scientist had missed completely in his own shoddy haste. Even cases where the scientist worked from the drawings instead of from the specimens!

My point is that many illustrations for which no credit is given are as truly pieces of research as the manuscript which they are designed to accompany. Perhaps most scientists have the view that the artistic ability required to do a good illustration is really a rather ordinary faculty—something equivalent to learning to run a typewriter—and as such meriting no recognition on a plane with their own lofty genius trained to grapple with the problems of science, like the old gentleman in the operetta who admitted he had never written a sonata, but felt perfectly confident that he could if he ever desired. This delusion is frequent and could be cured by compelling such scientists to do their own illustrations until they could do them as well as their artists.

I believe I may claim to understand both sides of the question, inasmuch as I have studied art as long and as seriously as I have science, and have served an apprenticeship at scientific illustration myself, now discontinued for concentration upon the esoteric and rarified problems of parasitology. And it is my experience that it takes as much brains and training to do an acceptable illustration of a difficult subject as it does to tackle the average scientific problem. Some government bureaus are flagrant offenders in this way, also many workers of prominence in the universities. It is not contended that every diagram, however simple or trivial, should necessarily bear the name of the artist, or receive acknowledgment, but where a piece of writing is accompanied and often greatly enhanced by an elaborate series of illustrations which are not the handiwork of the writer it is plainly dishonest for the scientist tacitly to take credit for this part of the work. If it is not permissible for scientists to filch illustrations from each other it is a "distinction without a difference" that permits them to be filched from the artist. An illustrator's only chance of progress is through recognition of his work. Certainly the most altruistic scientist would object if compelled to publish all his work under the veil of anonymity. Moreover, there is often more real research and honest investigation in the unequivocal lines of a good illustration than there is in many of the padded, purloined and pilfered "contributions" that swell the scientific literature of to-day.

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STATEMENT IN REGARD TO PROFESSOR EINSTEIN'S PUBLICATIONS

BEFORE the time of Faraday and Maxwell, electric forces and magnetic forces were known, but they existed as distinct things, having no apparent relation to each other. To cause magnetic forces to exhibit themselves it was necessary to cause them to act upon magnets, and to cause electric forces to become manifest it was necessary to allow them to attract or repel other charged bodies or attract neutral bodies, but the presence of any magnetic state in those neutral bodies had no apparent effect upon the electrical phenomena. Then, when as the result of the experiments of Oersted, Faraday and others, it was found that a magnet was influenced by an electric current, and an electric current by a magnet, the whole question of the relation between magnetism and electricity became opened up. A composite theory developed in which magnetic and electric forces were intertwined, so that one could not speak in general of the forces upon a moving charge in terms simply of the electric forces, but had to include the magnetic forces as well. Neither could he speak of the forces upon a magnet entirely in terms of what were formerly regarded as magnetic forces, but had to introduce the electric forces as well. Then, for a long time, we had electric forces and magnetic forces harmoniously intertwined, but gravitation standing apart in the same sense as the electric and magnetic forces themselves had stood apart before the days of Faraday and Maxwell. Einstein's new theory as developed a few months ago did the same kind of thing for electric, magnetic and gravitational forces as was formerly done by Maxwell and Faraday for electric and magnetic forces. A composite theory intertwining all three was successfully produced. Just as in the purely electromagnetic problems, there were special cases of the composite structure in which the forces involved were purely electrical, the magnetic ones being negligible, and other cases in which the forces involved were almost purely magnetic, the electric ones being negligible, in such manner as to have suggested originally that these two types of forces were entirely indistinct, so in the composite theory involving magnetism, electricity and gravitation there are certain special cases in which the gravitational aspects are all-important to the exclusion of the electromagnetic, and others in which the electromagnetic aspects are all-important to the exclusion of the gravitational. So far our experimental researches have concerned themselves with cases of this kind, so that it has been our philosophic desire rather than the needs of experiment which has driven us to hope for a correlation of gravitation and electromagnetism in one general scheme.

