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THE CO-ORDINATION OF SCIENTIFIC PUBLICATION.

A GENERAL DISCUSSION.

At the meeting of the Faraday Society held on Tuesday, May 7, 1918, in the Rooms of the Chemical Society, Burlington House, London, W., a **General Discussion** was opened by the **President, Sir Robert Hadfield, Bart., F.R.S.**, on **The Co-ordination of Scientific Publication.**

The President's Address was as follows :—

With reference to the suggestions I am putting forward in a few minutes, I should like those present to know that they were prepared before the Conjoint Board of Scientific Societies was in working order. Now this body exists, it is rather for them to settle and decide a policy. However, it is hoped that the suggestions set out in my notes, of which some copies have been circulated, may be helpful; at any rate they may form the basis upon which to start and assist a discussion to-day and the summary of which may possibly be useful to present to the Conjoint Board itself later on.

NEED FOR ORGANIZATION.

I have for a long time had the view that in this country much valuable work of our scientific and technical societies is lost, or not rendered so useful as it might be, for want of proper collaboration, co-ordination and organization amongst the societies concerned. There is also far too much overlapping, that is, in many cases the work is often done twice over.

FEDERATION OF INTERESTS.

Metallurgy of Iron and Steel.—Referring to my own line of work—the Metallurgy of Iron and Steel—I have sometimes found that subjects of interest to those concerned occur in the proceedings of an institute or society, the work of which has nothing to do directly with iron and steel. To remedy this condition there is no doubt that if some federation of interests could be brought about between various scientific and technical institutes and societies in this country much benefit would result, and this without the formation of any new organization.

Overlapping of Papers.—Each society would still preserve its own individuality, but a paper which overlapped or concerned more than one society would be brought before the members of all the societies concerned in the same subject, in addition to the one before which the paper was originally presented or read. Moreover, in time, as such

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arrangements got into working order, papers presented to one institute or society, but which more intimately concerned the work of the leading institute in this line of work, would be handed over to the one best fitted to deal with it.

CO-ORDINATION

Divisions of Co-ordination.—Our Secretary, Mr. Spiers, has recently prepared some notes for a discussion which was to have taken place before this society on Technical Education and Training. In his statement several excellent suggestions are put forward on this question of co-ordination, namely, that there should be two main divisions:—

- (a) Geographical co-ordination.
- (b) Subject co-ordination.

Geographical Co-ordination.—As regards the first, as Mr. Spiers points out this would not be difficult to arrange. The Metropolitan Society's papers in each section or subject should be published by the London Society, that is as regards all important and original papers. This is done to some extent now, but it is haphazard and spasmodic; at present there is no real co-ordination.

Subject Co-ordination.—As regards the second, Subject Co-ordination, it could no doubt be readily arranged that all papers should be sent to some central body such as the Board of Scientific Societies, the main work of classifying and arranging for consideration could be done by permanent secretaries for presentation to the committee, which would allocate to the special society or societies concerned. In the case of a subject concerning more than one society it might also be found desirable that a joint meeting should be arranged to discuss such paper.

By these means there would be no interference with the individual work of either the society or the person presenting the paper, but complete co-ordination would be obtained.

Working Scheme.—It is felt by all concerned that a working scheme for spreading amongst the various scientific societies, in London and elsewhere, information regarding papers about to be read, or recently read, will be found most useful.

Submitting List of Papers.—Another suggestion is that the secretary of each society should send to the Board of Scientific Societies a list of papers to be read at their next meeting. The Board should print weekly a complete classified list of all the papers and would send a copy to the secretary of each society. Each secretary would then select papers likely to be of interest to his members, and would include them in the next issue of their bulletin or announcement.

OVERLAPPING.

Reducing Overlapping.—From my own knowledge I have often experienced much trouble in overlapping. On the other hand, important papers are sometimes buried in the proceedings of societies not prominently concerned with the subject dealt with. Whilst it is not possible to avoid some overlapping, surely something could be done to reduce the confusion which often now arises.

