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The

Association of Special Libraries :: and Information Bureaux ::

REPORT of PROCEEDINGS

of the

SIXTH CONFERENCE

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1929

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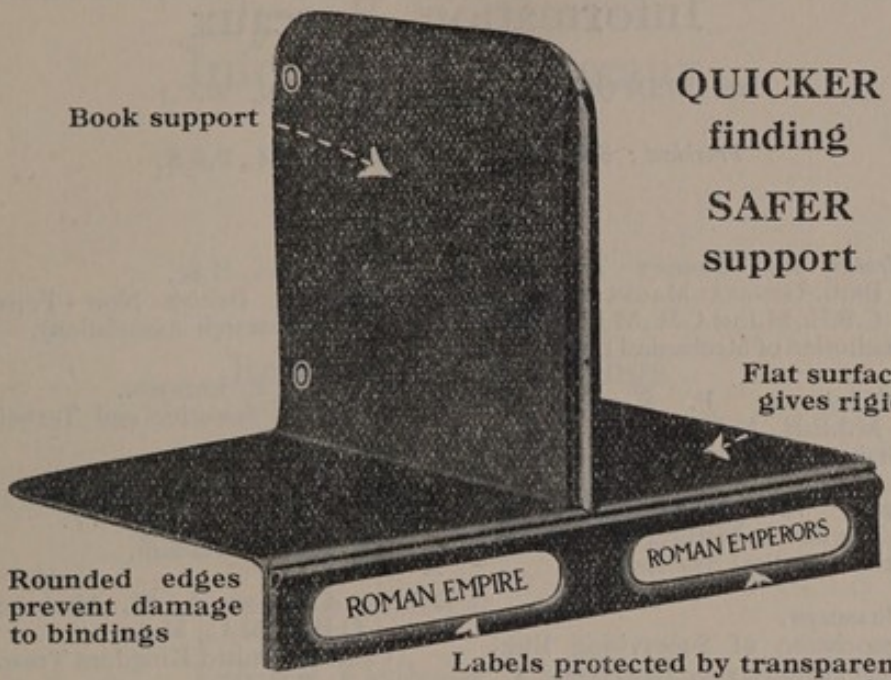

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The Association of Special Libraries and Information Bureaux

Report of Proceedings

of the

SIXTH CONFERENCE

held at

Trinity College, Cambridge

SEPTEMBER 20th—23rd, 1929

THE OBJECTS OF THE ASSOCIATION ARE: To examine, foster, and co-ordinate the activities of special libraries, information bureaux, and similar services; to act as a clearing-house for these services; to develop the usefulness and efficiency of special libraries and information bureaux under whatever titles they may function; and generally to promote, whether by conferences, meetings, or other means, the wider dissemination and the systematic use of published information.

The Association aims at assisting members who desire information of any kind to get into touch with the appropriate library or other body specializing on the subject; it does not itself attempt to build up any centralized organization to provide the detailed information direct.

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Editorial Note.

THE papers that follow constitute a record of the proceedings of the Sixth Conference of the Association. Written papers were, as a rule, prepared in advance by the speakers, and these have been reprinted in full. No verbatim reports of the discussions were made, but, with the aid of notes taken by the Chairmen of the meetings and provided by the various contributors to the discussions as full a report has been printed as the limitations of space permit. It should be noted that where contributions have been summarised because of this limitation any reader interested can see the full report at the ASLIB office. The editors take this opportunity to acknowledge their indebtedness to all those members of the Conference who have sent in notes of their contributions.

An index to the contents of the Report is printed at the end. Copies of the Reports of the five previous Conferences are still available, and the fifth Report contains an index to the whole five.

During the week-end members of the Conference had opportunities to take part in conducted visits to the University Library, the University Press, the Pepys Library, the Engineering Schools, the Forestry Department, the Cavendish Laboratory, the Department of Low Temperature Research, and Wicken Fen. The thanks of the Association for these privileges, which were very much appreciated, are due to the authorities who provided the facilities and to those who conducted the parties.

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TAKEN AT TRINITY COLLEGE, CAMBRIDGE, SEPT. 21st, 1929.

Reference should be made to the corresponding numbers given in the list of visitors to the Conference.

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208	T. T. Rush, B.A., F.R.Econ.S.	National Federation of Iron and Steel Manufacturers.
209	Mrs. C. C. Wharton.	
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220	S. S. Bullock.	Association of Special Libraries and Information Bureaux.

* *Prevented from attending.*

Contents.

Reception and Opening Dinner.

Delegates were received before dinner by SIR J. J. THOMSON, Master of Trinity College. After dinner he addressed them, as President-elect of the Association. He said:

My first duty is to return my very sincere thanks for the honour that you have done me in asking me to serve as your President. If I may disassociate myself from the Presidential office and go back to my normal form as Master of the College I should like on behalf of the college to welcome this distinguished gathering to the College Hall, and I would like to say to the delegates, who have come from at home and abroad in very considerable numbers, how much we feel honoured by their presence. They are a very representative gathering, representing great industrial organisations, great libraries, the universities, and, in fact, almost the whole range of certain human activity.

I feel it a great honour to be even for a short time the President of a society like this, and I congratulate the society and those responsible for its organisation upon the very great success that they have attained in a very short period. I think this is only the sixth year of the society's existence. They have been very successful indeed in the production of a directory that I understand is on a line that has not hitherto been travelled. I had an opportunity of looking into it, and it is evidently one that must be of the very greatest use to many people. It is planned, I am told, on novel lines, so the society have been pioneers in a very important direction.

It is somewhat embarrassing to have to address a society whose range is as wide as this. You take the whole field of information for your province, and perhaps there may be some ground for the suggestion that you should change your name from "ASLIB" to "ADLIB." We are interested in libraries at this college, and, being in the throes of re-cataloguing our library, we know how difficult, lengthy, and expensive the process is.

I am not expert in any of the activities of this society, but I have received great benefits from one important part of your work, and perhaps, most usefully, I may relate my experience of the use of the scientific abstracts which form such a large part of your work, just stating where I have found them most useful, and where sometimes I have found that they might be improved. Well, I have this qualification for it: that nobody can have used these scientific abstracts longer than I have done, because I began my work as a physicist before the first of this series was established. It was in 1877, I think, that the first attempt at an organised abstract was published, and I myself had published an abstract before that. In those days there was not so much need for it. That was the halcyon period when scientific societies were few, and when scientific periodicals were few, too; when it was perfectly easy for a professor of physics to read and even to possess all that was written on that subject. Now things have changed. I counted up only a year ago the number of papers in subjects which I ought to have read that had been published in the year. As far as I could find out they came to 5,680, and the cry is "Still they come." One gets snowed under, almost literally snowed under, for every post discharges pamphlets, and they accumulate in hundreds. I have a large study, but this printed matter is driving me out. The pamphlets cover tables and they cover chairs, and I have a little hole left, which is being gradually filled up. We are indebted to the societies you represent for taking this great heap—not a rubbish heap by any means—and tidying it up, so that the student can make use of the material of which he is in search.

I want to say a word about my practical experience of the use of the system. It is not the abstract which is of the greatest help. I find that the greatest use of the abstract has been the index to the volumes. If you are doing serious work you cannot rely on abstracts. What you want is to know where things are that you may consult for yourself all you want to know on any subject. I do not know that the present system quite satisfies that. The only thing you can get is the title that the author puts over his paper. You cannot put everything into a title, and what I suggest is that each abstract should contain what is the equivalent of an index of the papers, giving on very broad lines the subjects of which they treat. Now I suggest that this method should be part of each paper, and that the indices should be included in the main index published each year.

It would add something to the work, something to the length of the index, but I think there would be no great disadvantage if there were some diminution in the length of the abstract. You have to consider that people of different kinds make very different use of the abstracts. They are said to be, and I think they are undoubtedly, essential to people who are not within reach of good libraries. It is also said that the abstracts are the only way to make people acquainted at all with the contents of papers in foreign languages. To take the latter objection, I do not myself believe there is much in that, because if you are content to use the grammar and dictionary in the old-fashioned way, and not attempt to learn languages by the oral method, you can learn enough French, German, or Italian in two or three weeks to enable you to read papers, whatever the subject, in those languages. No great effort is needed, but you must be content with this humble method. When I first became a professor I could recommend my class to read a French book or a German paper on the subject, and know that an appreciable fraction would be able to follow it. When the oral method came in I found that the number of people who could read a paper in German fell absolutely to zero; it was no good recommending that a paper should be read in German, for nobody could do so. If they could have read it, they could have spoken it and written it, but half a loaf is better than no bread, and to be able to read a scientific paper in a foreign language is a very useful acquisition.

Then, again, abstracts form, it is said, a valuable method of bringing to people's notice results which have been obtained in subjects in which one may be interested but which one is not working at specially at the time. If it serves that purpose I hope it will continue to do so, but I think there is a better method of satisfying the needs of such people—people away from libraries, people who wish to get better acquaintance with what is going on. That is the method pursued by the Chemical Society, who publish annual reports of the advances made in various departments of chemistry during the year. Abstracts, if they have been weaved into a coherent whole, form an excellent report. Reading abstracts is often like reading a dictionary, it is so jumpy. That course has been followed by the Research Council of America. They publish most valuable research bulletins on work of various kinds, work of first-class importance, which I commend. That is the better way, enabling people, instead of reading a whole mass of literature, to read a connected account of the progress made from year to year in each department of science.

There is a time for reading abstracts, and there is a time for not doing so. I differ from most of my colleagues, but I have always thought it a mistake when you were beginning an investigation to do what most teachers advise—begin by getting up the literature of the subject. I think it is a mistake because you get constraint. You read what other people have done and your mind loses its freedom. Consequently you get constricted travelling along lines you have travelled before. Far better results would be got if before reading the literature you thought it out for yourself and thus saw how you would attack the problem. Of course, before making an elaborate experiment you would look to see if it had been made before. You begin the attack on the problem, and you have a chance of getting a new idea which will make for real progress, something much greater than you would have had if you had merely made yourself acquainted with what had been done before, and followed along those lines.

You may be overcome by the feeling expressed by a Senior Wrangler, who, when approached for not doing any research, said: "When I was reading for my tripos I found I had to read such an enormous number of things that God forbid I should do anything to increase the amount of reading by my successors." When you read the enormous number of papers on anything you may take up you are apt to be overcome and think you had better leave it alone.

I think I have outrun my time and will not do so any more. Thank you for the honour you have done me, and for attending this evening in such goodly numbers.

Miss ISABEL L. TOWNER, representing the American Special Libraries Association, and PROFESSOR R. F. ROYSTER, representing the American University Union, also addressed the delegates briefly.

The Year's Work of Aslib.

During the months preceding the last annual conference, held at New College, Oxford, the Council of the Association were preoccupied with the publication of the Directory, the removal to new offices, and the appointment of a secretary to succeed Mr. Keeling. The conference over, they were in a position to settle down to future work, and at their first meeting they had before them notes of the proposals, in conference resolutions and other forms, which had been referred to them for action from time to time. The steps taken and the progress made in these various matters are described in the following pages.

The Central Library for Students.

The Council has been instructed by the members to support the recommendation of the Public Libraries Committee for the development of the Central Library on the lines proposed in their Report. After consultation with Colonel Newcombe it appeared that, at the present stage, there was no action on the part of the Council which it would be useful to take. The Council are in constant touch with Colonel Newcombe, who is one of their number, and it has been made clear to him that he may rely upon them for any assistance in their power when the opportunity or the need arises.

The Durability of Paper.

As the result of the contributions of Mr. Parley and Captain Allan on this subject at last year's conference a resolution was passed in the following terms :

The Association of Special Libraries and Information Bureaux (Great Britain), agreeing that the present position as regards deterioration of documents and printed matter in public Record Offices and Libraries threatens to become extremely grave, and that practical steps might be taken without serious difficulty to remedy this situation :

Hereby expresses its emphatic approval of the resolutions and recommendations of the Committee of Experts, approved by the International Committee on Intellectual Co-operation, at Geneva, August, 1928, *viz.* :

"That the attention of Governments should be drawn to the necessity of using for documents (and printed matter) of permanent value, and especially for those of an official character, only papers manufactured according to given specifications."

In support of the foregoing it is further resolved that H.M. Government be asked to consider the establishment of a public testing station or public Standardising Committee for the purpose of fixing standards of durability for papers and other writing materials, and of publishing information on this subject with a view to the wide adoption of approved materials for manuscripts and printed matter of permanent value :

And to consider the advisability of enforcing by statute the printing of books, etc., destined for the Copyright Libraries on paper of approved durability.

A similar resolution was passed at the Annual Conference of the Library Association, whereupon their Council appointed a Committee to consider and report upon the matter with the following membership :

Mr. Arundell Esdaile (Secretary of the British Museum).
Mr. G. H. Palmer (Keeper of the Library, Victoria and Albert Museum).
Mr. Hilary Jenkinson (Assistant Keeper, Public Record Office).
Mr. L. S. Jast (Chief Librarian, Manchester).

Mr. Charles Nowell (City Librarian, Coventry).
Mr. G. A. Stephen (City Librarian, Norwich).
Mr. J. E. Walker (Borough Librarian, Hendon).
Captain J. S. Allan (Messrs. Wiggins, Teape and Alex. Pirie, Ltd.).
Mr. Norman Parley (Messrs. Percy Lund, Humphries and Co., Ltd.).
The Association of Special Libraries and Information Bureaux, represented by Mr. S. S. Bullock.
The Association of Assistant Librarians, represented by Mr. F. E. Sandry.
The Publishers' Association, represented by Mr. G. O. Anderson and Mr. J. Barcham Green.
Messrs. Sindall and Bacon, represented by Mr. W. N. Bacon.
The Design and Industries Association, represented by Mr. Harold Curwen.
Mr. H. A. Bromley, of H.M. Stationery Office.
The International Institute of Intellectual Co-operation, represented by Mr. Hilary Jenkinson.
The Paper Makers' Association of Great Britain and Ireland, represented by Captain J. S. Allan.

Numerous meetings of the Committee have taken place. Amongst other activities, they have had made to their own specifications several lots of paper, ranging from all chemical wood to all rag, which are satisfactory as regards durability and the prices of which are commercial. The Committee expect to be in a position, soon, to issue a report which will be of considerable importance.

Panel of Expert Translators.

The Council appointed a sub-committee to consider the formation of a panel of expert translators and any auxiliary matters pertaining thereto, with a membership consisting of Dr. Bradford, Mr. Burton, Mr. Gomme, Mr. le Gros, Dr. Hutton, and Mr. Robson. The report of this sub-committee, which will embrace a detailed scheme for the establishment by the Association of a working panel of expert translators, may be ready for presentation to the conference. Failing that, it will be circulated to the members of the Association.

The Reform of the Patent Law.

Several resolutions on this matter have been passed at the last two conferences as follows :

That it is desirable that a fresh edition of the " Abridgment Class and Index Key " be published incorporating the examiners' allotment marks, and that these allotment marks should be printed on the Patent Specifications.

That it is desirable that there should be available for public inspection a set of British Patent Specifications or Abridgments arranged in the order of the examiners' files.

That it is desirable that cards which have been removed from the examiners' files owing to their being older than the legal period of fifty years should be preserved in classified order and made available to the public.

That this meeting desires to impress upon the Government the need for an inquiry into the working of the Patents Acts in relation to the industries of the country and the relief of unemployment.

The Council of the Association have been active in securing support for these resolutions from interested bodies and in instigating questions in the House of Commons. They may therefore claim a share of the credit for the action of the President of the Board of Trade in the last Government, who, just before the dissolution, set up a committee to report " whether any, and if so what, amendments in the Patents and Designs Acts, or changes in the practice of the Patent Office are desirable." The Council were of the opinion that the committee, as composed, was insufficiently representative of the technical and

scientific interests concerned with Patent Law, and they made representations on this point to the Board of Trade. They await the report of the Committee with interest, and will continue, if necessary, to press the views which have been expressed by the members of the Association in their resolutions.

Union Catalogue of the Libraries of London.

Following upon the paper, read at the last conference by Mr. A. Esdaile, the following resolution was passed:

That the attention of the Carnegie United Kingdom Trustees be called to the desirability of compiling at an early date a Union Catalogue of London Borough Libraries and the Guildhall Library, as recommended by the Departmental Committee on Public Libraries, and that the Trustees be asked to consider the financing of such a catalogue at an estimated total cost of £1,000 a year for five years.

The Council are pleased, therefore, to be able to report that at a conference of representatives of the Metropolitan boroughs and the Guildhall Library held in London on May 9th resolutions were passed asking the Councils of the boroughs to render assistance in promoting the compilation of a Union Catalogue, setting up a committee (the London Public Libraries Union Catalogue Committee) to carry out the scheme, and acknowledging the generous promise of the Carnegie United Kingdom Trustees to finance it. So that as soon as the work is done the Union Catalogue will be an accomplished fact.

Uniformity of Page Size, etc., in Journals.

The Secretary has had a number of interviews in regard to this matter with the individuals and organisations concerned urging the views of the Association's members as to uniformity of page size and uniformity of practice in regard to the position and the nature of lists of contents. As one result the Periodical, Trade Press, and Weekly Newspaper Proprietors' Association, Ltd., agreed to circulate a letter setting forth these views amongst its members. It is doubtful whether the influence of the Association or of the readers of trade and technical periodicals generally would be effective in this matter. It happens, however, that their desires, at least in part, coincide with those of another body of people—advertisers—who, for different reasons, seek the same end and to whom publishers are more inclined to pay attention. Conversations between the advertisers and the publishers have been taking place which may lead to satisfactory results.

The matters mentioned above by no means exhaust the list of questions to which the Council of the Association has been asked, at one time or another, to give attention. They have not lost sight of the others, some of which are at present engaging their particular attention, but they are not, at the present moment, in the position to report anything in the nature of definite achievement in regard to them.

The ASLIB Bulletin.

Some time has elapsed since the Council were first asked to consider the possibility of publishing a periodical Bulletin. They have succeeded

in getting out the first number of such a periodical in time for the conference, and it is now in the hands of the members. The Council have said what they have to say about the Bulletin in the editorial, which appears on its first page, and there is no need to repeat those remarks here. The Council hope that the sheet will be of real use. They are no friends to unnecessary and purposeless publications, and would not hesitate to withdraw the Bulletin if they concluded that it was not performing a needed service.

The Enquiry Bureau.

The work of the Association's enquiry bureau has been spoken of in previous reports and it, too, is referred to at length in the Bulletin. The work continues on the same lines as before. The bureau is being used by members to a greater extent, and its potential value, as its records improve and its experience in dealing with enquiries becomes enlarged, is a considerable one.

One thing which the Council is inclined to request of members is that when they make an enquiry they should ask themselves " How much time and trouble would it mean for me to find this out for myself? " When members receive answers to their questions by return of post it seems, perhaps, an easy matter and they do not realise how much work has been done continuously to make such prompt replies possible. In consequence they do not put so high a value as they should upon the Association's services to themselves and its value generally.

The ASLIB Directory.

Figures showing the sales of the Directory at the end of the financial year as compared with the same date last year are as follows :

	Year ending 30-6-28	*Year ending* 30-6-29
Distributed Free . .	722	730
Sold	357	475
Total . .	1,079	1,205

The sale of the Directory has continued to be steady and, having regard to the nature and cost of the book, satisfactory. In the early part of the year the Council had before them a statement of the work which had been done on the Directory records since the time of publication. They considered proposals, and reached decisions regarding the future of this work which has been carried on systematically on the lines laid down. Briefly, these are that the records upon which the Directory was based and which are filed in the Association's offices should be continuously revised with a view to keeping them up to date as regards corrections, changes, and new material.

At the present time the Council are giving attention to the future of the Directory, having regard to the fact that the preparation of a revised or supplementary edition in some form or other should not be delayed indefinitely. The amount of new material collected is already considerable, and, whilst this is available in dealing with members' enquiries, its absence from the Directory will render the book out of date progressively as time goes on.

ASLIB AND THE U.S.A.

