£40,000; Wigan, St. Helen's and Derby, £20,000 each; whilst Liverpool is having plans prepared which contemplated an outlay of £80,000.

Dr. F. Dimmer, of Vienna, has been appointed to the chair of ophthalmology at Innsbruck in succession to Dr. Czermak.

The University of Texas has opened its twelfth annual session with about 225 students.

The report of a committee consisting of Lord Playfair, Lord Welby and Sir M. W. Ridley, M.P., appointed to consider the desirability of a fixed age for the compulsory retirement of professors under the crown has been published as a Parliamentary paper. The principal conclusions arrived at by the committee are that there should be fixed rules as to superannuation of presidents and professors, and that they should be made by college statutes and not by an Order in Council. When a professor reaches 65 years of age the president of the college should be bound to report to the government the condition and efficiency of the teaching. If these are and continue to be satisfactory, the professor need not be superannuated till 70, but at this age his retirement should be absolute. In regard to presidents, the committee is of the opinion that the age of 70 should be the period of retirement, but, should the visitors of the college formally report that the college would suffer by the loss of the experience which the president has acquired, the Treasury, and not the Irish office, should have power to continue him as president for a certain number of years not exceeding five, so that at the age of 75 the retirement of a president should be absolute.

CORRESPONDENCE.

A FEW MORE WORDS IN REGARD TO THE NEW BIBLIOGRAPHICAL BUREAU.

In Science for August 23d I took the liberty of explaining, in a brief way, some of the principal features of the new Bibliographical Bureau for Zoölogy. I was not, however, able to compare the system adopted with the numerous suggestions which had been made in this journal by correspondents interested in this important question. I shall now attempt to do so as briefly as possible.

In the first place, let me state that the work will agree closely with the propositions formulated by the Harvard Faculty. In elaborating this plan, I have been obliged to travel to almost every country of Europe, and to consult several hundred zoölogists and bibliographers from all parts of the world. It seems, therefore, a very significant fact that these two independent plans should show such striking similarity. This circumstance seems to show most conclusively that there is a real want felt for just such an organization of the service.

The features in which we differ from the plan of Professor Bowditch (not counting those where we simply go farther) are the two following: (1) The greater centralization of the work. We did not want to depend upon the coöperation of the authors. Our arrangement does not exclude the other. If the authors can be induced to aid us it would be a great saving, but we must be able to get along without their direct aid. (2) The notes appended to the titles by the Bureau are not intended to be *résumés*, but are to be concise statements of the *topics treated*. To make a *résumé* requires too special knowledge on the part of the bibliographer for it to seem practicable. This is the province of the Zoölogical Record and of the 'Jahresbericht,' and it is best not to duplicate their work.

In Professor Hale's letter I was much interested in his idea of a 'Bureau of Scientific Correspondence.' This is almost exactly what we shall offer. I differ from your correspondent merely in the minor point of not fancying a restriction in the matter of language to English and French.

The bibliographical part of Professor Todd's scheme corresponds too obviously with our own to need special comment. The same is true in regard to Dr. McGee. I should, however, like to call attention to his remarks on non-commercial

publishers. It is the basis of the coöperation that we ask.

Dr. Goode's letter reads almost like an introduction to our prospectus. I shall take up his numbered paragraphs successively and note the differences, where there are any. (1) The catalogue to be international, bearing the imprint of no society or organization; the same language to be used in the notes added as in the original, no restriction to English and French; Slavonic, Scandinavian and Oriental titles to be translated into French, German or English. The only way in which this would differ from our decision relates to the Scandinavian languages, these being kept in the original just as Italian or Spanish. (2) I fear that Dr. Goode would set a higher standard of comprehensiveness than we have done. (3) Dr. Goode chooses in favor of an annual form of publication, while our Bulletin will be fortnightly. The morphological titles will, however, be reprinted in the 'Jahresbericht,' so that this requirement can in part be met. It is possible that provision may ultimately be made for similarly bringing together the systematic part. (4) The annual lists would be indexed alphabetically under authors' names, as suggested; and, for cross reference, the year, the author's name and the running number will be used. A 'pasting' edition is also called for in the adopted regulations. In regard to the suggestion that the Mährenthaler typesetter be used for this work, it may be of interest to note that this has proved impossible; the company does not recommend its machine for broken work in which several faces of type are necessary. The remaining sections of the letter relate principally to the comprehensive scheme of a complete catalogue of science. They can, in my opinion, best be attained by the creation of federated bureaus for the branches. In this way it is possible to adapt the system to the special needs of each science, and yet to have the entire field adequately covered, as desired by the Royal Society. The criticism which Dr. Goode makes of the card system seems to be fully justified. It is a bulky contrivance, and, while it is doubtless indispensable to the worker and to libraries, yet it cannot wholly supplant other forms of publication. The New Bureau will combine both methods, using the same type to print the several editions.

Mr. Weeks has also very fairly indicated the limitations of the card catalogue, and makes many of the same suggestions as Dr. Goode. I fancy that our Bureau would meet the needs set forth by Mr. Ramsay, each person being able to arrange his cards as he might see fit.

