise, a king among kings, a hermit among hermits, a monk among monks ... He knew how to be poor with the poor, happy with the happy; he could weep with the sad ... Among all his God-given gifts, true Christian humility was so deeply rooted in his soul, that it appeared to be born out of it ...'

The book is ornamented with numerous vignettes in Celtic style, handsomely bound with a vivid and colourful jacket-design by Herbert Holzinger. It obviously is the fruit of many years of the authoress's devoted study and is imbued with her deep love for the Celtic world.

Roland Everett



A family of ellipses (left) and a freer form (right): illustrations from 'Formenzeichnen'.

In German

Der Bücklige by Georg Dreissig, with colour illustrations by Wilfried Strüning. Verlag Urachhaus. Card-board, DM24.

The publishers recommend this picture book for children of 6 years and upwards. As a reader it has wider ranging implications. The story would also provide the basis for a good play. It is the tale of a humpback whose inner qualities lead him towards his kingdom and his queen in true fairy-tale fashion, despite the ridicule that his outer appearance attracts. These qualities enable him to perceive the treasures of human nature in his fellow human beings which prove more valuable than precious pearls or costliest garments. They also lead him to discover further powers within himself which are greater than outer achievement.

The text is closely accompanied by Wilfried Strüning's sensitive yet telling illustrations, which tell their own colour stories in such a way that story and pictures leave a feeling of deep satisfaction.

Formenzeichnen. Ernst Michael Kranich/Margit Jünemann. Freiesgeistesleben. 200 pp., 380 illustrations/form drawings. DM64.-

If you have ever sat or watched someone sit, say in an examination, with pen poised or pen-cap pressed against upper lip, waiting for the mind 'to tick', as we loosely say, you will have experienced a process of the mind diametrically opposed to what is contained in *form drawing*. Form drawing, as this series of essays demonstrates so abundantly, brings us into the flow of the creative forms in our surroundings, of the plants, of the bodily gesture in each creature – hog's snout, camel's thigh or the action of flamingo's 'knee'. Form drawing awakens an artistic perception in us, telling us more directly of the nature of the world than enzymes or hormones can. The authors pursue form drawing as an integral part of the curriculum, worked through from the unsophisticated forms used in the first classes to the geometrically inspired exactness of the exercises for older pupils. There is also material for the curative educationist. Tribute is paid to Niederhäuser for his spade-work in this field. The present thorough approach to the subject, with the wealth of drawings in such a generous yet practical format, is a significant sequel to his work. The volume has a helpful at-a-glance contents page, facilitating its use as a teacher's handbook. Much of the chapter by chapter bibliography is available in English translation.

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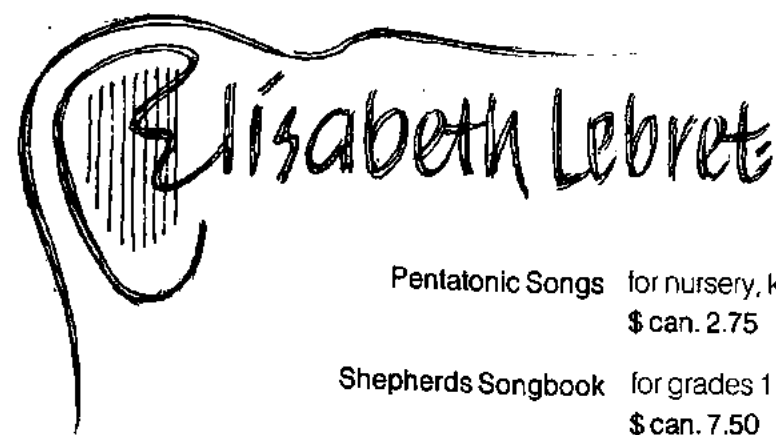
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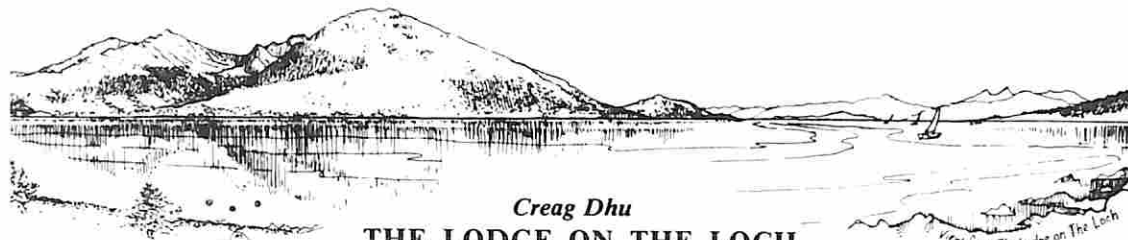
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How they affect body, soul and spirit.