Within the last few months a special effort has been made to bring the Directory to the attention of librarians and others in the United States. A great many research workers in America must be interested in the collected information available in this country, especially those who contemplate a visit for purposes of study and research. To such as these the Directory would be invaluable. In making known the Directory and the work of the Association generally in America the Council have been very much indebted to Mr. Angus Fletcher, of the British Library of Information in New York, who, it will be remembered, attended the New College Conference last year as representative of the American Special Libraries Association. In addition to assisting in many ways with his advice, Mr. Fletcher, as Acting-President of the Annual Convention of the S.L.A., held in Washington in May, spoke about ASLIB at length and in very flattering terms. A full report of his address is contained in the May–June issue (No. 5, Vol. 20) of " Special Libraries."

CARNEGIE GRANT.

The Council have, once more, to acknowledge the indebtedness and to express the thanks of the Association to the Carnegie United Kingdom Trustees for a further generous grant of £500. The grants allocated to the Association before came to an end last year and, in extending their assistance, the Trustees have made a special exception to their usual practice. The Council represented to them that the position of the Association as regards membership had not reached the point when it could be regarded as self-supporting and that, in the absence of outside aid, the work on the Directory must suffer. In making the special grant referred to the Trustees emphasised the point, with which the Council is in full agreement, that the Association must not continue to be dependent upon their subsidies. The Council sincerely hope that in the near future it will be possible for the Association's work to be carried on without calling upon the generosity of the Carnegie Trustees.

MEMBERSHIP.

In view of what was said in the last paragraph, it is highly regrettable that the past year has not seen an improvement in the position of the Association as regards membership. The loss of members through one cause or another has offset the new additions, and the total membership remains between 350 and 400. This is not a small number and, in itself, having regard for the comparatively recent establishment of the Association, it is not unsatisfactory. But whilst, for reasons which the Council still regard as good, the membership subscription was fixed at a nominal figure the tasks which the Association has undertaken are a great deal more than nominal, and for their full and even adequate fulfilment require an establishment which the present income from membership subscriptions does not provide.

That the Association is now firmly established the Council are convinced, but, at the same time, they believe that the nature of the Association's work and of the interests to which it appeals are such that it would be unduly optimistic to look for large and rapid accretions of members and, for that reason, that some time still must elapse

before the Association finds itself upon a sound financial basis. The question of membership and finance has their constant and anxious attention, and they hope, by the time of the next conference, to be able to report a marked improvement in the position.

The Library Association.

The question of the relationship between ASLIB and the Library Association is one which the Council have in mind continuously. They are anxious to secure the utmost co-operation, so far as that is possible, between the two bodies in regard to matters about which there is a common interest. In this attitude they have the support of the Carnegie Trustees, who have assisted in the conversations between the two bodies. As the result of these conversations there has been set up a standing joint sub-committee to which can be referred any matters which seem to call for joint action.

Miss Warren.

Because of her approaching marriage Miss Warren is leaving the service of the Association soon after the conference. The Council wish to place on record their very great appreciation of the work which she has done for ASLIB. Her time has been devoted especially to the Directory, but every part of the Association's activities, including the conference arrangements, have benefited by her work. Her capability and her devotion to the interests of the Association have both been beyond praise. Her departure is a loss which it would not be easy to make good however wide a choice of successors the Council had at their disposal. The members will join with the Council in wishing her every good fortune in her future life.

President of the Association.

In concluding this report on the year's work the Council wish to refer here to a matter which will be dealt with more fully and with the required formality during the conference. In looking forward to the immediate future of the Association, they are greatly encouraged by their success in gaining Sir J. J. Thomson's consent to accept their nomination as President of the Association for the coming year. This is a favour on his part from which the Association's work will derive incalculable benefit.

DISCUSSION.

Note: This paper was presented by Brigadier-General Magnus Mowat at the end of the Opening Session of the conference. The discussion took place during the Annual General Meeting. General Mowat dealt with the financial position of the Association and Dr. Hutton and Mr. Parley respectively described the work of the Committees on Expert Translating and Durability of Paper. A great many other members took part in the discussion, which touched upon various aspects of the Association's work.

The Approach of the Producer to the Consumer of Information.

By LAURIE MAGNUS.

The object of this Association of Special Libraries and Information Bureaux, which I have the honour of addressing this evening, and which is defined as a clearing-house for sources of specialized information, is stated as follows: "To facilitate the co-ordination and systematic use of sources of knowledge and information in all public affairs."

You will observe that three times already I have employed the word "information." You are an Association of Information Bureaux. You clear the sources of specialized information and you help us to co-ordinate and make a systematic use of sources of information in all public affairs. It is inevitable in selecting a topic for the consideration of members at this general session, that I, too, should speak of information: of that floating mass of knowledge in solution, which like gold in a mine in Australia to hungry coal-miners in Wales, is so valuable and yet so unavailable until it has been coined for use. Everything known is knowable, but the question is, how to circulate it for knowledge, how to smoothe and facilitate the approach of the producer to the consumer of information. Not more information, but better facilities for acquiring it; not more gold mines, but easier tokens of exchange; not more knowledge, but freer knowability: this, I take it, is the object of your Association, and the problem to which I am to address myself to-night.

It is, in a sense, a new problem. That is to say, like many problems in modern times, it acquires complexity and derives immediacy from a series of effects, which have given rise to a series of new causes. Universal franchise, free elementary education, the free secondary education which is now essaying its wings, Ford cars and Austin Sevens, "London calling" with one voice in every home: these among others, are effects of social and intellectual endeavours in the recent past, which are causing the present generation to readjust its outlook on common life. Our children are at once younger and older than we were at their age—younger in resource and pliability, in the faculty of enjoyment and the demand for it; older in sagacity and independence, and in judgment of matters offered to their observation; younger in experiment, older in experience. I say nothing of the war. I find young people as tired of the Four Years' War with Germany as of the Hundred Years' War with France. To speak to-day of a post-war generation or of a pre-war spirit to be recalled is to speak in unhistorical terms. The events of 1914-18 speeded up a change in social values, which the preservation of peace would not have stopped. If we cast back our memories to the epoch 1906-14, and particularly to the period after 1910, the year of King Edward's death and of two General Elections, of the thrown-out Budget, the Parliament Act, the feminist movement, and the vivid threat of

civil war, we shall see that the conflict in Europe retarded rather than accelerated the social forces then at work, and imposed a truce on them rather than gave them impetus. The speeding-up of which I have spoken, was due merely to the fact, that, when the matters in dispute were taken out of cold storage in 1919, common sense declined to heat them up again. I remember, in August, 1914, a few days after the outbreak of the Great War, writing to the late Sir Edward Cook, the well-known editor and publicist, suggesting that he should write a book on " Matters in Abeyance "—using the truce of the war to solve them without Party conflict. His reply suggested more wisely that they would solve themselves. No, it was not the war which changed the values, and we should be old (or young) enough to-day, twenty years after 1910, to realize that there will be no going back to pre-war conditions or ideas. " Pre-war " and " post-war " should be expunged from our vocabulary. The young know better. They know that the gold is waiting to be coined. They believe, and, therefore, they act as if all that glitters is gold. They will not accept the valuation of bankrupt goldsmiths in the past. They are the children of George Meredith's " Lark Ascending," who

> " Want the key of his wild note
> Of truthful in a tuneful throat,
> The song seraphically free
> Of taint of personality,
> So pure that it salutes the suns,
> The voice of one for millions,
> In whom the millions rejoice
> For giving their one spirit voice."

The last four lines of this quotation might serve as a motto for an Association which aims at operating as a clearing-house of knowledge. For we want for our acquisition of it pure eyes brave to front the sun, not dazzled by the radiance of its mid-day beam, and a voice unperplexed by equivocation, which will simplify and articulate what is now multiple and disordered.

Viewed in its physical aspect, it is a traffic problem which is presented to us. We are to institute a one-way route between the producer and consumer of information, so that no one may be held up for long by a block in the vehicles that carry it. But the physical aspect is hardly separable from the social and intellectual factors which are changing old values for new. The product has to reach the consumer not merely along a traffic-route which shall be as free as possible from obstructions, in which the slow coaches of information shall not retard the followers of short cuts, and in which vehicles driven with ample horse-power shall not be kept in the rear either of those of an antiquated pattern or of those which shoot in front of them by sudden spurts. It is not only a rule of the road, with a police-force of booksellers, which is wanted, but the producer has to study the consumer's mind, and to try to understand his psychology, in the vaster relations of the present day. " The mysteries of kings it may be safer to conceal, but Christ wished his mysteries to be published as openly as possible," said Erasmus in his *Novum Instrumentum*, and what was true of the new tool of religious knowledge at the dawn in the Reformation is true to-day of the new tool of secular information.

" Knowledge is now no more a fountain sealed," and the Poet Laureate's dictum on education in Victorian England is truer still of education now. Knowledge is to be mysterious no more. We broadcast it daily, almost hourly; and if the waters gushing from the fountain are neither to overwhelm us nor to perish in bogs and sand, they must be guided through fertilising channels from their source to their goal. The purveyors of human knowledge must realize the increase in its sum, and the increase in its public. The publisher has taken to himself a big name, since his migration to offices in the West End from the back of a shop in Paternoster Row. For the newspaper proprietor is also a publisher; so are the film-architect, the stage-manager, and the B.B.C. But the epithet is reserved to those, *quorum pars parva fui*, who make a trade of publishing books, and who, despite their present rivals in allied trades, are still the chief purveyors of human knowledge. It is to them that we turn first for an attempt to solve our traffic problem.

When I was in Berlin for the *Morning Post*, thirty years ago or a little more, public life in Germany was governed by a fetich known as " Standesehre." A man's " Stand " was his trade or profession, and the honour (" Ehre ") of his " Stand " had to be defended against all assailants. " My ' Stand ', right or wrong," was the cry, and office, which elsewhere makes the man, in Imperial Germany made the bureaucrat. The fetich may be deposed to-day, but I recall its ancient rule in venturing to make a few remarks about my own trade as a publisher. I shall betray no secret when I say that members of the trade work in keen competition. On the whole, they are generous, hearted men, to whom the provision of good books is as keen an interest as reaping profits, and there is probably none of them who does not yield to an occasional temptation to publish a book because it is good even though it may not " pay." But the competition is as incessant as, and more severe than, that of the banks and railway companies before the recent rush to amalgamation. The auction for authors is bearable. The author falls to the highest bidder, unless he has a sentimental attachment to another firm, and all parties are more or less content. (*More or less*, because several things may happen. The auction may be held before the book is written, and, since even ' best-sellers ' have degrees, the finished book may not be up to sample. Again, the bid may have been too high, and a consequent loss may fall, not primarily on the publisher, but on middlemen, whose services he employs.) But the auction for authors does not exhaust the resources of competition. Centuries ago, it may be remembered, Spenser hoped to " overgo " Ariosto in certain features of the romantic epos, and this noble rivalry on the heights may be vulgarized in the valleys. The reader's trouble begins when several books are launched on the same subject, and are propelled by equal forces of the modern craft of publicity. Author A falls to publisher X, and promptly publishers Y and Z come to terms with authors B and C, the constant factor in the contracts being the common subject, *q*. But *q* is the only item which interests the reader. He knows nothing about X, Y, Z, and next to nothing about A, B, C. He wants the best book on *q* and is bewildered in his search for it, first, by the number of applicants, and, secondly, by the clamour of their publicity agents. The loss all

along the line is obvious. The booksellers' shelf-room is reduced. Half-a-dozen books divide the sales of one, and the level of information is lowered by the inferior specimens. It might be expected that this form of competition would set off its obvious draw-backs by reducing the price of the product. But even that advantage is illusory. For the price of books, it may be conjectured, is fixed by the costs of production, which include the expense of advertisement, and the last item particularly is increased by competition. Again, these competitive singletons are matched by competitive series. Sixpenny books, shilling books, half-crown books, herded into uniformity by appearance, but as different in character as soldiers out of their red coats, are no sooner put on the market by A than they are duplicated by B, and haply triplicated by C, and the old trouble of authors, readers and booksellers is intensified into battalions out of spies.

Let me offer you, within the limits of "Standesehre," one little piece of advice. Do not rely too confidently on the advertisements. A story reaches me from America, where this craft is raised to a fine art, that 183 buyers were interrogated as to why they had bought a certain book. Seventy-nine had been influenced by the recommendation of friends, forty-four by the authors' reputation, thirty by a lecturer's recommendation, fourteen by reviews, nine by booksellers' show-windows, and seven by advertisements. It is an illuminating analysis, which seems to indicate the value of such an Association as your own.

But this is negative advice, and we are seeking positive counsel. It is a social problem which we are considering, and a good socialist might reply by the slogan, nationalize or rationalize. I do not know what is done to-day in Russia, but it would be a hardy Government in this country which should survive an attempt to nationalize the book-industry. We are not fortunate in nationalizing non-production, as recent excursions by the censor tend to show, and a Board of Libriculture in Parliament would have many vested interests up against it. To govern the book-mart in a country where female novelists are enfranchised at twenty-one is to invite political defeat. Rationalization is a ticket of another colour, though it is not a matter for the State. But a National Book Council exists, which was incorporated in 1925, and which draws up Book Lists in special subjects, such as, to select a few at random, Architecture, Belgium, Birth Control, Christian Evidences, Devonshire, Electricity, Spiritualism, War, and Wine. Each list is sorted under headings, including, where appropriate, the names of books out-of-print which a student should try to consult. This Council, the objects of which are "the promotion of book-reading and the wider distribution of books," aims at keeping its information up to date, and it supplies a clue through the maze of publishers' announcements. The Workers' Educational Association and other centres of adult education are, of course, invaluable to readers, who, if they consult the right authorities, have perhaps less excuse than they allege for going astray in the maze. In these and similar directions experts in every branch of learning are trying to keep abreast with the tide of information. The root of the problem is organization. It is vain at present to expect publishers to unite in order to contract their own "output." "We are imitative animals, like the rest of you," they might reply, "and, like the rest of you, we pursue

'safety first.'" If a channel is dug for a book or series by blasting the public rock with importunate advertisements, and harnessing strong authors to the mechanical contrivance, that way will be used till it is trite. Rather than blast the rock at another point, new books will be poured into the old road. In the resulting jostle of vehicles, the publishers are not the best guides. The traffic must be organised by experts, trained to judge the weights and lights which distinguish good books from bad, or permanent from ephemeral, or primary from secondary. It is possible, even probable, that the growing custom of this guidance will gradually engender a sort of book-sense in readers, corresponding to the road-sense of pedestrians, and, ultimately, perhaps we can expect a new public opinion about books which will regulate the traffic without legislation. Over-production will be discouraged, because readers will have acquired a rough-and-ready discrimination in advance of their experts' advice; and under-manufacture, in the sense of putting inferior articles on a falling market, will likewise be found unremunerative. Thus, publishers will learn wisdom by experience; or, more exactly, their proper function of supplying a public want will be governed more accurately by measurements of consumption, and a time may even come when, in their own interests, they will consult one another as to conditions of supply and demand. The public refusal of the glut, which crowds the bargain-basements, fills the second-hand bookshops, and loads the remainder-stores, will introduce safeguarding into an industry in which competition is now unchecked. Joint enterprises may be undertaken, in some such sense that publisher A, who has the physicists in tow, will combine with publisher B, who is better versed in economics, to produce a "Great Men of Science" or a "Library of Modern Thought," which will be one series, not two; and out of these joint enterprises, loosely associated at first, and readily determinable, a habit of consultation may grow which will lead to firmer amalgamation. There will be no swift or violent development, but nothing is fixed in these days, and out of the restlessness of readers, which your Association, among others, keeps alive, new methods are likely to be forced upon a body of men, who, like most English traders, are conservative in practice, but quicker than they seem at observation.

This problem of the approach of the producer to the consumer of information comes back every way to the information. In a few months we shall be celebrating the Diamond Jubilee of the Act of 1870, and Lowe's gibe, "We must educate our masters," requires restatement today. They are educating us from the feet upwards—the feet taught to disuse locomotion. How many of our grandparents' servants could neither read nor write! How many of the few surviving servants see more, and hear more, and play more, and sleep more, than those whom they serve! The social order is upside down. Leisure has been reclaimed by the workmen, and the masters beg leave to rest. Whether or not Labour is in power in Parliament, in the benign morning of the present Government, it is in power in places that matter: in our shops, and in our homes; in our factories, our dockyards, even our mines, some of which it has had the power to close. We do not cite this in any spirit of repining. No lost Victorian values attract our wistful regret. Such an attitude would

be false to the future, or to such part of it as we may still affect. We cite it because of its relevance to this problem of the parties to information. We have to get away from the standards of 1870. Sixty years or two generations, which are nearly twenty generations in the schools, have wrought a social revolution. We cannot talk of education today in the terms of three ample R's, as if they opened the world to its apprentice. As well might we open America by the type of ship in which Columbus sailed. Our Board schools, stratified to Council Schools, and rising by golden stairs to universities, with their plethora of degrees, hardly remember the type from which they sprang; and the curtailment of the wage-earning age, not only at the pensionable but also at the teachable end, will foster, as it should foster, the desirable ideal of a population forming, intellectually, one united class. This was not the idea of 1870, when we set out to educate our masters. We were patrons of learning in those days, distributors of choice morsels of information, open-handed with three or four Bank Holidays and a collation of the Hundred Best Books, but suspicious of Trades Unions claiming to regulate hours of work, and of *nouveaux riches* of either sex, whose wealth consisted in a zeal for knowledge. The idea has grown in despite of the gracious, gentle timidities of that epoch, which, after all, had its Kingsley and its Maurice, its Walter Besant, its William Morris, and Quintin Hogg, not to mention one or two who are still living, to outbid the raucous offers of Karl Marx and to correct the rigidities of Dr. Smiles. Their virtue hedged it round with safeguards, rather of speech than of act, which disguised the course of the revolution. We stumbled into modern times unawares, and Frankenstein, though he rubs his eyes, is not alarmed by his monster. But it is a monster, none the less: a mammoth population, not waiting at the feast, but helping itself to the viands.

The producer must come to the consumer with a clear sense of the consumer's right. Demos is Bacon to-day, who took all knowledge for his province. He is not to be fobbed off with the second-best, or fed with crumbs from rich men's tables. He is absolutely serious in his quest, and will not be content till he has attained it. The Archbishops pleaded the other day, in their Pastoral Letter to the Church of England, for more leisure for the clergy, more time for study and thought. Schoolmasters, another class of teachers, are protected in this way, and the plea might be extended to all classes of the population engaged in publishing information. They must take time for thought and study, or they will be left behind by the consumers. We began by educating our masters. Now our masters are educating us. Such an Association as this of yours acts as the brain of a class of workers who are constantly busy with hand and eye. Book-production requires immense mechanical skill. From the manuscript delivered to the publisher to the finished product, with dust-cover complete, on the bookseller's shelf, there is a long series of processes which tax that skill to the utmost. Your work begins when those processes are over. You sit aloft in your signal-box, and direct and regulate the traffic, and, with, doubtless, rare exception, your passengers arrive punctually at their destination. The only improvement in the system which I am prepared to suggest is neither drastic nor heroic, and does not materially affect the existing factors of the organization. For it goes back behind the authors' manuscripts. It is based on the conviction

that, with the increase of knowledge, there will come an increase of wisdom in the public that reads. They will apply to their own experience the old proverb about art and life, and will develop, as, indeed, they are developing, a standard of taste which will go a little further in the direction of adjusting the length of the one to the shortness of the other. The wrong books, the shoddy books, the mean books may continue to reach the publisher, but they will not receive his *imprimatur*. He will have had leisure to look round, and to acquire, and even to anticipate, the new growing standard of public taste. There will be selection at both ends : selection of the best by the publisher, and selection of the best by the public. For I do not range myself with those *laudatores temporis acti* who tell us that democracy in government marks the end of aristocracy in taste. The history of literature, on which I must not now dilate, can be interpreted correctly to a contrary conclusion, and observation of the present reinforces those conclusions from the past. Despite the clash and jostle of the traffic, due partly to old-fashioned publishing and an inadequate appreciation of public needs, it is the best books which get to the front. If the information is good enough, the way of the producer is smooth, and I am confident that, within a few years, and with the help of such Associations as yours, the good taste of educated men and women, co-extensive at last with the reading public, will make the republic of letters a land fit for *homo sapiens* to dwell in.