Finally, I find the methods of the Bureau in substantial agreement with the methods of Dr. Josephson, except that his 'Bureau for Natural and Physical Science' seems too little specialized.

In conclusion, let me refer to certain modifications of the system, which have been proposed in articles in other periodicals, or in personal letters to me or to one of the National Committees. In an interesting Russian note advocating the new Bureau, Prof. Mitrophanov suggests that a larger part of the work be left to National Bureaus. This step has not seemed wise for the reason that the work could not be uniformly done unless centralized.

Prof. Nachtrieb, who has been kind enough to abandon a similar enterprise in order not to conflict with our own, urges the adoption of descriptive words in place of the symbols which it is proposed to use; and a similar suggestion is made in an Italian article which I have received from Prof. Camerano. I think that these critics do not realize the fact that these symbols will often be very numerous, and that they are to be used in classifying the card when received rather than in consulting the catalogue. It is undoubtedly easier to run through a package of cards in search of the number 7 than to read each word in search of a long polysyllable; but when the cards are once classed, there is no need of even doing this; the guide cards would then be used. It must be remembered that it is not necessary to use these symbols save when they are needed, *i. e.*, in having the cards put in place by a person unfamiliar with the science. In fact this has been a feature which has been especially recommended by a number of persons. Mr. Dewey and Mr. Peckman Mann have gone still further in this direction and have urged the adoption of the 'Dewey System.' It remains to be seen whether this system would not become too complicated when applied to the

several cross classifications which we shall have to employ. It will also be necessary to see whether these symbols cannot be placed in a less conspicuous place on the cards. This is not so easy as would at first appear, for it must be remembered that the same type must be used for the pamphlet edition.

I have now passed the more important notes in review, hoping that this may facilitate future correspondence. Permit me to state, in closing, that I should be delighted to receive further suggestions in this regard. I must beg, however, some indulgence if I should find myself unable to reply promptly to all friends of the undertaking; the correspondence has already assumed such proportions that it is almost impossible to attend to it single-handed.

Herbert Haviland Field.

THE DOGMATISM OF SCIENCE.

To the Editor of Science—*Sir:* "The hardest of intellectual virtues is philosophic doubt," it has been said, and viewing the statements and the facts, one is inclined sometimes to assent to it in a literal way, *i. e.*, as an unintentional statement of the hardness, density or impenetrability of much that passes under the name of philosophic doubt. By the words, however, it is supposably meant that this 'philosophic doubt' is a virtue above all others, and that it is only the extremely virtuous who may ever reach this lofty pinnacle of greatness. To this I demur. As Heine said: We are natural protestants, and certainly the spirit that denies, *der Geist der stets verneint*, is as a matter of fact the easiest and the most common of 'virtues,' though Goethe and humanity have agreed in personalizing it as distinctly Mephistophelean, rather than angelic, or even manly. I should add that "the mental vice to which we are most prone is our tendency to assume that" our *Verneinung* in the name of science of all the religious and poetical truths that have been gained by humanity has anything virtuous or logical or scientific about it.

As to what is virtue, intellectual or moral, and as to what may be logical, there will never be an end of discussion, but as to what is scientific there should nowadays be convictions so indubitable that discussion should end. Even the typical scientific dogmatist must admit that science properly considered is the unprejudiced, colorless observation of facts and the inductions from these facts *only so far as the facts will carry.* But the fundamental thesis of a certain class of scientists is that biologic facts are all explainable by the forces of 'mechanical energy and physical matter.' To ordinary—what I should call normal or healthy—minds, this is as perfect an example of deduction, theory or dogmatism as could be stated. So long as the old materialistic bauble of spontaneous generation remains the the veriest will-o-the-wisp, the most undemonstrated and undemonstrable absurdity, so long have these 'scientists' not a shred or shadow of evidence that their dogma has any genuine scientific basis. For every biologic fact there must be posited the unexplained, and so far inexplainable fact of life itself, of sentience, or 'sensitive' or 'irritable' protoplasm, as the very beginning of the fact. To say in advance that this life, sensitiveness, irritability, etc., is explainable upon the principles or forces of physics is in most absolute contradiction of the scientific spirit, and one who dogmatically asserts it has yet to learn the a b c of scientific method. The scientist who thus commits scientific suicide may charitably be excused on the ground that he is a victim of the subtle laws of psychologic heredity, that he is an 18th century atheist masquerading as scientist, one with a dissident dogma unwarrantably compelling science to a service from which she must instinctively rebel.

In a recent letter to Science Professor Brooks pathetically pleads for a united front of all scientists against the 'Vitalists,' and that the 'dogmatism of biologists' must be attacked at both ends of the line. This rallying cry for unanimity of utterance rather than for adherence to personal conviction is sadly suggestive. It would seem that a more 'virtuous' ideal would be that of following truth rather than partisanship. 'Failure to agree' is stigmatized, but it might be politic to first ask who are the disagreers. The answer to that question might result in the finding that Professor Brooks and his party are the disagreers or sectarians, because if my observation is correct the scorned vitalists, as Professor Gage avers, constitute the