

BLACKIE MEMORIAL LECTURE 1999

Introduction to Galen Ives

by Mr. Jeremy Nickson, Chairman of the Trustees
of The Blackie Foundation Trust

Good evening, ladies and gentlemen. I am very pleased, as Chairman of the Trustees, to welcome you to the Blackie Memorial Lecture in this, the hundredth year since the birth of Dr. Margery Blackie about whom our President Robin Holland-Martin will say a few words after the lecture.

The Blackie Foundation Trust was set up by Margery Blackie in 1971 in response to her frustration at the lack of urgency in existing organisations in the field of homeopathy at that time. Our current President was a founder Trustee and was the organisational force that, quietly in the background, kept the Trust in order.

It gives me special pleasure to introduce Galen Ives as the presenter of this year's Memorial Lecture. Galen has been a member of the Blackie Foundation's Scientific and Ethical Research Committee since its formation in 1990. As a lay member of that committee for a number of years, I was indebted to Galen's prodigious communication skills in enabling me to understand the complexities of some of the research protocols that we considered. Galen has, and will continue to represent the Trust in Europe through his membership of the European Committee of Homeopathy ^(A).

Galen qualified as clinical psychologist in 1975, after studying psychology and pharmacology. In 1978 he was appointed head of clinical psychology for Barnsley Health Authority.

He is currently Managing Director of Priority Search Limited, a company that he set up in 1988 as a specialist research company. At the same time he practises clinically in the NHS in a general medical practice as well as acting as an expert witness specialising in the psychological consequences of accidents.

Galen's subject tonight is "Homeopathy versus orthodoxy: the current state of play" in which he will present a personal view and discuss the future needs and direction for research. Integration is a key word in today's medical environment and I am sure that Galen's experience and perception will provide a most interesting presentation.

Ladies and gentlemen, Galen Ives.

Homeopathy versus orthodoxy - the current state of play by Mr. Galen Ives

I have a variety of reasons to be most grateful to the Trustees of the Blackie Foundation. The most immediate is for their kind invitation to give this lecture - I have listened to various Blackie Memorial Lectures in the past without ever dreaming that one day I should have the honour of being asked to give one myself. It is all the more auspicious because of the circumstances - this is the centenary year of Dr. Margery Blackie, whose generosity and foresight brought into existence the Trust which bears her name. And as you will also be aware, this year sees the 150th anniversary of the Royal London Homeopathic Hospital, the first of the country's homeopathic hospitals, which has championed the cause of homeopathy since the middle of the last century and will no doubt continue to do so into the next.

My second cause for gratitude to the Trust is that for the past several years the Trustees have kindly allowed me to represent the Trust at conferences on homeopathy in various parts of Europe. I hope that my detailed reports of these to the Trustees have been of some use; in the course of my travels I have

learned a great deal, and this has provided much of the material for this lecture.

The importance of research

Dr. Blackie founded the Trust because she understood the importance of research in the present time as a mode of communication. In her day, the majority of practising homeopaths operated on a basis of personal experience and faith. They knew that homeopathy worked because they saw their patients getting better. All could cite examples of dramatic cures, and some had undergone an experience analogous to religious conversion in which their doubts had been swept away by observing the swift and sure recovery of a previously hopeless case. This is still true for many today. Dr. Blackie was able to see that in the modern world of science in which medicine has its being, anecdotal evidence is quite insufficient, and that a different kind of evidence is required.

Personal experience

This has parallels with my own introduction to homeopathy, and I hope you will forgive a brief description of the history behind my being here before you this evening. I first became aware of the subject through a friend of the family who was a lay homeopath in Bradford. He interested me not only because of his erudition and clinical acumen, but because what he did worked. I recall someone I knew consulting him with a chronic breast abscess which had resisted the usual medical treatments. What impressed me was not simply that she was cured, but that he said to her "The abscess will burst within 30 hours", which it did. He knew that it would, and it duly did.

The homeopathic potency: an enigma

I was also fascinated and appalled by the idea of the homeopathic potency, which defied scientific logic. I began to correspond with the Faculty of Homeopathy, requesting published information which could support the basis of this odd, illogical art. At that time, my brother-in-law was a medical student at the University of Newcastle, and he asked me to write something for the students' Medical Gazette, which I duly did. Also at that time a friend of mine, Dr. Simon Barley, was editor of the Journal of the Royal College of General Practitioners, and he suggested that an article in the Journal would be of interest if a good scientific foundation could be established. This was 1977. Alas, the article never materialised because I could find only one paper which was of a high scientific quality. This was a paper by Dr. William Boyd ⁽¹⁾. Using enzymes which break down starch, and mercuric chloride (a notorious poison known in earlier times as corrosive sublimate), he showed that homeopathic potencies of the poison protected the enzyme system from the toxic effects of mercuric chloride itself. His work was painstaking, careful and well controlled. But sadly it was the only example I could find, and was insufficient upon which to base a persuasive article. However, as a result of my correspondence, I was invited to join what was then the Midlands Homoeopathy Research Group. This had close links with the Blackie Research Foundation, whence my present association derives.