DISCUSSION.

At the request of the CHAIRMAN, MAJOR G. B. BOWES, M.A., President of the Cambridge Chamber of Commerce and Past-President of the Associated Booksellers of Great Britain and Ireland, opened the discussion.

Mr. Bowes gave a cordial welcome to the conference on behalf of the Chamber, two of whose activities were to make Cambridge better known as a place of resort and a meeting-place for conferences such as this, whereby Cambridge was kept in touch with a variety of movements in the country ; and, secondly, encouraging the provision of facilities for further education for young people engaged in business with a view, not only to increasing their efficiency, but widening their outlook on life as citizens.

Referring to Mr. Magnus' address, he endorsed his statement of the need for making information available, and of the effect on those who served in the war of speeding up the process of intellectual progress, and increasing the willingness and ability to take responsibility.

As a bookseller, he was greatly interested in Mr. Magnus' statement of the ideals and problems of publishers of informative works, and specially welcomed the spirit of co-operation among publishers which Mr. Magnus advocated. As regards the National Book Council, a co-operative effort on the part of authors, publishers, and booksellers, in addition to the bibliographies of books in special subjects, mentioned by the speaker, he called attention to the " Reader's Guides," a scheme for keeping readers interested in books on a special subject in touch with the new and immediately forthcoming works in their own subject by means of a series of twelve classified pamphlets issued four times a year.

He trusted that in the organisation by experts of the problem of traffic from the producer to the consumer, booksellers might play at least a small part as disseminators of good literature and centres of intellectual life, as recommended by the Committee on the Teaching of English. In order that they might more worthily fulfil this object, he alluded to the scheme of training for apprentices, learners, and assistants recently established by the Associated Booksellers. He endorsed Mr. Magnus' statement that the producer must come to the consumer with an understanding of his rights and needs, which had greatly increased owing to the educational legislation from 1870 onwards.

The CHAIRMAN (MR. H. L. JACKSON) said: At one end of the chain we have the producer—that is, the science worker or author—at the other the consumer as represented by other scientific workers, and, in addition, the exploiter or manufacturer who requires scientific information on the materials with which he deals.

Between these two ends of the chain various factors must intervene. First there is the publisher, who perhaps may be said to combine several other necessary links—printer, paper-maker, block-maker, binder. These are all concerned with the giving of the raw material supplied by the author a marketable form. Then there is the advertiser, often also combined with the publisher; but, whether this be so or not, the need for making known the existence of the finished product to the possible consumer must be taken into account. Lastly, we have the distributor, in this case usually the bookseller, in some shape or other.

For the more prompt publication of the results of research work the most economical form is the article in the appropriate journal devoted to the particular branch of science, but when the material to be dealt with is more than any journal will undertake, the book form has to be adopted, and the road sketched above has to be traversed. From the economic point of view the chief difficulty of the publisher devoting himself to scientific or technical work is the comparatively limited market open to him. There is another limitation he has to consider—the question of time. The only approach to a "best seller" in the scientific world is the text-book, and here the publisher must be careful to limit his edition to such a number of copies as he can expect to dispose of before the book will be considered out of date. Supposing he is fortunate enough to solve this problem satisfactorily, the issue of a new edition involves nearly as much in the way of capital as the first, for it is only in a few cases that the type can with advantage be kept standing. When it is realised that the average cost of producing a scientific work is from two to three times that of producing a work of fiction of the same size, while the number that can safely be printed at one time is usually half or in many cases less, it will readily be seen why the cost per copy of the scientific book is so much greater.

Those whom the publisher primarily employs—printers, block-makers, paper merchants, and binders—are usually able to look after themselves, so that such pressure as the consumer is able to exert falls on either the publisher or bookseller, or both. There seems to be a peculiar mentality, not confined to the general reader, affecting most people where printed matter is concerned. I mean that many consumers of it display a total absence of scruple as to the means by which they satisfy their demands. Few people would dream of approaching the manufacturer of some patented article with a more or less polite request for a free sample of his wares. Yet in the case of books people of otherwise irreproachable character explain gleefully how they obtained free copies of expensive publications for themselves or their libraries. Every publisher, as well as most authors, constantly receive speciously-worded applications of this sort. Some of these have, from force of circumstances, to be yielded to. And this fact has to be borne in mind by the publisher in fixing the price for those, in the interests of his author as well as of himself, he hopes to sell. Assuming an edition of 1,000 copies is arranged, for it is obvious that if 100 have to be written off as going for review and so-called presentation, the cost of production and distribution must be spread over the remaining 900, with the result that the selling price will be increased by something like ten per cent.

The services of the distributor of scientific books, the specialised bookseller, may be estimated variously, but undoubtedly many scientific workers do rely on their bookseller for keeping them informed of new publications on their particular work. To perform this service efficiently the bookseller incurs considerable labour and expense. If he be grudged a fair return for this service, it is obvious it must be curtailed, and everyone concerned—author, publisher, and consumer—will suffer.

These may seem sordid mercantile considerations to put before a meeting of this kind, but they have a place and a direct bearing on the problem under discussion, which I take to be how the consumer of knowledge may be brought into the closest and most economical relations with the producer.

If none of the intermediaries is getting more than a reasonable return for such services as he renders, it follows that any reduction in the costs in the process of manufacture and transfer can only be made by the elimination of some of the factors.

This is sometimes actually attempted. Occasionally an author or a society in touch with a printer may arrange for the production and distribution to the book-

sellers and their special public of a particular work, thus saving the expenses of a publisher. Whether the result always ends in a real economy is sometimes doubtful. The process of elimination may be carried a stage further, and the distribution also may be restricted to those responsible for the production.

In the case of a work about to be published this has been done: The author and the institution with which he is connected not only publish the book, but refuse any allowance to trade applicants, giving as the reason their desire that the book may be available at the lowest possible cost, and stating that the selling price has been fixed so close to actual cost that there is no margin for any allowance. Unfortunately the publicity which will be given to the work, by reviews and, I presume, a certain amount of advertising, results in specialist booksellers receiving orders for the book. They are then placed in the awkward position of having to cause their customers inconvenience and delay if they refer him to the author; or, if they supply the book, they do so at an actual loss, since every retail transaction must bear its share of overhead charges, as well as the payment for the service rendered by obtaining and paying for the book, and waiting for the settlement of the account. These can only be met when an allowance is made off the selling price.

We all know the saying about the man who tries to be his own lawyer, and, if there be any truth in it, the saying might in many cases be applied to the author who attempts to be his own publisher and distributor.

I am quite sure the specialist publisher would welcome any suggestions a discussion of this kind might evolve. They form a special section of the Publishers' Association, and I should be glad to convey to that section any practical hints that may be forthcoming.

With regard to the figures Mr. Magnus gave us as to the value of advertisements, I venture to think this might be misleading, as it is possible many of the seventy-four who consulted friends and of the forty-four who were influenced by the author's reputation might have first heard of the book through an advertisement.

Whether publishers will ever consult each other about what books they shall publish seems rather doubtful. Still less will authors be willing to pool their work. When an intending author calls on a publisher, the latter's first line of defence is to point out the existing books on the subject, and this is invariably met by the prompt and eager assurance that the proposed work treats the subject quite differently from any of them—it is, in fact, absolutely unique. This may or may not be true; usually it isn't—but the fact remains, the author is persuaded his book will be a new contribution to the subject.

Mr. B. M. Headicar said that one of the real difficulties was not so much to discover whether publishers issued only books which should be read, but the inability to obtain publication of a vast number of important contributions from all branches of science, which, owing to the poverty of the authors, were unable to be placed before the community at large. In this respect, at any rate, he believed that Government assistance should be forthcoming so that these valuable contributions might be made available to the people. It was often difficult to judge the real worth of any book published from the reviews to-day which appeared in the press, but it was a well-known fact that newspapers and periodicals were afraid to frankly condemn a work which deserved it for fear that the advertisement revenue, which papers received from publishers' advertisements, might be seriously curtailed. He suggested also that the public would get a better idea of the quality of a book if publishers in their prospectuses would include unfavourable opinions of authoritative journals as well as the lavish praise of many obscure ones. Mr. Magnus might have a detestation of Karl Marx and his writings, but, at any rate, if they had not been written and widely read there would not have been the serious study of his theories which had resulted.

In regard to booksellers, he thought there was a great deal of improvement possible in their knowledge of literature. In Germany and other European countries a bookseller was usually a man able to give guidance to anyone requiring to study the literature of any subject and to indicate by stages the material to be read. In this country, generally speaking, booksellers were only able to indicate names of books and to procure them if ordered, and were quite unable to give any idea as to the scope, nature, and standard of a work, or indicate its suitability for a particular case. He considered, therefore, that the bookseller and his assistant required special training just as much as a librarian; and that the publisher was still suffering from too great a desire to publish what people would buy rather than what they ought to read.

Mr. E. N. Simons also spoke.

The Preservation of Places of Natural Beauty and Historic Interest.

By S. H. HAMER.

There can be little doubt that the interest taken to-day in the subject of the preservation of places of natural beauty and historic interest is far greater than it was in our fathers' and grandfathers' times. Scarcely a day passes but there appear in the columns of the newspapers appeals for the saving of some old house or well-known beauty-spot, announcements of the impending sale and demolition of some historic building, or, more rarely, reports of the success of one or other of the numerous bodies engaged in the laudable work of preserving such of England's beauty as remains. The very fact that newspapers regard these items of news as likely to attract their readers, as "good copy," in fact, is evidence of increased public interest in the subject; it is true that we have not yet reached the point when the rescue of an ancient monument or place of great natural beauty is considered to be of such importance as to warrant its appearance on a poster, but even that is not beyond the bounds of possibility, and we may live to see the day when a special edition of an evening newspaper may display in the largest type some such legend on its bills as "Stonehenge Saved" or "Beauty-spot in Danger," while the very latest murder mystery is relegated to a comparatively obscure position.

Moreover, the number of societies concerned in this important matter has grown very rapidly—more particularly of recent years; a glance at the list of the bodies supporting this meeting and sending delegates to it will show how wide-spread is the interest displayed in the subject. The large majority of these bodies have been established for the purposes of "preserving" or "protecting" objects of natural beauty or historic interest, fauna or flora—that is to say, it has been felt necessary to preserve or protect these things against the ravages of man. And there are surely few people who will deny that some kind of protection is necessary. With the rapid development of transport to-day, there is no place of which we can truthfully say that it is so remote or inaccessible as to be secure from the hand of the spoiler, and it is obvious that there is plenty of work still to be done in the way of protection and preservation.

I imagine that it is hardly necessary for me to dilate upon the reasons why it is worth while to preserve the natural beauties of our country. I suppose that all who take part in this Conference are actuated by similar motives, but I cannot do better than quote a few sentences from Professor G. M. Trevelyan's admirable pamphlet issued this year as a plea for the National Trust. He says: "The most obvious reason is the lowest—the financial. Nowadays natural beauty has its price . . . If we spoil our island, visitors will have the less inducement to visit it. And, just as the natural beauty of the island is a financial asset and a source of distinction to the nation as a whole, so the natural beauty of each shire and region is a source of wealth and honour to the local inhabitants . . . But it is not merely, it is

not even chiefly, a matter of money. The happiness and the soul's health of the whole people are at stake. The preservation of natural beauty as an element in our nation's life is a cause that deeply concerns people of every sort who are working to maintain any ideal standards and any healthy life . . . Without vision the people perish, and without natural beauty the English people will perish in the spiritual sense."

It may be admitted, then, that we have progressed in our ideas with respect to scenery since the days when it was regarded as a perilous undertaking to ride across Hindhead, and the Lake District was considered a country of savage, almost barbaric, grandeur. But it is at least worth while considering whether the appreciation of natural beauty has been of unmixed benefit; doubtless the perils our forefathers experienced on heathland and commons have disappeared, but the pedestrian, at any rate, now has to encounter no less deadly perils from the reckless motorist, and, while the beauties of such a district as the Lake Country no longer terrify us, they are certainly in danger of being vulgarised and losing a great deal of their charm. Furthermore, while the means of visiting beautiful and remote spots in our islands have increased with unexampled rapidity the knowledge of how best to appreciate, or, indeed, how to appreciate at all, the beautiful countryside has by no means grown with like rapidity, and the result is that many places cease to possess any natural beauty and become hopelessly vulgarised and spoiled.

It has been well said that we are living in a transitional period; old methods are being superseded by new, more comprehensive and far reaching, and it behoves us to adapt our social machinery to meet new conditions.

There is no doubt that at present a certain amount of confusion exists in the minds of the uninitiated as to the functions of the numerous bodies engaged in this preservation and protection work; the "man in the street" may not know which is the appropriate society to whom application should be made in certain circumstances—he may be ignorant of the meaning of those mystic initials S.P.A.B., C.P.R.E., or C.F.P.S., and may even believe that the National Trust primarily concerns itself with the management of public-houses; moreover, some have maintained that in the multiplication of these bodies there must be "overlapping" and that this may be a case of "too many cooks spoiling the broth!" Others maintain that the business of the preservation of the countryside is a national affair and one that should be undertaken by the State; they point to other countries, the United States, Canada, or South Africa—all of which have their national parks—and assert that a country like England, possessed as it is of a charm which has no parallel in the larger continents, should not lag behind in protective measures to preserve that charm.

There may be much to be said for these views, but I venture to submit one or two points for consideration. In the first place, while it may be true that "too many cooks spoil the broth," it is equally true that "in the multitude of counsellors there is wisdom," and I am inclined to think that "overlapping" is a word that is liable to be somewhat overworked. A certain amount of "overlapping" is unavoidable and is indeed desirable in some cases, but, to my mind, if the work of all the different organisations were "co-ordinated"

(which is another blessed Mesopotamian word) not nearly as much effective work would be accomplished. I have given at the end of this paper a list of the societies engaged in the work of preservation and protection, together with a necessarily brief note of the particular branch of activity to which they devote themselves, and it will be seen at once, I think, how difficult, if not impossible, it would be to combine all these activities in one organisation.

There is undoubtedly need for some sort of clearing-house and, this need is to a large extent met by one of the most recently created bodies—the Council for the Preservation of Rural England. But each society has its own sphere of activity and dovetails in with other institutions rather than overlaps them, though, as has been well said, a roof is only made watertight by overlapping tiles.

To those who would advocate State intervention and the creation of a Government department to deal with questions of preservation and protection, I would point out that experience has taught us in this country that it is difficult, if not unwise, to legislate in advance of public opinion, though, as Professor Trevelyan says, "Possibly if politicians gave a lead they would find a greater following and meet with weaker opposition than they think." But, in the meantime, let us do what we can to influence and educate public opinion in the right direction. The experience of the National Trust, with which I have the honour to be connected, is instructive. It began in 1895 with a very small membership, and its first task, that of saving and restoring an old Clergy House, was accomplished with great difficulty and as the result of unremitting effort on the part of a few individuals, though the sum to be raised was not more than two or three hundred pounds. For some years it continued to work in a quiet way, with extremely limited funds, but in 1907 it had so far established itself that those who guided its councils felt justified in applying to Parliament for an act of incorporation, and the National Trust Act was passed by means of which the Society was empowered to hold for the benefit of the nation lands and tenements (including buildings) of beauty and historic interest, and as regards lands to preserve (so far as practicable) their natural aspect, features, and animal and plant life. Since then its progress has been increasingly rapid; from 3 properties in 1896, its holding increased to over 150 in 1928, extending to nearly 30,000 acres; and whereas great difficulty was experienced in raising £300 in its early days, last year it collected over £30,000 in a comparatively short time for the preservation of Stonehenge, while more than £40,000 had been raised for Ashridge. Moreover, such a position of eminence has it attained that now hardly a month passes without some beautiful property being offered to the Trust, or without an appeal being made to it to save some precious area from destruction. All this has been accomplished with a membership which has only recently reached 1,000 and without any assistance in the way of Government grants.

The Trust has always worked in conjunction and in harmony with various Government Departments, notably the Office of Works, but there has been no desire on either side, nor would there be at present, I think, that the work of the Trust should be merged in that of a Department of State, or even made a separate branch of the Government. This is not to say, however, that those connected with

the Trust and similar organisations do not feel the need for legislation in various directions. Speaking for myself alone, I see no reason why legislation should not be introduced and introduced speedily, scheduling the whole of the area of the Lake District and placing it under the control of a specially-constituted commission or board which would be empowered to regulate development (note that I say "regulate," not "prevent") of every kind, whether of roads, water-power electricity undertakings, building, and the like. At present there is only too much danger of unscrupulous speculators taking advantage of the appreciation by the public of beautiful areas and threatening desecration of them by unsightly building or other form of development unless they are bought off at an exorbitant price. There are many other directions in which legislation could be helpful, but in the meantime there is plenty of work to be done by the various organisations already in existence. Some critics to whom the idea of overlapping would seem to be in the nature of an obsession appear to envisage a horde of officials doing little but routine work, each society being luxuriously staffed with a consequent waste of energy. I have personally a considerable respect for officials—being one myself it could hardly be otherwise—but, as a matter of fact, it is really remarkable how much work has been accomplished in this particular sphere with a minimum of expenditure for administrative purposes.

There is a need, which has of recent years been more fully realised, of closer co-operation, of further drawing together for advice and consultation on the part of the different bodies concerned, but this has largely been met, and I am convinced that, if each organisation continues to do its own work, affording all assistance to kindred bodies where necessary, the cause will benefit.

DISCUSSION.

In presenting his paper, MR. S. H. HAMER advocated the formation of a Parliamentary Amenity Group consisting of members of Parliament interested in the preservation of the countryside.

In opening the discussion, SIR J. J. THOMSON referred particularly to the effects of motor traffic in the Lake District, where the noise in August was, he said, comparable with the uproar in Piccadilly. In a short walk he had encountered twenty charabancs from Blackpool, six from Morecambe, and several from other towns, while the intervals were filled up by private cars. Peacefulness was one of the great charms of the lakes, and there was no peacefulness there now. There was a constant din which only people who could climb were able to escape.

MR. E. A. MARTIN, F.G.S., said: I have listened with very great interest to the remarks of Mr. Hamer, and I have no doubt that he has the sympathy of all present in the aims that he has in view. I myself have had the pleasure in some measure in helping to forward these aims, and one only has to read the report of his Association, recently published, to see the magnitude of the work that the National Trust has accomplished. Coming from Croydon as I do, and being a delegate from the Croydon Libraries Committee, I may say that we have reason to be thankful for the existence of the National Trust, as we have a local branch there of the kindred Society, the Commons, Open Spaces, and Footpaths Preservation Society, which has done good work in the district. Everyone has reason to be thankful for the existence of the various societies mentioned in the paper that has been circulated, and the information that they have at their command is worthy of being recorded in the Information Bureaux which ASLIB represents and collates.

There are scattered up and down the land various houses known as Trust Houses, but it is to be hoped that no one will confuse these places of refreshment with any of the activities of the National Trust; although in some cases they are in premises part of which is worthy of the attention of the Society through its antiquity or in other respects.

Most of our kindred societies suffer as usual from lack of funds, and I know the difficulties that the N.T. meet with in trying to provide the necessary funds to meet the working expenses of their various properties. Such properties, whether lands or buildings, cannot simply be purchased and then left alone to go to ruin or become wildernesses. Their maintenance has to be provided for, and this is always a great drain on the slender resources of the Trust, and I hope those who have heard Mr. Hamer with interest will enrol themselves as members, even though the amount of their subscription may be individually small.

So far as the libraries are concerned which our societies possess, they may be small, but they are of a specialistic nature, containing as they do books relating to the holding of lands in ancient times, or maps of the past showing the boundaries and divisions of fields, common and otherwise. I do not know if ASLIB has a complete set of our Commons Society "Journal," which I have the honour to edit, but in it will be found most useful information dealing with the work of protecting commons and footpaths and the acquisition of land as open spaces, which, as a rule, are passed on to the National Trust to hold for the public.

