The Hypoglycemic Association

NEWSLETTER

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The **NEWSLETTER** of the Hypoglycemic Association is distributed to members of the Association and to Health Professionals with an interest in nutritional medicine and clinical ecology.

ANNUAL GENERAL MEETING

The Annual General Meeting of the Association will be held at the YWCA, 2 Wentworth Ave, SYDNEY (Nearest railway station CENTRAL) at 2 PM. The main purpose of the meeting is to approve of the Financial Statement for the Year Ended 31 December, 1990 and the appointment of Office Bearers. **A copy of the Financial Statement, together with the Auditors letter to the Association will be found on page 12.**

FEES: You will find the expiry date of your membership to the Association in the top right hand corner of the address label. If your subscription is overdue you'll find a reminder with this Newsletter asking you to send in your fees. These are $15 per family or $10 for pensioners. Doctors and other health practitioners who receive currently this Newsletter free of charge are of course exempted. However, if practitioners would like to forward donation to the Association, they will be publicly acknowledged. Note that such donations are tax deductible!

LECTURE BY

DR GARY SCHOLFIELD,

ENTITLED

'I HATE MY HYPOGLYCEMIA'

The discussion will centre around the emotional and physical causes of hypoglycemia which includes genetic type (genotype) herbicidal and pesticidal, heavy metal poisoning, bacterial and viral toxins together with hate, anger, jealousy, fear, guilt, grief and worry.

INTRODUCTION

Dr Scholfield has been researching why the body breaks down and how to fix it up since 1977. His studies have included anything from Natural Medicine, Chinese Medicine, Indian Medicine, Homeopathy, Herbal Medicine, Orthomolecular Medicine as well as Traditional Medicine.

ATTENTION TRAVELLERS FROM THE COUNTRY

Members wishing to arrive early at our next public meeting can look forward to receive a hot cup of tea or coffee with their own self-provided lunches. Sue Litchfield will not be there this time but her products will be available.

Steve Duff telephone advisory service

Our life member Steve Duff is willing to talk to any person by phone on any problems relating to hypoglycemia, allergies and diet. This voluntary advice is based on his personal experiences with hypoglycemia and allergies and any problems of a more complex nature will be

referred to nutritional practitioners. If you would like to have a talk with Steve, please ring him at his home on 529-8040.

Books for sale at the meeting
Dr George Samra: **THE HYPOGLYCEMIC CONNECTION.**
Jur Plesman: **GETTING OFF THE HOOK**
Sue Litchfield: **SUE'S COOKBOOK**

Contributions of articles by members and by practitioners are very welcome. If you would like to contribute an article to this Newsletter, please contact the Editor.

The Newcastle branch of the Association are still meeting under the leadership of Bev Cook. They meet on the last Saturday of each month beginning 1.30 PM to 3.30 PM at the Hillsborough Primary School. Enter the school from the Waratah Avenue. For further information ring Mrs. Bev Cook at 049-59-4369.

If any member would like to organise meetings in their local area or meet other members, we can help by advertising your name and phone number in this Newsletter.

Entrance fee at the next meeting

Because of increase in costs the Committee has decided to charge an entrance fee of $2 per person or $3 per family at the next meeting.

Donations for raffle

One way of increasing our income is by way of raffles. If any member has anything to donate towards the raffle, please contact Dr George Samra's surgery at 32-38 Montgomery St., Kogarah, Phone: 558-5290. **See Page 11** for those that won the raffle

The most tiresome thing in the long run,
Can be waiting to see things get done.

HYPERACTIVITY: HYPERACTIVE CHILD SYNDROME MINIMAL BRAIN DYSFUNCTION

By Dr. George Samra, M.B., B.S. (Sydney)

In order to successfully treat any medical condition it is necessary to have a clear diagnosis of the condition. In assessing and diagnosing hyperactivity one cannot help being overwhelmed by the enormous discrepancies made by various "experts" in this field over every single aspect of this disease ranging from incidence, inheritance, modalities, definitions, preferred treatments and so on. When this happens it is a sad clue to both the lack of knowledge and the lack of true expertise in treating this condition.

"Inside every hyperactive child there is a gentle, kind and loving child."

The word hyperactivity simply means excessive activity. I define the hyperactive child syndrome as the presence of all these four key features:-

1) Overactivity
2) Irritability and restlessness
3) Short attention span with learning difficulty
4) Disruptive behaviour.

Others list numerous other features to this syndrome and these include compulsive aggression, excitability, impulsiveness, low tolerance to frustration, poor sleeping habits, motor or physical clumsiness, anti-social behaviour, emotional lability, distractability, incoordination-ordination, perceptive impairments, misbehaviour, poor response to discipline, disorders in conceptualisation, disorders in memory, specific learning difficulties in arithmetic, reading, writing, and so on, and often speech and language problems are described. Another claimed feature is that of a normal or high IQ on verbal skills with far lower IQ and achievement record with written skills.

It is better for definition to simplify a syndrome to its basic elements in order to facilitate diagnosis and particularly early diagnosis of the condition. The hyperactivity syndrome is therefore:-

1) Overactivity
2) Irritability and restlessness
3) Short attention span and learning disorders
4) Disruptive behaviour.

One of the major diagnostic problems with this condition has always been that hyperactive children are, for the majority, normal most parts of any day and only manifestly hyperactive in bursts or short episodes during the day-time. It is madness to think that a five minute interview with a child could provide the diagnosis. Moreover, the diagnosis from a practical point of view is usually forthcoming following an overall discussion with the parents of the child. During any five to fifteen minute consultation the majority of children would probably exhibit normal acceptable behaviour. The hyperactive child is "normal" most of the time.

MINIMAL BRAIN DYSFUNCTION (M.B.D.)

This is the term applied to children of average or above intelligence who exhibit learning and behavioural disabilities. Some authors use this term fairly loosely. It would seem to rely on intelligence testing for definition in as much as the child's verbal intellectual skills is far greater than their written intellectual skills. Hyperactive children tend to make up the majority of children classified as having M.B.D. There have been numerous alternative names given to M.B.D., including hyperkinetic syndrome, minimal cerebral dysfunction, minimal brain damage, the brain damaged child, minimal brain injury, the dyslexia clumsiness complex, the chronic brain

This article was previously published in this Newsletter in November, 1986 and has been printed here by popular request.
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syndrome and the maturational lag syndrome. When a condition has numerous names, it unfortunately highlights the ignorance of the medical profession in coming to an agreement on definition, causation and treatment. I personally find the description Minimal Brain Dysfunction, an offensive term - one that any child would have difficulty living with, since its implications are of a damaged or disturbed brain and certainly to wear the label M.B.D. throughout lifetime would encourage the same prejudices and stigmata felt by epileptics.

INCIDENCE

Hyperactivity must be regarded as a modern disease which although first described over a hundred years ago by a German physician Heinrich Hoffman, when he described a single case. It was not until Dr. G.F. Still in 1943, wrote about hyperactivity in the medical journal, The Lancet, when this condition received any universal medical exposure.

The incidence of hyperactivity syndrome or hyperkinetic syndrome (these are synonymous) is probably 2% or 3% of children who have not yet reached their teens, however, various studies have put the incidence as over 10% in some and less than half of 1% in others. This enormous variation in incidence statistics, rather than showing a true difference of frequency between different countries, emphasises the enormous variation in the diagnostic criteria of the different studies. The incidence of hyperactivity syndrome is about 3% of children and M.B.D. is approximately 6% of children including the hyperactive group.

There does appear to be a sex factor with a prevalence of this disease in male children. Some authors claim that boys are affected 3 to 6 times more than girls. The actual ratio incidence with boys to girls is more like two-to-one. Despite this apparent sex difference, there might in fact be no true difference in sex incidence - one must consider specifically what brings a hyperactive to professional attention. This happens usually, when the child fails to reach parental expectations in both his behaviour and learning skills, either at home or in a learning institution. It is conceivable that parental expectations may be higher for boys to achieve and behave well than for girls. Perhaps our society perceives an aggressive boy as being more of a threat to the family than an aggressive girl; i.e. a mother may feel less threatened by her female child. With a male child on the other hand she may not be able to achieve any successful discipline for various reasons and the family model, with father and mother running the household, would be threatened.