Since that time I have done my best to maintain a position of an enquirer who seeks to establish evidence. In 1977 I was a clinician who had research interests. Today I am a professional researcher who also maintains some clinical practice, particularly as an expert witness. The common thread is that I still like to poke things to see what they are made of, and I still don't necessarily believe what first pops out. So what has changed in 22 years? Since then, there has been progress in some areas, whilst in others there has been scarcely any movement at all. Homeopathy is still widely derided by the scientific community, and homeopaths still struggle to provide hard scientific evidence when required to do so. But the battle is certainly not yet won by

either side. Within the broad picture of a continuing stand-off, there are numerous skirmishes here and there. Both sides make advances or retreat, and both frequently claim the intellectual high ground, often with little justification.

My use of the word "play" in the title of this lecture is intended to suggest two things - a drama, in which the actors adopt roles and postures, and a game such as chess in which opponents seek to gain advantage through tactics and strategy. Both of these are apparent in the on-going match of homeopathy versus orthodoxy. In order to understand what is going on, hopefully in order to influence the outcome, it is necessary to grasp the rational and irrational factors which are brought to bear by both sides. Earlier, I described research as a mode of communication and, if homeopaths wish to communicate better with their orthodox colleagues, they will stand a better chance of so doing if they speak in the appropriate tongues.

Orthodoxy

Let us begin by taking a closer look at what we mean by orthodoxy. From its Greek roots, "orthodox" means of sound (literally "upright") opinion. But how are sound opinions defined and recognised? It must be observed at this point that it is a great mistake to regard science as a purely objective endeavour - whilst it strives to be objective, its practitioners are merely human beings, and as such are subject to the same prejudices, vanities and the claims of fashion as the rest of us. Each orthodoxy defines which areas of knowledge are legitimate and which are not, and once these boundaries have been set they are remarkably hard to shift. These phenomena have been described in detail by philosophers of science such as Karl Popper and Thomas Kuhn.

"I am the Master of Balliol College / And what I don't know about just isn't knowledge." This teasing undergraduate rhyme, which exists in several forms, was originally levelled at one Benjamin Jowett who was Master of Balliol from 1870 to 1893. But the mindset which the verse mocks is commonplace among experts in all fields, and whilst it assists progress by setting boundaries it also hinders by stifling innovation or dissent.

Creation myths

It is easy to find examples in any field of knowledge. Take astronomy, for instance. Anthropologists tell us that all cultures at all times have creation myths which account for the existence of the Universe. This generation is unusual in that we have witnessed the emergence of a new creation myth called the Big Bang Theory. It is common for the members of cultures to believe in the literal truth of their creation myths, and this is the case with the Big Bang. It is so widely assumed really to have happened that many both within and without the scientific community regard it as an established fact. It is of course nothing of the kind - it is merely the best current explanation of the available data, which may or may not change as more data become available. But it is the current orthodox view, and as such is difficult to challenge. One dissenter is the American astronomer Halton Arp, who has made many astronomical observations which do not fit easily into the Big Bang model and give rise to alternative interpretations of the history of the Universe. Now he may or may not be correct in his view, but the point is that, despite being a competent professional astronomer, he is actively excluded from debate and has great difficulty in getting his work published in mainstream journals. He comments that "No matter how many times something new has been observed, it cannot be believed until it has been observed again" ⁽²⁾. This statement will no doubt ring bells for homeopathic researchers.

Nutrition matters: in wound healing

Let us take another example, almost at random, this time from medicine. It concerns the current view medicine has of nutritional matters. At first sight, nutrition appears to be an uncontentious issue - much is known about the organism's requirements for food, and the implications of poor diet for health are well charted. A few dietary supplements to treat disease have been extensively investigated, such as the use of fish oils in cardiovascular disorders. But even a cursory glance below the surface reveals some anomalies. If you become ill and are admitted to hospital, what you eat will be determined not by your physician but by a catering department, probably contracted out, and run so as to minimise costs. Efforts will be made to ensure the food's microbiological safety, and there will be a reasonable balance of the macronutrients such as protein, carbohydrate, etc. Very little attention will be paid to the details of the vitamin and mineral content. Whilst you may be prescribed a light diet, or a high protein diet, or whatever, any matching of the food in detail to your physiological condition will be absent. This would be unthinkable in, for example, Ayurvedic medicine, where what foods the patient eats is considered to be part of the therapy, and a large body of knowledge exists concerning what foods should be given in which conditions ⁽³⁾. Nor is any attention likely to be paid to the considerable body of literature available which shows that a person's micronutrient status has important effects on such matters as tissue healing and rate of recovery from surgery. It has been known for over 50 years that the strength of scar tissue is dependent on vitamin C status. In guinea pigs (which like us do not synthesise their own vitamin C), increasing the daily intake of the vitamin from a half to two milligrams triples the strength of seven-day old scars as measured by the force need to break them ⁽⁴⁾. Similar results have been reported in humans ⁽⁵⁾. If this is so, why do not all surgery patients receive vitamin C supplements?

Nutrition matters: in delinquency

Let us take another example. Stephen Schoenthaler is a professor of criminology in the United States. In 1981 he became interested in the possible role of nutrition in delinquency, noting that young people typically ate a good deal of rubbish. At that time his hypothesis was that excess sugar intake might affect behaviour. He carried out a number of trials in which young people confined in institutions for antisocial behaviour were given better diets, and quickly discovered that aggressive behaviour improved. In the course of this he disproved his original hypothesis, finding that it was not the presence of excess sugar but rather the relative absence of micronutrients which was the problem. His findings met widespread scepticism. In 1995, he conducted a very thorough study, replicated in two separate institutions. Over 400 offenders aged 18 to 25 were given either a vitamin and mineral supplement or an inert placebo under standard double blind conditions. All violations of prison discipline were recorded as usual. No changes occurred in the placebo group, whilst in the treated group there was a 38% reduction in rule violations, violent behaviour was especially affected. Blood samples taken before and after the experiment further showed that the therapeutic effect was proportional to the extent of the person's original nutritional deficits. Such a result at least has interesting implications for the management of offenders. And so were his findings greeted with acclaim? Not a bit of it. The journal Nature refused to consider his paper, whilst Science rejected it with the comment that "the topic is of no interest" ⁽⁶⁾.