I need scarcely say more to recommend to you the good work of the National Trust.

Mr. E. A. Barnard appealed for the preservation of documentary evidence. Hundreds of dozens of documents concerning properties of historical importance had been torn up to make novelty bridge scorers and card cases. Cambridge and its colleges, without documentary evidence, would be almost like a body without a head. He begged the conference to consider the work of the British Record Society in its attempt to preserve documentary evidence connected with historical property.

Mr. Humphrey Baker said: I should like to emphasise the great value of the work of the National Trust, especially in that it is built up entirely on voluntary effort and not in any way officially subsidised. It is often impossible not to wish, when some beautiful place is on the point of being lost, or spoilt by modern development, that a Government Department were at hand to stop the catastrophe, instead of its being necessary painfully to raise a fund for its preservation. But the saving of a piece of land by official intervention is not the same thing as saving it by voluntary enthusiasm. It is not the mere acquisition of so many acres of ground that matters most; it is the attitude of the public towards these places that is the really important thing—that they should feel them to be their own and identify themselves with their preservation.

With regard to the suggestion that the various bodies working for the preservation of the countryside would be more efficient if they were amalgamated or subsumed under some general organisation which would take the whole matter in hand, what are the criticisms which are directed against the present arrangement?

One is that there is at present a waste of energy by overlapping. But does not this criticism spring from a vague idea, prevalent among the uninstructed, that the existing organisations are all engaged in the more or less identical job of "preserving" England? As a matter of fact, preservation has very many aspects, and the agencies dealing with it are highly-specialised bodies performing quite distinct technical functions and in actual practice not overlapping at all. What "duplication of effort" is there, for example, between the Society for the Preservation of Ancient Buildings, the Commons, Open Spaces, and Footpaths Preservation Society, and the Scapa Society?

Co-operation, of course, is absolutely essential; but it is, in fact, practised to the full.

The second argument for "telescoping" organisations is that they could economise on their redundant staffs. Could they? The present state of affairs seems to be one of societies with insufficient staffs working overtime (because their hearts are in their work), and only prevented from extending their activities by lack of funds.

This question of funds raises the most important point that whereas the individual societies now have their separate "appeal" and can each obtain a fair though insufficient income for their separate objects, one all-embracing organisation would have only one generalised ground of appeal and would simply not get the necessary amount of voluntary support to enable it to perform its many special functions. This is a very real risk, and for this reason, as well as for the others I have mentioned, the societies engaged in the work of preserving the countryside, while co-operating to the fullest possible extent, should firmly resist any proposal for merging their separate identities.

Mr. Frank E. Lemon said that co-operation between the various bodies engaged in this question did exist to a large extent. Difficult problems often arose with regard to the management of properties after acquisition. The power of temporarily enclosing portions as bird sanctuaries was very desirable. He spoke of the work done in this direction in Canada.

Miss D. M. Hunter urged that areas other than the Lake District, such as the South Downs, should be scheduled in order to control their development.

Brigadier-General M. Mowat thanked the author for having included the Roads Improvement Association among the societies engaged in work of preservation. The R.I.A. was established in 1886, and had done much to educate public opinion not only on matters of roads and transport, but had also been mindful of animal welfare. The Association was among the first to offer prizes for a non-slip horse-shoe, and had done unostentatious work with the small funds at its disposal. It had aided and stimulated Government Departments and local authorities with technical advice of a valuable character.

Others who took part in the discussion were Dr. Herbert Smith, Mr. C. C. Fagg, Mr. E. N. Simons, Mr. C. Dampier-Whetham, Dr. W. Bonser, Mr. H. Rottenburg, Mr. J. G. Pearce, Mr. H. C. Hughes, and Mr. P. C. Bursill.

[See page 37 for list of societies engaged in the work of preservation and protection.]

LIST OF THE SOCIETIES ENGAGED IN THE WORK OF PRESERVATION AND PROTECTION.

THE NATIONAL TRUST.

To promote the preservation of, and particularly to acquire, by gift or purchase, places of historic interest or natural beauty, and to hold them in trust for the nation.

THE LONDON SOCIETY.

To stimulate a wider concern for the beauty of the capital city, the preservation of its charms, and the careful consideration of its developments.

THE METROPOLITAN PUBLIC GARDENS ASSOCIATION.

THE SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

To advise on the methods best adopted in the repair of the different parts of a building, either structural or decorative, and to spread by general means the principles from which its technical knowledge has grown.

THE ROYAL SOCIETY OF ARTS.

THE GARDEN CITIES AND TOWN-PLANNING ASSOCIATION.

To prevent spoliation of amenities and to promote the orderly growth of towns and districts by the adoption of town-planning schemes.

THE SOCIETY FOR THE PROMOTION OF NATURE RESERVES.

To preserve for posterity as a national possession some part at least of our native land, its faunal, floral, and geographical features.

THE COMMONS, FOOTPATHS, AND OPEN SPACES SOCIETY.

To protect and preserve our commons, footpaths, and open spaces, to secure and maintain free and uninterrupted use of all public rights of way.

THE SCAPA SOCIETY.

To check the abuse of public advertisement.

THE CAMBRIDGE PRESERVATION TRUST.

To protect and preserve the amenities of Cambridge.

THE OXFORD PRESERVATION TRUST.

To protect and preserve the amenities of Oxford.

THE COAL SMOKE ABATEMENT SOCIETY.

To check the evils caused by coal smoke.

THE NATIONAL PLAYING FIELDS ASSOCIATION.

To acquire playing fields and recreation grounds.

THE ROADS IMPROVEMENT ASSOCIATION.

To improve the amenities of roads.

THE ROADS BEAUTIFYING ASSOCIATION.

THE SOCIETY FOR THE PRESERVATION OF THE FAUNA OF THE EMPIRE.

FUND FOR THE PRESERVATION OF ANCIENT COTTAGES.

To preserve the ancient cottage architecture of this country.

THE SELBORNE SOCIETY.

To provide bird sanctuaries.

THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS.

THE SOCIETY OF ANTIQUARIES.

THE COUNCIL FOR THE PRESERVATION OF RURAL ENGLAND.

To organise concerted action to secure the protection of rural scenery and of the amenities of country towns and villages from disfigurement or injury.

Duplicating : a Survey of Modern Methods.

By ALBERT PARKER.

INTRODUCTION.

The object of this survey has been to gather under one head concise information on all types of duplicating machinery marketed in Great Britain. The available range is very wide, but, faced with the task of selecting a machine, it is not often possible to hunt up all the methods, makes, and suppliers. It is in the belief that a guide, however brief, will be of practical assistance, that this paper has been prepared.

The various types are described in general terms with an indication of price ranges and the cost of essential supplies. Short of carrying out controlled tests with every machine, any attempt to find a common denominator would fail, but the indications of capital outlay and running expenses will be sufficient for the purpose in view. Further, it is not alone a question of cost. The æsthetic appeal of the work produced is a matter for individual judgment. The volume and class of work obtainable from each machine are also difficult to state in exact terms. So much depends upon working conditions. Figures given by suppliers are apt to be regarded with suspicion. But the user might well pause to consider whether the machine is to be used under conditions that are reasonable; whether sufficient care and thought are given to such important matters as space, light, temperature and other variables that affect results.

Then, too, the type of operator employed makes a difference. Duplicating is usually regarded as work for juniors; the new office boy is almost certain to get the job. Capacity and training get scant attention. To some extent the suppliers encourage this attitude by emphasising the simplicity of operation without mentioning that, although technical skill is not necessary, intelligent handling will get better results than merely turning the handle. Some people have a natural sympathy with inanimate things. For example, they detect subtle differences or changes in the condition of gelatine copying rolls; they use mechanical things in an understanding way that is difficult to describe, but can readily be appreciated in results. I believe that these and similar questions are at present engaging the attention of Dr. Cox for the National Institute of Industrial Psychology. We may hope soon to have a ready means of selecting suitable trainees for duplicating and similar work, but for the present it would seem that we must rely on the fact that if we have the intuition ourselves we can detect it in other people, by watching them work or working with them. Even if it be accepted that anyone can do the work, the level of efficiency can be materially increased if full advantage is taken of the training offered by all reputable suppliers. They are generally only too anxious to give any information and service that will help users to get the best out of the equipment installed.

TYPES OF MACHINE.

Reproduction by	*Power : Hand (H) or Electric (E)*	*Copies per Impression*	*Speed per Hour*	*Cost*	*Necessary Supplies*	*Page*
(1) Hectographic Transfer :						
(*a*) Tray, gelatine or clay composition.	H	50	50–100	10s.–£3	All hectographic machines : Hectographic pencil, ink, ribbon, or carbon paper.	40
(*b*) Roll, gelatine—						
(*i*) Without feeding carriage.	H	70	50–100	£3–£10	(1) (*b*) (*i*) and (1) (*b*) (*ii*), gelatine rolls costing 30s. to £3, giving 10–18 thousand copies.	41
(*ii*) With feeding carriage.	H	70	120–150	£27–£70		
(*c*) Rotary—without gelatine or clay composition.	H–E	120	200	£16–£55	(1) (*c*), developing fluid 4s. 6d. per bottle.	43
(2) Stencil Machines :						
(*a*) Flat.	H	5000	50–100	£3–£10	All stencil machines : Stencils, 4d.–8d. Special ink. Correcting fluid.	44
(*b*) Rotary.	H–E	5000	150–6000	£10–£95	(A separate table is given for the range of rotary machines—*See* page 46.)	45
(3) Loose Type :						
(*a*) Employing printer's type.	H	*Ad lib.*	800–1200	£12–£95	Printer's ink. No type is included in cost of smallest model.	47
(*b*) Employing special type—						
(*i*) Flat bed machines.	H	,,	120–150	£27	Roll of wide inked ribbon, about 15s.	47
(*ii*) Rotary.	H–E	,,	600–6000	£30–£330	Printer's ink ; wide inked ribbon.	48
(4) Metal Plates :						
(*a*) Direct impression—offset reproduction.	E	10000	6000	£200–£325	Printer's ink ; metal sheets, 7d.–10d. each ; developing liquids. Machine is normally roll feeding. Sheet feeding attachment £60 and photo transfer outfit £46 (both optional).	50
(*b*) Photographic impression—direct reproduction	E	10000	1500	£300	Ink ; zinc plates ; developing liquids.	51
(5) Light Process :						
(*a*) Photographic.			600 per day	£150–£230	Photographic paper rolls, 3d. per sq. ft. ; mercury vapour lamps (optional), £26–£40.	52
(*b*) Through original.					Use ordinary blue print printing machine. Special paper. Developing apparatus, £1 10s. upwards.	53

1. HECTOGRAPHIC TRANSFER.

GENERAL.

Several pieces of apparatus, of different types, duplicate through the copy properties of hectographic ink.

In every case of hectographic duplication it is necessary to make a "master" on a hard surface, non-absorbent paper with hectographic ink, through the medium of pen, copying pencil, typewriter ribbon, or carbon paper. For ink work a variety of colours is obtainable, which gives an added value to the hectographic method of duplicating for certain kinds of work, such as graphs, etc.

MASTER MAKING.

(*i*) *Pencil:* For cleanliness and convenience several firms sell a suitable type of propelling pencil carrying a copying lead.

(*ii*) *Ink:* For pen and ink work. This can be obtained in five different colours—red, green, purple, black, and blue. These inks require careful handling, especially when work in several colours is being done, as they smudge very easily, and with disastrous results. When it is desired to colour an area in a drawing or graph, for example, it is better to apply the colour in fine parallel lines—"hatching"—rather than in masses.

(*iii* and *iv*) *For Typewriting:* Copying ribbons and carbon papers are obtainable from most of the firms manufacturing this class of apparatus. Both require careful handling owing to a pronounced tendency to smudge. Every trade, of course, has its tricks, and one of the most useful in the making of a master is the easy correction of errors. This may be done by pasting a small piece of plain paper over the error, and typing or writing in the correct letter or word; stamp edging proves very satisfactory for this purpose. From this point of view the ribbon has a distinct advantage over the carbon, as it is very much easier to type a correction in correct alignment through ribbon than through carbon paper.

Copies are made either by transferring the master to a copying surface of gelatine or clay, and transferring from this surface to fresh paper sheets, or directly from the master to paper sheets which have been moistened by a developing liquid.

1. (*a*) TRAYS, GELATINE OR CLAY COMPOSITION.

The earliest form of hectographic duplicating apparatus consisted of a shallow tray filled with gelatine or clay composition.

The prepared master is placed, face downwards, on the gelatine or composition surface, rubbed gently over to ensure that the paper and the reproducing surface are everywhere in contact, and allowed to remain until the copy is transferred to the gelatine or clay composition. Duplication is obtained by placing a sheet of paper on the reproducing surface, rubbing gently for a few moments, and removing. The operation is repeated for each copy required. By this means up to about fifty copies can be obtained with little trouble.

After use, a gelatine tray should be left for a minimum of twenty-four hours before further use. During this time a slow chemical action is taking place in the gelatine by which the aniline in the ink is destroyed. Until this is completed any fresh work placed on the gelatine surface may be spoilt by traces of the previous work coming through on to the fresh copy.

Clay composition trays may be sponged down and re-used without delay.

One firm markets a duplicator consisting of a number of coated plates providing a certain advantage in that there is a reproducing surface on each plate.

Prices.

The flat type of gelatine or clay composition duplicator is manufactured by a number of firms, and the prices range from about 10s. to £3.

The following, among others, are manufacturers of this type of apparatus :

Blick Office Equipment, Ltd., 1 and 2, Baden Place, London, S.E.1.
The Compo-Lithograph Co., 28, Kingsland Road, Shoreditch.
The Copying Apparatus Co., Ltd., 8–9, Trump Street, London, E.C. 2.
The Crusader Manufacturing Co., Berwick Road, Walthamstow, E. 17.
"Gyp" Commodity Co., 12, Kenmure Yard, Kenmure Road, Hackney, E.8.
A. E. Lamdin, 22, Exchange Chambers, Bixteth Street, Liverpool.
The Pilot Manufacturing Co., Ltd., 9–10, Mallow Street, Old Street, E.C.1.
B. Podmore and Co. (Southport), Ltd., 67, Chancery Lane, London, W.C.1.
Rayward Bros., 91–93, Southwark Street, London, S.E.1.

1. (*b*) Gelatine Roll.

General.

The gelatine tray duplicator has certain limitations, the chief of which are its small duplicating area and the time it must be allowed to "rest" after use.

To secure more continuous operation gelatine roll duplicators are available.

In this type of duplicator a canvas roll, coated on one side to a depth of about 3-16ths inch with gelatine, provides the duplicating surface; as each part of the roll is used it can be wound off and a fresh part employed. By this means, if several rolls are used, duplication may be carried on continuously. When the whole length of a roll has been used it must be allowed to "rest", in the same way as a tray duplicator, for twenty-four hours. During this time the aniline in the ink is being destroyed. When this action is completed, although it will still be possible to see the impression made by the previous "master," the ink will have been rendered innocuous from a copying point of view, and will not interfere with any subsequent work placed on that part of the roll. In course of time practically the whole of the gelatine surface of the roll will become coloured by the ink, but this will not affect its reproductive qualities.

These rolls require very careful handling; they may be spoilt by too much or by too little moisture; and the quality of the work which they will produce depends to a very large degree upon the temperature and humidity of the room in which they are employed. Detailed information on these points is given by the makers.

Gelatine rolls are employed on two classes of machine : (*i*) without ; (*ii*) with a feed carriage.

1. (*b*) *i*. Gelatine Roll Machine without Feeding Carriage.

This apparatus consists of a wooden case, the middle part of which is raised to form a flat bed for the part of the roll in use. At either end of the working bed, but set well below it, are spindles on to which the canvas is fitted. The spindles can be tightened to hold the roll taut over the working bed.

The method of operation is the same as that for the tray type of duplicator, and a maximum of about seventy copies can be run off one impression.

To get clean reproduction, it is necessary to apply light pressure on both " master " sheet and copy. This can be done with a small hand roller, a small cloth pad, or the fingers.

Prices.

For this class of apparatus prices range from £3 to £10 dependent partly upon the finish, but mainly upon the size. The smallest, which is suitable for small work cards, notes, etc., will make reproductions up to 5in. by 8in., and there are increasing sizes to 31in. by 34in.

Apparatus of this type is marketed by the following firms :

The Copying Apparatus Co., Ltd., 8–9, Trump Street, London, E.C.2.

The Crusader Mfg. Co., Berwick Road, Walthamstow, E.17.

A. E. Lamdin, 22, Exchange Chambers, Bixteth Street, Liverpool.

Town and Town, 135, Upper Thames Street, London, E.C.4.

1. (*b*) *ii*. Gelatine Roll Machine with Feeding Carriage.

These machines are similar, but in a different class to those described under the heading (*i*) as they incorporate a new principle.

The machines consist of two strong cast iron side frames, supporting a flat steel bed-plate over which a portion of gelatine roll is held taut to form a working surface. The gelatine roll is mounted on spindles and can be wound from end to end over the bed-plate. A new principle is introduced in that a feeding carriage passes backward and forward over the working surface. Sheets of paper are fed in by hand and are laid and picked up by the carriage, which also applies the pressure necessary to obtain copies. This, of course, obviates the rubbing and hand rolling which is necessary with the simpler types of gelatine roll apparatus, and increases the speed of operation.

A maximum of about seventy copies can be obtained from one impression. It is claimed that the gelatine may be worn right down to the canvas backing, and that any number up to 15,000 copies may be obtained from one roll.

Prices.

These machines are made in various sizes, giving reproducing surface from 8in. by 18in. to 18in. by 34in. The cost is from about £27 to £70, according to size.

Rolls cost from 30s. to £3 each, according to the size of the machine used. Special tubular steel stands may be obtained for about £6 or £7, fitted with a rack to hold spare rolls.

Although it is possible to place the machine on a table, thereby avoiding the expense of a stand, a safe resting-place for the rolls must

then be provided. They should not be allowed to stand on end or to lie flat, but must be supported horizontally by the spindle ends in some kind of rack to avoid injury to the gelatine surface.

The "Facsimo" machine is manufactured by the Gledhill-Brook Time Recorders, Ltd., 26, Victoria Street, S.W.1. The "Ditto" machine is sold in this country by the Merkham Trading Co., Ltd., Bush House, Aldwych, W.C.2.

1. (*c*) Rotary—without Gelatine or Clay Composition.

A method of hectographic reproduction which does not involve the use of gelatine or clay composition is that employed in the Ormig Rotary Reproducer. In this machine the copies are made direct from the paper "master."

The machine consists of a cylinder upon which the "master" copies are held by a clip, and a lower rubber roller with adjustable pressure. Above the feed plate is a pad of absorbent material, so enclosed in a metal holder that its edge only is free to moisten paper passed between it and the feed plate. When the machine is in use this pad is kept continuously moist with a special developing liquid, the main constituent of which is methylated spirit.

As the copies are obtained by placing the "master" face to face with the paper on which the copy is to be produced, it is evident that the "master" must be written backward—that is to say that it is legible if read through from the back, or if reflected in a mirror. Such copies can only be made conveniently with carbon paper. If the "master" is typed the carbon must be so placed as to transfer upwards on to a sheet of paper above it, and not as is the usual way, downwards on to a sheet of paper below it. This also applies to "masters" made with pen or pencil. Carbon paper is obtainable in three colours: black, red, and purple.

To obtain long runs, it is necessary to use a very highly-glazed art paper for "master" copies, and the manufacturers of the machine sell a paper made specially for this purpose.

Single sheets of paper are hand fed into the machine. As the copied sheets come out they are still slightly damp, but they dry almost immediately, and can be put up in a pile at once. The makers claim that from one "master" up to 200 copies may normally be made, although they have secured much larger numbers than this. The speed of operation is high and compares favourably with any other type of hectographic reproducing apparatus. The only supplies needed are hectographic carbon paper, highly-glazed paper for "masters," and the moistening liquid.

