THE BASRA JOURNAL

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The B.A.S.R.A. Journal is edited by;-

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All communications are to be sent to the above address. Articles dealing with the amateur aspects of all the established sciences are welcome, and letters of discussion and comment are always acceptable, and where they are of general interest, unless it is specifically indicated, they may be published.

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EDITORIAL

This being the third issue, the time seems ripe for a backward glance at what B.A.S.R.A. has achieved so far, and an assessment of what is practicable and desirable in the future.

The printed leaflet which heralded our launching listed four aims;- a. to counteract the tendency for scientific research to be pursued solely by professional scientists in increasingly specialized fields. b. to dispel popular anti-scientific attitudes and the belief that the scientific method is not applicable to all problems.

c. to tap the reservoir of creative talent existing outside of research laboratories and overcome barriers hindering the publication of amateyr scientific work.,

d. to prove that, besides affording great satisfaction as a hobby, amateur research can make valuable contributions to scientific knowlege without expensive equipment and often - (as in mathematics and theoretical science) - with no equipment whatsoever.

Are we going about achieving these aims in the right way, and if not, why not?. Are there other aims we ought to set ourselves? Does the whole idea of a British Amateur Scientific Research Association need "re-thinking" or modifying?. Every member is invited - indeed, urged, - to write in stating their views on these questions in time for the next issue. Our mode of development, as stated in a previous editorial, must depend upon the mode of participation of individual members, and some members, unfortunatly, are hardly participating at all. These members, particulary, are urged to write. Every society tends to go in the direction desired by its most vociferous members, (eg; in Society at large, by MP's.), who are "not backward in coming forward". To counteract this tendancy (since the "silent ones" may have many admirable qualities, and much good advice to give), let us all be vociferous. Let us shun apathy and have a MASSIVE letter column next time.

To follow this exhortation, here is some information;- Up to now the Association has been advertised through;- DISCOVERY, NEW WORLDS, the H G WELLS SOCIETY, M.E.N.S.A., the BRITISH SCIENCE FICTION ASSOCIATION and a few less-well-known channels. Some members joined after being directly approached. Advertising costs have been kept to a minimum, and in some of the above cases have been nil. A considerable number of requests for free, specimen copies of the journal have been recieved from libraries in England, Ireland, Wales, and the U.S.A. (including the Library of Congress, Washington; the New York public library; the Patent Office, London; and the Atomic Energy Establishment, Winfrith.) We are still slightly "in the red", BUT, more important, membership is still small, and, as the contents of this issue will show, there is a shortage of articles. The Editor has taken the liberty, because of this, of including an article of his own, (submitted after hasty writing to the 1962 "DISCOVERY" Essay Competition,) in the hope that it may be of interest.

This article has already been severly criticized,(justly or unjustly) the the chap who is duplicating the journal for me. With a start like this perhaps it will stimulate discussion.

No article submitted to this or earlier issues has been rejected. The last word seems to have been said on the subject of duplication versus printing. The Journal will continue to be reproduced by duplicator until,(if ever), its readership becomes very large and can afford to pay printing costs.

An American enquirer asks what is mean't by "scientific" in the title of the Association. Is "philosophy" for instance,included as a branch of science?. The question is hard to answer,but,to preface the next article and two letters in the letter column, suggesting a change of title for BASRA, perhaps some attempt should be made.

Bacon said; "organised knowlege", Gilbert Ryle said "there is no such animal as science.There are scores of sciences", R B Braithwaitss very careful definition,in SCIENTIFIC EXPLANATION, (Cambridge University Press,1953), goes as follows;- "In this book the word "science" will be taken to include all the natural sciences,physical and biological, and also such parts of psychology and of the social sciences, (anthropology,sociology,economics) as are concerned with an empirical subject-matter. It will exclude all philosophy which is not "general science", all history which is concerned merely with the occurrence of particular historical events,and the disciplines of pure mathematics and symbolic logic which are not (except,perhaps, in a very peculiar sense) about empirical facts at all. This sense of the word "science" corresponds pretty closely with the most frequent modern use of the word (whose first public use was perhaps in the title of the BRITISH ASSOCIATION for the ADVANCEMENT of SCIENCE, founded in 1831), it is synonymous with "natural science" if man is included within nature".

The surprising thing about this definition is that "the queen of sciences" (mathematics),amongst other things,is excluded. It seems reasonable to suggest that our definition should err, (if at all), in being too broad rather than too narrow. Members criticisms are, however,invited.

This issue contains an article describing some of the ideas of Mr. Christopher Sparks, who is connected with the "SOCIETY FOR INNOVATION RESEARCH", "INNOVATOR MANAGEMENT INFORMATION LTD.," and the "INNOVATOR TRUST FOUNDATION", launched in Ilford on May 1st 1963, with a fund-raising office at;- 185 Ley Street,Ilford.

According to literature recieved the latter is "one attempt to translate into practical terms the general policies and ideas-coordinating proceedures advocated by Clavell Blount,whose pioneering and visionary scheme is fully described in his book, "IDEAS INTO ACTION",published in 1962 by Blair Press Ltd., " Readers interested in obtaining furthur information are advised to write to Mr Sparks, (see also the letter column). Mr Sparks' plans however, seem to require considerable funds for their execution.