With Sjon van Schaik from ARTA, Drug Rehabilitation Centre, Holland.

Vision in Action Mar 3rd – 21st

How to take initiatives and handle money.

Relationships as a Path of Self-development and Love April 18th – 20th

Themes: Tasks and roles, phases of relationships, sexuality and friendship.

Meeting the Planets April 21st – 25th

Deepening our understanding of the Human Being.

Human Values in Economic Life May 24th

Working out of a body, soul and spirit image of the Human Being.

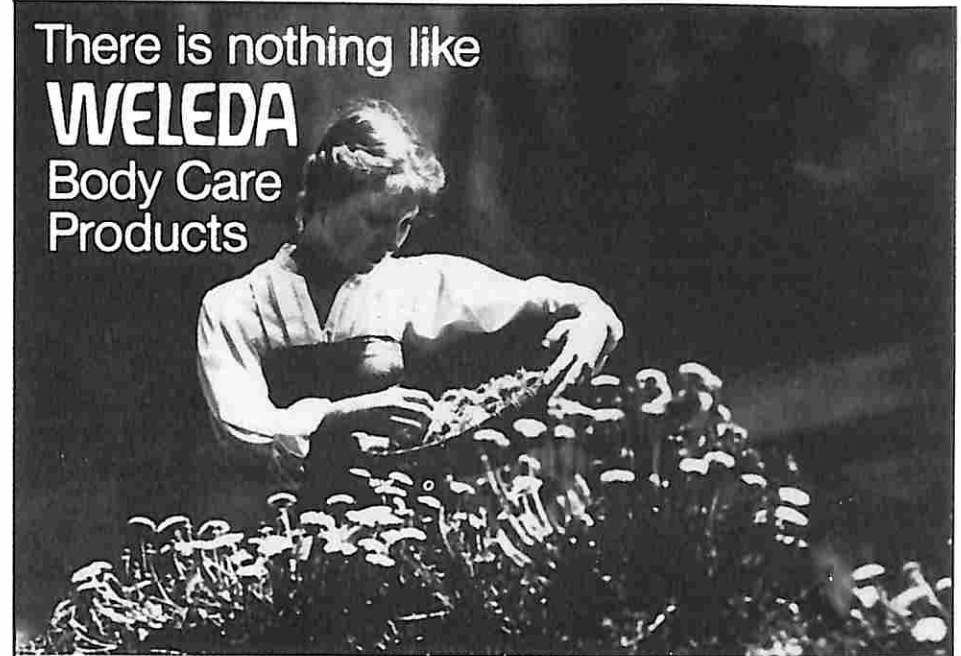
Also on Biography, The Temperaments, Conflict, Counselling, Adult Education, and Integrative (Cloverleaf) Management.

The centre (with courses of a full year, 3 months, weeks and weekends) offers a practical and basic foundation in questions of social life out of the perspective of Anthroposophy. They are intended for people working directly with social issues and for those who wish to add a more conscious social dimension to their work. Located in a separate house, four miles from the main College.