These machines are made in two sizes, foolscap and brief, and can be obtained with either hand or electric drive.

Prices.

This machine is marketed in Great Britain by Messrs. W. Block and A. Anderson, 3, Snow Hill, Holborn Viaduct, E.C.1, and prices range from £16 to £25 according to size for hand-driven machines, and £45 to £55 for those electrically driven.

2. STENCIL MACHINES.

GENERAL.

The principle of a stencil machine is very simple. Stencils consist of a sheet of very fine fibre paper which has been coated with wax. The wax is cut either by the action of typewriter keys, or special metal pens ; if paper is then applied to one side of the stencil and ink to the other under light pressure, capillary action will cause a reproduction of the cut part of the stencil on the paper.

2. (*a*) FLAT-BED MACHINES.

Flat-bed machines are the simplest application of this principle and the lowest in initial cost.

In general, they consist of a flat bed upon which the paper is laid one sheet at a time. The stencil, held in a frame or diaphragm, is brought down over it and the ink roller passed over the top of the stencil. The frame is raised, the copy replaced by another sheet, and the operation repeated.

In some models there is a spring device which raises the diaphragm when the pressure of the hand is released, and this, of course, makes for somewhat quicker operation. A further development of the " self-rising " diaphragm model consists of a device whereby a block of paper can be placed on the bed, which is mounted on springs, so that after each reproduction it is necessary only to remove the top sheet of the pile to expose the next sheet to the imprint from the stencil. This avoids much handling of paper, and so increases the working speed. One firm markets a " print on top " stencil copying apparatus. Here the bed consists of a glass plate covered by a cloth ink container. On this the stencil is held by means of a wire frame, and the copies are obtained by placing sheets of paper consecutively on top of the stencil and rolling them.

This type of apparatus would seem to have its best and most economical use where comparatively long runs (up to perhaps 1,500 copies) are required at not too frequent intervals. It is not very rapid in operation when compared with the rotary machine, and, in the very nature of things, is not so clean.

Prices.

Prices range according to make and size from £3 to £10. A special ink must be used, and this, apart from the stencils themselves, which cost from 4d. to 8d. each, is the most expensive of the necessary supplies.

Apparatus of this type is marketed by the following firms :

Andrews and Co., 106–107, Great Saffron Hill, London, E.C.1.
Crusader Manufacturing Co., Berwick Road, Walthamstow, E.17.
Esco, Ltd., 56, Holborn Viaduct, London, E.C.1.
Ellam's Duplicator Co., Ltd., 109, Kingsway, London, W.C.2.
D. Gestetner, Ltd., Aldwych House, Aldwych, London, W.C.2.
Lion Co., Ltd., Lion House, Andrew Street, London, E.C.4.
Read Manufacturing Co., Ltd., 1, Addle Hill, E.C.4.
Rayward Bros., 91–93, Southwark Street, London, S.E.1.
Rolo, Ltd., 40, Holborn Viaduct, London, E.C.1.
Swallow Manufacturing Co., Ltd., 40, Whitecross Street, E.C.1.

2. (*b*) Rotary Stencil Machines.

Where long runs at more frequent intervals are required, there are distinct economies in the use of the rotary type of stencil duplicator.

In principle, there is no difference between the rotary and the flat type.

The stencils are prepared exactly as for the flat type, but reproduction is more rapid. The stencil is mounted on a cylinder supplied with ink, and the pressure obtained from a bottom rubber roller. The actual method of operation varies both between different machines of the same make and between one make and another. The principle is the same; everything depends upon the various attachments. The simplest machine is hand fed, hand driven, hand inked, and the copies are dried by hand interleaving; there are, however, automatic devices for carrying out most of these operations on the more expensive machines. The accompanying table gives an indication of the range and possibilities of the various types of machines manufactured.

Machines of this type may be obtained from:

Andrews and Co., 107, Great Saffron Hill, London, E.C.1.
Ellam's Duplicator Co., Ltd., 12, King Street, London, E.C.2.
Esco, Ltd., 56, Holborn Viaduct, London, E.C.1.
D. Gestetner, Ltd., Aldwych House, Aldwych, W.C.2.
Lion Co., Ltd., Lion House, St. Andrew Street, London, E.C.4.
Roneo, Ltd., 5–11, Holborn, London, E.C.1.

TABLE GIVING GENERAL VIEW OF RANGE OF STENCIL MACHINES.

Maker.	*Machine.*	*Inking.*	*Drive.*	*Production per hour.*	*Feed*	*Feed Board*	*Printing Size*	*Price*	*Supplies*
							ins. ins.		
The Lion Co., Ltd.	Lion Rotary Duplicator	Roller inside stencil cyl.	Hand	1800–3000	Automatic		12½ by 8	£35	
,,	,,	,,	,,	,,	,,		brief 16½ by 13	£48	
,,	,,	,,	Electric	6000	,,		12½ by 8	£63*	
Esco, Ltd.	Esco Rotary Duplicator	By brush on exterior of stencil cylinder	Hand	3000	Hand		12 by 7	£10 10	
Ellam's Duplicator Co., Ltd.	Ellam's Rotary Duplicator B.19	Roller inside stencil cylinder	,,	1800–3000	,,		13 by 8	£12 12	Stencils: one for each piece of copy
,,	,,	,,	,,	,,	,,		16 by 13	£18 18	4d.–8d. approx.
,,	Ellam's Rotary Duplicator K	,,	,,	6000	Automatic	150–200	13 by 8	£33 10	
,,	,,	,,	,,	,,	,,	,,	16 by 13	£44	Ink: 10s. to 12s. 6d. per tube
,,	,,	,,	Electric	,,	,,	,,	13 by 8	£65*	
,,	,,	,,	,,	,,	,,	,,	16 by 13	£81*	Estimate 1s. per 1,000 copies
Gestetner, Ltd.	Ream Electric	Exterior of stencil cyl.	,,	2400–6000	,,	400–500	12¼ by 7¾	£80	
,,	Ream	,,	Hand	2400–6000	,,	,,	12¼ by 7¾	£47	
,,	Brief Electric 16	,,	Electric	,,	,,	100–200	16¾ by 12¼	£95	
,,	Hand Feed 3	,,	Hand	1800	Hand		12¼ by 7¾	£30	Other supplies small
,,	,, 5B	,,	,,	,,	,,		18½ by 10	£52	
Roneo, Ltd.	Roneo Duplicator 16	Interior of stencil cyl. (self-inking)	,,	6000	Automatic	150–200	14½ by 8	£37 10	
,,	Roneo Duplicator 10	,,	,,	,,	,,	,,	14½ by 8	£35 10	
,,	Roneo Duplicator 8	,,	,,	1800	Hand	,,	14½ by 8	£27 10	
Andrews	Rotary Duplicator No. 6	Exterior of stencil cyl.	,,	1800–2000	Automatic	100–200	12½ by 8	£48	
,,	,, 7	,,	,,	,,	,,	,,	16½ by 13	£60	
,,	,, 15	,,	Electric	3000–6000	,,	400–500	12½ by 8	£80*	
,,	,, 16	,,	,,	,,	,,	,,	16½ by 13	£95*	
Rolo, Ltd.	Rolo Rotary Duplicator	,,	Hand	3500	,,	200	13½ by 8½	£34	

* Indicates that a stand is included in the price quoted. Where not included stands can usually be obtained at a cost of £7 - £10.
The Esco machine does not incorporate a counting device. The Roneo Model No. 16 is furnished with an automatic interleaving device.
While we believe that all makers of rotary stencil machines in this country are represented in the above list, the range of models given is representative, but not complete.

3. LOOSE TYPE.

GENERAL.

A very valuable middle course between duplicating and printing is offered by machines employing loose type with some form of semi-automatic type-setting. As a rule they may be used either for facsimile typewriting or ordinary letterpress. Their value is for long runs, and once the type has been set up copies may be run off almost indefinitely. From the point of view of expense, it is very probable that once the initial cost of installation has been met, costs would compare favourably with any type of stencil machine. All machines in which type is used differ radically one from the other, and are described separately.

3. (*a*) EMPLOYING PRINTER'S TYPE (ASHLOCK).

The Ashlock is a small practical printing press in which any make or size of ordinary printer's type, and any ordinary printer's block, zinco, electro, or stereo may be used. Type-setting is semi-automatic; the fount frame is almost vertical, and the lowest piece of type in each section can be brought forward by a lever acting on all sections simultaneously. The type is first mounted on a small bar, and then slid on to the printing face, a line at a time, where it is held by movable metal slides.

Two different types of machines are manufactured, one of which is made in two sizes. The largest machine is rotary in action, but is nevertheless a flat-bed machine; it is hand driven, but self-feeding and self-inking. It will print up to foolscap size at a speed of about 1,200 copies per hour. The two smaller machines are flat-bed platen machines taking respectively quarto and octavo paper. They are hand fed and operated, and run at a speed of about 800 per hour.

These machines are marketed by Messrs. Printurown, Ltd., 121, Kingsway, W.C.2.

Prices.

The foolscap machine, including three founts of type, £95.
The quarto machine, including three founts of type, £42.
The octavo machine, without type, £12.

3. (*b*) *i.* EMPLOYING SPECIAL TYPE—FLAT-BED (SHANNOTYPE).

For this process the type is set up direct into bars which fit on the machine. The set up type is covered by a wide inked ribbon. The ribbon is mounted on two rollers which fit into brackets at either end of the machine. Sheets of paper are then laid on, one at a time, and a pressure roller passed over them. By this means the paper is pressed down on to the ribbon, through which the type prints. At each passage of the roller the ribbon is automatically moved slightly forward. When it has been wound completely on to one roller it may be reversed by means of a lever, and will then commence to wind in the opposite direction. This machine can be used for facsimile typewritten work only, as there is no printing ink attachment. Line blocks may be employed, but not half-tones. The machine is hand operated and does not call for any special skill. As regards rapidity of operation, the type-setting would take about one minute per line. For running off, the speed of working is dependent upon the operator;

there are four operations involved—placing the paper on the machine, passing the roller over it, removing the paper, and returning the roller to its initial position. Obviously, the speed of operation varies with the skill acquired. There is a meter for registering the number of copies.

A limited range of different type can be supplied, including Remington Pica, Tone, Mural, Copper-plate Gothic, Open Title, and Old Style Roman.

Price.

The Shannotype costs about £26–£27, including 4,000 standard Remington Pica types, and is marketed by Shannon, Ltd., Shannon Corner, 57–59, Victoria Street, S.W.1.

3. (*b*) *ii.* Employing Special Type—Rotary.

(*a*) Roneotype.

These are rotary machines and print either through wide inked ribbons or by means of special rollers using printer's ink.

The type is set up in a distributing fork from a gravity fount, and transferred in one sliding operation to one of the series of grooves on a printing form, not made up on the actual reproducing machine, but on a separate composing or proofing stand. When set up the entire form can be transferred to the duplicating machine.

These forms, being pliable, can be set up, used and then flattened out and filed for future use if required.

For ordinary letterpress work the type is inked by rollers, while for facsimile typewriting the form is covered with a wide ribbon. Feeding may be either hand or automatic. The rotation of the cylinder holding the form with the set up matter passes the paper between a lower roller and the set up cylinder, printing direct from the type or through the ribbon. Block printing results may be obtained by the use of an electrotype shaped to fit on to the cylinder. Three of the Roneotype models can be converted to stencil use by fitting a special attachment.

The handling of the machine involves no special skill; a certain amount of care is necessary in setting up type. For all general purposes the type-setting can be estimated at a line a minute. 1,200 to 1,800 copies per hour can be obtained from the hand machine, and 3,000 to 5,000 per hour from the electric machine. There is a very wide range of type available; for typewriter type in gravity founts, for printing in flat cases called plane founts. These machines are sold by Messrs. Roneo, Ltd., 5–11, Holborn, E.C.1.

Prices.

The price varies from about £30 for the simplest machine to £140 for a machine electrically driven with printing attachment and automatic feed. These prices do not include type, the cost of which depends upon the amount and variety required. As an indication, an average supply for use with one of the smaller machines would cost about £15. For the larger machines a more usual allowance for type would be £30, either for facsimile typewriting founts or ordinary founts. If both are required the allowance should be nearer £50.

(*b*) MULTIGRAPH.

The International Multigraph Company market a very wide range of machines suitable for very different classes of work.

In general, their machines are rotary, and are able to print facsimile typewriting, printer's type, or both if required. They range from a hand-driven machine for either single process to large power-driven automatic models combining both methods.

Two machines which call for special mention on account of unusual characteristics are :

(*a*) No. 4 Gammeter Multigraph ;
(*b*) Addressing Multigraph.

(*a*) *Gammeter Mutigraph :* This machine is fed and operated by hand, but electric motor and automatic feed can be added if required. It is composed of two cylinders mounted side by side, one the printing cylinder and the other a type holder. The type is set by an operating key, not being touched by hand in any way. An average operator can compose a line in a minute. After the letter is composed a wide ribbon is placed around the segment (printing drum) and the required number of copies run off.

(*b*) *Addressing Multigraph :* This is specially equipped to prepare a facsimile typewritten letter, reproduce a signature in different ink, address the letter, and address the envelope. The address plates have to be changed by hand for every letter produced. By removing the special attachments for addressing, the machine may be used for form letters and office printing as an ordinary multigraph.

Most of the machines marketed by this firm can be fitted with the signature attachment. The signature is imprinted by means of a special block, inked by separate rollers with a different ink from that used in the body of the letter ; this ink can be obtained in several colours and is a very good imitation of an ordinary writing ink.

A separate attachment for very long runs is the " Davidson Feed," which will accommodate between 5,000–6,000 sheets of paper and makes it possible for the machine to run from one to two hours without fresh paper supply.

A special automatic feed to take bags, envelopes, cards, etc., which are too bulky to be passed through the automatic paper feed is also obtainable. The Multigraph machines are capable of handling very wide varieties of work, as, in addition to ordinary and facsimile type, they will print from half-tones, line blocks, rules, etc.

Operators can either be supplied by the Multigraph Company or the customer's own employees may be trained by the company.

Prices.

Prices range from about £42 for a Junior Multigraph, hand driven, hand fed, and printing from printer's type only, to a power-driven machine almost entirely automatic, equipped with Davidson feed at £330. Multigraph machines are marketed in this country by the International Multigraph Co. (Britain), Ltd., 15–16, Holborn Viaduct, E.C. 1.

4. METAL PLATES.

4. (*a*) Direct Impression, Offset Reproduction (Kaye's Rotaprint).

This is a duplicating and printing machine based on the offset principle. Sheets are printed from the offset blanket roller, which receives the impression from a flexible metal sheet attached to, and revolving on, another roller.

It is possible to type on to these metal sheets, to write or draw with pencil or pen, or to draw with brush or chalk. Metal sheets can be printed on from block or stone, and photo mechanical transfers can be made.

Impressions made on the metal sheets are developed and fixed by rubbing with a special chemical solution supplied only by the manufacturers. After use, the plate can be brushed over with a preserving liquid and filed, if further copies are likely to be required. The makers claim that from each impression 10,000 copies may be obtained from a metal sheet, but a 40,000th copy inspected was quite clear. The time required to develop and fix the impression on the metal sheets is a matter of two or three minutes.

Printer's ink is used for running off, and is estimated to cost about one penny per thousand copies. Any kind of paper, except one too highly coated, can be used, and absorbent paper is not required, as copies are dry when ejected from the machine on to the receiving tray. Paper is used in roll form, and the machine is fitted with an automatic guillotine arrangement, facilities being provided for varying the size to which the paper can be cut. If it is required to print on both sides of the paper an automatic sheet feed attachment must be added. Using roll feed, the speed claimed for the machine is up to 6,000 per hour, and rather less using sheet feed. The machines are power driven and, with regard to cost of running, the makers state that the largest machine they produce has a one-third h.p. motor which runs in their London showrooms at a cost of 10d. for a forty-hour week. This figure would naturally vary in different districts according to the cost of power.

Special equipment can be supplied for photographing direct on to the plates. This equipment is very useful where a large quantity of illustrated work is done, as, for example, in the preparation of illustrated catalogues. Where it would only be needed occasionally the makers prepare the plates for clients.

Suitable paper rolls may be obtained from paper manufacturers, or direct from the Rotaprint Co.

Rotaprint machines are made in the following sizes and types :

(*i*) The standard model working from rolls of paper, cutting to size 8¼in. by 11½in. (new quarto) and half size (new octavo).

(*ii*) The same model in double width, cutting to size 17in. by 11⅝in. This machine also allows the use of two standard metal sheets instead of one large size metal sheet.

(*iii*) A model with sheet feed only, allowing the use of paper up to 13½in. by 9in.

Machines (*i*) and (*ii*) allow the printing of forms of smaller size, so that different texts can be put on to one metal sheet, or the same text repeated, and the paper cut accordingly. It is thus possible to print several forms at one operation. Both these machines can be

used for sheet feeding by means of a separate attachment. This must be used when it is required to print on the back of a sheet already printed, or to overprint in another colour.

Prices.

The prices are as follows: No. *i* machine about £200 and No. *ii* about £325; the auxiliary automatic sheet feeding apparatus for these two machines about £60 extra. No. *iii* machine about £145.

Metal sheets cost about 7d. to 10d. each, dependent upon quality and quantity. The cost of the other supplies, such as solution, etc., is quite small. The complete outfit for making photo mechanical transfers costs £46. These machines are marketed by Kaye's Rotaprint Agency, Ltd., 65A, Holborn Viaduct, E.C.1.

4. (*b*) Photographic Impression, Direct Reproduction (Photo-Litho Process).

This process involves printing direct from a zinc plate without employing offset. In this way it differs from the Rotaprint machine, and the process is rather more limited in its application, as all reproduction is photographically imprinted on to the zinc plates.

Its principal uses are for making reproductions of printed and typewritten matter, including maps, plans, drawings, music, etc., and very long runs can be made at low cost.

The matter to be reproduced is photographed on to the zinc plate, the copy being placed between the light and the plate itself. That is to say, the photographic action is carried out through the copy. It is therefore only possible to copy both sides of paper printed on both sides, if two copies are available and the text on one side can be cleaned or rubbed off in each case. If two copies are not available the matter could be separately photographed or photostated, and these photographs used to prepare the photo-litho plates. When the zinc plate has received the photographic impression this is developed and fixed with a chemical liquid supplied only by the makers. Developing and fixing a plate is quite a simple operation, the liquid merely being rubbed in to the plate with a small cloth pad until the impression shows up clearly; fixing is carried out in the same way.

When the zinc plate has been developed it is mounted on the printing cylinder. The machine is power driven, but hand fed. The makers claim that speeds varying from 1,500 to 6,000 per hour can be achieved, depending mainly upon the size of the copy required and the skill of the operator, while as many as 50,000 copies can be obtained from one plate. The plates required are ordinary zinc plates obtained from any supplier of this type of material. The chemicals can, however, only be obtained from the manufacturers, but they appear to add very little to the running expense.

Operation does not appear to require any special qualifications.

Price.

The price of the machine, with complete equipment, is £300. The suppliers will train an operator free. The training is understood to take about a week.

The machines are marketed by the Photo Litho Process, Ltd., 57, City Road, London, E.C.1.

5. LIGHT PROCESSES.

5. (*a*) PHOTOGRAPHIC.

In all the preceding processes some form of "master" is prepared, from which copies are run off. In the following light processes each copy is produced separately.

Machines of this type are specially suitable for rapidly making a few copies of drawings direct from pencil outlines, all tracing being eliminated, and are useful where it is required to copy matter on both sides of a single sheet, which does not exist in duplicate. It is frequently used to copy legal documents, old manuscripts, and books.

It is a development or adaptation of the ordinary photographic apparatus. The object is photographed directly on to paper without the intervention of glass or film negatives. The first copy made appears in the form of white lines on a black ground. This in turn can be photographed if it is desired to produce black lines on a white ground.