On the subject of funds, it should be mentioned that B.A.S.R.A has recieved offers of small donations which have been declined. (needless to say such evidences as these of interest in BASRA were very much appreciated). Some members apparantly feel that, in order to expand, such donations should be accepted, and, in fact, invited.

Once againg, will members please write stating their views?. Any donations sent for specific purposes, (eg., to go towards suggested advertisments) would probably be accepted, as also would offers of assistance in any non-financial ways that the members like to suggest.

James England.

"There are books of which the backs and covers are by far the best parts" Charles Dickens.

"When the last Puritan has disappeared from the earth, the man of science will take his place as a killjoy, and we shall be given all the same old advice, but for different reasons".

Robert Lynd.

"It is most important that the public as a whole should have the opportunity to follow the methods and results of scientific research consciously and with proper understanding. It is not sufficient that each new discovery should be adopted, developed and applied by a few specialists only. The limiting of all scientific knowlege to a small group kills the philosophical interest of a nation and leads to intellectual poverty".

Albert Einstein.

"In the field of science there is all manner of faith-destroying poisonous propaganda, set out by foolish or wicked men. Having settled once and for all in our minds that God truely does exist and that the Bible is His inspired Word, we will not poison our minds with theories that deney these truths, simply because they parade under the name of science. That is, we will not consider and such, wholly disinterestedly, as if we wanted to determine whether they are true or false. We know they are false! Our only concern therefore will be to prove them so.

--- AWAKE! (Jehovah's Witness' publication.).

(thats what I like. Good, clear, unbiased thinking.
K M P C).

(the above shorts winkled out for your interest by J England).

SEEING DOZENS

by David A Sparrow.

A scientist,especilly one who does not live entirely by taking the laws created by others for granted,but looks into the facts and endevours to provide new laws for a changing world,needs a concept or mental image so that he can see in his minds eye the inner workings of nature. Except to a Pure Mathematician a number is only an adjective which can be related to the matter or forces with which the scientist is concerned,be they atoms or galaxies,and this number also the scientist needs to see clearly and simply in his mind. The easiest way for most people to do this is to visualise a sequence of numbers in the shape of something which they see every day - in the case of numbers the simplest thing is the face of a clock,which has twelve divisions.

When the metric system fixed the number of factors into which everything should be divided as ten,it was chosen,not because of its adventages but because everyone had always counted in tens. It was - and is - evident that some sort of system is necessary,and it is certainly better than no system at all,but we should be sufficiently pliable to change to a better system if and when the limitations of the old one become evident.(These limitations set back the developement of computers for several years before the change to a binary system was made).

A scientist should take the facts and adapt his symbols to them; in the 1790's the ardent Decimalist tried to take his ten symbols and adapt the facts,wanting ten months in a year,ten hours in a day, and a hundred "grades" to a right-angle - he would also probably have wished for five different directions!

The Duodecimal Societies recommend that the numbering system be adapted to fit out three or four dimensional world - but unfortuneatly,"10" has become symbolised in peoples minds as ten,abd they cannot unthink it. By supplying two more symbols,(for convenience when typeing), indicating ten by ⊅" and eleven as ↊ we could put "10" (meaning one dozen) at the top - for instance - of the clock, and this could then be the base for future systems of mathematics,weights,measures,times,and directions,and anything else you wish to concieve.

The advantages of useing a base of twelve for counting have been independantly expressed over several centuries and in many lands. The present wave of duedecimal interest may be said to stem from an article "An Excursion in Numbers" by F Emerson Andrews,published in the Atlantic Monthly,October 1934, Since then Terrys Duodecimal Arithmetic,(containing mathematical tables in dozenal notation for all common and many uncommon uses),and "The Dozen System", as well as numerous other articles have appeared,including talks on the BBC by Prof. A C Aitken; Jean Essig, (Inspector-General des Finances) of France, who published his "Douse Notre Dix Futur" in 1958. (A book which,with typical French logic,deals with the theory and practice of base twelve). Perhaps the first substantial book in English on the subject was Thomas Leechs' "Dozens versus Tens" which was published in 1866.

Sir Isaac Pitman had already tried to induce his shorthand students to use duodecimal counting as early as 1855; Herbert Spencer made provision in his will to oppose the metric system in England.

Twelve is the smallest number having four exact divisions,- 2,3,4,6,. Note that the first three of these divisions are the lowest in sequence after one,and are therefore the ones we use most,especially in division. Mehtal calculations are aided,for all multiples of 3 and 9 end in 3,6,9 or 0, and of four or eight in 4,8 or 0, and of 6 in 6 and 0. Greater quantities are contained in avgiven number of digits.

To illustrate:- compare two cubes,one of which is divided into ten,and the other into twelve parts on a side. The cube whose side is ten can be divided into 8 smaller cubes,whose sides are 5,125 cubes whose sides are 2,and 1,000 cubes whose sides are 1.