A principle of good medical treatment is that the earlier the condition is diagnosed the better the outcome. Such is the case in the treatment and diagnosis of hyperactivity in childhood. The signs of hyperactivity are usually present at an early age. Often the first clues of this condition present themselves once the child first moves away from breast milk or formula milk as its only feed. Sadly it is true in most cases, that parents wait for academic or social failure before seeking specialised treatment for their child. Many hyperactive children are not diagnosed for this reason until after the age of 7 or 8 years, whereas in many cases an accurate diagnosis could have been made at 2 years of age. When describing the hyperactive syndrome, IQ and school failure are de-emphasised, as these are not useful in making an early diagnosis. The hyperactive syndrome has the four following main features:- 1) Overactivity, 2) Irritability and Restlessness, 3) Short Attention Span and 4) Disruptive Behaviour.

At the early ages between 12 and 18 months it is not uncommon for mothers to report their child to be unusually active, hyper-alert and difficult to soothe. Sleep disturbances is very prevalent.

The typical hyperactive child at age 2 or 3 years often seems to lack a sense of danger and is overactive, moving from one distraction to another. At this important age where discipline is being learned by other children the hyperactive child is seen as unruly and unable to be disciplined. There is a gap in the learning process, e.g. when being hit on the hand for touching an electric power point another child would learn quickly to leave the power point alone. A hyperactive child will return to that power point often in less than a minute for another hit again. With no learning the child will return to that power point after repeated discipline.

At this age it is typical for discipline to have failed for these children. Successful discipline is where the child has learnt and gained from the experience. With hyperactivity there is no learning with this sort of discipline - in many ways it is like hitting a new born baby. At this young age the hyperactive child is most easily identified by others outside the family. It is this child and his mother who are the subject of conversation soon after they depart from playing a social game of tennis.

At the age of 2 or 3 poor discipline is the hallmark for diagnosing hyperactivity of M.B.D. - the child who fails to learn from discipline. It would be wonderful to commence treatment on children at this age. By the age of 5 or 6, once the child starts attending school, the behaviour that may have been tolerated at home is no longer tolerated in a classroom situation. As the child gets older, academic problems increase. The child not only fails to learn from discipline, but also has trouble with academic skills as well as with socialising with peers. Again, sadly this is the time that parents are most likely to present the child to a specialist for treatment and sadly by this age the child has fallen behind at school and has developed a reputation for being disruptive - 'spoilt brat'. At the same time the mother has developed a reputation for having failed to teach the child 'good behaviour'.

Since academic failure of a seemingly bright child is the main reason for presentation to the doctor, many children will probably remain undiagnosed particularly of unintelligent or less academically motivated parents. There seems to be a fallacy amongst many, that hyperactive children tend toward having a high IQ. Rather the probable truth is that for the less intelligent hyperactive child failure would be expected, as would their misconduct and anti-social behaviour.

The typical hyperactive child leaves school at the age of fifteen or at the earliest possible legal age. Many of these children have excellent verbal skills, yet a terrible or embarrassing academic record which reeks of failure. Some hyperactive children are able to use their innate skills to great advantage and find success in the work place (not a desk job). Others become tired, depressed people with a low self-esteem, and easy distractability through adolescence and adulthood. With therapy emphasising diet, hyperactivity is successfully treated in well over 90% of patients without the need to resort to drug therapy - for this reason alone early diagnosis is most important.

It is estimated that approximately 20% of hyperactive children suffer with disturbed sleeping patterns. The most likely learning disability is dyslexia which occurs in 12% of children with hyperactivity. Also it is claimed, that by the age of 6 years, 15% of hyperactive children have suffered a cerebral seizure of some sort. E.E.G. testing suggests that approximately 50% show some minimal abnormality to be present. The non-specific irregularities are typically slow wave transience and excessive theta-wave activity.

CLINICAL PICTURE

Obviously the clinical picture of the hyperactive child varies with the child's age of presentation. I have classified the hyperactive syndrome as having the following four key features at a very early age; 1) Overactivity, 2) Irritability and Restlessness, 3) Short Attention Span and Learning Disorders and 4) Disruptive Behaviour.

OVERACTIVITY

"Hyper" means over or excess. Excessive activity is the hallmark for diagnosis. Most parents report that the child has an unusual amount of energy compared to siblings and usually the child requires much more attention and minding than his brothers and sisters. The child appears to be unable to sit still, is very fidgety and has excessive activity in the hands, body and feet.

Efforts have been made to quantify hyperactivity, particularly for diagnostic purposes. Unfortunately results on counting actual amounts of movements or the number of times a child crosses a line drawn in a room often fail to show any significant differences between them and non-hyperactive children. Hyperactivity is not present 24 hours during the day, but rather at several episodic periods during the day. Overactivity responds readily to correct diet and even when untreated at all appears to improve as the child gets older.

IRRITABILITY AND RESTLESSNESS

Hyperactive children characteristically are very easily irritated. A good conceptual analogy in considering the hyperactive child is that of putting jet fuel into a motor car. The irritability and restlessness often overlap other areas of diagnostic criteria, including the short attention span. Often the disruptive behaviour can be related to the child being very irritable and their difficulty in learning might also be related to this feature. Often the child is perceived as being impulsive, e.g. jumping into a swimming pool before others, climbing trees that are too high and often appearing not to consider the comfort or needs of others.

SHORT ATTENTION SPAN AND LEARNING DISORDERS

The hyperactive child typically has a short attention span. Part of the total irritable/restless syndrome, and perhaps as a consequence of the short attention span, the hyperactive child falls behind in his learning activities, particularly in the classroom. The learning disabilities include all phases of learning skills, reading, writing, arithmetic and spelling. In 20% of hyperactive children there is retardation in speech skills - at the age of 2, 20% are unable to talk 2 or 3 word phrases. Some children have difficulty in actual articulation, others have poor control of appropriate volume for speech - whispering or shouting inappropriately.

Dyslexia is the most common specific learning disability occurring in 12% of hyperactive children. It is often the child's failure to reach his intellectual potential, which brings the child to the doctor. The intelligent hyperactive child often shows good verbal skills, but poor written skills and this paradox pursues and afflicts the inadequately treated hyperactive child all his life. The short attention span presents early in the life of the hyperactive child. It is important to look for this early rather than waiting for the child to fail academically.

DISRUPTIVE BEHAVIOUR

Irritability and distractability in the classroom extends to disruptive behaviour outside the classroom. The child often shows poor ability to learn games and no sensitivity to the needs of playmates. Violent and aggressive behaviour is often reported by parents. Some authors claim, that the antisocial behaviour develops as part of their inability to succeed academically, but this is not necessarily the case. Disruptive behaviour is present from an early age. The child stands out in the family as needing far more attention than other children in the family.

This child shows a tendency not to learn when disciplined, which leads to frustration for the parents. Good discipline is a learning process where the child gains knowledge of safety through parental discipline. A normal child who is hit for touching an electric power point will leave it alone. A hyperactive child often continues to touch the power point until the parents in their frustration stop punishing that child. The hyperactive child, at an early age, perhaps receives a lot of hitting. Parents eventually learn, that this achieves little and soon turn a blind eye to any but the worst behaviour exhibited by this child. Subsequently the hyperactive child is often able to "get away" with more mischief or naughtiness than a normal child. Poor response to discipline is the main explanation for the child's disruptive behaviour throughout childhood and sometimes into adult life. Children must learn from the discipline what is considered good behaviour. Unfortunately even in this part of their learning life hyperactive children fail to learn and a persistent behavioural abnormality may result.

PERSONALITY OR DISEASE

It is very easy for parents and acquaintances to regard hyperactive behaviour as the child's personality - being a little bit overactive, a little bit dumb at school, an attention seeker and a little bit naughty too. This condition is highly responsive to therapy, particularly diet, and in many cases the diagnosis is missed.