"Iron and Coal Trades Review" Article.—In an interesting article headed "Overlapping" in the *Iron and Coal Trades Review* of June 16, 1916, several suggestions were made which resulted from the conversation of the writer with the editor of the paper in question. As an instance of this, the writer has in mind important metallurgical papers.

read before a technical society whose work is quite in another direction. The result of this overlapping is that such papers could not be duly appreciated or discussed with the best results by the particular society before whom they were read. The society which could best discuss the subject dealt with, either would not know of such papers, or if they came before its own members this would not occur for some time afterwards, and then probably only in the form of abstracts which give them but a general idea of the subjects dealt with.

Holland's Paper.—Other important considerations and suggestions on this subject are found in a paper by Sir Thomas Holland, entitled "The Organization of Scientific Societies." This was read before the British Association for the Advancement of Science, in Manchester, September 1915, and contained many excellent suggestions.

GERMAN ORGANIZATION.

Combination of Technical Experts.—To show the urgent need of full consideration of the various suggestions made in this statement, it may be mentioned that quite recently (1916) six prominent associations of technical experts in Germany have combined under one federation, comprising the following separate societies or associations:—

- (a) Engineers Association.
- (b) Architects and Engineering Association.
- (c) Iron and Steel Institute.
- (d) Chemists Association.
- (e) Electro-Technicians Association.
- (f) Shipbuilding Engineers Association.

It is stated that the object of the new organization is to unite some 60,000 technical experts all over Germany, and to ensure mutual assistance and co-operation between experts in the great technical problems awaiting solution.

It is also stated that the origin of this movement may be traced to the recognition in Germany that after the war the task with which the technical experts and scientists will be faced, not only as a result of the war, but also during the period of transition from war to peace, will be of grave and weighty nature.

This powerful organization will indeed represent the truth of the old proverb "United we stand; divided we fall." In this country it is much to be feared that at the present time there is a tendency for each technical and scientific institute to work for its own objects only. This, whilst excellent in its way, cannot give such satisfactory results as when well-arranged co-ordination and organization exist.

Method of Organization.—Another instance may be given with reference to an account of certain metallurgical research which appeared in the German journal *Stahl und Eisen* of October 3, 1912. In this article, the writer noticed the following method was adopted with regard to studying a particular steel problem which had presented itself. In the first place a paper was presented for consideration by the metallurgists. The subject was then considered to be of such importance that it was referred to the Council, who at once formed a special committee to deal with the whole question. This committee called in the aid of the Chemists Committee of the society, and the two worked at the problem. A report was then presented to the Institute concerned which no doubt

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was finally made the common property of its various members. Thus, nothing was left to haphazard chance, and it was apparent that thorough organization prevailed throughout the whole of this research. From this instance it would also appear that as regards the work of this Institute improvements and information are made the common property of all the different individuals and firms concerned.

Co-ordination in Research.—It may be interesting to refer to an instance of Austrian research work in ferrous metallurgy, presenting as it does an excellent example of proper co-ordination and organization. The subject in question is referred to in an article on "Austrian Experiments on High Class Steel for Girders," a summary of which is given in the accompanying Précis Table T. 4161B on pp. 5-7. It seems to me that this instance is a particularly valuable illustration or example of organized collaboration between:—

- (a) Government or official departments.
- (b) Local authorities.
- (c) Manufacturers who are to supply the product.

Such a combination as this is desirable in many ways. It prevents friction and procures the aid of those representing both the scientific and technical side of such work. It also helps to avoid mistakes and loss of time.

Method of Co-ordination.—In order to obtain the desired and improved quality of material for the purpose in question it will be seen from the Précis Table mentioned that a conference was held at which were present:—

- (a) The Minister of Public Works.
- (b) Other interested Ministers representing local interests.
- (c) Representatives of six leading steel works.

A programme of experiments was drawn up by the Minister and submitted to the Committee. The steel works' representative presented free of charge the various materials and test pieces for the experiments.