The cube with a side of twelve gives 8 cubes to a side of 6, 27 cubes to a side of 4, 64 cubes to a side of 3, 216 cubes to a side of 2, and 1728 cubes whose sides are 1.

But even more apparant is the possibility of combining rows of intergal cubes for most efficient packing; because of the two extra factors possessed by twelve.

Expotential numbers are just as compatable with the duodecimal system,the ptinciple difference being in the relative rapidity with which cardinal values increase to the left of the (duo)decimal point, and the coresponding rapid decrease to the right,Compare these simple fractions;-

DECIMAL	.5	.25	.125	.0625	.03125	.015625
DuoDecimal	.6	.3	.16	.09	.046	.023

Take one third of these,

Deci	.16667	.08333	.041333	.020833	.010416	.0052983
DuoD	.2	.1	.06	.03	.016	.009

Take one fourth,

Deci	.125	.0625	.03125	.015625	.0079125	.00390625
DuoD	.16	.09	.046	.023	.0116	.0069

The nearest simple fraction that can be handled as easilly in decimals as in duodecimals is one fifth. But a fifth owes any importance it may have to the fact that ten is used as its base.But this is too complicated for simple application; who can divide a square,a cubem a line segment or even a pie into five equal parts as easilly as he can into two, three or four?. Even six because of its symmetry is easier to use than five. To put it shortly,ten is "unsatis-factory" for use as a base number just because it has not enough factors.

Duodecimal arithmetic adds efficiency where-ever numbers are used, by men or by machines. Calculating machines,for example,which are being used more and more in scientific research and systems,would be speeded-up at the input,encoding,decoding and the output stages.

In considering a report of any democratic referendum such as that of the British Association and Chambers of Commerce, or of practically any organisation, it should be remembered always that respondants are aquainted only with that part of a present system which they happen to be useing.

Lacking other experience they cannot be expected to consider objectivly, or knowlegably, an alternative system without a great deal of study, and time (which they never seem to have enough of), or of asking themselves if a better system does in fact exist.

To sum up. Everyone, everywhere, is useing a system of counting in dozens at least some time during the day - when you start looking for them it is surprising the things that are always numbered in dozens, even the keys on a piano board, (including the sharps and flats) - and yet we continue to use only ten symbols.

The Duodecimal multiplication square is easier to learn than that for ten. You may at least like to give it a try, making use of the two extra symbols?.

Then, as I hope, you become interested, please let,

B R BISHOP
Secretary,
The Duodecimal Society of Great Britain,
106, Leigham Court Drive,
Leigh-on-Sea,
Essex.

know. And even if you can't afford to pay the 12/- a year subscription, or if you don't want to pay it, he will still send you furthur information, about what has already been done, or about anything else to do, with, duodecimal arithmetic.

David A Sparrow.

Well, the Americans have had another space sucess, marred it is true by the automatics failure, and I can't help wondering into which particular bit of woodwork all those people have crawled who were saying, only a very few years ago, how Man Was Never Meant To Go Into Space etc.,

Even the Astronomer Royal hasn't pronounced lately, as he did about 2-3 years ago, that, astronomical distances being what they are, man could never hope to journey to the planets.

I wonder too, in 2,500 or so, how many other lads of similar ilk will embarrasedly do an ostrich act when the first ship sets of for Proxima Centuri, or some more likely star.

Of course, someone from Out There may visit us befor then.....

K M P Cheslin.

"WHAT IS SCIENCE FOR?"

"What is Science for?. A true scientist must begin, surely, by asking what, exactly, the question means. A scientists' essay ought not to be quite like the essay of a literary man which may, legitimately, leave terms undefined, questions unanswered, and, after "signifying nothing", end in a barrage of metaphor. A scientists' essay ought to be primarily concerned with discovering truths.

What then does the question mean?. Science has several meanings. It can mean, simply, "organised knowlege". It can mean "the pursuit of organised knowlege". And it can mean "the principals regulating the pursuit of organised knowlege." For the purposes of this essay it will be assumed to mean the second of these, since the question is less meaningful with either other definition. Supposing, for instance that the third definition were chosen, we would obtain the question, "What are the principles regulating the pursuit of organised knowlege for?". - which can be answered simply;- "To be used". Principles, like most man-made things, have utilitarian functions, and the question;- "What are they for?", is easilly answered. Thus the question;- "What is glue for?", is easilly answered;- "To stick things together". The question;- "What is the pursuit of knowlege for?", on the other hand is less easilly answered. By it we mean;- "For what reasons do we, or ought we, to pursue organised knowlege?. What are, or ought to be, its uses and purposes, its goals and objectives?" The question is rich in meaning.

There is, of course, a sense in which the question;- "What is x for?" - where x may be anything - can never be answered. It is the sense in which we mean;- "For what ultimate purpose, or with what ultimate object, did the Creator create or allow to be created x?". When we ask;- "What is life for?" of "What is the Universe for?" we normally intend this meaning, and the true scientist must, surely, profess ignorance of any answer there may be. He must concern himself solely with the use of things to Man. This applies to science as much as to any other thing.