————O————

STOP THE MOULD!

by
Dr William Vayda

PREVENTION is better than cure. Especially if you care for your children. Fungi [The word is synonymous with moulds] are everywhere and because we live in a generally humid, subtropical climate, we are wading through a sea of them.

Although fungi have enjoyed a symbiotic relationship with humans for millennia, in recent years there has been an explosion of fungal infections and intolerances (allergies). There is little doubt now that moulds can cause, trigger or contribute to a wide range of illnesses.

Although the best known is Candida Albicans, a yeast fungus that causes thrush (either systematic or vaginal) there are in fact many hundreds of disease-causing moulds with some being more toxic than others. Irrespective of the causes, the fact is that a depressed immune system favours both growth/proliferation and toxicity of fungi. The fungi themselves often are immunosuppressive, thus compounding the effects.

Last year, more people died of asthma in Australia than AIDS. Asthma, indeed many respiratory and allergic diseases, can be triggered or aggravated by moulds, as well as dust, dust mites (dust mites themselves often contain moulds) and xenobiotics (chemicals). In addition, medical researchers found that people living in damp homes are more likely to become sick than those living in dry, mould-free houses. Allergies, unexplainable bouts of fatigue, lethargy, sleep problems, sore throats, runny noses, wheezing, fevers, headaches, dizziness, mood swings, and mental confusion have all been associated with the presence of moulds.

Unfortunately, one can't always see moulds. They may be growing unabated for months giving off toxic spores before anyone becomes aware of their existence. Dust mites too, lurk everywhere with nay a visible signs of their presence. At the Complimentary Medicine Centre (Sydney) we have been using a number of methods of assessing the presence of moulds and dust mites in our patients' bedrooms. Recently, we have also developed facilities to eradicate or control them and, since using them, I have noted a remarkable coincidence between the number and types of moulds present and some of our patients' health as well as their ability to recover from a variety of illnesses. Indeed, after we have arranged for the eradication of mould (and often dust mites as well) from their bedroom, many people find that all manner of seemingly unrelated symptoms disappear or diminish dramatically.

Apart from the potential toxicity of the moulds themselves, recent studies have found that some fungi give off dust fumes that can cause toxic reactions.

It all comes back to the simply obvious principle of Total Load.

The more your body has to cope with, the less energy reserves it has for dealing with the normal demands of everyday living. If anything extra comes up, and that could be something simple like a late night or an emotional

(Continued on page 11)

SCIENTIFIC METHOD

By Jur Plesman

WHENEVER we are dealing with a controversial issue it becomes important to know the rules of debate. This is especially so in the area of nutrition. For example, there is a scientific debate going on whether "Some foods can cause behavioural changes", a proposition that is hotly denied by some 'scientists' in the fields of medicine, psychiatry and psychology. For those who believe that some foods can indeed cause behavioural changes it is often frustrating to convince professionals who are supposed to deal with this kind of problems.

"How is it then", one might ask, "that these 'scientists' refuse to admit the possibility of the proposition in spite of overwhelming evidence?"

Science is subjective

The answer lies in that 'science' is *objective* only in the eyes of the beholder, contrary to popular belief, which suggests that science or scientific truth provides the ultimate truth. Nor has 'science' any greater power of persuasion, than any other form of argument. What can be said is that 'science' is perhaps the least subjective form of knowing and understanding the world. Most scientists agree that what distinguishes a scientific statement from non-scientific statement is that it is anchored to experience or observation, and that it is publicly accessible, commonly known as facts. And this is exactly the reason why a scientific statement is subjective, for it is impossible for any person to know *all the facts* and any scientist has to make a choice among the infinity of 'facts' available upon which to base his statement. This also implies that a scientist can argue a case by carefully selecting some facts and ignoring others, whilst maintaining the facade of being 'scientific'. This is clearly demonstrated in **Figure 1** which is a simple representation of a hypothesis or speculation. When we observe two unusual events occurring close to one another in time or space, we are inclined to connect the two events as a cause and consequence. For example: when lightning strikes and a ship capsizes some minds may see one being the cause of the other. When such events repeat themselves a hypothesis emerges suggesting that lightning could cause the ship to capsize. Similarly, the proposition that "Some foods can cause behavioural changes" must be related to some facts that can be universally observed and which prompts the hypothesis. Thus one function of a hypothesis is to bring together (classify as it were) a whole series of observations into a linguistic representation of the things observed. Furthermore a good hypothesis is one that has predictive power: given some conditions or circumstances the hypothesis predicts future facts or experiences. This is represented by the broken arrows in Figure 1. A hypothesis cannot be 'proven' to be true; it can be supported by available evidence, but it can be 'proven' to be false. For example the proposition that "Some food cause behavioural changes" could be shown to be false if it is true that "No food cause behavioural changes". "Some foods do not cause behavioural changes" does not do the job as it may be consistent with our hypothesis.

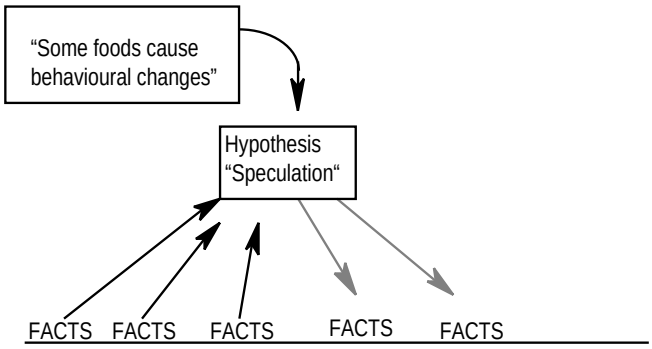

FIGURE 1

Looking at this illustration it is also clear that the statement by some scientists that: "There is not sufficient evidence to suggest, or there is no scientific data to support that..... (whatever the hypothesis) .....is valid". This is not a clear statement, for the speaker overlooks the fact that he is limited in the knowledge of *all the facts*. What he means to say is that he, himself the scientist, is not aware of any evidence that would support the hypothesis. The form of expression used by the 'scientist' fakes objectivity and it would be preferable if scientists got into the habit of owning their beliefs and say: "I am not aware of....".

Difference between hypothesis and theory

Most scientists agree that there is a difference between a hypothesis and a theory. This is illustrated in **Figure 2.** A hypothesis repeatedly shown by experiments to be correct may lead to the formulation of a theory. However, a theory is more than a hypothesis. It functions like an explanation or an interpretation of a series of facts and again a good theory is one that is based on experience or verifiable evidence. It has power to predict other facts and usually suggests new hypotheses or experimentations. Some philosophers of science classify theories according to whether they are specific to an area of knowledge or encompasses a broader sweep of information. For example Freudian Psychoanalysis or the Marxian interpretation of economics are said to be 'reductionist' in the sense that it tends to reduce many apparently unrelated facts to a few simple principles. This is often the case in the so-called 'soft sciences' - sociology, psychology, history, economics - in contrast to the 'hard sciences' such as physics, chemistry, medicine etc., although here too we may find examples of reductionist theories, e.g. the chaos theory of physics. In **Figure 3** a theory may lead to the acceptance of a *Law of Nature* which usually has the force of universal acceptance of a statement made about the nature of things and which is said

