RECIPROCITY

Published By:
The New Science Advocates
P.O. Box 223
Watervliet, N. Y. 12189

Number 3 January 1972

THE VIEW FROM ABROAD

"Some critics would have us believe", says the author of an article in the Scientific American (Dec. 1961) "that social conformity is exclusively a U.S. phenomenon". Although this author objects -- quite justifiably -- to the use of the term "exclusively" in this connection, the mere existence of the belief to which he refers emphasizes the strength of the pressure for conformity in American life. Because of this bias against departures from orthodoxy, the scientific journals in the United States are effectively closed to any new development of an unconventional nature such as the Reciprocal System of physical theory. Those who read only the domestic publications will find no book reviews (except in some journals of limited circulation), no supplementary articles, no letters to the editor, nor other references to this system of theory, and for this reason may very well get the impression that the work is being ignored entirely by the scientific community.

Fortunately, this is not true as a general proposition. To the extent that it is a fact, it is true only in the United States. In every foreign scientific center there are individuals who, like the many American members and friends of the New Science Advocates, are favorably impressed by at least some aspects of the Reciprocal System and convinced that more effort ought to be devoted to understanding and developing it. Unlike their counterparts in the United States, however, these foreign friends of the new system have access to the journals, and each new development in the theory gets appropriate attention. In order to give those of our readers who do not peruse these foreign journals regularly an idea of the kind of coverage that is being given abroad, we are appending to this issue a selection from among the most significant of these items.

As pointed out in our August issue, we do not expect that a revolutionary new theory of this kind will meet with immediate acceptance. All that we are asking at this time is a careful and critical examination of the theory and its consequences. The conclusions reached by Professor Schmeidler in the book review from the Naturwissenschaftliche Rundschau are therefore definitely in line with our own position. The editorial from the Scientific Australian makes the same point in a still more emphatic way.

LARSON'S NOVEMBER LECTURE TOUR

In view of the reluctance of the American scientific journals to publish anything that might appear to countenance a deviation from the "party line", the most effective means now available for enlarging the circle of friends and supporters of the Reciprocal

System is to organize meetings at which qualified speakers can explain the theory and answer questions. We expect that within a reasonable time we will have a corps of speakers available, but for the present it is necessary to depend mainly on Mr. Larson for this purpose, and the New Science Advocates are therefore taking steps to get the maximum benefit from those occasions when he finds it possible to make the long trip from his home in Oregon to the East and Midwest where most of our members are located. The November lecture tour was initiated through the efforts of Donald T. Elkins (Louisville, Ky.) and Ronald W. Satz (Troy, N. Y.) and, as indicated in our September issue, was arranged by Dr. Paul F. deLespinasse.

As usually happens where there is not much latitude for choice of dates, it was not possible to fit all applications into the schedule, but Larson made eight formal talks at five different locations, in addition to participating in a large number of informal question and answer sessions over the lunch and dinner tables, in motel rooms, and even, in some cases, on street corners. The schedule of the formal lectures was as follows:

Nov. 4 - University of Kentucky, Lexington, Ky.
Sponsor, Civil Engineering Department
In charge: Dr. John W. Hutchinson
Nov. 9 and 10 - Rensselaer Polytechnic Institute, Troy, N. Y.
Sponsors: Physical Society and Astrophysical Society
In charge: Ronald W. Satz
Nov. 14 and 15 - Adrian College, Adrian, Mich.
Sponsor - Student Government
In charge: Dr. Paul F. deLespinasse
Nov. 18 - Creighton University, Omaha, Neb.
Sponsor: Physics Department
In charge: Dr. Thomas H. Zepf
Nov. 23 (two lectures)- University of Missouri, Kansas City, Mo.
Sponsor: Physical Science division of Mathematics Dept.
In charge: Dr. Norman Royall and Todd Kelso

MATHEMATICS CAN BE SIMPLE

One of the perennial issues that comes up in the question and answer sessions concerns the so-called "lack of mathematics" in the Reciprocal System. The same viewpoint is evident in many book reviews which characterize the new system in some such terms as "entirely non-mathematical". It is rather strange that anyone should have this impression of a theoretical system in which the basic elements are quantized in the fundamental postulates, and in which, as a consequence, quantitative development goes hand in hand with the qualitative development throughout the entire theoretical structure. But as long as this misconception exists, and seems to be quite common, it may be helpful to point out two factors that no doubt account in large part for this error in judgment.