Again, as Poincare said, science speaks "in the indicative and not in the imperative". It is amoral, and cannot decide our goals for us, nor distinguish what is "right" from what is "wrong". It can tell us <u>how</u> to do a thing, but never why we <u>ought</u> to do it. For this reason, although an answer to our question may be found, it cannot be a <u>scientific</u> answer. - unless we allow Science to trespass in hitherto forbidden fields. Ought we to allow this? Or must we create a meta-science to "justify" Science as there is a meta-mathematics to "justify" mathematics.

Befor considering this, let us consider some of the views that have been expressed by great scientists of the past, concerning themselves and their discoveries.

Newton, as everyone knows, said;- "I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

Faraday, when asked the use of a certain discovery, made the equally celebrated retort;-"What is the use of a new-born babe?".

Newton's meaning is clear. He was expressing his sense of wonder at the vastness of his "ocean of truth" and his delight in discovery. His devotion to science was something he did not feel it necessary to justify.

Faraday's meaning is less clear. Probably he meant;- "A new discovery will ultimately find uses, just as a new-born babe will ultimately become a useful citizen." Many scientists have thought of science this way, - as a religious activity and end in it self worthy of pursuit for its own sake, - and mathematicians have been known to admit with pride that their discoveries (particulary in the Theory of Numbers), would probably never be of any use (although they would never do harm) to anyone.

Is there anything wrong with "Science for Science's sake?".

The answer, perhaps, is suggested by another quotation. Bacon said;- "Knowlege, if it be taken without the true corrective". (he was referring to charity) "hath in it some nature of venom or malignity". In other words, as already mentioned, it is amoral, and ;- "A little knowlege is a dangerous thing", The consequences would be disasterous if all scientists were so intent upon pursuing their favourite branch of science "for its own sake", that they omitted to apply their knowlege to the relief of sufferings around them. Fortunately, since governments ensure that this state of affairs does not arise, there is no reason why scientists should not believe what they please. It is impossible, after all, to determine in advance the consequences of a discovery, and even supposing that a scientist were to set out with the deliberate intention of making only "useless" discoveries, he would have no guarantee of success. Some of the most apparantly "useless" discoveries have had the most far-reaching consequences. Practical applications have been found even for discoveries in Number Theory. Nevertheless, it ought not to be forgotten that, (to papaphrase a biblical saying) "Science was made for Man, and not Man for Science".

It must be admitted, also, that the phrase "Science for Science's sake" has very little real meaning. When a scientist speaks of "Science for Science's sake", what he really refers to is a belief in "Science, for the sake of the satisfaction one gets out of Science". - a selfish motive which in a true scientist ought to take second place to motives of altruism.

It would be easy to depict the "man of Science" (as many writers have done) as a saintly individual, devoid of all human weakness, absolutely honest and dispassionate, engaged with infinite patience and humility in unlocking the secrets of Nature for Mankind whilst base administrators and polititions educated in the Arts do their best to turn their "noble" discoveries to evil use. It would be equally easy to depict the scientist (as many anti-scientific writers currently are doing) as an amoral individual with a single-track mind, prone to insanity and inclined to hate his fellow men, restrained only with difficulty by administrators, polititions and the forces of law and order from exploding hydrogen bombs everywhere and engaging in human vivisection. In actual fact, the average scientist is neither of these individuals. He is a man, with all the normal drives and motivations of other men. He is just as likly to be good or bad, just as likely to behave emotionally and irrationally outside the field of his speciallity as any other man.

He is not "inhuman", and his science is not an "inhuman" activity. Science is, after all, only an elaborate means of satisfying Man's "exploratory drive". No man ever becomes a scientist out of a "pure" belief in "Science for Science's sake". He becomes a scientist because he wants to become one.

In fact, no purposeful activity of any kind is ever performed except in response to a desire to satisfy some basic human drive; and when we ask "What is x for?" - no matter what x may be - the only honest answer that a human being can give is that it satisfies, directly or indirectly, a basic human drive. The "ultimate" question;- "What is drive-satisfaction for?" (which includes "What is happiness for?", What is pleasure for?, and "What is the relief of pain for?") can have no answer, because drive-satisfaction is the ultimate, and only true "end-in-itself". A meta-science to "justify" Science would have this as an axion.

The short answer to the question "What is science for?" is that it is for whatever men want it to be for. But men may value it for different reasons. To a power-mad dictator it may be valued only in so far as it enables him to increase his power. To a hedonist its pursuit may seem pointless unless it can increase his leisure and multiply his means of entertainment. To a nihilist it may provide the means whereby he is able to destroy the world. "Knowlege is Power", but power corrupts; and science can easily become the accomplice of every kind of evil deed. To decide how to use it both rationally and ethically we would have to decide how to use it for the greatest good of the greatest number of people, both now and in the future. This would be a large problem; but scientists are used to solving problems. The decision, however, would rest with the polititions and administrators who are seldom scientists. Would it be preferable if the situation were different?.