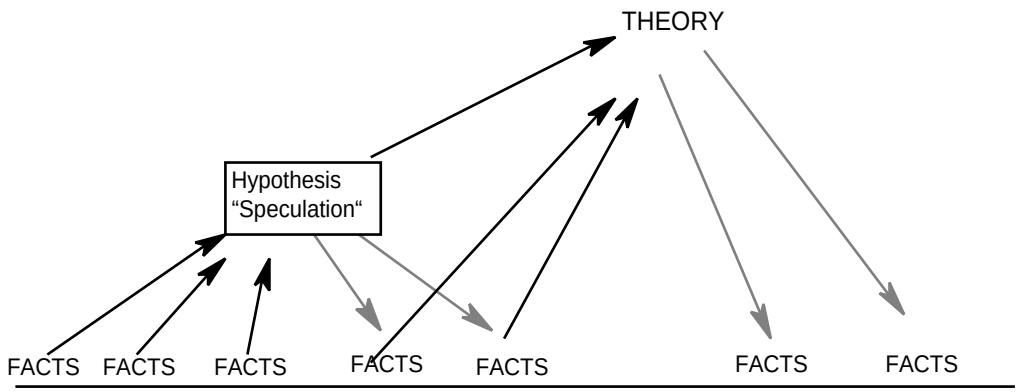

FIGURE 2

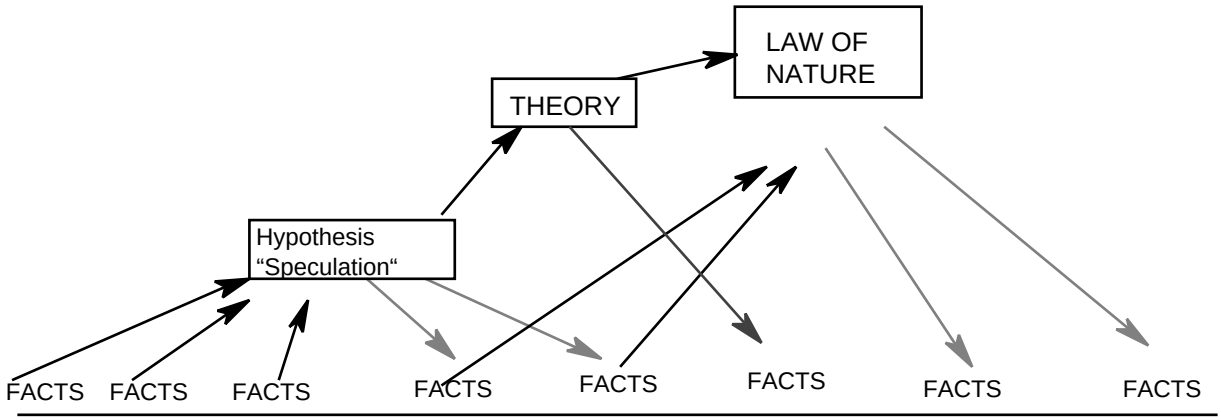

FIGURE 3

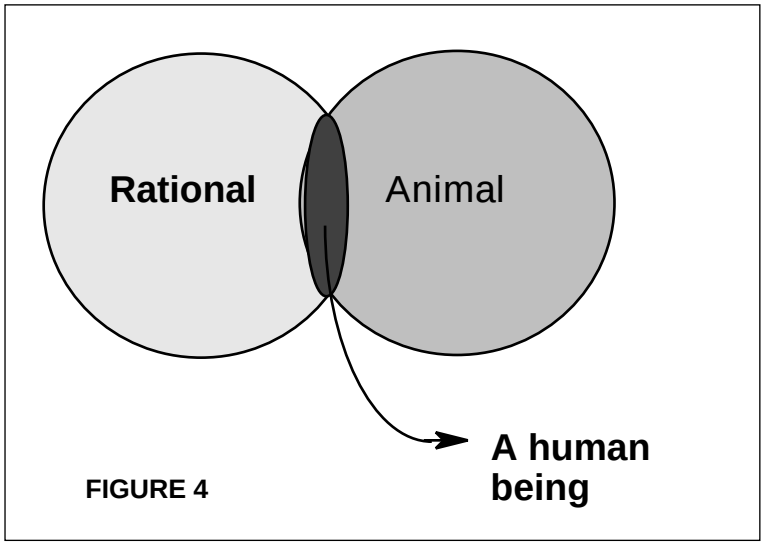

FIGURE 4

to be always true. Nevertheless, the classification presented here is controversial itself as philosophers of science may disagree, as they usually do. One criticism might be that Figure 3 could suggest a hierarchy of truths and some scientists would indeed subscribe to this concept.

The 'hard' and 'soft' sciences

The division of scientific knowledge into 'hard' and 'soft' sciences has contributed to the confusion as to what is a scientific truth and to the idea that one truth is worth more than another. It should be distinguished from the concept of 'faith' which is a belief not requiring verification in the world of reality. Truth is a noun, which derives from the adjective 'true' and it makes more sense to say that something is either true or false. This something is basically a proposition or statement. Hence a scientific statement or proposition is either true or false. Here we enter into the area of logic - or the study of how people think and arrive at conclusions and inferences. The basic unit of logic is the proposition (or logical premise) which must contain a subject, a copula and a predicate. In our hypothesis in Figure 1 "Some foods" is the subject, "cause" is the copula (some logicians would prefer "is the cause of") and "behavioural changes" is the predicate. It is the relationship between logical premises that constitute a syllogism or logical reasoning and these must comply with certain rules of logic. One basic logical rule is that a statement (premise) cannot both be true and false.

A syllogism consists of *at least* three premises as in the following example;

1) All dogs are animals
2) Phido is a dog

Therefore 3) Phido is an animal

In terms of logic, the first premise 1) is the major premise, 2) is the minor and 3) is the conclusion. The subjects and the predicates are called 'terms' and people assume that terms are defined and have a clear meaning. The terms in our example are all concrete terms - they refer to things that can be seen or touched and hence their meanings are clear and no confusion can arise. In most 'hard sciences' the terms used in syllogisms are usually concrete or well defined and hence chemists, physicists and biologists have no problems following the reasonings of their fellow scientists. However, sociologist, economists, historians, psychologists often use abstract terms, such as behaviour, love, religion, inflation, unemployment etc. and here following a syllogism or argument may become difficult. However they employ the same scientific method in their study as the 'hard' scientists. This problem of methodology is often confounded when people in their daily conversation leave out the major premise in their logical thinking such as: "Phido is a dog, therefore he is an animal". The unstated premise: "All dogs are animals" has been assumed to be true. We can't blame the 'hard' scientist for believing that social scientists are not real scientists. On the contrary, the social scientist has to be more careful in his methodology and is usually well trained in scientific method as compared to the 'hard' scientist. This explains the lack of knowledge and skills in scientific method often found among 'hard' scientists. The medical fraternity, especially, has to take care not to take scientific method for granted although they claim to be the experts in this field.

Importance of the definition

The social scientist relies on the acceptance of the definition of terms, representing abstract ideas, and often the rules of scientific debate requires that he make his definition(s) explicit in his scientific reasoning. In addition his definitions, pointing to the meanings of his ideas, must remain constant throughout his reasoning. For example:

Fred is a man

Therefore : Fred has exceptional mental abilities

shifts the meaning in the major (unstated premise) of man from a 'male human being' to 'an individual at the highest level of animal development, mainly characterised by his exceptional mental ability compared to other animals' from another definition of 'man'. Ideally, a definition should be in terms other than the word defined. Thus "Man is a rational animal" would satisfy that requirement of a definition and this is represented in **Figure 4.** Don't mistake a definition for a enumeration of its constituent parts. To define a horse's tail as a number of hairs, may beg the question how many hairs makes a tail. The relationship

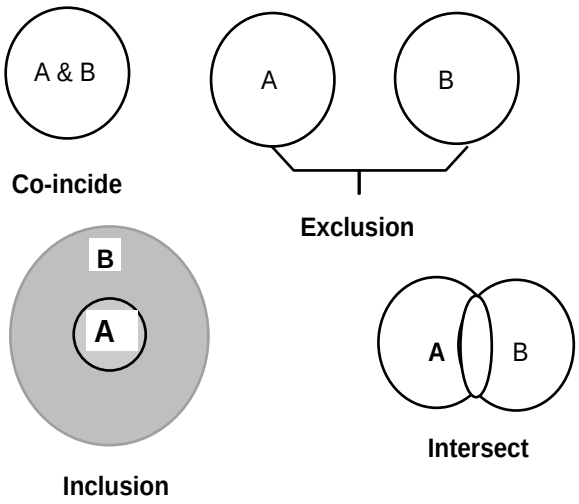

FIGURE 5

between terms are represented in **Figure 5**. Two terms can be in the following relationships;

1) **Coincide** - Two words can mean the same thing (synonyms). "Joyful" and "Glad"
2) **Exclusion** - Two terms cannot be classified together. No A's are B's and no B's are A's.
3) **Inclusion** - One meaning can be classified under the other. All A's are B's and some B's are not A's
4) **Intersection** - "Some French women are dark-haired women" & "Some dark haired women are French women" & "Some dark-haired women are not French women" and vice versa.