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For further information: Centre for Social Development, Old Plaw Hatch House, Sharpthorne, West Sussex RH19 4JL England. Tel. (0342) 810221

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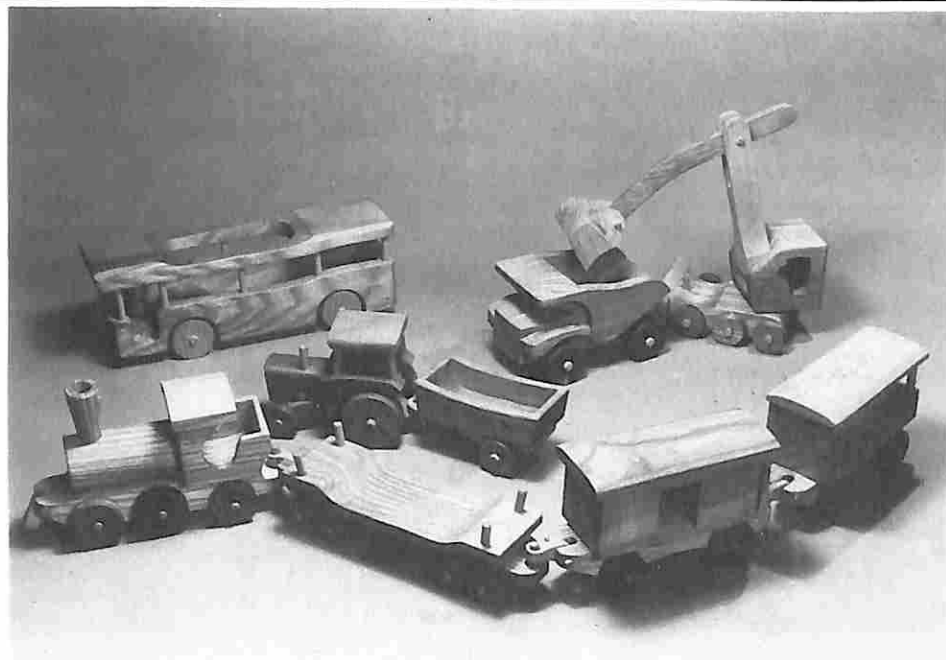
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The Sun

*The ancient mysteries and
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Georg Blattmann

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Beginning with simple observations of the sun and our own feelings for its life-giving power, Blattmann examines the corona, temperature, the surface of the sun, to come to startling conclusions concerning the inside of the sun, and shows it as something 'completely different'.

Using examples from history of art, from astrophysics and from the Gospels, the author shows the hidden connection between the sun and Christ.

Science, religion, tr. from German; 1st edn Nov 29, 1985; 22 x 14cm; 240pp; index; bibliog; 38 half-tones; hb; £13.95; 0-86315-029-2;

The Doll Book

*Soft dolls
and creative free play*
Karin Neuschütz

This book has a special charm that comes from the simple, childlike style with which the author expresses many valuable insights she gained through experiences as a child psychologist, a teacher, a mother, and a sympathetic observer of Waldorf (Rudolf Steiner) education methods in Sweden.

The book's first half discusses how children play at different ages, how they are affected by their environment and by the people near them, and how disarmingly simple it can be for adults themselves to play and grow with the children who have come to them. Its second half gives detailed instructions on how to make a variety of simple soft cloth dolls that activate the impulse toward imaginative free play in both child and adult.

Tr. from Swedish; 1st edn 1985; 22 x 14cm; 180pp; illus; sb; £4.95; 0-86315-022-5;

The Hunchback and the Princess

*Story by Georg Dreissig
Illustrated by
Wilfried Strüning*

As the time approaches for the Princess to marry, the wise King sends word throughout the land to all those who would seek to win the hand of his beautiful daughter. He has devised a series of challenges, and the one who can fulfil them will become heir to the throne. In spite of all the difficulties of these tasks, the Hunchback, with his 'golden heart', valiantly tries his luck. And the Princess, looking in his eyes, sees a light she cannot forget.

Children (age 4-9); tr. from German; 1st edn Sep 26, 1985; 21 x 30cm (oblong); 32pp; colour illus; hb; £5.95; 0-86315-027-6;



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