Nutrition matters in other conditions

This is not an isolated case. In the course of a few hours in a good medical library, it is not difficult to find evidence for the effectiveness of a range of nutritional therapies for many diverse disorders. To take a few more or less at random, did you know that severe acne can be improved in about 90% of cases ⁽⁷⁾, using neither hormones nor antibiotics, but dietary manipulation? That

around 80% of cases of childhood epilepsy respond to an elimination diet ⁽⁸⁾ when headaches or hyperactivity are also present? That nutritional treatments exist for glaucoma ^(9,10)? Interestingly, studies supporting these claims have been available for many years, yet they may as well not exist at all for all the influence they have had on general medical practice. One problem, of course, is that the practice of medicine is greatly influenced by the multinational drug companies, and there is no big money to be made from nutritional supplements - vitamins and minerals cannot be patented. Another is that physicians are generally taught very little about nutrition in medical school, either from a theoretical or practical viewpoint.

Vested interests

I have discussed these issues at some length, not to climb on any particular hobbyhorse but to demonstrate that orthodoxies in general and medicine in particular are selective of the data they allow, and not necessarily on the basis of the quality of data. Some people find this hard to believe and contend that the data must have been rejected for good scientific reasons. But it is easy to find examples in virtually any intellectual field of endeavour, in the sciences and the humanities. And remember that many of the everyday ideas which we accept without question (for example, that the Earth is not flat, or that continents move, or that meteorites fall from the sky) were once heretical. Most of the major advances in medicine also met with stiff opposition in their time - one could cite antiseptic surgery, the use of anaesthetics, antibiotics, the notion that illness is caused by germs - the list is endless.

If orthodox medicine has trouble dealing with nutritional therapies, despite much good-quality evidence and well-understood mechanisms of action, what is it to make of homeopathy, a therapy which still cannot demonstrate what is in its medicines nor account for their action?

Irrationalities of homeopathy

If orthodoxy has its irrationalities, what of homeopathy? As I see it, there are three factors which can hinder progress.

Perception

The first is an attitude sometimes encountered among practitioners that research is simply not necessary. "We know homeopathy works, why should we bother to try to prove it to sceptics who won't listen anyway? And besides, we're too busy with our clinical work to do research." This attitude is reminiscent of the teenager who asks "Why should I have to wear a tie to the interview? They should just take me as I am." What I would say to such homeopaths is: Please do continue with your excellent clinical work - not all can or would be researchers. But do remember that if you wish homeopathy to be more widely accepted - a goal to which surely all homeopathic practitioners would aspire - you need to be able to communicate what you do and why you do it in the current lingua franca of science. The scientific community will not take you simply as you think you are, but as they perceive you to be.

Concepts

The second problem arises when individuals, often with the best possible motives, rush headlong into following a line of research which interests them without first availing themselves of the necessary conceptual tools. It is very easy to do bad research. To do good research needs an awareness not only of the necessary methods but also of what has gone before. Without such knowledge, whilst the would-be researchers may be amusing themselves, they are highly unlikely to achieve anything useful. Either they will design an experiment

which is fundamentally flawed, or will repeat lines of enquiry which have previously proved barren.

Fantasy

The third difficulty is that any endeavour which operates on the boundary between the known and the unknown attracts those individuals who are, as the saying goes, "so open minded that their brains have fallen out". It is useful when pursuing studies in such an area to be able to detect and avoid such persons, since much time can be wasted following up initially plausible lines of enquiry which turn out to be based upon pure fantasy. I offer you the following guidelines for spotting the more overtly conceptually disordered individuals, a variety of whom it has been my misfortune to meet on my travels.

Sulphur versus Nox vomica

Some may think that the unbalanced individual can be detected on the basis of appearance alone - they will be eccentric, have strange mannerisms, dress oddly, have unkempt hair, so on. Perhaps so, but since this is a reasonably accurate description of Albert Einstein, one of the century's undisputed geniuses, we must discard appearance as a reliable litmus. (I have also heard words of pure lunacy issuing from the lips of men in good suits.) There are two areas which should sound warning bells. The first is to be found in the psychological state of the person. Beware a tendency to paranoia, remembering that classically paranoia has two components. The first is suspicion, which cannot be regarded as pathognomic, since most researchers working in an unorthodox area will have suffered their share of ridicule at the hands of colleagues. A certain feeling that others have got it in for you goes with the territory. But the other component of paranoia is grandiosity. Look out for an over-inflated sense of the importance of the work. For example, if you read that "these findings will overturn conventional wisdom in all areas of science, and force a fundamental reappraisal of our understanding of the bases of physics, chemistry and biology" it may be time to become sceptical.