First, it should be noted that in those cases where the mathematical formulation of existing theory is physically correct the development of the Reciprocal System has only been carried to the point where it intersects the existing mathematical structure. From

this point forward, the mathematics of the Reciprocal System are identical with those of existing theory, and one theory is just as "mathematical" as the other.

For example, the special theory of relativity rests on two postulates: (1) a denial of the existence of absolute velocity, and (2) the constant velocity of light. Postulate (2) is an empirical observation, the validity of which is assumed for purposes of the theory. Postulate (1) is simply a device designed to evade the conflict that otherwise exists between the second postulate and Newtonian mechanics. In the Reciprocal System, development of the consequences of the basic postulates leads to the conclusion that the velocity of light is independent of the reference system, thus arrving deductively at the same statement that Einstein postulated. Further development of the new system then leads to a modification of Newtonian mechanics that eliminates the conflict between the Newtonian system and the constant velocity of light, thus accomplishing the same purpose as Einstein's postulate (2). Here, then, the two theories have arrived at the same point, and since this is the point from which the mathematical aspects of the theories originate, the mathematics of the two systems are identical, despite the significant differences in the conceptual background.

A second reason why the mathematical aspects of the new theoretical system are not always recognized in their true light is that the areas thus far covered in the development of the system are fundamental, and in the context of the new theory the relations in these basic areas are simple. The mathematics are then correspondingly simple. But the modern physicist, accustomed to a lavish use of extremely complex mathematical devices, has forgotten that these simple numerical operations -- mainly arithmetic and algebra -- are also mathematical.

The true situation can readily be seen by consideration of a typical example: the nature of the chemical elements. In a universe of motion, all physical phenomena, including matter, are manifestations of motion. Development of the Reciprocal System, based on the motion concept, leads to the conclusion that the atoms of matter are combinations of rotational motion in three dimensions, and that the different combinations -- the chemical elements -- exist in a series, the successive members of which differ by one unit of motion. This is a mathematical conclusion. A continuation of this development then identifies the order in which the increments of motion are distributed to the different dimensions, thus assigning to each element a unique combination of three numbers representing the magnitude of the motion in the respective dimensions. This combination of numbers is a mathematical expression obtained by a mathematical process. The three numbers of each combination then constitute the values that we enter in the equations from which we derive the magnitudes of the various physical properties: inter-atomic distance, compressibility, viscosity, etc. The application of these number combinations to the calculation of theoretical values of physical properties is another mathematical procedure. The moral of all this is that simple mathematics should not be confused with no mathematics.

REVIEW OF THE CASE AGAINST THE NUCLEAR ATOM
From Discovery (London)
July 1963

Since the beginning of the twentieth century we seem to have accepted, quite blindly sometimes, all experimental observations, whether they fitted into the general framework of Bohr and Rutherford, or not. Whenever they do not, present practice is to try and save the theory by adding further extensions and qualifications.

What Larson does, and with alarming simplicity, is to show that most of the "physical and chemical evidence" to which textbook writers refer, is equally consistent with many other hypotheses besides the theory of the nuclear atom, and is therefore no proof to any hypothesis. Where do we go from here? Bohr's work was a marriage of Rutherford's theory of the nuclear atom with Planck's theory of the quantum. The decree that makes the divorce final is the abandonment of the last vestiges of Rutherford's theory. All that is left is what came originally from Planck. We must go on from here, and the new atomic theory that replaces the nuclear atom must embody the quantum concept in some manner.

To all of us, steeped in the unquestioning adoration of the contemporary scientific method, this is a rude and outspoken book which sometimes hurts. The frightening thing about it is that it rings true.

editorial

A GAP IN THE ARMOUR OF SCIENCE

Are we losing time in recognizing discoveries?

It has been contended that most discoveries are made when the time is ripe irrespective of the actual individuals involved. Scientific history shows that many discoveries including the most important do not fall in this category. The record shows that where major changes in thinking are involved, some one individual usually grasps the situation far in advance of anyone else, and if the work of this original discoverer is not understood or appreciated a great many years normally elapse before some other investigator succeeds in picking up the threads. In the meantime a tremendous amount of time and effort is wasted in following false trails, or else there is a complete stagnation.