The object to be copied is placed upon a horizontal copy board below the level of the photographic apparatus, and photographed through a prism. A sheet of plate-glass is used, where necessary, to keep the original flat. The object to be reproduced can be copied to size, or reduced or magnified according to a set scale.

Ordinary daylight may be used for photographing, although it is recommended that, on account of the changing value of daylight under different circumstances, mercury vapour lamps should be used. The photographic paper is in the form of a roll inside the camera, and is controlled from outside to expose a fresh area for each copying operation. After sufficient time has been allowed, the roll is turned and the part on which a photograph has been made is cut off by a guillotine, operating at a fixed point. By turning a handle, the copy is passed into a developing pan. After the necessary time has elapsed for development, it is moved on to the fixing tray. Washing and drying completes the print. These operations must be repeated for every copy that is required.

There is no call for a very high grade of skill in operation, as the control is almost entirely automatic.

At the moment there are two photographic reproducing machines of this nature on the market, the Lucigraph, manufactured by Alfred Herbert, Ltd., of Coventry, and the Photostat, marketed in this country by Photostat, Ltd., Bush House, Aldwych, London, W.C.2.

Prices.

Photostat: Prices range from £150 for Model No. 1, making a copy 11½in. by 14in., to £230 for Model No. 4, making a copy 18in. by 24in.

Lucigraph: £230; made in one size only, making a copy maximum size 18in. by 24in.; smaller prints may, however, be made.

Mercury vapour lamps cost, according to size, voltage, etc., between £26 and £40 per pair, while for large quantities of work it would probably be found useful to have special print drying and washing apparatus which can be supplied by the makers of the machine. The paper is supplied in rolls, and the price works out at about 3d. per square foot.

5. (*b*) Through Original (Blue Print and Ozalid).

It was felt that blue prints, on ferro-prussiate paper, and the machinery and supplies for their production were too well known to need description here. There is, however, an analogous process—the Ozalid process—which differs slightly and is less well known.

The method of operation is very much the same as when blue prints are being produced; the exposure is obtained by identical apparatus. The prints, however, are made on a special paper which is obtainable in a very wide variety of different qualities. It is sold in rolls 30in. and 40in. wide and 10yds. long. An indication of prices of paper follows:

	30in.		40in.	
	s.	*d.*	*s.*	*d.*
Thin postal weights	3	3	4	4
Medium	3	6	4	8
Thick	5	0	6	8
Extra Thick	6	9	9	0
Transparent paper	5	8	7	2
Sensitised tracing cloth	48	0	64	0
Manilla	6	0	8	0
Opaque cloth	24	9	33	0
Sand grain	11	0	14	8
Half-tone for reproducing photos of a technical nature	15	0	20	0

The paper is developed dry by being left for about five minutes in ammonia gas. Special developing cases may be obtained from the manufacturers ranging from a box developer costing about 30s. to an electric power developer costing about £100. The latter is, of course, for continuous development, and delivers finished prints at the rate of eight feet a minute.

In its results the process is principally remarkable for the fact that it gives a fine dark line with a light or white background, as against the usual white line on a blue background. Furthermore, it is possible to obtain transparent paper and cloth on which to make direct reproduction. It is claimed that all need for tracing is eliminated, as perfectly good working copies on transparent paper or cloth can be obtained direct from the pencil drawing. It is also claimed that when printed the lines are proof against fading or obliteration through the action of light, rain, grease, lime, soap, or acid vapours, etc. Copies when made can be corrected if necessary. The correcting solution varies according to the type of paper upon which the print is made, but three correctors cover the whole range. A liquid for rendering opaque paper transparent is also made in two varieties, evaporating and non-evaporating, the choice of which depends upon whether the drawing is to be rendered temporarily or permanently transparent.

The paper and developing tanks are supplied by Ozalid Co., Ltd., 1, Central Buildings, Westminster, S.W.1.

ADDENDUM.

THE OPALOGRAPH.

The Opalograph takes its name from a sheet of specially ground opal glass which forms the reproducing surface.

A master copy can be made in one of several methods, the most usual being :

(*a*) For semi-permanent use : on tracing paper using a special ink ;
(*b*) For use once only : on ordinary paper, using the special ink or a special typewriter ribbon.

The opal glass plate is sensitised by applying a little special chemical liquid with cotton wool ; the master is then laid face down upon the prepared plate and left a short while (half to two minutes) under the pressure of a spring lid. This same chemical is also used to clean the plate after use.

The impression is then fixed by the application of a second chemical liquid : a little printing ink rubbed on to the plate at this stage brings the impression out clearly and alterations can be made on the plate if necessary. Printing inks in eight colours are available, and powders may be used if wider colour ranges are required. For colour printing, a separate original must be made for each colour, each original to contain only that part which is needed in that colour.

For running off, on the standard model, each impression is obtained by passing a hand inking roller over the plate (the ink adheres only to the impression), laying a sheet of paper on the plate and passing a hand pressure roller over it, and removing the paper. It is claimed that copies at the rate of 200 per hour can be obtained by this method. Any number of copies can be made from one impression. If the copies are required immediately, they can be dried with a drying pad. Another method is with a drying book in which copies must be allowed an hour or so to dry.

The " Rapid " model includes a moving carriage on which are mounted inking and pressure rollers, and, using this machine, it is claimed that copies may be obtained at the rate of 400 per hour.

Masters made on tracing paper may be kept for long periods and used over and over again ; it is only necessary to " refresh " them by placing them for a short period, varying from one to five minutes, in a refreshing box, just before re-using.

A rotary model, both self-inking and self-feeding (suction feed), will shortly be obtainable.

Prices.

Standard Model : Prices range from £5 for a printing surface 9in. by 6in. to £50 for printing surface 33in. by 39in. Rapid Model : From £19 for a printing surface 14in. by 9in. to £63 for a printing surface 20in. by 31in. The rotary models will probably range from £40–£120 in price.

Preserving fluids, inks, etc., are specially manufactured, and we are advised that for a run of 1,000 impressions supplies would probably cost about 5s.

DISCUSSION.

In presenting his paper, MR. PARKER said that he hoped the survey was complete, within the limits which had been set, but that he would be interested to know of either omissions or errors. An expression of appreciation was due to the many manufacturers who had freely given the information upon which the survey was based.

MR. J. D. ATHEY said that the field of duplicating might be regarded as embracing, mainly, three methods—stencil, type-printing, and photo-litho. The first-named was easily the most commonly adopted method, and in recent years both the machinery and the stencils had been considerably improved. For rapidity of reproduction, the typewriter stencil was unassailable. The photo-lithographic method, however, might yet be associated with marked advance. To adopt the attitude that an ordinary office equipment could displace the general printing was unsound. Duplication, by whatever process, should be looked upon as involving mechanism for production of matter for internal requirement rather than for external distribution as printed matter.

MR. P. K. TURNER said that he was interested in several of these processes, but wished for further information on the general nature of the secret solutions employed in order to get some clue to the nature of each process in its relations with permanence.

In his own work he had to face the reproduction of a few copies each of widely differing originals, including graphs and diagrams. When reproducing graphs, either the whole of the " background " had to be reproduced, which meant getting squared paper printed in special ink for the " master " or the graph only had to be reproduced on squared copy-paper, which involved extreme accuracy of register.

The amount of work did not justify the initial cost of a Photostat or similar machine, which otherwise would be the solution of the difficulty.

At present the work was being done by blue-printing, which was slow, costly, and did not give very pleasing results.

The fundamental difficulty of nearly all duplicating methods was the necessity of a rather fluid ink. This prevented the use of a carbon black printer's ink, which was the only ink whose permanence could be guaranteed. The exceptions were processes essentially of a lithographic nature, which did meet this requirement.

DR. E. A. BAKER, MR. H. M. CASHMORE, MR. L. E. CRIDLAND, MR. HUDSON DUMVILLE, MR. D. A. GORDON, MR. L. R. MCCOLVIN, MR. N. I. PARLEY, PROFESSOR J. F. ROYSTER, MR. G. SHAW SCOTT, MR. E. L. SELLARS, MR. W. E. CLASON, and MR. G. MCISAAC also took part in the discussion.

Duplicating, and Infringement of Copyright.

By E. J. MacGILLIVRAY.

We are told that in the Wild West it was a common practice to make a special request to the audience not to shoot, as the performer was doing his best. But as we are now within the precincts of Trinity College, Cambridge, and none of you has the outward appearance of that kind of lady or gentleman who is likely to come armed with a six-shooter, I am going to make a special request that when I have finished reading this short paper every one of you will shoot for all she or he is worth. I have come here mainly to give you an opportunity of shooting at me all sorts of questions on copyright law, the answers to which may possibly be of assistance to you in the course of your work. I have found it difficult to anticipate just what the problems are which may be troubling you if you are troubled in the matter at all, and therefore I propose to do no more at present than introduce the subject to you in the form of a short and very elementary statement of the nature of copyright law and its most obvious applications to the kind of reproduction which you may be called upon to do or in respect of which you may be asked for advice as to what others may safely do in the way of duplicating matter for their own use. I hope I may thus at least stimulate in you a desire for further knowledge and I shall do my best to answer your questions.

The law of copyright is now defined in the Copyright Act, 1911. I am not going to trouble you this morning with the development of copyright law from its origin in the sixteenth and seventeenth centuries in the granting of monopolies by the Stationers' Company under authority from the Crown and the sanction of the Star Chamber. It would be an interesting inquiry, but I feel that I am called upon to-day to be practical rather than interesting, and so I propose so far as the history of copyright is concerned, merely to assume the functions of a special librarian and refer you to " The Law and History of Copyright in Books," a series of lectures delivered by Mr. Augustine Birrell and published by Cassell and Co. in 1899. I need not tell you that you will find these seven lectures most excellent reading.

Coming, then, to the practical problems of to-day, I think one of the first things the layman ought to know about copyright is that the author of a literary work, whether it be a text-book, or an article in a journal, or even an advertisement, is under no obligation either to register it at Stationers' Hall or to print on it any notice to the effect that it is the subject matter of copyright or that he is the owner of the copyright. I am speaking now of English law. The law in the United States of America is different. But in England every literary work, even of the most ephemeral kind, is protected by copyright by the mere fact of its coming into existence and no reliance can be placed on the absence of any copyright notice. Before the Copyright Act, 1911, was passed it was a common practice to print " Registered at Stationers Hall " on the title page or cover of a book or pamphlet. At that time there was a series of copyright register books, or " Books

of Registry" as they were called, kept by the Stationers' Company at Stationers' Hall under statutory authority, and the particular advantage of registration in the appropriate Book of Registry at Stationers' Hall was that a certified copy of the entry provided the author or other owner of the copyright with proof of his title. All that, however, has gone with the present Copyright Act, which makes no provision whatever for registration, and the Statutory Books of Registry are no longer kept at Stationers' Hall, but have been closed and removed to the Record Office. The Stationers' Company, however, have now substituted an unofficial register which has no statutory authority and no legal value: but this unofficial register is resorted to by many for conscience sake so that they may still with some measure of truth inscribe on the title page of their publications the customary, but now from a legal point of view meaningless, words "Registered at Stationers' Hall."

Thus you will find that our law of copyright as it stands to-day is based on the principle that if you copy another man's work you do so at your peril and that it is not for the author or other copyright owner to put the world wise about what his rights are, but for you if you want to copy any portion of his work to find out what those rights are and to satisfy yourself either that the work is free or that you have obtained the necessary authority to make use of the work in the particular manner which you propose.

The only safe assumption to proceed on, therefore, is that every written matter is the subject matter of copyright unless and until you have satisfied yourself that it is what is called "in the public domain." Copyright attaches to every original literary composition however slight or ephemeral. These two words "original" and "literary" are to be interpreted in their widest possible sense. The word "literary" does not connote a demand that the work shall be a work of genius or even merit. It means nothing more than that there shall be a combination of words which conveys some information or idea to the reader. The word "original" only means that the author must have composed the work himself and not merely have copied it verbatim or substantially verbatim from some other work already in existence. In one reported law case the question was whether certain examination papers set by the examiners for the London University matriculation were "original literary works" within the meaning of the Copyright Act, 1911. It was held that they were and that it was an infringement of the copyright in them (which was vested in the London University Press) for a tutorial establishment to duplicate the old papers and to distribute them, together with the correct solutions, by post among their students who had subscribed for tuition by correspondence. This is how Mr. Justice Peterson in that case explained the meaning of the words "original literary work": "Although a literary work is not defined in the Act, Section 35 states what the phrase includes: the definition is not a completely comprehensive one, but the section is intended to show what, amongst other things, is included in the description 'literary work' and the words are ''Literary work' includes maps, charts, plans, tables, and compilations.' It may be difficult to define 'literary work' as used in this Act, but it seems to be plain that it is not confined to 'literary work' in the sense in which that phrase

is applied, for instance, to Meredith's novels and the writings of Robert Louis Stevenson. In speaking of such writings as literary works one thinks of the quality, the style, and the literary finish which they exhibit. Under the Act of 1842, which protected 'books,' many things which had no pretensions to literary style acquired copyright; for example, a list of registered bills of sale, a list of fox-hounds and hunting days, and trade catalogues; and I see no reason for coming to the conclusion that the present Act was intended to curtail the rights of authors. In my view the words 'literary work' cover work which is expressed in print or writing, irrespective of the question whether the quality or style is high. The word 'literary' seems to be used in a sense somewhat similar to the use of the word 'literature' in political or electioneering literature and refers to written or printed matter. Papers set by examiners are in my opinion literary work within the meaning of the present Act. Assuming that they are 'literary work,' the question, then, is whether they are original. The word 'original' does not in this connection mean that the work must be the expression of original or inventive thought. Copyright Acts are not concerned with the originality of ideas but with the expression of thought in print or writing. The originality which is required relates to the expression of the thought. But the Act does not require that the expression must be in an original or novel form, but that the work must not be copied from another work—that it should originate from the author."

So you will see that copyright may well be claimed for written matter of a very trivial character. If the matter is expressed in the author's own words one or two sentences composed in the most ordinary phraseology and treating of the commonest of topics may be subject matter of copyright. I don't know whether you remember the famous "Morley letter" as it was called. It was in the autumn of 1923 during the General Election following on Mr. Baldwin's proposals for a tariff on imported manufactured goods as a means of combating unemployment in this country. The theory of the Conservative party was that the foreigner would pay the tax. The letter was a circular letter sent by Messrs. I. and R. Morley, the well-known wholesale hosiers and warehousemen, to their trade customers. It consisted of only four lines and was to the effect that orders for goods could only be accepted on the understanding that should a tariff be imposed the price of the goods would be raised by the amount of the tariff. A copy of this letter having come into the hands of the *Daily Chronicle*, they reprinted it verbatim in their issue for November 28th, 1923, in conjunction with a political article which commented on the light which the letter threw on Mr. Baldwin's proposals. I. and R. Morley thereupon brought an action against the proprietors of the *Daily Chronicle* for infringement of their copyright in the letter. On a motion for injunction the defendants gave an undertaking to the Court not to publish the letter again pending the trial of the action. The matter was never fought out, but I have little hesitation in saying that that letter, although consisting of only four lines and couched in the most ordinary language, was the subject matter of copyright so that it was an actionable infringement to reprint it verbatim without the authors' consent, and that the plea that it was done for the purpose of justifiable political comment was clearly no defence to the action.

In a more recent case a somewhat longer business letter was actually held by the Court to be the subject matter of copyright, although it consisted in nothing more than an ordinary business communication couched in ordinary business language.

At one time it was supposed that there was no copyright in an advertisement: but that idea has long been exploded. The use to which the literary matter is put does not prejudicially affect its right to protection.

But, although the Courts must, if required, protect from infringement all sorts of trivial and useless compositions, there is some limit to be found in the application of the legal maxim "*de minimis non curat lex*." Thus in a recent case the Court of Appeal held that there could be no copyright in a single phrase. A certain beauty specialist claimed to have invented the phrase "Youthful appearances are social necessities, not luxuries," and he used this and similar phrases as trade slogans in connection with his advertisements. A rival specialist, or "cosmetic surgeon" as he styled himself, issued an advertisement containing the phrase "A youthful appearance is a social necessity." An action for infringement of copyright followed. Mr. Justice Humphreys thought the phrase was an original and arresting one, none the less because it was so obviously untrue, and that it was the subject matter of copyright, and he gave judgment for the plaintiff. The Court of Appeal, however, reversed his judgment and entered judgment for the defendant on the ground that the phrase was not original and that, even if it had never been used before the plaintiff used it, a single phrase of that character was too slight a matter for the Court to attach any value to and could not be the subject matter of copyright. This principle was followed only a few weeks ago by Mr. Justice Luxmoore, who held that there was no copyright in a combination of four phrases used as slogans by opticians in their trade advertisements. The first of these phrases was "Your eyesight is your most valuable possession." None of the others was any more original than that. Business would become impossible if individual traders were entitled to appropriate to their own use phrases which might at any time occur independently to any mind. These, however, are extreme cases and do not lessen in any way the force of the earlier decisions which I have referred to. Any article, therefore, or paragraph which you find in any publication must be regarded as the subject matter of copyright and cannot be safely copied in its entirety unless (1) the work was first published in a foreign country which is not a member of the International Copyright Union, or (2) the copyright has expired.

I shall deal with these two matters separately. With regard to foreign publications, practically every country in the world (other than the United States of America) whose publications you would ever be at all likely to wish to reproduce are members of the International Copyright Union, the headquarters of which are at Berne in Switzerland. By virtue of an International Convention, which was first signed at Berne in 1886 and has subsequently been revised and elaborated at Paris in 1896, at Berlin in 1908, and at Rome this year, literary works first published in any country of the Union are protected in this country just as if they had been first published here.

The following foreign countries are not members of the Union,

viz. : The United States of America, all the South American States (other than Brazil, which adhered to the Union in 1922), Russia, Turkey, and China. Works first published in any of these countries are free for reproduction here provided the work was not republished somewhere in the British Dominions within fourteen days after the first publication in the foreign country. Thus a very large number of newspapers, journals, and even text-books published in the United States are free for reproduction here. Unfortunately, there is no means of being quite certain that the work which you propose to copy, although bearing the imprint of a publisher in the United States, has not been formally republished in Canada or England for copyright purposes. There need be no indication on the work itself of the fact that it has been so republished, and it has been held that it is sufficient for that purpose to send half a dozen copies of the American edition of the work to this country and place them on sale for a short time in some shop or other place frequented by the public. Thus in copying from American publications you take some risk, but in the case of articles appearing in American newspapers and journals the risk is very slight. I might also mention that in the case of one or two of the Union countries—*viz.*, Denmark, Holland, Italy, Norway, and Sweden—newspapers and magazine articles are not protected from unauthorised reproduction here unless there is an express notice prohibiting reproduction printed in some conspicuous part of the newspaper or magazine in which the article is published.

The next point to consider is the duration of copyright. Under the present Act it is for the author's life and fifty years after his death. This applies to all literary works, however ephemeral in their character. Under the law as it was before the Copyright Act, 1911, was passed the duration of a copyright was forty-two years from first publication or for the author's life and seven years, whichever period proved to be the longer. When the Copyright Act, 1911, came into force —*i.e.*, on July 1st, 1912—all works in which copyright subsisted at that time became entitled to the longer period of protection. Therefore in investigating the question whether in any particular work copyright still subsists you may have to ascertain (1) the date of first publication and (2) whether the author is still alive and, if dead, the date of his death. In the case of text-books and journals published in this country the date of first publication can generally be ascertained by searching at the British Museum for the date when the statutory copy was deposited there. Whether the author is alive or dead and, if dead, the date of his death is not always very readily ascertained. If and when you have ascertained these facts you get the following result :

(*a*) If the work was first published before July 1st, 1870, and the author died before July 1st, 1905, the copyright has expired.

(*b*) In any other case copyright will subsist until the expiration of fifty years after the author's death.

In the case of joint authorship copyright subsists until the expiration of fifty years after the death of the joint author who dies first or until the death of the last survivor of the joint authors, whichever period is the longer.