Distribution of terms

In logic it is important to be aware of the 'distribution' of a term. This refers to whether a term is used universally or in particular, or whether we refer to "all" members of a class or to "some". Example: In "All dogs are animals", we are referring to all members of the class of dogs, hence it is distributed! "Animals" is not distributed. For a syllogism to be valid, the middle term - the term shared by the major and minor premise (the term that links to two premises) *must* be distributed. This is clear in the 'All doggie' syllogisms. But in the following example:

All Russians are communists
Gorbachev is a communist

Therefore: Gorbachev is a Russian

The middle term 'communist' is not distributed and although the argument sounds alright and the conclusion appears to be correct it is in fact an invalid argument. This becomes clear if we substitute the terms for others in the same format:

All pears are fruit
Apples are fruit
Therefore: Apples are pears.

Invalid argument from particular to Universal

One misleading strategy is to 'universalise' or what logicians call 'arguing from the particular to the major premise'. This is similar to changing the distribution of a term from undistributed to distributed. An example is;

Some foods cause behavioural changes (particular)

to

Means: Foods cause behavioural changes (ambiguous, but still particular)

Means: All foods cause behavioural changes. (Universal)

Means: All foods cause behavioural changes and nothing else!

It is easy to prove that the latter proposition is false, but this is not the hypothesis, yet 'scientists' wanting to criticise the relationship between nutrition and behaviour use this invalid argument with powerful persuasive effect. "These nutritionists will have us believe that nutrition is the cause of all illness!" or "How ridiculous it is to believe that (all) criminal behaviour is due to nutrition". The unstated "all" makes it indeed ridiculous.

Changing the meaning of a term

Changing the meaning in a syllogism - especially the middle term - often leads to false conclusions. In the argument that "being a German, he is responsible for the death of 6 million Jews", the meaning of "German" has been changed from one simply indicating nationality or origin in the *minor* premise to an historical German, a follower of the Nazi party under Hitler - in charge of a death camp - in the *major* premise. Racism often employs the illogical trick of extending the evil actions of mortal individuals in the past into the present on the assumption that members of a class are immortal.

Changing the meaning of a term midstream in an argument is a popular strategy among many medical scientists who, for example, want to attack 'orthomolecular psychiatry' by re-defining it as 'megavitamin therapy'. The latter is not what is understood by orthomolecular psychiatry. Another example is changing the meaning of 'vitamins' into 'drugs'. Once we accept that vitamins is a subclass of drugs, then we must also accept that it should be tested like drugs e.g. by double blind studies.

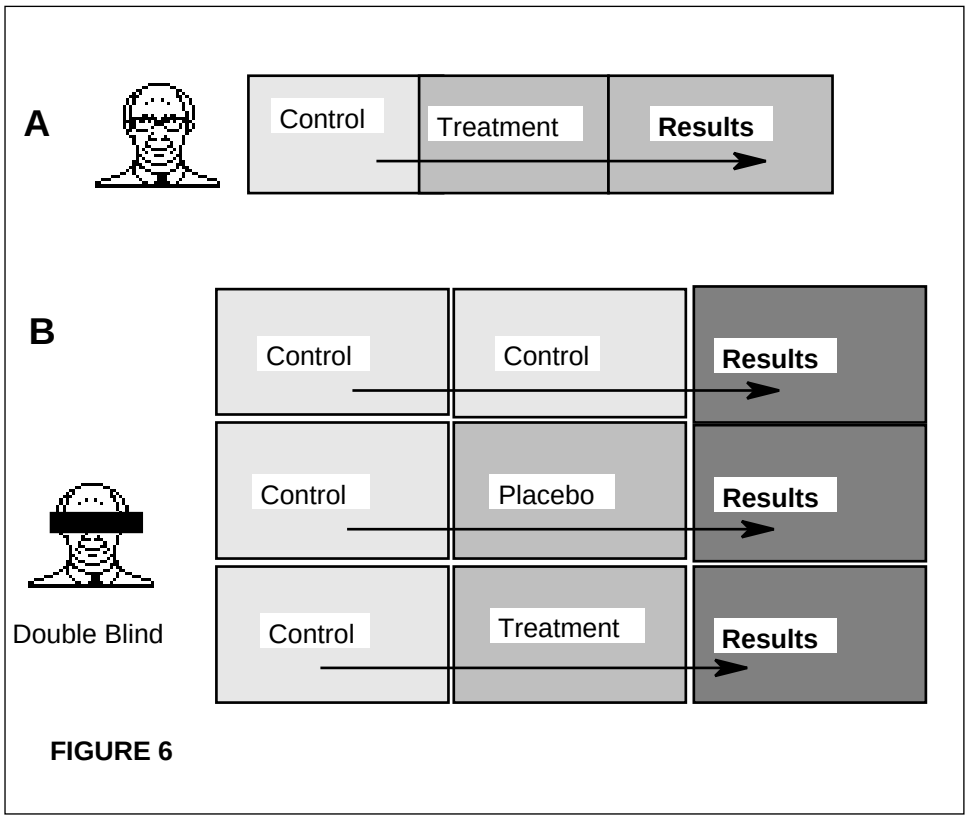

FIGURE 6

Defining meaning in operational terms

Not only do we need to define terms such as 'foods' but some terms need to be made 'operational'. In an experiment we want to be able to measure 'cause behavioural changes' and this is usually done by defining the latter in terms of numbers of observable actions - like punishments or warnings. Example: Prisoners' behaviour could be described in terms of number of punishments following certain kinds of behaviour. When some foods are introduced (fruits and vegetables) or others excluded (sugar, coffee etc.) one could study the effects of this diet in terms of number of punishments meted out to a group of prisoners for misbehaviour, as compared to another group of prisoners that did not receive the 'treatment'.

Experimental designs

And here we come to a number of different experimental designs. Comparison between the results of different groups undergoing different treatments are usually measured in terms of statistical means. If the difference between two means is greater than what could be accounted for by chance, then the difference is considered to be significant. Two common experimental designs are illustrated in **Figure 6**. A simple experiment is shown in Figure 6A where a group of people are given a treatment (avoidance of sugar, avoidance of allergies) and the change in behaviour is measured (in Results) which are then compared to the behaviour prior to treatment (in control). In Figure 6B we have an example of a double blind study. This kind of design is very appropriate to experiments on the effects of drugs, or electric shock treatment. There are three groups 1) **control** - receiving no treatment at all, 2) **placebo** - a group that is given the placebo or the kind of placebo that resembles the treatment and which performs no physiological function but could have a psychological effect, and 3) **treatment** group - that receives the treatment (the drug to be tested). Our little professor in Figure 6B is blindfolded, indicating that he does not know which group receives what treatment or he may not even be aware that groups are being tested. A further refinement would be the cross-over double blind study where the 'treatment' is crossed over to another group. The 'double blind' design is appropriate where all the factors influencing, let us say, behaviour are constant and one factor (for instance a drug) is varied. This is a medical design par excellence and most medical people appear to have been fed on this design in their academic course or think of it to the exclusion of all other designs when they want 'scientific evidence'. Factors such as biochemical individuality, the idiosyncratic nature of allergic reactions and the toxicological aspect of our environment, let alone our individual reactions to psychological stress are completely ignored most of the time.

There are infinite numbers of experimental designs based not only on parametric but non-parametric statistics. Parametric statistics are based on the characteristics of the distribution of measurements that centre around a mean. For example if we were to measure the height of a group of men, representing the larger population of men, we will find that the heights centre around a mean and the spread of the distribution chart centres around what is called a standard deviation. Similarly, if we were to measure the heights of women we will find a similar distribution, but perhaps the mean height of women being somewhat smaller than the mean height of men. In a non-parametric test there is no assumption of any centrality but rather certain other expectations are calculated. For example, we expect a row of people queuing up at a ticket office to consist of 50 percent of either sex. If we find 40 percent of one sex instead, is this unusual? Nor would we expect one sex to be at the end of the queue and the other in front, unless some special conditions apply. These kinds of problems can be solved by using non-parametric statistical techniques.