Scientific Hegemony

Further useful markers are to be found in the content of a person's ideas or writings. The first is misuse of scientific concepts. Two very commonly abused words are "energy" and "wavelength". Now I do not wish to suggest that science should have some kind of hegemony over what words mean; it is simply that when science does use a word it tends to do so in a precise way, deliberately drained of colloquial meaning. In common parlance "energy" means a variety of things - we could speak, for example, of a painting by van Gogh as possessing an extraordinary energy. But in physics, energy always means a quantity which has the dimensions of mass multiplied by length squared divided by time squared. If a quantity has these dimensions then it is energy and if it has any other dimensions it is something other than energy. The concept is extremely precise. So when you hear somebody talking about "the energy of the potency", or saying that "homeopathy is an energy medicine", you can immediately be sure that they are engaged in something other than science, even though their words may make some kind of metaphorical sense. Similarly, "wavelength" (and the related concept "frequency") has a precise scientific meaning, and statements such as "the wavelength of the homeopathic potency is of the opposite phase to the wavelength of the person's disease state" should be recognised as pseudoscientific gobbledegook.

Another area of content which may indicate a need for caution is seen when the writer appears fascinated by advanced physical concepts such as quantum mechanics or general relativity (and more recently, chaos theory). All of these areas are difficult to understand, and require specialised training and advanced knowledge of mathematics to use competently. But their very abstruseness

attracts those who have both loose concept boundaries and generally very little actual knowledge of the areas which fascinate them. So when you encounter a person speaking about homeopathy and quantum mechanics and relativity and chaos theory, it is probably time to load both barrels!

Please do not suppose that I am siding with those who would tar all of homeopathy with this particular brush. The problem is simply that a small minority of unbalanced would-be researchers into homeopathy does exist; they tend to be vociferous, and they unfortunately provide excellent ammunition for those who regard all of homeopathy as deranged lunacy - and there are plenty of those. To reiterate the general theme of this lecture, if you wish to communicate, it will not help if you use inappropriate language.

Homeopathy: Academic research

So what of homeopathy? What has changed since I began searching for research literature on the subject 22 years ago? Without doubt the greatest change has been the sheer volume of work on the subject, particularly over the last ten years. In 1977, there were at most two or three academic institutions world-wide carrying out research into homeopathy. By 1990 there were 20. Today, there are over a hundred universities and other institutions throughout the world actively investigating homeopathy and what are more generally referred to as low dose effects ⁽¹¹⁾. In Europe, these efforts have been significantly boosted by official support for research. There have been two major strands to this.

European Collaboration: COST B4

The first of these began with a joint venture between Nestlé and Hoffman la Roche regarding unconventional medicine of all kinds. In much of Europe at the beginning of the 1980s, such therapies comprised a more or less clandestine activity which went on behind the backs of orthodox doctors. The two companies, noting the large and increasing public interest in unconventional therapies, set out a two-year programme to investigate the matter. In the event, this developed into the Swiss National Research Programme No. 34, which lasted ten years and was the driving force behind a major European initiative beginning in 1993. The aim of this initiative, launched by the Committee for Science and Technology of the European Commission, was to "investigate the therapeutic significance of unconventional medicine, its cost-benefit ratio and its sociological and cultural importance as a basis for the evaluation of its possible usefulness or risks in public health". At the first meeting in Brussels in October 1993 there were 28 delegates from 14 European countries representing 17 professions. The initiative, known as COST B4, ended last year with the publications of its findings ⁽¹²⁾. A major part of the work was a comprehensive literature review.

Whilst COST B4 concerned itself with a variety of unconventional therapies, of which homeopathy was one, another European initiative concerned just homeopathy. In 1994, at the request of the European Parliament, Directorate General XII of the European Commission created a Homeopathic Medicine Group to investigate all aspects of the practice of homeopathy. This in turn led to the setting up of the European Committee for Homeopathy independently of the Commission.

It was initially hoped that the Commission would directly fund research activities; however, this proved not to be the case. Nevertheless, the result of this activity has been to foster an interest in research, to gather together the work which currently exists, and perhaps most importantly to discuss and improve research methodology.

I should also mention GIRI, the Groupe Internationale pour la Recherche sur l'Infinitesimal. This research group, which has existed for many years independently of any government agency, is responsible for carrying out much good-quality work and fostering discussion.

Let us look now at the current state of research in four key areas - clinical, proving (or as they are currently called, homeopathic pathogenetic trials), animal studies and studies *in vitro*, and finally investigations of the physics of homeopathic solutions. In a talk of this kind, I can do no more than summarise what is now a large body of work, and the selection is inevitably personal. I shall report to you the area of work which seem to me to be the most promising, and hope that you will forgive the inevitable omissions.

Meta-analyses of clinical studies

The best research evidence for the clinical efficacy of homeopathy comes not from any particular clinical study, but from meta analyses. The meta analysis is increasingly used as a tool to combine many studies to demonstrate effects at a level of certainty which is beyond any single study to demonstrate. The methodology has been developed in recent years and special statistical tools have been elaborated. There have been three such studies carried out to date of homeopathic clinical trials ^(13,14,15).

The most recent was also the most comprehensive. Carried out by Linde and co-workers, and published in *The Lancet* in September 1997, a total of 89 clinical trials were analysed which met rigorous inclusion criteria. These included the requirement that each trial followed a randomised double blind design, and had sufficient data to be included in the statistical meta analysis. Between them, the 89 trials covered a total of over ten and a half thousand patients.