Before leaving the question of duration of copyright I ought perhaps to draw your attention to the fact that twenty-five years after an author's death, or thirty years after his death in the case of works

published before July 1st, 1912, anyone may reproduce that author's works on payment to the then owner of the copyright of a royalty calculated at ten per cent. on the sale price of the reproduction. Thus the works of Robert Louis Stevenson have now come within this provision and may be reprinted by any publisher on giving the requisite statutory notice and paying ten per cent. royalty to the author's personal representatives. This provision, however, does not assist in connection with the kind of duplication with which you are concerned.

Now if after you have investigated the circumstances the reasonable inference is in favour of copyright having been acquired in the work and still subsisting, you must consider whether what you propose to do would infringe copyright and, if you think it would, whether you are justified in taking the risk or whether you ought to obtain the consent of the owner of the copyright before duplicating the matter in question.

Primâ facie you infringe copyright by reproducing any substantial part of a copyright work in any material form. To that there are certain statutory exceptions which you will find set out in Section 2 (1) of the Copyright Act. I think there are only three of these heads of exception with which for the present purpose you need be troubled. I shall read them to you from the Act itself.

The first heading is of very great importance. You may duplicate extracts from a copyright work if, having regard to the length and number of the extracts, the purpose for which the extracts are made, and the number of copies duplicated and distributed, the operation can properly be described in the words of the Act as a fair dealing with the work for the purpose of private study, research, criticism, or review. It is a safe axiom to start with that it can never be a fair dealing for any of these purposes to duplicate the whole of a work. That has been laid down by the Courts on more than one occasion. The right is limited to that of making extracts which must not be so extensive as in substance to amount to a reproduction of the whole work or having regard to the use made of them to affect prejudicially the commercial value of the work or other legitimate interests of the owner of the copyright. Thus considerable extracts from text-books and journals may be made freely in public libraries by or on behalf of individuals for their own use when such extracts are required by students for the purpose of their studies or by authors or persons engaged in technical research for the purpose of supplying them with accumulated information as part of their stock-in-trade. It is a very different question whether those extracts may afterwards be reproduced in works published by the individuals who have collected the information. The right of reproduction of extracts in a published work (other than in a newspaper by way of newspaper summary) is limited to the purpose of criticism and review and extracts for other works may not be used merely for the purpose of making the book by expressing in another's words what the author wants to express but is unable to express as well in his own words. Then, again, there is the question of duplicating extracts in a larger number of copies and sending them out to all the members of a particular society or industry. That is a form of duplication which must be used with considerable caution. There would be no objection to extracts being made and sent out in

this way if all the members of the society or industry could be regarded as engaged in research work, and the extracts were not so large or numerous as to provide a substitute for the text-book or journal from which the extracts are taken. It would not be a fair use of the work if but for the duplications sent to them a substantial number of the members would have found it necessary for their research work to buy the book or journal or become a member of the society whose proceedings were reported in the journal. Further, I think duplication of extracts for distribution among a considerable number of members of a society or industry must be limited to the purpose of actual research work and must not be supplied merely for the purpose of providing such technical information as would be useful for the members in, say, constructional work carried out in the normal routine of their business.

Of course, a certain amount of risk may legitimately be taken in these matters. I am only here to advise you as to what the strict law of the matter is. You may in the course of your duties commit hundreds of technical infringements of copyright without getting into trouble or getting others into trouble. Common sense will dictate to you how far such risks may be taken.

If you think in any case that the permission of the copyright owner ought to be obtained before any duplication is carried out there may well be some difficulty in finding the copyright owner. Here again the duplicator must act at his peril. If you approach the publisher the publisher may give you ready permission, but afterwards you may find that the copyright belonged not to the publisher but to the author or some third party. The license of the publisher is no defence in that case to an action brought against you by the true owner of the copyright. There being no system of registration of copyright ownership, there is no possible way of ascertaining with any certainty who the actual owner of the copyright is. So here again there are risks, but again common sense will dictate when risks may reasonably be taken and when they ought to be avoided.

DISCUSSION.

Mr. MacGillivray's paper had not been circulated in advance and, following his suggestion, discussion proceeded mainly by way of question and answer, a great many delegates taking advantage of the opportunity to gain information from the speaker.

The Ideal Form in which a Journal should be produced, from the Librarian's point of view.

By WILFRID BONSER,

University Library, Birmingham.

All librarians will agree that a great many periodicals are issued in a form which renders them, for one reason or another, difficult for filing in a library. I wish in this paper to enumerate some of the difficulties that each of us has encountered, and to make a few suggestions as to how things could be ameliorated.

It is not always that the editors of the journal, or the council of the publishing society, are impractical: but they do not look at the publication from the librarian's point of view, and I am sure that if that point of view were made apparent to them, much could be done to make the storage of periodicals an easier matter. Not only librarians, but the reading public in general, would also profit if certain matters tending towards uniformity were looked to.

I. Title.

The society, or other body publishing, should first think out carefully the title of the periodical it intends to produce, and, having once settled upon it, should endeavour to keep rigidly to that title.

I will take as an example of what should not be done, the journal published by the Liverpool Geological Association. Since this association has now ceased to exist, I trust there is the less likelihood of offence. It has been amalgamated with the Liverpool Geological Society, which has always been consistent in the title of its periodical —"The Proceedings"—and is therefore a model of how things should be done in this respect.

The periodical published by the Association began life in 1880–1 as "Liverpool Geological Association: Transactions." With Volume 8, it altered its title to "Liverpool Geological Association: Journal." In 1900, it changed to "Liverpool Geological Association: Annual Report, New Series." The very next year it changed again to "Liverpool Geological Association: Proceedings and Annual Report," and it ended its career in 1910, as "Proceedings of the Liverpool Geological Association: New Series, Volume 5." To make matters more complicated for the cataloguer, no volumes were published at all for 1897–9 and 1903–6. Now, there was no need for chopping and changing of title: it was merely a matter of being consistent. If the word "Royal" had been added to the title of the association, or if the character and scope of the journal had altered, an alteration in its title would have been justifiable.

Many institutions cannot make up their minds as to whether to put the name of the journal first on the title-page, or whether to put the name of the institution itself first, followed by the name of the journal. The University of Michigan causes unnecessary trouble to the cataloguer in this way. For instance, its geological series was first issued

in 1924 as (according to the half-title) "Contributions from the Museum of Geology, University of Michigan, Volume 1." It continued as "University of Michigan Publications. Contributions from the Museum of Geology, Volume 2." Incidentally, it is now making matters worse by continuing (November, 1928) as "Contributions from the Museum of Paleontology, University of Michigan, Volume 3."

I would suggest that, besides being consistent, the title of a journal should be as direct and simple as possible. The simplest of all, which is now becoming popular with leading societies on a subject, is one word for the title, such as "History," which is published by the Historical Association; "Folk-lore," which is the journal of the Folk-lore Society; and "Geography," which is issued by the Geographical Association. This has the additional advantage that it brings the journal naturally into the right place in a dictionary catalogue.

Specimens of titles which are unnecessarily cumbersome and redundant, and where a change is justifiable, are "Proceedings of the Committee of Science and Correspondence of the Zoological Society of London." Here the change of title by the Zoological Society to "Proceedings" was laudable: the editors should not have launched the journal with the original title. Perhaps the worst example of all of redundancy is "Notices of the Proceedings at the meetings of the members of the Royal Institution of Great Britain, with abstracts of the discourses delivered at the evening meetings." This title was given in 1851, and was characteristic of the times. It still is the title of this unfortunate periodical, and it is surely time it was changed to "Proceedings," under which initial word the periodical is always known. This latter title is what appears on the wrapper, and the title-page should follow suit. As it is, if correctly listed in a catalogue, and without a cross reference from "Proceedings," this journal is usually missed, since no one would look it up under the word "Notices."

"Journal of Proceedings" is also redundant; either "Journal" or "Proceedings" is sufficient.

The title of the society itself, before it starts publishing, should be as simple as possible. Think of the unnecessary work given to the printer, still more to the binder, in a title like "Journal of the Bath and West of England Society for the encouragement of Agriculture, Arts, Manufactures, and Commerce."

From these remarks, it is obvious that in certain cases a change of title is unavoidable. This is (1) when the scope of the journal or of the society publishing it changes, and (2) when the existing title is cumbersome and a shortening is necessary. It is often a matter of interest to watch the developments in a long series of a journal from the changes introduced. What I do object to is the unnecessary changes, which usually result from a want of sufficient foresight.

II. Size.

The size of a journal should be consistent. "The Mathematical Gazette" started life in 1896 as a quarto; in the middle of the first volume—*i.e.*, with No. 7—it changed its size to small octavo, thereby rendering it impossible to bind this first volume, and making it necessary to house Nos. 1–6 on a different shelf to the rest of the set.

The size of all the volumes should be uniform if possible. If it is decided to publish a new style of journal or enlarge its scope, say, with large plates such as might be the case with journals dealing with architecture, fine art, or anatomy, the break must not take place in the middle of a volume.

Each volume of a journal should have a reasonable number of pages, so that it can be properly bound. The last volume of the "Proceedings of the American Society of Civil Engineers" (*i.e.*, that for 1928) has 2,801 pages and only one title-page.

Again, the number of the pages in the volumes of a journal should be more or less consistent. An offender against this is the Californian Academy of Sciences, which publishes its "Proceedings" in volumes varying greatly in thickness. Volume 10, for instance, has 163 pages and nine plates and is three-quarters of an inch thick; it is therefore too thin to be bound by itself if it is to be lettered across the back. The following volume, 11, is too thick to be bound with it, while Volume 12 has as many as 1,285 pages, plus ninety-two plates, and is five and a half inches thick, so that it is too fat and unwieldy to bind as one volume. The fact that it is printed on thick, spongy paper makes matters worse.

III. Price.

The price of a journal should be consistent from year to year, so that a librarian may know for how much he must estimate in his annual budget. If the annual subscription to a journal is consistently a guinea, the librarian knows where he stands, but if the publisher or society responsible issues one volume one year, three volumes the next, and two volumes the one after, and charges per volume, the librarian can form no idea of how much money will be needed each year to buy that journal.

This question has now become an acute one with regard to German biological periodicals. For example, a well-known Berlin publisher issues a new journal at a moderate price for a few years, and then, when the purchaser has settled down as a regular subscriber, proceeds to issue parts at irregular, and always at more frequent, intervals. His series "Zeitschrift für wissenschaftliche Biologie" is made up of various journals and includes two which had a separate existence and had run for a great many years before they were absorbed. Subscribers are the more loath to break off a series of great length. Several of these journals now cost about £12 a year each, and I expect that the annual cost will continue to rise. Many libraries have had to discontinue, and it is obviously impossible for individuals, who are not millionaires, to subscribe.

Another journal issued by the same firm, which continues to rise in its annual cost, is "Biochemische Zeitschrift," which cost as much as £17 8s. in 1927. My library discontinued its subscription last year! *

If two societies combine to produce a volume which is of interest to them both, that volume is sent out when issued to the subscribers of both societies. If, as is often the case, a library subscribes to both, it receives two copies of the work. Thus the subscription to

* See my paper on "The Cost of German Biological Periodicals" in the *Library Association Record* for December, 1928.

one of the societies is useful, the other is wasted on a duplicate. In such a case of combination something should be done to see that this does not occur. An extreme example of this is a work in five volumes by A. J. Ellis "On Early English Pronunciation." It took twenty years to publish, and was issued, with different covers, of course, to members of the Early English Text Society, the Chaucer Society, and the Philological Society. Many libraries—and private subscribers also—therefore possess three copies of this.

IV. Title-Page, Contents, and Index.

In one standard scientific journal the title appears with slight differences on the title-page, wrapper, and at the head of the table of contents. The title-page gives the briefest form, "The Forum of Education" only; the wrapper adds three lines of qualifying description, "A journal of enquiry and research in the psychology, philosophy, and method of education"; and the contents page gives a double-barrelled title, "The Forum of Education and Journal of Experimental Pedagogy." Of the three, the cataloguer is safest in following the title-page. The wrapper, which will usually be destroyed when the journal is bound, is the only place where the name of the society which is responsible for publication (The Training College Association) appears. The wrapper also is the only place which gives the place of publication (London) and the name of the publisher (Longmans). The title-page gives the name of the printers only (The Birmingham Printers), who, of course, are provincial. Each part has a table of contents. These should be temporary and superseded by the table of contents to the whole volume, but each has to be bound in since each is paginated. On the back of this table of contents occurs, each time, the list of the editorial board. This, which is an important item often omitted, should occur once in each volume and not be repeated in every part. If wanted in each part, it should be on the wrapper only. Again, the table of contents is the only place which gives the description of the writers of the articles (*i.e.*, degrees and qualifications, such as professor in such and such university); the contents to the volume itself and the name attached to the article leave out these necessary details. The title-page, under the title, bears the words "Index to Volume —." "Index to" should be omitted. I have spoken to the Editor in this case: he was already dissatisfied with the *format* of his journal, and at once agreed to my suggestions for reform.

Requisites: I suggest that the title-page of a journal should give its full title, the name of the editor, the society of which it is the organ, number of volume, place of publication, name of publisher, and dates covered by the volume. The number of the volume and the dates must be prominently displayed. If the journal is published by a society, it would be useful to have a list of officers for the year for which the volume is issued in some place where it will be permanently preserved, and not only on the wrapper, which may be destroyed when the volume is bound.

I also suggest that the contents should be arranged so that the surnames of the writers of the articles appear first and in alphabetical order, since this is easiest for quick reference; these should be

followed by the initials, and then the title of the article should be inserted.

An index should be added at the end of each volume. The index should be compiled carefully, preferably by one trained in such work. It requires technical skill, and is not a list of headings chosen and arranged in alphabetical order after a haphazard fashion. The matter of the article should be given and not the title merely, since the latter is often deceptive as to the real contents (*e.g.*, " The Golden Bough " should not appear in a list of works on Botany). The names of the authors of the articles should appear in the contents ; it is not the function of the index also to contain them.

The title-page, contents, and index to each volume should be issued with the volume itself, and not inserted in a part of the next volume, still less should they be sewn in to the latter, and therefore have to be cut out of it. The volume can then be bound as soon as the last part of it has appeared.

The number of the volume should be in Arabic ; so should the date. The number should be consecutive throughout, and the words " New Series," " Third Series," etc., should not be employed. Likewise the term " Decade " should not be used. This used to be the case with the " Geological Magazine " until the publishers, perceiving how awkward it was, suddenly stopped and called the next volume by the number it would have been if the decade system had not been employed. All such departures from the obvious are confusing, and make it difficult to know if the set is complete.

V. Time of Appearance.

A journal due on a certain date should be brought out with the regularity of clockwork. The August " Royal Magazine " will probably appear in July—some time before it is due. This is erring on the right side, and obviously done so as to secure a sale from those who are taking their holiday as soon as the schools break up. But some societies are far later than the " Royal " is early. For instance, the quarterly journal " Folk-lore," was until lately from a year to eighteen months behindhand, and in consequence the Folk-lore Society found it very difficult to demand subscriptions for parts of the journal which were not likely to appear until yet another subscription had become due. This lateness may lead to absurdity ; for instance Volume 37, Part 2, of " Folk-lore," which bears on its wrapper the date June 30th, 1926, contains an obituary of a distinguished folklorist who did not die until June 19th, 1927 !

Some societies which are very behindhand with their publications bear the date of one year " for " another year. For instance, the four volumes of Lydgate's " Fall of Princes," published by the Early English Text Society, say 1924 (for 1918) for the first two volumes, 1924 (for 1919) for Volume 3, and 1927 (for 1919) for Volume 4. Some volumes of this society and of the Chaucer Society are even worse than this. It is hard on a subscriber if he has to wait eight years for the results of his money.

VI. Classification of Articles.

I suggest that as an aid to classification and reference, each article in a technical periodical should bear at the beginning, above the

title, the appropriate decimal number of the "Classification décimale de l'Institut de Bibliographie." This practice has just been begun with the "Journal of Physiology," for instance. Each of the four editors has been provided with the Brussels scheme for physiology; he puts the appropriate number on the article when he has read it. Thus an article on "The distribution of the blood in the coronary blood vessels" bears the number 612.172.1. 612 is the Brussels number for physiology, and appears therefore on practically every article in this journal. The man who is working on coronary blood vessels will know from the number 172 that the article bearing this number contains matter of interest to him. This is a simple instance, and here the title would have been sufficient to have drawn the reader. But another article in a late issue (67.1, February 28th, 1929) bears at the top 612.855; 615.785.1–092.259; 612.880.794; 615.785.1–092.259, from which readers in the four subjects which are denoted by these figures will know that they should read this article. The classification is correct, since it is affixed by the expert who accepted the article.

VII. Division of Articles.

Each separate part of a periodical should contain at least one whole article. In no case must a part end in the middle of a sentence. Not only does a work like "Harmsworth's Universal History" err in this way, but even learned societies such as the Royal Society of Edinburgh and the London Mathematical Society. The last part to be received at the time of writing of the "Proceedings" of the latter society (Series 2, Volume 29, Part 3) begins in the middle of a sentence. It contains one article and bits of two others. Imagine the annoyance of a keen research student who has read eighty pages of an article directly on the subject on which he is working, and finds that it suddenly ends in the middle of a sentence! To complete it, he has to wait several weeks, only to find that a couple of pages more from the printers would have sufficed to finish the whole article and have allowed him to complete his research. The "Proceedings of the Royal Society" get over this difficulty by issuing a temporary page; in the latest instance available, the society issues nine and a quarter lines *pro tempore* and repeats them in the next number.

If each article began at the top of a recto page and every article were complete within the part, this worry to both reader and librarian would be avoided.

In another journal—which shall be nameless since its distinguished editor has just died after much ill-health—the part for March, 1928, consisted of sixteen pages. The first eight pages are the end of one article, and the second eight are the beginning of another. The first page opens with a formula, which presumably illustrates something in the last part, and is only connected with two other formulæ which follow by "and" and "when." The second article ends with a comma in the middle of another formula. Periodicals issued thus are of little use to anyone; and the only encouragement offered is that one expects that in time the volume (and the sense) will be completed. The publishers here should control the printer, and not *vice versa*; they should insist on the journal being issued in the most serviceable form.

VIII. Miscellaneous.

The pages should be cut before the part is issued. This saves the time spent in cutting, and it also prevents the possibility of a reader earing with his fingers uncut pages and so mutilating the part. Still worse is the half-measure of leaving the pages perforated at the top. This is asking for trouble, since it invites tearing with the fingers. The "American Journal of Philology" is issued thus, and, since the paper is of brittle nature, it splits downwards towards the print as soon as the finger is inserted.

The sheets should be sewn and not wired, since the wiring injures and stains the paper.

Advertisements should not be interspersed in the text or paged through.

It is desirable that those libraries which are binding copies of journals should be supplied with rag-paper editions. This practice has already been adopted by at least one American journal.

DISCUSSION.

In opening the discussion Mr. Theodore Besterman said that everybody would agree with practically the whole of Dr. Bonser's valuable and stimulating paper. Not even the most respectable organisations were free from some of the defects pointed out by him. Thus, the American Museum of Natural History published its "Memoirs" and the "Publications of the Jesup North Pacific Expedition" as a single series with interchangeable names but with different volume-numbers. The British Museum published, and the Oxford University Press printed, the "British Museum Quarterly," a model of good printing, each issue of which contained a separate title-page and table of contents. The Cambridge University Press published a volume with alternative title-pages, forming part both of their "History of India" and of their "History of the British Empire."

At the same time, speaking as one who was both a librarian and an editor, it seemed to him that the point of view of the librarian had been over-stressed at the expense of that of the editor. In other words, practicability had been overlooked in advocating convenience. A very short title was not necessarily the best, for it often gave no clue to the real nature of the periodical. "Man," which was published by the Royal Anthropological Institute, might equally well be a companion publication of "Woman." It was impossible to tell from the title of "History" whether it was a learned or a popular publication. The size of volumes could not be regulated, as many societies were obliged to publish an annual volume, and could not regulate the amount of material that turned up in a given period. The size of the page, also, depended on the material to be published. Elaborate tables and the like could not be got on a small page. It was much more practicable that the table of contents should give the contents of the volume in the order in which they appeared; the alphabetical arrangement of these contents belonged to the index.