The scientific method is the best method yet devised for the solution of problems, and all problems are amenable to its treatment, be they in existing Science or in fields currently regarded as outside the province of Science. We have seen that the Scientist is not "inhuman". Neither is he "supernuman". His judgement is often valuable only within his special field. No sane person would be likely to suggest that introverted physicists be taken away from their laboratory benches in order to become polititions and administrators. But critics of the idea of government by scientists forget that the study of the irrational side of Man's nature, and other matters normally associated with politics, are themselves branches of Science and it is possible to train specialists in them.

The world is full of men and nations with presuppositions that have never been scientifically analysed, and of emormous problems that have never been scientificaly approached - the problems of world overpopulation until quite recently was one of them. Science is more deserving of pursuit for its own sake than any other thing (e.g. Art for Art's sake, Goodness for Goodness sake), but for as long as there are starving people in the world whom Science could feed, for as long as there are diseases that one day Science may cure, "Science for Science's sake" will surely be wrong. Equally, the idea that a scientist should hand over his discoveries to the world, to use a simile flattering to scientists;- "like an adult giving a child matches", will be wrong for as long as we live in an imperfect world.

It is natural for men to seek a goal and principles that are worthwhile. It is natural desire to "progress". And even if we rid men of all "false" ideals, there will remain the desire to substitute something in their place.

Science, pursued diligently enough and long enough can cure all the worlds ills. It is the only thing that can. Perhaps, someday, it will do this, making a Paradise on Earth, and Man may choose "Science for Science's sake" as a new and final goal.

But that will not be for a long, long while.

J ENGLAND.

BOOK REVIEW

The Scientist Speculates ; An Anthology of partly-baked ideas. General Editor ; I.J.Good. Published by Heinman. 50/-. (412 pages. 123 partly-baked ideas).

Recent articles in this and other journals have reflected the view held by many scientists, both amateur and professionals, that speculative thinking has an important part to play in scientific research. Evidence for this point of view is provided by this new book. The products of speculative thinking have appeared in book form before but nothing quite so comprehensive as this work has been attempted.

Naturally many of the ideas presented are in those fields where speculative thinking has been most prevalent, (eg., cybernetics, parapsychology, and exobiology). This does not mean that the contributions are restricted to these fields. The ideas range from the serious to the satirical, but all are thought provoking. The book is divided into nine sections, they are as follows;-

1. Ideas about Ideas.
2. Information about Information.
3. Minds, Meanings and Cyernetics.
4. PSI.
5. Sociology, Economics, Operational Research and Games.
6. Biology.
7. Physics.
8. Mathematics, Logic, Probability, and Statistics.
9. Technical Ideas.

The contributors appear to be mostly professional scientists, many well known in their fields. One of the main outlets for speculative thinking is science-fiction, so it is no surprise that several contributors are also authors of science-fiction. A BASRA consultant, Alan J Mayne, is associate editor and also contributes many interesting ideas, particulary to the PSI section.

The aim of the book, as stated in the preface, ..."is to raise more questions than it answers", it should certainly achieve this. No doubt dissussions of the more serious ideas presented will take place in this and other journals. One can only hope that they result in the publication of anthologies similar to this, and that the new anthologies will contain partly-baked ideas from amateur contributors.

J.B. DUCKER.

end.

THE OLD STRAIGHT TRACK,

a topic for amateur archaeological research.

Archaeology, like certain other branches of science, such as Astronomy, is one in which the amateur has always been prominent. If it were not for the enthusiastic members of the local archaeological societies giving up their spare time to help with excavations very little research would be done. It is therefore fitting that, in this article, I propose to deal with a certain aspect of archaeology which has gone neglected by the majority of professional archaeologists, although, if true, we may have to change many of our ideas about early man, which may indeed be the reason why they are so unwilling to accept it.

The discovery by Alfred Watkins, a Hereford archaeologist, in the summer of 1921 meant that, for the first time, ancient monuments such as stone circles, and standing stones, need no longer be considered separately, but as parts of a planned whole.

Alfred Watkins, - who was, incidentally, a Fellow of the Royal Photographical Society, - discovered, first on the map, and later corroborated by evidence on the ground, that many prehistoric monuments in the neighbourhood of Hereford - such as stone circles, standing stones, tumuli and the edges of ancient camps, - fell into amazing alignments, not just the accidental alignment that could be accounted for by coincidence, but exact alignment of four, five and six sites that just couldn't be accounted for in that way. They must have been placed there purposefully. But for what reason?.

That wasn't the end of the matter however, for soon Alfred Watkins found that churches, wayside crosses, pine clumps, crossroads and stretches of ancient road or track also fell on the alignments. At first he was puzzled, but simple reflection led to the solution. In early Christian times (AD 601) as mentioned in a letter from Pope Gregory to Abott Mellitus, it was the custom for churches and crosses to be set up on the sites of standing stones - which were pagan worshipping places. An example of a standing stone near a church occurs in the churchyard of Rudston, in Yorkshire.