The researchers used state-of-the-art methodology, including a new statistical tool called a funnel plot. This allows an estimate to be made of publication bias, which is the tendency of researchers and editors to publish positive results but ignore or suppress negative findings. Even when account was taken of publication bias (which the funnel plot showed to exist) the result was still strongly positive, and the authors concluded that "The results of our meta analysis are not compatible with the hypothesis that the clinical effects of homeopathy are completely due to placebo".

Placebo effect

Let us digress for a few moments to look a little closer at the placebo effect, since this is always the reason given for the actions of homeopathy by those who would discredit it. It is also true that the placebo effect is a powerful phenomenon which both the orthodox and unconventional practitioner can underestimate.

Meprobamate is a tranquilliser which enjoyed a few years of use after barbiturates had fallen from grace because they were toxic and addictive, and before the benzodiazepines such as Valium came along. (Incidentally, the way in which it took psychiatry over 20 years to recognise that the benzodiazepines are also ruinously addictive is another fascinating case study of the operation of an orthodoxy.) One study ran two parallel trials of meprobamate against placebo. The only difference between the two trials was that one was run by a physician who believed in the value of medication for anxiety, whilst the other was run by a doctor who did not. Both trials were carried out double blind, so that neither physician knew which patient was taking what. Yet despite this, the trials differed greatly. A statistically significant effect favouring medication was found in the trial run by the physician who believed in medication, whilst in the other the drug did no better than placebo. How can this be?

In many clinical trials, although the standard double blind method is employed, it fails because the drug under investigation has physiological effects which are perceptible to the person taking it. Under the normal rules of informed consent, the person is aware that some in the trial will be taking dummy pills. If the drug has known side effects they are likely to be advised what these are. On taking the medicine, the person gets a dry mouth, or feels unusually tired, or whatever, and thinks "Aha! I'm on the real stuff!" Similarly, some who receive placebo may conclude correctly that this is the case from the absence of observed effects. The trial is thus unblinded for a proportion of the subjects, and the stronger the physiological effect the larger this proportion will be. This then allows the bias of the experimenter to come through. In the meprobamate trials just described, one group will consciously or unconsciously pick up the expectation that this new drug may well do them a power of good, whilst the other group have no such expectations.

This effect unfortunately makes a nonsense of double blind trials for many drugs; this is especially true for psychotropics, and this is ironic because psychological conditions may be more amenable to improvement by the placebo effect than purely physical ones. There is a good argument to be made that homeopathy is more suited to the double blind trial than many conventional medicines, since a homeopathic substance may well be indistinguishable from placebo to experimental subjects, allowing genuinely double blind trials to take place.

Prozac

The meta analysis of Linde et al. provides powerful evidence that overall homeopathy does more than a placebo does. If this study had involved almost any area of medicine other than homeopathy, it would be taken as conclusive proof that the treatment method under study was more effective than placebo. There is an interesting double standard in operation - orthodoxy requires almost superhuman standards of evidence for homeopathy, whilst happily accepting much shoddy work in areas where its precepts are not challenged. A good example of the latter may be found in the clinical trials of the drug Prozac. Peter Breggin in his book Talking back to Prozac ⁽¹⁶⁾ charts in alarming detail how this popular antidepressant was given approval by the American Federal Drug Administration on the basis of trials involving just 284 subjects, rather than the 6000 plus claimed by the manufacturers. The rest of the trials simply did not meet even reasonably stringent methodological criteria. Had the subject matter involved homeopathy, this would no doubt have been quickly pointed out. But because the subject lies within orthodoxy, and moreover helps promulgate a myth currently dear to both medicine and the drug manufacturers, namely that depression is a biological illness rather than a psychological disorder, it is Breggin who has difficulty getting his work published.

The meta analysis indicates that homeopathy is more than placebo; it does not tell us, however, what to prescribe for which patients. Besides trials showing efficacy, science demands that such trials be replicated by another, independent researcher. There is to date no example of a fully and independently replicated trial of a homeopathic remedy in a specific condition.

Arnica

Arnica is one of the more widely studied homeopathic remedies, probably because it can be prescribed on the basis of the condition alone with less regard to the specifics of the patient. The Blackie Foundation has been involved in several such trials, with interestingly conflicting results. In one, involving the treatment of traumatic injury in an accident and emergency department, a positive effect was observed. A second experiment by the same researcher fell foul of NHS reorganisation and was very incomplete, but partly supported the

findings of the first. Another, which investigated the use of Arnica in women who had received episiotomies during childbirth, concluded that the treatment group actually did worse than the placebo group ⁽¹⁷⁾. And in a fourth experiment, no effect at all was observed in preventing soreness in runners in the London marathon ⁽¹⁸⁾. All of these studies had their flaws; in the first three, numbers were small although the methodology was good and the results statistically significant. In the last, I have heard some homeopaths mutter that they wouldn't use Arnica for stiffness after running anyway.

It is interesting that Arnica should have a negative effect, and the study mentioned above is not an isolated case. The meta analysis of Linde et al. included eight studies involving Arnica alone, in three of which patients receiving Arnica fared worse than those on placebo.