Results obtained.—The results given in the official report appear to show well-organized and co-ordinated work obtained without friction between the departments and manufacturers. Unfortunately this is not always so; there is often friction, with consequent loss of time to those concerned. In this country the maker is kept at arm's-length, and specifications are drawn up by the Government and other bodies without consulting the manufacturers.

EMPIRE CO-ORDINATION.

Representations on Councils of the various Societies.—There is one other point which might receive the consideration of this Board of Scientific Societies, namely, that representatives of the Empire should be appointed on the Councils of the various institutes and societies. For instance, notwithstanding the important developments in the metallurgy of iron and steel which are taking place in Canada, Australia, India, and elsewhere within the Empire, there are no representatives on the Council of the Iron and Steel Institute; consequently there is a want of touch between the different outlying portions of the Empire. This also applies to other scientific and technical institutes.

I should also like to make reference to the German Union of Technical and Scientific Societies. It appears to be a strong body, and already

being made much use of. Dr. Springorum, who was formerly a member of Council of the Iron and Steel Institute, points out :—

“ The war has intensified the need, already felt before, of closer co-operation of the German technical societies, and preliminary negotiations on this question have led to a combination of the technical societies into a German Union of Technical-Scientific Associations. We have gladly joined this Union and promised our co-operation, feeling sure that the purposes and aims of the Union are the right ones. The Union leaves to its individual members complete liberty in the special domain which each association has hitherto been dealing with, but wishes to ensure joint action of the associations (whose number has now risen to eleven) on all important questions.”

Union makes for strength, and it seems to me that co-ordination must necessarily bring out what we also much need in this country, namely a central building and library, a subject in itself which well deserves a discussion before this and other societies. It is a matter which is very near to my own heart, as I am positive the benefits arising therefrom would be of immense value not only to the British Isles, but to the Empire at large.

I have had the opportunity of seeing the working of the societies which meet in the United Engineering Societies Building in New York, and can speak from experience. Moreover, my friend Professor Albert Sauveur, of Harvard University, Cambridge, Mass., U.S.A., who was over here recently and is now in Paris helping the Allies, was a short time ago good enough to send me a statement with regard to his views on this subject. He speaks from definite experience, and therefore I venture to read his remarks.

PARIS, *March 23, 1918.*

MY DEAR SIR ROBERT,

United Engineering Societies Building.

You asked me the other day in London for an expression of opinion regarding the advantages resulting from having the various engineering societies of the country housed in a common building. You know this to be the case in the United States, where, thanks to the munificence and public spirit of Andrew Carnegie, the Engineering Societies of America have occupied a spacious and beautiful building for a number of years. Now that the American Society of Civil Engineers has joined us our engineering family is quite complete.

The many and real advantages resulting from such a scheme appear to me obvious :—

1. It makes for a closer intercourse between the members of the various societies, promoting between them good fellowship and common interests.
2. It facilitates the holding of meetings and the interchange of views pertaining to questions of general interest.
3. By bringing under one roof the valuable libraries of the various societies their usefulness to the membership at large is greatly increased.
4. It necessarily leads to a considerable decrease of expense.
5. It makes possible the erection of a building of greater size and greater dignity than could probably be constructed by individual societies.

I feel confident that if our example be followed by the engineering societies of Great Britain it would never be regretted.

I am, faithfully yours,
ALBERT SAUVEUR.

Referring to this proposed new building, which is all part of the co-ordination scheme, one great point is that this does not mean another new organization or society. What it does mean is a better utilization of those societies already in existence, bringing them together so that they can act in a more co-ordinated and organized manner.

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A better example could not be given than the wonderful organization effected by this great building in New York of the United Engineering Societies, bringing together as it does the four main technical societies and some score of smaller ones. Let me give a small but important instance of one advantage which results. I have several times noticed it in the letters I receive from my friends the different secretaries of the societies in question. They say, "I went to the room of so and so [that is another of the secretaries] and asked him about such and such points." Being in the same building, that meant a saving of correspondence, telephoning, or telegraphing. Over here we have to waste much time through not being so closely in touch as compared with the new working organizations of our confrères. The secretary of one of our societies is almost as far away as if he were in another city.