Correlations and causes?

A common fallacy is assuming that one factor is the cause of another when in fact we are dealing with correlations. Taller men tend to weigh more than smaller men, but tallness is not the cause of weight. A tall man does not weigh more than a small man in a space. Even in such arguments as in "If X, then Y" a causal relationship cannot be assumed. If X is false, then Y is not necessarily false, but if Y is false then X must be false. Example: "If it is a dog, then it is an animal" where the same relationship applies.

Who says what?

In science, matters may be so complex that we have to rely on experts to help us sorting out what is true or false in science. Thus we have doctors, lawyers, sociologists, architects, physicist and astronomers giving us their expert advice in their field or specialities. Without them we would be lost. Their qualifications are guaranteed by special institutions, such as universities or trade and professional associations, who safeguard us against quackery and chicanery. Many people want to hear certain pronouncements only by a specialist or professional, such as a doctor and sometimes for good reasons. Thus it is important to find out something about the person upon whom we rely for their advice.

On the other hand, such reliance may also be the source of misinformation. Most of the professions are under attack by the public for placing their self interest before that of the community (or their clients). The majority of scientists are employed by private industry who operate on the profit motive, rather than the good of society. Their biases and their loyalties to their employers may steer them in certain directions, seek out specific 'facts' in preference to others. Those that are employed by government or statutory bodies are probably a more reliable source of information, however their unbiased approach towards science can be equally influenced by a false sense of objectivity influenced by political or career considerations. Scientific association themselves may become political pressure groups serving their self-interest or they may operate from institutionalised ignorance. Hence the question "Who says what, and for what reason?" is an important consideration in evaluating scientific statements made by experts.

Arguing from 'authority'

Statements emanating from authority figures has a powerful persuasive influence. In scientific method some false reasoning is based on "arguments from authority". Here a statement is made and its accuracy is asserted and often accepted on the sole ground that the speaker or writer is an authority on the subject matter. For instance: "The Pope has decreed...". One way of influencing an audience is by informing it of the qualifications of the speaker. Some scientists go through a lot of trouble publishing scientific articles and thereby building up their reputations. This then becomes the basis of their authority. Often people claiming authority in one area will pontificate in areas outside their expertise, as for example doctors of medicine making official pronouncements in the field of psychology.

First of all, a distinction must be made between 'authority' and 'expertise'. Someone can be an expert without being an authority, and some authorities can lack expertise! (These terms and meanings intersect!) However, if we have to rely on authority for information we can enhance our reliance on that source by questioning the basis of that authority. Authority by whom? Which institution sanctions him and how unbiased is the institution? What is the institutional philosophy? What are the financial interests of the authority/institution? By whom is he employed or what are his sources of income and how does his financial dependency affect his thinking? In America many so-called nutritionists are company directors of factories producing 'healthy' foodstuffs such as margarine butter. Their views on cholesterol may not be totally unbiased and they are known to have influenced such organisations as the American Heart Foundation. And pharmaceutical companies may not be entirely open-minded about natural medicine either.

Ultimately, if we want to take responsibility and have control over our lives in this complex world we have to be able to critically and constructively analyse the underlying issues involved. In a world where the 'experts' and 'professions' dominate our lives, leading us to a more uncertain future, it is important for us to separate the grain from the chaff and tell the sheep from the goats. It is hoped that this short essay on 'scientific method' may be of assistance.

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PREPARING THE CHEMIST FOR ENVIRONMENTAL ISSUES

By
Don Pemberton A.S.T.C. (Chem) B.Sc.

From an address given in Sydney to the seminar of the Royal Australian Chemical Institute on **'Chemists, the Environment and the Law'** on the 16th October, 1990.

I WOULD LIKE TO start my address this afternoon with a loose quote from a book I recently happened across. It is by James Bellini and the title is HIGH TECH HOLOCAUST:

"The high-tech age has given us unprecedented benefits. Without sophisticated technology and the industry it spawns we would still be living in pre-modern times.

There would be no access to fast, safe and convenient travel. There would be no efficient reliable motor vehicles, no supersonic aircraft. There would also be no wonder drugs, no life saving medical procedures as we understand them today, no radio, no television, no skyscraper cities. It is also likely that there would outbreaks of epidemic diseases; whilst large scale famines due to crop failure, insect pests and plant diseases would be common place.

On the other hand, without modern industry humanity would have been spared the horrors of Chernobyl, Bhopal, Minamatta, Thalidomide and Esso Valdez; not to mention effluent choked river systems, acid rain and pesticide poisoning. All of these things together with the hazards posed by chemically contaminated food and the insidious danger of household drinking water, tainted with toxic traces are but some of the features of our world in the late twentieth century that need to be addressed.

Now that the tide of pollution threatens to upset not only our delicate ecosystem but even our own biochemistry. Humanity faces the prospect of contamination overload - the high-tech holocaust."

In our headlong rush to embrace new technologies and reap the benefits and abundance that these technologies promise, something has gone wrong.

Those among us who are politically or sociologically oriented often suggest that the root cause of the problem is that our advanced technologies have fallen into the wrong hands and those who control these technologies have preferred to apply them primarily for the creation of instant wealth and power without regard to the overall effect on our environment and quality of life.

I am the first to admit that in some cases this may well be so. However, I believe that the vast majority of our technological mistakes of the past were conceived not out of greed but rather out of ignorance. Let us look at a few examples.

How many of us, even those trained in the fields of chemistry or medicine could have foreseen the tragic consequences of the widespread use of asbestos. Here was a material which had occurred naturally for millions of years without any obvious effects on animals or the environment. It was found to be an excellent insulator of heat, its fibres could be woven into a cloth and when incorporated with cement it produced a commendable semi-rigid building board. Chemically, it is essentially magnesium silicate, a water insoluble, non-inflammable, non-poisonous material. Is it any wonder that it found many diverse uses as a thermal insulating material and as a component in building materials and friction brake linings? Unfortunately, by the time its health hazards were starting to become revealed, we had become so dependent upon it to sustain our technology that we unconsciously resisted the idea that it could be hazardous to human health. We were inclined to say that the evidence against it was "circumstantial" and we continued to use it anyway.

The same can be said of insecticides such as the now notorious DDT. When it was first introduced towards the end of the second world war it was hailed with as much fanfare in agriculture as penicillin was in medicine. It was a wonder material: a product of our new technology, highly effective against insect pests with apparently little or no effect on humankind. It held the promise of eliminating famine due to insect infestation of our commercial food crops. It was no wonder that such large tonnages were produced and distributed so widely throughout the world. When people like Rachael Carson in her classic book "The Silent Spring" first drew attention to the potential hazards of DDT and other insecticides, because we had become so dependent on chemical farming, again we were inclined to dismiss the evidence as being purely "circumstantial".

In refrigeration, fire fighting and aerosol technologies, the introduction of chlorofluorocarbons or CFCs was hailed as a technological breakthrough. They were much better refrigerants than ammonia and sulphur dioxide the commonly used materials up to that time. They were non-flammable, had a low toxicity and were non-corrosive to metals. They were useful in fire fighting, being able to be used not only against conventional fires, but also against electrical and oil fires. Being non-flammable they were much safer to use than hydrocarbons as aerosol propellants. Nobody knew of their long term effects on the ozone layer.

Polychlorinated biphenyls or PCB's were welcomed by the electrical engineering community. They had high dielectric constants and their boiling points could be tailored precisely for different situations. Being comparatively unreactive they were free of the long term corrosion effects of the petroleum based materials they replaced in electrical transformers and capacitors. It was precisely because they tended to be chemically unreactive that chemists and other technologists were lulled into a sense of false security; not realising that these substances were not only carcinogenic but also could pass the placental barrier and give rise to birth defects.