Hay fever/asthma

The most widely cited positive experiments are the two by David Reilly and colleagues involving the treatment of hay fever ⁽¹⁹⁾ and asthma ⁽²⁰⁾ reported in The Lancet. These are rightly praised for their methodological excellence and attention to detail as well as the positive outcomes. But none of these have yet been independently replicated. This requirement of independent replication is not an example of the problem of never believing anything about which the astronomer Arp complains; it is simply good scientific practice to make sure that somebody else can get the same results. It is true that there can be problems with such replication when the researcher who attempts to do so is hostile to the subject under study. Michel Schiff, in his delightful little book *The Memory of Water* ⁽²¹⁾, charts with both outrage and venom the ways in which orthodoxy will attempt to find fault with data which conflict with the knowledge it defines as legitimate. One of these is the bogus attempt at replication, in which key procedural elements are omitted, thus guaranteeing the failure of the experiment. He gives several examples.

So to conclude our discussion of clinical research, whilst there is very good evidence from three meta analyses that homeopathy does better than placebo under double blind conditions, we have yet to see an independently replicated trial of a particular remedy in a particular condition. If I may at this point slip in an advertisement, the ECH has produced an extremely thorough and useful set of guidelines for anybody wishing to undertake clinical research in homeopathy, which is available free on request from the ECH's offices in Brussels ^(A).

Provings

Historically, homeopathy has developed and tested its medicines by a process traditionally called "proving", in which healthy volunteers take a substance in potency over a period of time and record the effects produced. As might be expected, this is very difficult to do well, since one would wish to include everything genuinely produced by the substance under test whilst excluding everything extraneous. This requires a sophisticated methodology and highly competent researcher. Unfortunately, the provings published over the last 50 years leave much to be desired. A comprehensive review was carried out of all 45 publications published in the UK from 1945 to 1995 by Drs. Peter Fisher and Flávio Dantas ⁽²²⁾. They found that not a single one of these studies was carried out to an acceptably high standard, and concluded that "Overall the analysis of reports revealed methodological shortcomings which, in our opinion, seriously compromise the validity, reliability and clinical applicability of the results."

Isopathy

You will recall that when I began looking for scientific data about homeopathy in 1977, the work of Dr. William Boyd stood out. He had developed a laboratory

model which showed that a potency of a toxin protected a biological system from the effects of the same toxin. (Strictly speaking, this is isopathy, rather than homeopathy.) Interestingly, one of the most successful pieces of experimental work currently available is very similar. Jean Cambar, who is professor of pharmacy at the University of Montpellier has carried this out; I have heard him present his work on a number of occasions and have always been impressed by the care he takes with his experiments.

Cadmium and kidney toxicity

The metal cadmium is notoriously toxic, and has a particular ability to destroy the kidneys. Cambar's work involves incubating cultured mouse kidney cells with homeopathic solutions of cadmium prior to the application of a toxic dose of the metal ⁽²³⁾. He consistently finds that this pre-treatment has a protective effect on the tissue culture, even with solutions which are so dilute that no atoms of cadmium remain - a true homeopathic effect. His experimental method is impeccable. The control solutions employed are prepared by exactly the same method of serial dilution and succussion as the experimental solutions, the only difference being the presence or absence of cadmium in the starting solution. Assessment of tissue damage is automated to eliminate human error. This is done by the use of *in vivo* stains, that is, stains which are taken up only by living cells. Application of such a stain to a tissue damaged by the toxin will colour only those cells which remain alive, and these can be counted automatically. The assessment of the results and statistical analysis are carried out blind.

He has also investigated the mechanisms whereby the protective effect is mediated, and discovered two at work. Firstly, the pre-treated cells take up less cadmium when subsequently immersed in a solution of a cadmium salt, and secondly the homeopathic solutions induce the production of metallothionenes in the cells. These are natural substances which help protect the cell from damage by this kind of toxin. He has repeated the experiment on many occasions, with consistently positive results. Other researchers have shown similar effects with different models. All that remains is for another, independent laboratory to replicate his findings, and such work is planned at two other European laboratories. Assuming that Cambar's work can be replicated, it deserves great attention, since it seems to show a reliable physiological effect in a laboratory preparation of true homeopathic potencies, diluted well beyond the point where no molecules of the original substance remain.

Another indefatigable researcher in this area is Prof. Madeline Bastide, an immunologist also from Montpellier University. She has used a variety of animal models to demonstrate the actions of homeopathic dilutions ^(e.g. 24); like Cambar, she is a very careful researcher, checking and replicating her work.

Not all work in this area is as careful or as praiseworthy - I have seen some extraordinarily bad work done as well. These include experiments with no clear aim, or which lack any statistical analysis, or which destroy large numbers of laboratory animals in studies which, because of their faulty design, have no chance of demonstrating anything beyond the incompetence of the researchers. My reports to the Trustees unfortunately contain a number of such examples.

Potency

Perhaps the greatest single stumbling block to the wider acceptance of homeopathy is its use of remedies in potency, i.e. solutions often so dilute that no molecules of the original solute remain. According to the critics, this means that homeopathic potencies cannot possibly have any physiological effect, and that whatever the meta analyses say, homeopathy cannot be more than placebo. Homeopaths answer that an imprint of the original substance remains in some form in the solvent, and that it is this which is the therapeutic agent. However,

when asked for hard evidence, they are still unable to do very much better than when I asked the same questions 22 years ago.

Relative permittivity

Researchers have tried to measure the physical properties of homeopathic solutions in various ways. One of the earliest to show a difference between potency and control was Gay-Boiron in 1953, who measured an electromagnetic property called relative permittivity ⁽²⁵⁾. With the assistance of the Department of Chemistry of Sheffield University I attempted to replicate his results, using equipment around ten times as sensitive as he had available. Unfortunately, I could detect no difference between potencies and controls ⁽²⁶⁾. The work was not entirely in vain, however, since the prototype permittivity cell made by the glass engineers (and never actually used in the experiment) has since given excellent service as a spaghetti jar.