The stretches of road and track following the alignments gave Alfred Watkins a clue as to their purpose. Since the road was going from one mark-point on the alignment to another, the travellers who made the original track must have been able to see one or both of the mark-points. Coupled with this, the fact that most of the mark-points were situated on the tops of hills and ridges led Alfred Watkins to the following conclusion.

His theory was that in prehistoric times, probably about 3,000 BC, the people of that time set up these stones, etc., as mark-points for a system of straight tracks from place to place. A traveller caught sight of the mark-point on the next ridge and walked towards it. When he reached it he could see the next mark-point, on the next ridge, and so on. This of course will help to explain why the pine clumps occur on the alignments. Thdy would be exellent markers for a traveller, and, if planted in a clump away from other trees, there is no reason why they should not have continued to the present day.

One more thing, Alfred Watkins discovered several names which occured very frequently on these alignments, and nowhere else, such as Coldharbour, Dod, Black and others. Without going into their derivations, several reasons led him to call the alignments 'leys', and that is what I propose to call them in the remainder of this article.

I have not room to describe the various theories that have been put forward, but I think that Alfred Watkins' is still the most popular, although many favour the theory that they have a religious basis or that they were laid down as an early survey.

What I propose to do is to give those interested some working instructions on finding leys. Everyone can do this as there are leys in all parts of the country, especially the South-East.

There are two lines of research, both of which are essential. The first is mapwork, which is vital to check the accuracy of the alignments. The best maps to use are the Ordnance Survey 1" or 2½", preferably flat, - ie;- not of the mounted or folded varieties. Bearing in mind the points which count on leys, ie:- stone circles, standing stones, mounds or tumuli, edges of ancient camps, churches, wayside crosses, "holy" wells, crossroads, and lengths of present-day road or track, try to find an alignment of at least four of these points, and it must be exact. The best way is to use a stretched, black, cotton thread. When a ley is found mark it lightly in pencil and continue to the edge of the map.

In an hour or so you may have quite a network, which will probably include systems of parallel leys and places where many leys converge, known as ley "centres". You could also perhaps try continuing them onto neighbouring sheets.

The second line of research which you can follow is fieldwork, which many times has proved what had been suspected on the map. There are various ways of going about this. You may decide to follow a promising ley and look out for pine clumps, mark-stones or tracks which may not be marked on the map. Another fruitful line of enquiry may often be to visit the sites of ley "centres" found on the map. It is a wonderful feeling when you find, say, a Scots-pine clump at the exact spot where the leys cross on the map.

Since the professional archaeologists did not seem to be very interested in leys I, and a group of friends, formed, a year ago, the Ley Hunters Club, to study the ancient alignments in a scientific way. Which included the compilation of a National Ley Index. The Index is to be a record, eventually in card index form, of all the leys so far discovered. It is to be based on sheets of the Ordnance Survey 1" Seventh Series map and is eventually to cover the whole country. So far we have just started, on Salisbury Plain, which has a very interesting equilateral triangle arrangment of leys and also an extraordinary alignment of ancient camps.

I would like to ask all those who are interested after reading this article to help us in this work. I feel that one reason that the subject may have fallen into disrepute among professional archaeologists is that in the past enthusiasts have relied too much on map evidence and not enough on fieldwork. That is why we are encourageing people to go out and follow leys on the ground.

If you are at all interested in helping us in any way, or even if you would like to know more about ley hunting, please write to me at;-

12, HEATHCROFT AVENUE.,
SUNBURY-on-THAMES,
MIDDLESEX. Philip J Heselton.

SOCIETY FOR INNOVATION RESEARCH

Translation of an article which appeared in the Italion national daily paper "IL GIORNO", on 23-3-63, by that papers' London Corespondent, Aldo Centis, after an interview with Christopher Sparks, following the "OBSERVER" article dated 3-3-63.

NATA LA SCIENZA DELLA COSE NUOVE - L'INVENTORE LA CHIANA KAINOLOGIA.

(BIRTH OF THE SCIENCE OF NEW THINGS - THE INVENTOR CALLS IT KAINOLOGY)

Two K's (Kruschev & Kennedy) dominate our destinies today .. but soon a third K will assume important significance in the world of human relations .. Kainology.

This is the firm conviction of the ideator of this "new science", whose name is Christopher Sparks, a man full of enthusiasm which is indeed contagious and who, for over 3 years or so, has given up a renumerative occupation to withdraw himself and think in an isolated cottage, from whose windows one can overlook the green, undulating Essex landscape.

The term, Kainology, explains Mr Sparks, is derived from the Greek 'KAINOS' which means 'new'. This discipline proposes the organic study of the processes preceeding invention, 'creativity' and innovation, and the reactions to all that is new in the multiplicity of humam activity. We are living in a rapidly changeing and changable world and man is continuously confronted with the necessity of improving his conditions and developing new instruments to do so. There is an urgent need for innovating ideas in every field, technological, socisl, artistic, scholastic, administrative, political... to mention some of the most important.

It is stated that every individual possesses ideas - potential and embryo - which indicates the need to discover how best they can be stimulated, expressed, recognised, evaluated, and applied. In other words, how best to facilitate their proper formulation on one hand, and to create an organisation for their use on the other hand; thus introducing a DEMOCRACY OF NEW IDEAS, to which ALL may contribute what they can, without inhibitions of varied nature, to the COMMON GOOD.