The list goes on and on and we could spend the whole session with a litany of our past chemical mistakes. I mention these four examples only because they are familiar to everyone and they serve to illustrate the point - *chemists have in the past been ill prepared for environmental issues.* We tended to equate chemically unreactive with biologically unreactive. Chemists of my generation tended to be rather an insular lot. Mostly we were content to live in our little worlds of chemistry and exclude things biological except perhaps as a source of what we quaintly referred to as natural products. We knew so little about biochemistry that we were unable to differentiate between chemical systems and biochemical systems.

It was a mind set we had gotten into. We were used to working with chemicals in the strictly controlled environment of tube tests, flasks and reaction vessels. In essence we considered chemicals and their reactions in a contrived environment and we gave very little thought to the reactions that could occur with these same chemicals in the open environment of an ecosystem. As a chemistry student I can not recall having ever heard the terms ecology or ecosystem being used. To most of us biological processes were an anathema.

We left our universities and other places of learning armed with a knowledge of maths, physics, chemistry and perhaps engineering and most of us proceeded straight into industry. We were all well trained chemical technologists and well suited to the needs of industry.

In my day most chemists and engineers tended to develop a very limited view of their role in society and the possible adverse effects of their technology. I know this only too well. When I was in industry I saw my role fundamentally as one in which my only goal was to produce a technically superior product and produce it more efficiently; and there my responsibility ended.

I believe that many of the environmental problems we are experiencing today are the end result of this kind of thinking. Fortunately however the ecology movement is changing entrenched attitudes. I am greatly pleased to see that this new generation of chemists and engineers are no longer so limited in their outlook. I see the chemists and the engineers of today as being part of the solution rather the part of the problem.

The question now arises: How can my generation of chemists help the new generation of chemists; those who are faced with providing the solutions. I believe there are several ways. One such way is to firstly admit where we went wrong. Then in many cases when we examine the circumstances carefully and with the benefit of hindsight we can often discover where we were lacking. If we then pass this information along this could well help others from making similar mistakes in the future.

In my industrial career I made many environmental errors. I don't have time to catalogue them all. I will settle simply for two examples and I will try to keep each of them brief.

I was chief chemist at a food processing plant at the time. The plant backed on to a waterway which runs into Sydney Harbour. The plant engineer asked me if I could see any chemical reason why waste products from the plant, mainly chicken offal and entrails, should not be ground up and discharged directly into the waterway. I thought about it for a while. There would be no chemically poisonous substances involved and as a bonus it would probably improve the fishing in the area, and initially it did. At that stage I knew nothing of tidal flush and biological oxygen demand of ecosystems. However as time went by, with the large tonnages of effluent we were discharging and the very small tidal flush involved; I came to see that waterway slowly die and become completely devoid of all living marine creatures. My purely chemical education had not suited me for the occasion.

In an other instance I had been asked to find a suitable solvent for the extraction of essential oils and oleo resins from culinary herbs and spices. The resulting herb and spice extracts were to be used in a very well known and widely consumed brand of dry packaged foodstuff. I experimented with various solvents; alcohol, petroleum ether and a number of different chlorohydrocarbons. From the point of view of the quality and the flavour of the resulting spice extract; there was very little difference whichever solvent was chosen. There was however a big difference in cost. Not only solvent cost but also the cost in plant design and insurance should I chose a solvent which was flammable or possibly explosive. Alcohol and petroleum ether were ruled out on this basis and I was left with the chlorohydrocarbons.

My ultimate choice was a non flammable chlorinated solvent, carbon tetrachloride. I had no knowledge of toxicology, all I had at my disposal was a very early edition of Sax - "Dangerous Properties of Industrial Materials". Carbon tetrachloride was listed as a solvent which would induce intoxication when inhaled in large quantities. It was also known to cause some degree of damage to the liver and the kidneys. Of course, the same thing could be said of alcohol and alcohol had been used for years as a solvent in the flavour extract industry without any apparent ill effects. To my simplistic chemist's way of thinking and with almost no background in toxicology I could see no difference. So I came down on the side of carbon tetrachloride.

The spice extract plant was built and went into production. Residual carbon tetrachloride values on the spice extract were never carried out. I could see no need for them and we simply assumed that all the carbon tetrachloride had been removed from the extract when it stopped distilling over. If there was any residual carbon tetrachloride in the final extract then I reasoned it would cause no more of a health hazard than a little alcohol.

Those spice extracts were purchased for some years by the Australian division of one of the world's major food processors and incorporated into their products. Carbon tetrachloride is now recognised as causing permanent damage to the liver and kidneys. It is also on the list of human carcinogens.

I could continue on with more of my environmental errors but I will simply settle for those two examples, in my own case, to illustrate how my formal training as an industrial chemist in the past left me ill equipped to deal with environmental issues. Undoubtedly this is changing, but is it changing fast enough?

I was reminded of this just recently. I had been asked by a citizen's action group to look at an Environmental Impact Statement (EIS) for a chemical plant that it was proposed to be erected in their locality. When I looked through the list of the raw materials, and there were considerable tonnages involved; I noted that some were either known or suspected carcinogens, some were mutagens (at least in some animal species), some could cause respiratory paralysis whilst others may cause acute allergic reactions in sensitive persons. Nothing very strange or unusual about that because that would be fairly normal for a chemical plant of this nature. The plant seemed to be reasonably high tech whilst the design and layout would seem to indicate that the company intended to make reasonable efforts to contain toxic substances within the plant and prevent their escape into the surrounding environment. However one thing in particular disturbed me. There seemed to be a very inadequate provision for a monitoring system to detect the possible escape of the highly dangerous materials from the plant. I won't go in to all the details. I will simply cite an example.

The company proposed to store on site at any time approximately 50 tonnes of isocyanate material in the form of MDI (Methylene di phenyl isocyanate) and TDI (Toluene di isocyanate). If we take MDI for example. It is considered to be toxic (if we use T.L.V. - T.W.A. as an index) at a concentration of 0.005 ppm. Not a very high concentration at all. Furthermore for people once sensitised to isocyanates only one tenth of the concentration quoted above is sufficient to bring on a severe allergic response usually manifested as an asthma attack. Unfortunately MDI has an odour threshold of 0.4 ppm. In other words, it can not be smelt until its concentration in the air exceeds its minimum toxic concentration by 80 times. The company's chemists and engineers were proposing that smell alone was a satisfactory method for detecting any escape. They had made no provision for any sophisticated electronic monitoring system to detect the accidental escape of this or any other toxic vapours; presumably on the basis that it was not important enough to warrant consideration.

The company's development application eventually went to the Land and Environment Court where I appeared as a principal witness for the citizen's action group involved. During the course of the cross-examination at one stage the presiding judge asked me if I would have any objection to the plant if an adequate monitoring system was in place. I replied that putting aside some minor objections, no; this was my major objection.

As it happened, after a protracted court hearing and at great expense to the company, the company lost the case. Their application was refused and as a bonus the court also ruled the proposed operation to be hazardous and offensive. During the court proceedings I had the opportunity to meet a number of the company's chemists and engineers and listen to their evidence. In addition to them being very decent and likeable people they were obviously very competent in their roles as chemical technologists. However they appeared to be sadly lacking in an understanding of important principles in toxicology. Had their training alerted them more to toxicological hazards then I feel sure that there would have been some different design features incorporated in their proposed plant and the final outcome may well have been quite different. I have used this example to once again illustrate the point that the formal training of chemists and engineers leaves them inadequately prepared for environmental issues.

Well, what can be done about it? I believe that institutions such as the R.A.C.I. should be pressing universities and other educational bodies who train chemists and engineers, to include a compulsory course component in the fields of ecology and basic toxicology. Having taught the principles of basic toxicology over a number of years to widely diverse groups of students, I can assure you that to develop such a course component would not be a very difficult thing to do. I believe that a short course in the principles of environmen-

tal law would also be of assistance; however I will leave that for the lawyers to pursue.