Much more recently, Prof. Bourkas of the Technical University of Athens developed a device for measuring the conductance of solutions with a high degree of accuracy. Results from this were presented at several conferences, claiming that potencies could be distinguished from controls. The quality of the data presented did not justify the claims being made for the machine but, because of the potential importance of such a device, it was arranged that a definitive test would be carried out to an agreed protocol under strictly controlled conditions. I was one of a team of 6 from 4 European countries who visited Athens in February 1996 to carry out the experiment. Sadly, under controlled conditions, the machine failed to distinguish between potencies of sodium chloride and controls. You can read a full account of the experiment in the British Homeopathic Journal last year ⁽²⁷⁾.

Nuclear magnetic resonance

Probably the most promising line of research has come from the use of nuclear magnetic resonance. This technique is sensitive to changes in the way water is organised at a molecular level, and should at least in theory be able to show if water somehow retains an imprint of an original solute. There are problems with this method; besides requiring expensive and complex equipment, there is an omnipresent source of experimental error - oxygen. We are familiar with solids such as iron being magnetic, but certain liquids and gases can have magnetic properties, as does oxygen. Dissolved oxygen can have a large effect on the NMR signal, and the amount dissolved varies with temperature and air pressure. Worse, succussion as applied in the preparation of potencies can both add and remove oxygen. So when somebody presents you with NMR data involving homeopathy, ask first how they controlled for the paramagnetic effects of oxygen.

The best work I have seen using NMR was carried out by Dr. Demangeat and co-workers at the Service de Médecine Nucléaire at Hagueneau in France. In a series of well-controlled and replicated experiments they were able to show that homeopathic potencies differed not only from controls but also from each other ⁽²⁸⁾. The results indicate that at a molecular level, water in potencies is organised differently from controls, and further suggest that the particular manner of this organisation is specific to particular remedies. We are still a long way, however, from knowing precisely what is going on in such solutions.

To conclude, then, whilst progress has definitely been made, homeopathy is still unable to produce the kind and weight of evidence needed to bring about what Thomas Kuhn has famously called a paradigm shift within orthodoxy ⁽²⁹⁾. My personal view is that whilst the clinical evidence is currently the most compelling, this is likely to remain insufficient while the physical basis of homeopathy is unknown. The sceptics are only likely to become amenable to argument when a clear causal link can be made, i.e. potencies contain such-and-

such, and it interacts with physiological systems in the following way. Even then it will take time and effort. The late Idries Shah, a most perceptive observer of mankind and its foibles, commented that the process whereby an orthodoxy incorporates new ideas passes through three clear stages:

- 1) It is impossible.
- 2) It is possible, but it is useless.
- 3) It is useful, but I knew about it all the time. ⁽³⁰⁾

Informational pharmacology

A concept which may prove useful as a bridge builder is that of informational pharmacology developed by Prof. Bastide ⁽³¹⁾. She argues that medicine is fixated on the concept of molecular pharmacology, according to which biological systems can only be affected by the presence of atoms or molecules. We also know that one's physiology can be altered by pure information. There is a large and growing body of evidence that all manner of physiological parameters, for example the levels of hormones such as cortisol, or of neurotransmitters such as the endorphins, can be raised or lowered purely by the input of the right information carried electromagnetically ^(e.g. 32). It doesn't matter whether the carrier is an electric current, an electric field, a magnetic field, or microwave radiation. And whatever it is in homeopathic potencies which has an effect beyond placebo, it must be more in the realm of information than of material substance.

To summarise, then, the current state of play in the great game of homeopathy versus orthodoxy, my best guess is that it is hovering somewhere between the first and second stages described by Shah. But some things are becoming clearer - even if definitive research evidence is not yet available, we now know the most promising areas in which to look. It has been my personal view for many years that the establishment of a Chair of Homeopathy within a medical school of a British university would be the best possible way forward. We have a Chair of Complementary Medicine, we even have a Chair of Parapsychology, so why not a Chair of Homeopathy? All that is needed is a generous benefactor.

Ladies and gentlemen, the last 22 years have been full of interest for me; and I hope that with me you will look forward in interest to what the next 22 years and beyond will bring.

Discussion

In the discussion which followed, Mr. Ives gave the statistic that 80% of homeopaths questioned said they did not believe in homeopathy. Priorities for research depended on what angle you were coming from. If the aim was to demonstrate to sceptics within and without homeopathy that homeopathy works you will have different agendas depending on whether you are a clinician or a scientist. He agreed that grandiose claims antagonised but the painstaking work from Montpellier University, if repeated, could impress. However, the orthodox listened with deaf ears and defended themselves against new information until overwhelmed by it. He was glad to hear of work which had been repeated by three independent groups of scientists on the inhibition of human basophils by histamine which had just been published in Information Research very recently. "Nature" would not publish after the fiasco over Benveniste.

He agreed that diet might play a part in the success of homeopathy but knew of no work which demonstrated this.

A vote of thanks was given by Mr. Robin Holland Martin.