Mr Sparks, who states that he has no political interest whatsoever, has founded, in January last, a SOCIETY FOR INNOVATION RESEARCH which is attracting the interest of industrial research men and other professional people. The working programme is comprehensive, i.e. to study how ideas arise by studying the psychological nature of creative thought (including bibliographic studies of Inventors and Innovators) and the methods for co-ordinating ideas and their useful application.

In Mr Sparks' programme (he is writing a book about Kainology) great importance is laid on that this discipline may become integrated into the academic curriculum, with the twofold function of expanding anthropological studies and to constitute it as a science, interdisciplinary in charachter.

At the basis of his cocept of the 'democratiastion' of ideas he sees the principle of the 'Suggestions Box' as at the time of the Venetian Republic, where the subjects could present their critique via the BOCCA DEL LEONE. The founder thinks that a suggestions box should be introduced not only in every industry, but in administrative, State, etc., organisations, with specialised personnel able to evaluate ideas and make potential and material recieved which could contribute to vital new ideas.

The human mind, according to the concepts expressed by H G Wells, says Mr Sparks, can be divided into two categories;- a majority of analytical turn, past-orientated, evaluating the present and its phenomena based on experience, and a second category of mind, being creative, future-orientated, continually at the search for an improvement of the existing order, minds considering that the present is not material, but the future. Minds making the question WHY NOT ? WHICH OTHER SOLUTION CAN WE FIND?.

Kainology aims at stimulating this second attitude of mind, in order to bring about a fecundity of ideas projected towards the future.

Of course, there will be any amount of critics who will call Kainology abstract, pseudo. But this is only normal. The work of the founder is hard enough, comments Mr Sparks, but on the other hand the fundamental principle of our programme is that we can ask WHY NOT?, rather than WHY?, in order to find a solution.

end.

Its a pity that more people, who come under the heading of "scientist", don't employ a science-writer to put their works into a more readable form. I'm thinking now of a book called "THE STONE AGE IN NORTHERN AFRICA" in particular. For although I found, after somewhat of a struggle, the book to be extremely interesting, it was pretty rough going.

Now, I've read books on this subject befor, and in most cases they are easilly understandable. Its just that some people, no matter how learned in their particular field, just haven't the knack of writing in other than terms of their own particular...jargon?.

This I feel is one of the things that just should not happen. For obviously, to stretch the point, it is not much good if a man finds a new angle, developes a new technique, makes a new discovery, and is unable to pass on his information. Its a communications failure.

Which of course leads on to the wider field of the problem which confronts so many specialists, that of ever managing to find the time to catch up even with the latest developements in their own fields. Any of you professionals could, I'm sure, tell us that you have this problem, there are so many journals and papers floating around that you never can get around to more than a fraction of them. Then, how many of you can, for instance, read Russian or Chinese?. Because, while the Russians would hardly allow anything strategic into a jounal of free distribution, there must be lots of work Russian lads are doing which is directly related to your field. Geology, Metrology, Archeology etc.,

Here is a problem for you BASRA types to chew on.

K M P Cheslin.

LETTERS

..... For some time past I have been disturbed by the march of the Organisation Man, especially in the two U.S's, though perhaps the Russians are somehow better off in this respect than the Americans, - or is it just that I have little direct experience of their research?. We seem to be threatened by the developement of a mind that works computer-wise; you feed in the information tape and get a programmed reply, but no intelligent analysis.

In fact, at the last B.A.A. meeting I formulated a "law" --- "INTELLIGENCE DECLINES IN PROPORTION TO THE TECHNICAL INFORMATION STORED IN THE BRAIN", which is substantially what you say in your "manifesto". This law could be supplemented by another,--- "EXCESS OF PUBLIC FUNCTION MAKES CREATIVE THOUGHT IMPOSSIBLE".

It has long been the scientific glory of Britain that from the Middle Ages, and the gentlemen-scientists of the 18th century onwards, it has produced so many brilliant ameteus.....

Yours sincerely,

V.Axel Firsöff,
7, Wells Road,
Glastonbury,
Somerset.

..... I was first introduced to B.A.S.R.A. when you wrote to my father recently, and I find myself in strong sympathy with its aims and practices. As an 18 year old, sixth former, just embarking on a course of higher education which would destine me for a scientific career, I have given some thought to the status and responcibility of professionalism. I see the world of science becoming increasingly choked by the mumblings of institutions, and so some organisation giving a voice to scientific unorthodoxy comes as filling a long-felt need. My science is pursued for pleasure, and as I intend to remain as amateur and unchoked as possible, you can always count on my support.

My interests centre on chemistry and psychology, but at one time I also dabbled in number theory, with the results enclosed. I Would be particulary interested to establish if my theorems are;- a. demonstratably true or false, b, original, c, different from conventional trial and error proceedures. ✝ .