As Larson pointed out, the case of Gregor Mendel is a classic example. The discoveries that established the basic principles of heredity were published by Mendel in 1866, but not until his results were rediscovered in 1900 was any attention given to his work. In the meantime this important branch of science simply stood still for thirty years.

Science is not properly organized unless and until it sets up procedures which insure prompt recognition of meritorious new ideas even if they are poorly expressed, timidly presented, and without adequate factual support at the time they first appear. It is the scientific community, acting through whatever agencies are required, that should display aggressiveness—actively seeking out and encouraging new developments rather than accepting only those that force their way in—and it is the scientific community that should be quick to perceive the value of any new thought that is advanced, regardless of whether or not it happens to be presented on a silver platter.

With the development of individual professional groups in science, engineering and medicine the need to protect the profession and its objectives, as well as its responsibility to society, could conflict sometimes when an idea (not necessarily in the terminology of the profession) is presented by a lay "scientist". It is not easy to penetrate establishments with a new idea at present. It is so easy to place the person with the new idea in the category of just another person who believes that the earth is flat. In the same way some of our biggest industries are government or semi-government operated. It is very difficult for an individual professional comment or discovery to be expressed even in a professional journal or newsletter when comment on an item can have political overtones and practically every water supply, sewerage, planning and technical educational matter has this background. Could it be that some individuals who could contribute much to science are sometimes not heard at present?

From the Scientific Australian, June 1968

BRITISH REVIEWER
CONCEDES A POINT

He (Larson) may well be right in believing that the root cause of the unsatisfactory state of physics -- in its basic character -- is that conception, or understanding, has been lost in a maze of mathematical expertise.

F.I.G. Rawlins
Contemporary Physics
April, 1966

Review by Prof. Dr. F. Schmeidler of the University of Munich published in Naturwissenschaftliche Rundschau, Sept. 1966. Translation by Prof. Stuart Smith.

D. B. Larson: New Light on Space and Time. North Pacific Publishers, Portland, Oregon 1965. 264 p. $6.00.

The author of this work has already made several attempts in earlier books to propagate his new ideas about overcoming the confusion of modern physics; the book under discussion is intended as a comprehensive and summary presentation of his ideas. In no way does he want to return to classical physics, but he wants to take away from the conclusions of modern physics those aspects which make them incomprehensible to "common sense". In this process the mathematical formulae of modern physics (e.g. the Lorentz transformation) remain untouched, but the theory of relativity is regarded "in its conception" as untenable.

The foundation of the theory put forth by the author is composed of two postulates which he regards as fundamental postulates of his "reciprocal system". Firstly, space and time are fully equivalent aspects of the same thing; secondly, the laws of abstract mathematics, including Euclidean geometry, are universally valid. From Postulate I there follow two very important things; time has three-dimensional structure (although we cannot prove it) and space has an abstract progression which corresponds to that of time. Seen from this angle the expansion of the universe is self-evident.

From these basic concepts specific conclusions are developed step-by-step through logical deductions. They can in no way be reported individually here; a few indications may suffice. Thus it follows that there must be such a phenomenon as gravitation, that its range is fundamentally limited, that matter, to be sure, can remain liquid below the melting temperature but cannot remain solid above it, and much more.

The formal deliberations from which these conclusions are drawn often seem abundantly scholastic. It would certainly be wrong, however to reject the author for this reason; only the most careful investigation of all of his deliberations can show whether or not he is right. The official schools of natural philosophy should not shun this (considerable, to be sure) effort. After all, we are concerned here with questions of fundamental significance. It is even less permissable to damn the author as a heretic because he contradicts the "acknowledged" teachings of modern physics; contradiction is not illegitimate until its essential falsity has been shown. The resigned complaint that his earlier works were ignored by the scientific world out of "intellectual convenience", a complaint brought forth by the author in several places, may perhaps be unjustified; but even the appearance of such behavior must be avoided by a branch of science which takes its task seriously.

Whether an impartial investigation of the author's theses will lead to their confirmation or rejection, the reviewer is not able to predict; the question is too difficult to be decided quickly. But one believes that he can hear in the words of the author an earnest will to overcome existing confusion. Where at least such a will is present, there is usually also some kernel of truth to the matter. Perhaps science will succeed in finding such a kernel for the good of all.

Prof. Dr. F. Schmeidler, München