References

- 1) Boyd WE The action of microdoses of mercuric chloride on diastase B Hom J 1942 32 106-111
- 2) Arp H Seeing Red Apeiron Press (Montreal) 1998
- 3) Kakar S Shamans, mystics and doctors - a psychological enquiry into India and its healing traditions Unwin 1984 268-70
- 4) Bourne GH The effect of vitamin C on the healing of wounds Proceedings of the Nutrition Society 1946 4 204-11
- 5) Wolfer JA, Farmer CJ, Carroll WW, Manshard DO An experimental study in wound healing in vitamin C depleted human subjects. Surgery, Gynaecology & Obstetrics 1947 84 1-15
- 6) Edwards A Crime and nourishment What Doctors Don't Tell you 1998 9 (7) 12
- 7) Ayres S & Mihan R Acne vulgaris: Therapy directed at pathophysiologic defects Cutis 1981 28 41-2
- 8) Egger J, Carter CM, Soothill JF, Wilson J Oligotogenic diet treatment for children with epilepsy and migraine J Pediatr 1989 114 1) 51-8
- 9) Werbach M Nutritional influences on illness Third Line Press 1988 202-3
- 10) Evans SC Help for glaucoma sufferers - results of 25 years of ophthalmic nutritional research into glaucoma control Teecol publications (Lowestoft UK) 1990
- 11) COST B4 Basic research papers literature review - Working group activity report 1998 Annexe V - Homeopathy 3-4
- 12) COST B4 Basic research papers literature review - Working group activity report 1998 Annexe V - Homeopathy 9-95
- 13) Homeopathic Medicine Research Group Report - short version 1996
- 14) Kleijnen J, Knipschild P, Ter Riet G Clinical trials of homeopathy Brit Med J 1991 302 316-323
- 15) Linde K, Clausius N, Ramirez G, Melchart D, Eitel F, Hedges LV, Jonas WB Are the clinical effects of homeopathy placebo effects? A meta analysis of placebo-controlled trials Lancet 1997 350 834-843
- 16) Breggin PR & Breggin GR Talking back to Prozac St Martins Press 1994
- 17) Holwell D, Ives G, Jobst K (In press) Homeopathic Arnica in the treatment of trauma
- 18) Vickers AJ, Fisher P, Smith C, Wyllie SE, Rees R Homeopathic Arnica 30x is ineffective for muscle soreness after long distance running: a randomised double blind placebo controlled trial Clin J Pain 1998 14 227-31
- 19) Reilly DT, Taylor MA, McSharry C, Aitchison TC Is homeopathy a placebo response? Controlled trial of homeopathic potency, with pollen in hay fever as model. Lancet 1986 ii 881-86
- 20) Reilly DT, Taylor MA, Beattie NGM, Campbell JH, McSharry C, Aitchison TC, Carter R, Stevenson RD Is evidence for homeopathy reproducible? Lancet 1994 344 1601-6
- 21) Schiff M The Memory of Water Thorsons 1995
- 22) Fisher P & Dantas F A systematic review of homeopathic pathogenetic trials ("provings") published in the United Kingdom from 1945 to 1995 In Ernst E & Hahn EG Homeopathy - A critical appraisal Butterworth Heinemann 1998 69-97
- 23) Cambar J, Barrouillet MP, Delbancut A Protective effects of cytotoxic cadmium Proc 52nd LMH Congress 1997 157-63
- 24) Bastide M, Daurat V, Doucet-Jaboeuf M, Pèleguin A, Dorfman P Immunomodulatory activity of very low doses of thymulin in mice Int J Immunotherapy 1987 3 191-200
- 25) Gay-Boirin J Démonstration physiques de l'existence real de remèdes homéopathiques Editions des Laboratoires PHR, Lyon, 1953
- 26) Ives G Relative permittivity as a measure of homeopathic potency effect. Negative results on repeating previous work Br Hom J 1983 72 65

- 27) Walach H, van Asseldonk T, Bourkas P, Delinick A, Ives G, Karragianopoulos C, Lüdtke R, van Wassenhoven M, Witt C Electric measurement of ultra-high dilutions - a blinded controlled experiment Br Hom J 1988 87 3-12
- 28) Demangeat L, Demangeat C, Gries P, Poitevin B, Constanstinesco A Modifications des temps de relaxation RMN à 4 MHz des protons du solvant dans les très hautes dilutions salines de silice/lactose J Med Nuc Biophy 1992 16(2) 135-45
- 29) Kuhn TS The Structure of Scientific Revolutions University of Chicago Press 1996
- 30) Shah I Learning how to learn Octagon Press 1978 114
- 31) Bastide M, Lagache A, Lemaire-Misonne C Le paradigme des significants: Schème d'information applicable en immunology et en homéopathie. Review Internationale des systématique 1995 9(2) 237-49
- 32) Andersson SA, Hansson G, Holmgren E, Renberg O Evaluation of the pain suppressing effect of different frequencies of peripheral electrical stimulation in chronic pain conditions Acta Orthop Scand 1976 47 149-57
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Acknowledgments

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Grateful thanks are owed to Mr. Galen Ives for taking up the challenge and giving such an excellent Blackie Memorial Lecture.

Mrs. Enid Segall from the British Homeopathic Association also manned a stall displaying a range of homeopathic literature, including past issues of "Communications" in which previous Blackie Memorial Lectures had been published. Also central to the success of the occasion was the organisational work done behind the scenes by Nicky Gould, working for the Blackie Foundation Trust and Vina Owen of the Hospital's Academic Department in integrating BFT supporters into the evening.