You are free to publish anything you consider of interest. I have more recently done some research in the field of psychology, and claim a relation between colour preference and personallity. I have not yet written an account suitable for publication, but I enclose a summary which may be of interest.....let me wish you and your organisation every sucess.

Yours sincerely,

G.I.Firsoff.

✝ The Enclosed Theorems Were Found To Be True, But Not New, And Therefore Not Published. ✝

..... Dare I suggest an article from one of your geneticist members about the genetic damage caused by nuclear weapons tests and other forms of atomic foolery? The facts are hard to get at, and in fact it seems that they are being hushed-up. How much radioactive krypton are we breathing, and how much radioactive iodine and stronium 90 gets into our food? Is it or is it not true that human deaths due to radiation have gone up by a million or more per year since the first nuclear test?. A purely factual article answereing such questions as these, and making some extrapolations into the future, would surely come under the heading of "amateur scientific research", and by publishing it you would be performing a useful service.

Sincerely,

C.N.D. Sympathizer.

..... Re;- the Journal, -- yes, this is a considerable improvement on the first issue.....I must confess that some portions of the journal were, to me, difficult reading. I like Will Ealy's article on "Amateur and Professional Research", also Burn's "Mental Health in Science", the letter column I liked best of all. This could be the most interesting feature of the journal, where different points of view could be given a good airing, and where new subjects for disscussion could be raised. All the articles would, I think, inspire any newcomer to the particular branch of science delt with. "Topics for Amateur Research in Entomology", for instance, although short, was extremely lucid and to the point, and would certainly arouse interest.....Lets have more articles like this please. And don't forget the absolute beginner. We want articles which will get the reader out of his comfortable armchair, and saying to himself;- "Why, I could do this", and get cracking accordingly.

Yours sincerely,

H Martin,
20, Marwood Drive,
Barnard Castle,
Co. Durham.

..... I can't really enlarge upon my suggestion for workshop facilities at present. I think that space and shelter are useful for some projects, and of course special tools - for example, brazing equiptment. It might also encourage people to get together, thereby increasing the interest.

There is one idea I have that might enrage all your members, ✝ that is that if the society is to grow I would like to see its scope widened early by calling it "THE BRITISH AMATEUR RESEARCH ASSOCIATION" --- To encourage research in a scientific manner. However, it is a bit of a nerve to join a society and immediately to suggest that it changes its name, so perhaps you should ignore that. -----

I read the journal with interest and would like if possible a list of members indicating those who don't mind being visited. Any are welcome to call on me for a chat,- no notice is necessary, though I might be out or otherwise engaged. If you like to send me some application forms I will try to get them distributed.

Yours sincerely,

Peter Close,
Flat 3, 14 Kings Rd.,
Salisbury, Wilts.,

✝ outraged and other comments are invited ✝

..... The aims, policy, potentialities and need for BASRA I heartilly endorse, but I question in this myth-ridden society of ours, based on the power of Mammon, your apparant resignation to running the society and its magazine on a shoe-string and relying on voluntary part-time support. This is not to mean that I think duplicated publications are not quite adequate for your purpose and, if necessary, for all time. (In Russia practically all research reports, I understand, are still duplicated). Nor am I decrying keeping membership subs to a minimum, nor enlisting voluntry labour... However, having been a member of many voluntary non-profit making groups in the past, I am now firmly convinced that they must attempt to develope into quasi-commercially operated organisations....I believe that a bussiness approach to voluntry society operations is the only way for them to expand and place themselves in a position to create a wide impact... I would say to you therefor -- take a fresh look at your brilliant idea, much more important than mine in many ways, since potentially your BASRA could grow into a vast interconnected society of amateur researchers leading to the age of the thinking worker, -- a society of amateur researchers in every village and hamlet....

You have invented a mechanism for bringing to light new ideas and ordinary people with constructive thoughts. I feel you would have a wider appeal if, for instance, you had been called THE BRITISH AMATEUR RESEARCH ASSOCIATION. The word "scientific", I think, tends to dissuade the vast number of people who, although using a methodical approach to research, do not like to think of themselves a "scientists". Actually "scientist" or "scientific" tends to have a rather restricted meaning...

A book by Hayward in 1916 advocates that there should be a system by law whereby any citizen who has written a thesis of 5,000 words containing some new theory or plan, etc., should be able to approach 5 locally appointed people who would be empowered, if they agreed that it showed promise, to commission the spending of a small quantity of money in order that at least 50 duplicated copies be made for distribution to certain universities and libraries. In other words, what you are trying to do in the editorial policy of your journal, ie;- to provide a platform for people with ideas, would, if Haywards plan were adopted, form a standard practice in the community.... S,I,R, I.MI. and I.T.F ✱ are simply three ways in which I am trying to tackle the problem of getting BASRA, or rather the BRITISH AMATEUR SOCIAL SCIENTISTS ASSOCIATION into action in every locality....

Best wishes,

Christopher Sparks,
Hon., Sec.,
Society for Innovation Research,
Bishop's Hall,
Lambourne End,
ESSEX.

✱ members interested in the social sciences are strongly recommended to write to Mr.Sparks at the above addrss. See Editorial ✱