What else can be done? At a more personal level, I believe chemists as individuals could play a bigger role in advising and assisting various environmental groups. At the present moment many of these groups are very short on basic chemical knowledge. They are struggling in the dark, often being forced to make decisions without the advantage of an in depth understanding of chemical principles. From my own experience the expertise that chemists can bring to these groups is greatly appreciated. If you decide to do this you will find that it is a very pleasant two way learning process. The environmental group will gain more knowledge of chemistry whilst you as a chemist will gain a better appreciation of not only the environment but also the principles that the environmentally conscious people stand for.

Having said most of what I wanted to say, I notice that my time is running g out. I would like to conclude now. Just as I started this address with a quote from Bellini's "High Tech Holocaust"; so I would like to end with a quote. This time from an article which I recently wrote for an environmental group.

"Most of us consider the pollution of our environment to be a relatively new development having its origin in the latter half of this century. History however tells us a different story.

Even in ancient Egypt, some form of environmental pollution was recognised. According to The Book of the Dead, 5000 years ago, Ancient Egyptians were asked on entering the afterlife whether they had polluted the Nile or cut down a fruitful tree. Their answer would determine whether they became good or bad spirits.

The toxic consequences of mercury were well known to the Romans, so much so that in the first century BC a law was passed excluding free Roman citizens from working in the mercury mines. This work was to be carried out only by slaves and criminals.

In the middle ages huge pandemics of infectious diseases ravished Europe. In some cases these epidemics were so severe that the entire population of cities were destroyed. Together with a general lack of personal hygiene, the primary cause of these outbreaks was pollution of the environment through inadequate sanitation, open sewers and cesspit contamination of water supplies. Today, sanitation and public health measures have virtually eliminated large scale outbreaks of infectious disease.

The industrial revolution saw the onset of a new type of environmental pollution, heralded by the first large scale burning of fossil fuels. Factory chimneys belching forth clouds of toxic fumes, soot and carcinogenic smoke. Slag dumps and tailings from industry and mining operations contaminating water supplies with lead, copper, arsenic and cadmium. Although we still have some way to go, clean air and clean water legislation have already made big inroads into this problem.

The environmental issues we face today are far more complex than those with which we were confronted in the past. However, there is no reason to believe that the capacity and resourcefulness of the human spirit, to meet the challenge and overcome difficulties, has in any way diminished over the centuries. As in the past, I believe that our present problems can be overcome; provided we are firm in our resolve. There is ample evidence that this has already started to happen. At the moment this is just a beginning, but to paraphrase one of the great motivators of our present century ***"Even a journey of a thousand miles starts with but a single step."***

STOP THE MOULD Dr William Vayda
(Continued from page 4)

upset, there are no resources left to cope with it. You are overdrawn. And if you ask life to give you an overdraft, and even if you are lucky enough to get one, you'll pay for it one way or another. So it is obvious that, even if the impact of moulds or dust mites may appear to be minor, they bring one closer to the threshold. Then when another straw is added, it breaks the camel's back. And it is usually the last straw that gets the blame - often unjustly so.

Important as all this may be, one of the worst aspects of the mould problem is that recent research at Sydney Royal Prince Alfred Hospital tends to confirm our long-held theory that exposure to toxins such as moulds (as well as a variety of other toxins and allergens) during childhood can predispose the innocent children to asthma and allergies in later life.

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RAFFLE AND LUCKY DOOR PRICE WON AT THE MEETING OF 2 DECEMBER, 1990

Mr Arthur Currie won the raffle at the Christmas meeting on the 2 December, 1990. It was a lady's glomesh money purse, kindly donated by Patricia Fatzeus. The lucky door price was won by Bill Jory.

"Into each life some rain will fall"
The ups and downs come to one and all.

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RECIPES

DIABETIC CHOCOLATE

1 cup white vegetable shortening, 2 cups full-cream powdered milk, sweetener, 2 tblspns. Cocoa, 1/2 cup sultanas

Melt, but do not boil, the white vegetable shortening. Pour over the dry ingredients and mix. Pour onto a tray and chill. Cut into squares when set. Note - This is a high energy (that is, fattening) food and so it should be eaten in very limited amounts at a time. Total recipe contains: CHO (g) = 64; Kj = 10,000.

ICE CREAM

1 teasp. gelatine, A Pinch of salt, 1-1/2 tblspns. thick cream, 1/4 teasp. liquid sweetener, 1 tblspn. hot water, 1-3/4 tblspns. milk, Flavouring essence - vanilla, lemon, raspberry, etc.

In this recipe care should be taken to ensure that the gelatine mixtures does not set before it is mixed with the other ingredients, otherwise the ice cream will not be smooth. Except during very cold weather, 30 minutes is sufficient time for freezing. It is advisable to stir the ice cream once or twice while it is freezing.

TEACAKE AVOCADO

1 cup wholemeal flour or rye, buckwheat, or oat flour, 1 teasp. cinnamon, 1 teasp. baking powder, 1 teasp. salt & a small shake of black pepper, 2 eggs, 1 tablspn. rice syrup, 1/4 cup safflower oil, 1/3 cup sultanas, 3/4 cup coarsely chopped walnuts, 1 large avocado, peeled, stoned and mashed, 1-1/2 tablspns. lemon juice.

Grease and flour a loaf tin and pre-heat oven to 190 degrees C. Mix the flour, cinnamon, baking powder, salt & pepper together and set aside. Beat rice syrup, eggs and oil until light and fluffy. Add sultanas and 1/2 cup nuts, the avocado and 3 teaspns. lemon juice. Blend together but do not beat. Fold the flour mixture into the avocado mixture and pour into a greased tin. Top with flaked coconut and remaining nuts. Bake 55-60 mins. or until tester is clean. When removed from oven, pour over remaining lemon juice while still warm.

THE HYPOGLYCEMIC ASSOCIATION
FINANCIAL STATEMENT
YEAR ENDED 31 DECEMBER, 1990

INCOME					EXPENDITURE
Cash at Bank 31/12/89		2267.67	Printing		751.52
Cash on hand 31/12/89		17.44	Stat. postage		
			catering & presentations		
Members subs. 1990	1645.00				1036.05
1991	320.00				
	1965.00		Y.W.C.A. Rental		316.00
			Bank Charges		5.50
Meeting Entry			Fed/State Taxes	6.02	
Charges and sale of goods	390.90				2115.09
Donations -					
Professionals	80.00				
Other donations	13.00		Cash at Bank 31/12/90	2667.60	
Bank Interest	91.33	2540.23	Cash on hand 31/12/90	51.65	
		$4834.34			$4834.34

Income for the year ended 31/12/90 2540.23
Expenditure for the year ended 31/12/90 2115.09
Surplus $ 425.14

AUDITOR'S REPORT TO MEMBERS

I have audited the accounts of the Hypoglycemic Association for the year ended 31 December, 1990.

In my opinion the accounts are properly drawn up so as to give a true and fair view of the affairs of the Association for that year.

(Signed)
K.E.KEELAN
HON. AUDITOR

10 ARCADIA AVE.
Gymea Bay 2227
16th January, 1991

The President,
Hypoglycemic Association
PO Box 8,
SYLVANIA SOUTHGATE NSW 2224

Dear Sir,

Attached is my certified summary and report to members following my review of your Association's financial records for the year ended 31st December, 1990.

Whilst total revenue decreased by $692.00 compared with 1989, actual membership fees for 1990 increased by $250.00 over 1989. No income was received from life membership fees or newsletter advertising during the year, whilst donations were slightly reduced.

Expenditure during 1990 at $2115 was quite comparable at $2256 for 1989. Printing costs were reduced by $263 whilst stationary, catering etc., rose by $221. Other variable expenses created only minor impact. Containment of expenditure resulted in surplus revenue of $425 for the year against $676 for 1989 with adequate available funds being maintained for the Association's normal requirements.

Again I compliment your Treasurer, Mrs. Sharp for her presentation of your records and wish the Association continued success in its efforts.

Yours sincerely, (Signed) K.E.KEELAN Hon. Auditor.

The members of the Association fully appreciate the tremendous work Mr Keelan has done in auditing our accounts.
EDITOR on behalf of Committee and members

1991 MEETING DATES

2nd MARCH - 1st JUNE - 7th SEPTEMBER - 7th DECEMBER