A complete presentation of any physical theory involves two parts: first, a statement of the general laws governing the phenomena, and second, an application of the laws to some specific problems of interest to us. Thus in the time of Newton, the scientific thought of the day agitated itself concerning the consequences to be expected from the supposition that the heavenly bodies attracted each other with forces which varied as the inverse square of the distances between them. This constituted the general law, but it remained for Newton to show that one of the consequences of this law was that a planet would travel around the sun in an ellipse with the sun at one focus. This constituted the solution of a particular problem based on the general law.

Again when in 1915 Professor Einstein brought out his general theory of relativity some of the most interesting consequences resulted from his success in applying it to the motion of a planet around the sun, to the motion of a beam of light past the sun and to some of the peculiar motions of the heavenly bodies which were not readily understandable in the Newtonian theory.

It now appears that Einstein has succeeded in working out the consequences of his general law of gravity and electromagnetism for two special cases just as Newton succeeded in working out the consequences of his law for several special cases. It is frequently very difficult to solve special problems illustrating the application of a general law, yet the practical value of a law is enhanced in proportion to the extent to which it is capable of being applied to practical problems. When some actual problem arising in a general theory has been solved, we are in a position to formulate experiments on the basis of that problem with a view to testing the general theory underlying it. It is hoped that the present solutions obtained by Einstein, or if not these, then others which may later evolve, will suggest some experiments by which the theory may be tested.

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CONFERENCE AT CHICHEN ITZA

DURING the third week of January there was held at the archeological field station of the Carnegie Institution of Washington at the ruins of Chichen Itza an informal conference of persons interested in development of researches bearing upon the history of man in the Yucatan peninsula. The following were present: Sr. Eduardo Martinez Canton, inspector of archeological monuments for the State of Yucatan, representing the Mexican government; Dr. F. M. Gaige, biologist, of the University of Michigan; Dr. Robert Redfield, social anthropologist, of the University of Chicago; Mr. C. L. Hay and Dr. George C. Vaillant, archeologists, of the American Museum of Natural History; Dr. George C. Shattuck, of the Department of Tropical Medicine, School of Public Health, Harvard University; Dr. A. M. Tozzer, chairman of the department of anthropology, Harvard University; Dr. Eyler N. Simpson, of the Institute for Current World Affairs, and Dr. S. G. Morley, Mr. Karl Ruppert, Mr. H. B. Roberts and Dr. A. V. Kidder, archeologists, of the Carnegie Institution.

The purpose of the gathering was to discuss, without agenda and in a purely preliminary way, the desirability of bringing to bear upon the historical problems of the area the resources of various disciplines and to consider methods for the prosecution of cooperative research. It was accepted as a premise that historical evaluation of the archeological facts derived from the excavations of Dr. Morley and his staff would be rendered immeasurably more precise by the accurate knowledge of environmental conditions which could be supplied by specialists in biology, geology, meteorology, etc.; and of information as to human factors, past and present, which could be collected by workers in documentary history, medicine, comparative linguistics and the several social sciences. It was taken for granted that the findings of such non-archeological specialists would not only be of intrinsic value to the sciences represented by them, but that they would gain cumulative importance because geographical concentration would permit pooling of data, interchange of ideas, as well as formulation of combined attack upon problems of common interest. It was felt by the majority of those present that precise statement of objectives and rigid organization would be unwise; that research should be allowed to flow in such channels as the shifting contours of individual investigations might throw open; and that propinquity and the mutual interest stimulated by simultaneous attack upon related problems would lead naturally to a more effective type of cooperation than could, in the present embryonic state of most methodologies, possibly be planned in advance.

The conclusion, therefore, was that all studies should be independent, intensive and highly specialized, and that limited and definite goals within each science should be aimed for. A historical view-point, in the broadest sense (in other words a consciousness of the implications of the time element in the recording and interpretation of phenomena), should, however, be adhered to; and close but informal touch should be maintained among all workers in order that they should keep cognizance of the methods, the general trends and the bearing upon their own fields of each other's activities.

The above more or less theoretical aspects of the