It had also to be remembered that proposals for the standardisation of the size of the page and so on could apply only to new periodicals. Established publications could not be expected to change their format, and for them to do so would not in any case be in the interests of the librarian, who would then have a set in two sizes.

Mr. C. C. Fagg said it was often difficult to make volumes uniform in thickness, since it was necessary to publish material as soon as possible, and the bulk that was available constantly varied. He desired control of the matter which was published by amateur societies, and thought that librarians should be placed on the editorial committees of all publishing societies.

Mr. T. R. Dawson said: Further to the librarian's point view is that of other journal consumers among whom abstractors deserve a thought. They will approve of most of the author's suggestions, especially those dealing with title, number, and date which bear upon exact references.

In selecting titles for journals a plea may be advanced that their suitability for convenient and intelligent abbreviation should be considered in formulating titles. The adoption of short titles, proposed by the author, may lead to difficulties due

to duplication and similarity of titles as well as to elaboration in references. In my own industry we have already two "Rubber Age" titles which have to be differentiated by adding (London) or (New York), and a multiplication of this sort of thing would be a nuisance.

A further point which the abstractor would add to Dr. Bonser's excellent list of suggestions is that of pagination. Some journals page each separate issue from one onwards, others may have two or three pagination series running concurrently in the same issue, and, of course, the majority satisfactorily page by volume (some even page two or more volumes consecutively). All this leads to confusion and lack of system in making exact references, and it is highly desirable that uniform paging should be general.

Professor J. F. Royster advocated the binding in of advertisements, since they are the "political oracles of the times."

Mr. E. N. Simons said that help might be given in the present difficulties by the advertisers: the matter might be taken up by the Incorporated Society of British Advertisers. He also suggested the use of stainless steel wire as a substitute for sewing.

Dr. R. S. Hutton said that for the benefit of abstractors the position of the table of contents in all journals should be standardised.

Mr. H. Rottenburg advocated that tables of contents should be printed on one side of the paper only, as there they would be used as index slips.

Mr. P. S. J. Welsford said that the Library Association's Committee on the Durability of Paper hoped shortly to be able to indicate a durable paper at the same price as present undurable types. The demand for a durable paper coming from various points would show paper-makers that it would be commercially desirable to put this paper on the market.

Mr. L. C. Wharton, speaking as librarian, editor, and society secretary, agreed with most of Dr. Bonser's ideas. The old Library Association Book Production Committee had produced a good report dealing with some of the questions and the resolutions of the Brussels Congress of 1910 had been largely effective. Maps and folded plates should be placed at the end of the article to which they referred, so that they could be spread out.

Mr. N. Parley said that the size of a journal should in the first case be related to the existing printing plants suitable for producing them. The best sizes are Demy octavo, Royal octavo, and Crown quarto. Character should be obtained by good and suitable typography rather than by use of odd sizes.

Title page, back of title, pagination, etc., were matters for the publisher, and if rules for guidance of editors were issued he recommended keeping in touch with the National Book Council and the Publishers' Association. The right place for publishers' imprint was the foot of the title-page, and above it should appear not only the town, but the date of publication.

Mr. W. A. Briscoe believed that every editor considered his own publication to be the ideal one from every point of view. It was difficult to obtain any regularity of format. As to clear titles, he objected to such as "The Proceedings," "Transactions," and "Deliberations of the Heavyweight Highbrows," for instance, but a crisp title like "Life" might be anything from an anthropological review to a periodical dealing with the frivolities of Broadway.

Books versus Text Books, the problem of the schools.

By G. T. HANKIN.

I think myself I have a most intriguing title, for it is a title upon which every educationist can talk for an unlimited time. I don't think you want it as wide as that, and I propose to bring it down to something a little more concrete. I was intending to lead on from literature. We at least know the approach of the producer to the consumer of information. My feeling is that the special librarians are the producers of information. You produce organised information for the good of the commercial man, the scientific man, the literary man. The business of the schools is to educate your consumers so as to provide you with a market. What you want is for the schools to turn out the sort of man who will desire that information.

You notice I am cutting down my subject pretty closely. The problem now comes: How far do the books in the schools produce for you the potential purchaser of the information you want to sell. It is the attitude of the public towards your occupation—the production of information. I am not interested in the amount of miscellaneous information thrown at the public. There is so much that people can hardly digest it, and, as producers of organised information, you have the modern problem of giving the consumers what they can assimilate, and what you want to do is to avoid increasing the amount of suffering from intellectual indigestion.

The question is how far can we in the schools produce that attitude towards your information, and everyone will agree that is part of the problem of running and developing industry? It is one of the duties of the school, but not the only duty, and it is not the business of the schoolmaster to spend his life in producing your peptonised information. It is our duty to get the potential consumer into a receptive condition, and for that purpose we use certain machinery in the schools. We use text-books, books of teaching methods. The question is how far does our present use of books, text-books, produce the men who are likely to want the sort of information you people are likely to give to him?

You notice I have said organised information, and not knowledge. I think organised information does become knowledge eventually, but yours is a particular kind of knowledge. I am coming now to the question: What sort of knowledge we want our potential consumer to appreciate? First of all, real knowledge, realistic knowledge, facts that help him to live, breaking down the barrier between the information he gets in the school and the life he is going to live outside. That is the real problem of the school to-day. Probably our education is not sufficiently realistic. It is not touching life in the secondary school, and the real problem for our new modern schools is whether education ought to be realistic, breaking down barriers. The first problem is: Does the use of books or text-books help the view that education is realistic?

The librarian of the special library bureau deals with information up to date, red-hot information, fresh information. It is so important that you should organise your knowledge that anybody who wants information should get it recently. Does the boy or girl go out of school with the feeling that new knowledge is worth having?

Again, your point of view is that knowledge should be international. You have no national prejudice about knowledge. Does our present use of books help our children to realise that knowledge is above all national frontiers? So I take it we can consider this question of information in general. Does our present use of books and text-books help to keep public opinion swayed in the direction of the type of knowledge you believe in—international, useful, realistic—real information with life as the base of it?

Gradually we are defining my attractive title. May we in the same way define the text-book? The definition that matters is the normal reaction of the boy of sixteen and a half years when he got a text-book and also a book—for it is his general attitude towards books we care about. I ask the audience to try and see what picture will come into their minds from the word "text-book," and the sort of page it will open at. I tried it on myself the other day, and I found the first picture was that of the two-and-sixpenny Cape's "Livy," page 21. The other picture is that it gave a good deal of information. The other picture that came into my mind of a text-book was Hall and Knight's "Algebra," price about 4s. 6d.

[Members of the audience having given the lecturer the names of text-books that came into their minds, and the impressions they conveyed to them, Mr. Hankin proceeded.]

My point is that our text-books at school ought to bring children out into the world with a point of view that will make them wish for new, international, useful, realistic knowledge, and we have just heard what you remember about text-books. You have the first problem—that our first memories of text-books are not of the useful, helpful type. When you analyse what you really thought about text-books that is the answer. Remember we are not thinking of people who have gone to the university. I am thinking of people who have left school at the age of sixteen and a half years. I wonder what was your idea of a book at sixteen and a half. My idea of a book at that age was the translation of "The Three Musketeers."

I am not frivolling when I ask you to give me the names of books that you remember, for it is so difficult to get at the hard facts as to what books and text-books mean for boys at the age of fifteen and sixteen years. We want them to have a desire for knowledge that comes from a belief in knowledge.

Granted we have got the hard facts, let us see the objects of text-books. The text-book is static and it is fixed. Directly it is written it is out of date. It is bound to be. You can't have a new text-book every year. The temptation is to feel that knowledge is finished when the text-book is thrown aside. "I have done all that," people say. There you have your real problem—that knowledge in the text-book is static—and you give children the idea of knowledge as a fixed thing, instead of constantly growing. We stopped our history at 1914, and we have got to 1929. The world has been moving remarkably fast since 1914, but we don't think it proper to show the connection

of the history of to-day with the history of the past, and anything after 1914 is considered uninteresting. We treat knowledge as essentially static.

I very much doubt whether you ever looked upon text-books as a help—a very present help in time of trouble. You looked upon them as the sort of thing that makes you work—that excites you. You were saved by the fact that you had reading books you found useful and interesting. I am sure, in the same way, that the text-book is nationally ugly. It is extraordinarily difficult to find a text-book that gives anybody of sixteen and a half years the idea that anybody outside England knows anything. I found it extraordinarily difficult to realise what other countries were doing. I never realised what other countries were doing until I sat, in a humble capacity, at the back of the Committee on Intellectual Co-operation, at Geneva. It gave me a jolt that was very good for me, but I do not see the text-book giving that jolt to our pupils.

This is not a meeting of the Library Association, and we need not consider the value of general reading. In the library you have the enormous difficulty of a book being too difficult for the child. You have the difficulty of time—children do read so slowly; and you have the problem of fitting it on to the work of the school. From every point of view I am in favour of the child reading freely, but I am not prepared to say we can do that with the text-book. The temptation is to say, "Get rid of the text-books," but you can't give an organised course of instruction without them. You must have an organised body of knowledge on which fresh knowledge can be added. There are certain ways in which one can visualise the possibility of improvement in text-books. We are an extraordinary country about text-books. We have a wonderful reputation for producing the best books in the world. I do not believe there is any other country where there is the extraordinary variety of text-books, and where it is so very difficult to select text-books.

It is possible that some machinery may be invented in England which, by raising the standard, cutting down the numbers of books, lowering the price, and increasing the circulation, may make it possible for men of intellectual power to write text-books. It is quite arguable whether we want the man of intellectual power outside the schools or the school teacher to write them. Another possibility is whether you should allow text-books to be used in examinations. Once you do that you change your mind about text-books, and it is then a real help. I only sat in one examination below the university standard in which text-books were allowed.

There are two ways in which text-books may be made more useful. We all agree that the text-book ought to be made as little expensive as possible. Personally I should like to see all exercises and such like things published in a separate book. So the text-book would really represent an adequate volume of knowledge for the pupils as a whole. The main idea about new knowledge is that you have to leave it to the teacher. The teacher must constantly be bringing his knowledge up to date, and his attitude towards knowledge will help the children more than anything else. You cannot do more than that on the side of text-books.

Now libraries. We have heard a good deal in this country in

certain types of schools of libraries. It is a new movement, but your movement is a new one. There are firms in this country who do not realise the quest for the new knowledge. Certain of the secondary schools are pushing along fairly quickly in trying to make libraries part of their integral school work. In my last report there is the statement: "On the other hand, the effect of the library as an indispensable part of every secondary school, no less than the laboratory, is beginning to be recognised." That is a pretty strong statement for a Government department. We are doing a good deal to get the library into library shape—not a collection of books, but a library. One old librarian helps his old school to get a catalogue on a sound basis, and that is a very useful bit of work. There is a pretty big movement in the same way towards teachers' libraries. There is a lot being done to let the teachers have new technical books, in the same way that new books are provided for the general reader. There you are getting a better grip of the right attitude towards the technical side, and the county library is going to be extraordinarily useful to the teacher in the future.

I have said nothing of the elementary schools. One has to think of what the schools will be like when the leaving-age is raised. You have got to look at it in that way. The problem is: How can the elementary school get a library, and how can the school use the library? There are many people qualified to tell you about libraries in elementary schools, and I propose to leave the subject to them.

What I am hoping to get discussed is the whole attitude of the public towards knowledge as a whole, and the direction of public opinion towards a proper system of organised knowledge. Then we have to go into the question of how to train our pupils that go from the schools and become consumers of the knowledge you provide for them.

DISCUSSION.

Mr. J. W. H. Brown pointed out that, though text-books were still on trial, they had vastly improved in recent years, and there was evidence of much serious thought and attention being devoted to their production. He described also the function and use of the N.U.T. Library, and stated that it was now used by a larger number of teachers than ever before.

Mr. F. A. Hoare said that the elementary school was notoriously a bookless school, and that until authorities recognised the need for liberal expenditure on books it would remain so. School and class libraries in elementary schools depended largely on the individual initiative and personal generosity of the teachers themselves. The report of the Consultative Committee revealed the gross inadequacy of the amounts commonly allowed for requisition purposes. Teachers were lamentably handicapped in reforming teaching methods by the shortage of books. He agreed in regard to text-books that everything depended upon the way in which they were used. They were bound up with the examination system which required children to absorb a certain amount of sterilised information in order that it could subsequently be extracted in the form of answers to subtly devised questions. Teachers desired to develop in their pupils the power of individual research and to stimulate the quest for knowledge and information upon definite topics which were of interest for themselves alone. It could not be done without an abundant supply of books.

Mr. C. C. Fagg said that while his own associations to the stimulus "text-book" were as painful as those of other speakers, he observed that this was by no means the case with his children, who exhibited much interest and even enthusiasm in regard to their school books. This was doubtless due in part to the humanisation of the text-books, but, still more, he believed to the humanisation

of teachers and the general improvement in the atmosphere of school life. The question of text-books was perhaps the least important aspect of the much larger question of educational method. The attitude of Leplay House, which he represented—namely, the Regional Survey attitude—towards educational problems would place contact with the realities of the child's environment first, thus creating a desire for the knowledge and help to be obtained from books. He believed that in this way an interesting approach could be made to every subject in the school curriculum from mathematics to human geography.

Dr. E. H. Tripp demurred to the use of the term "producers of information" as applied by the author to librarians: "purveyors" would be a better word.

The number of text-books used in school was unnecessarily large, and in many schools the pupils—and their parents—suffered from the constant changing of text-books during the scholar's career. As the author said, one of the main defects of text-books as implements of education was their "static" nature. Another fault was that their subject-matter was too dehumanised. Although points of contact with man and human affairs were easier to introduce into literature and language-teaching, writers of scientific and even of mathematical text-books lost many opportunities of stimulating interest and of imparting useful—sometimes vital—information from the humanistic point of view by treating their subjects in a manner that was too objective, too abstract, and too professional.

The excessive use of text-books was largely due to our present system of examinations. Many of our best teachers largely dispensed with them, especially for young pupils, and, although text-books had their place—especially as time-savers—that place would be far more subordinate than it was at present.

Mr. J. McAdam, Mr. L. F. Gilbert, Mr. P. C. Bursill, and Mr. F. E. Lemon also took part in the discussion.

In replying, Mr. Hankin said: The school has improved enormously—the atmosphere of the school has changed. The problem still remains: are you going to give the children an organised body of knowledge in the text-book or are you going to let them read freely. It is more and more necessary that knowledge should be organised for the use of commercial firms. Firms are looking for this organised knowledge. Practically you get organised knowledge in text-books becoming dehumanised. How far does general reading encourage people to use knowledge for the purpose of their business?

I have a particular hatred of the worship of memory. I look on libraries as extended memory for the educated man. You have general knowledge, and when you want technical knowledge you go to the librarian. For up-to-date knowledge you have to look to the teacher. The teacher will see that the knowledge is up to date. The teacher will let the boy or girl constantly see that knowledge is growing. I entirely and absolutely believe in the use of the library for organised knowledge in the school, and it is our duty to see the text-books are organised, so that they fit in reasonably with different systems of education.

Organised Information in the Printing Trade

By R. A. AUSTEN-LEIGH.

Of organised information in the printing trade there is not yet very much to boast, and what little has been accomplished has mostly been accomplished in the last ten years, and the reason of this is to be found in the fact that the printing trade hardly became organised *itself* till the year 1919.

To show why this was so, or rather how it happened, it is necessary to glance at the history of printing in this country. And to glance is about as much as it is possible to do, so poorly is the history of printing documented; that is to say of the printing trade. Monographs of great printers such as Caxton, and Wynkyn de Worde, bibliographies of the works of the early printers naturally abound, but of the conditions under which work was produced, of the relations between masters and men, of the early conflicts over such perennial questions as wages, hours, and apprentices, we have little or no information.

Indeed, the early history of the trade is almost entirely confined to the continuous efforts of the authorities to control it. Its product was too small probably during the first hundred years that followed the invention of the art to excite much attention, and one of the first signs of its growing power was the incorporation in 1556 by Royal Charter of the Worshipful Company of Stationers. The right of printing was thenceforth restricted to persons free of the Company, and there seems little reason to doubt that through the supervision exercised by the Company it was intended by Queen Mary to keep a tight hand on the activities of the press.

Henceforward the printing trade must have been closely controlled by the Stationers' Company, and much more of its history may perhaps be known when the records of the Company, which so far have been published as far as 1603 only, are brought to light. Of some of the stringent measures enacted by Parliament or the Star Chamber, we are of course aware.

The first of these was the decree of the Star Chamber in 1586 limiting all printing to London and the two Universities, the number of presses to be at the discretion of the Archbishop of Canterbury and the Bishop of London; all books were to be licensed.

This confining of the presses to London and the two Universities was perhaps not so tyrannical as it sounds, for hitherto printing had been practised in a very few provincial towns, such as Norwich, Ipswich, Canterbury, St. Albans, Tavistock, etc., and not very continuously at these.

In 1615 the hold over the press was made still tighter by an order from the Stationers' Company, upon complaint by the master printers themselves of the excessive number of presses, to limit them to nineteen in addition to the three holders of patents.

Under Charles I and Archbishop Laud the tribulations of printers became still greater, especially of those suspected of being opposed to the religious views of Laud. A new Star Chamber decree in 1637,

besides providing for a most rigid censorship, again limited the number of master printers to twenty, and restricted the number of presses and apprentices that each might have. Its one good provision was to the effect that a copy of every book was to be sent to the Bodleian Library at Oxford, the beginning of the system by which certain public libraries and libraries of Universities have since largely benefited.

Owing to the Civil War, the decree came to be little more than a dead letter. The Parliamentary party, profiting by the support of most of the printers, did not choose to enforce the decree strictly, and we find there were at least sixty master-printers in London by the year 1649–50.

With the Restoration, however, the trials of printers began again. An Act of 1662 once more reduced their numbers to twenty, although it added York as a place where printing might be carried on. There was a scheme for relieving the supernumerary printers, who would be thrown out of work through this sudden reduction, by fines on booksellers who had sold seditious publications.

For the year 1668 we possess a list of the printing presses, showing about 150 workmen and 23 apprentices.

James II in 1685 renewed the Act of 1662 for seven years, after which—*i.e.*, in 1692—it was renewed for twelve months and then suffered to lapse. Thus in 1693 the right to be a printer was won, and in the next thirty years we find printing presses springing up in many provincial towns, frequently with the object of establishing a local journal.

During all this period there seems to be trace of two organised movements only in the trade itself—one on the side of the masters and the other on the side of the men, and each at approximately the same time. Thus in 1660 or 1661, we find eleven of the leading master printers in London petitioning in favour of the incorporation of printers into a separate body distinct from the Company of Stationers. This petition was re-inforced in 1663 by "A Brief Discourse concerning Printers and Printing," in which the reasons for this move are set out. Printers had, of course, never had a monopoly of the Company, which included all men connected with the book trade—*i.e.*, booksellers, bookbinders, and typefounders, as well as printers. The printers now complained that the Company was mainly one of booksellers anxious to cheapen printing by admitting more printers than were necessary. Further, it had grown so large that a printer did not become Master once in ten or twenty years, and even then he was too old to be able to keep a vigilant eye on the trade. Unfortunately Sir Roger L'Estrange, who had become Surveyor of the Press in 1663, failed to approve of the scheme, being under the impression that there would be as much abuse of power by incorporated master printers as by the Company of Stationers. The trade had to wait another hundred years or more before master printers combined in order to act by themselves.

The other movement was on the part of the men, for in 1666, perhaps as a result of the reduction of London houses to the number of twenty, we find a petition from the free journeymen printers of London, stating that there were at that moment 140 workmen printers in and about the City of London, having served their apprenticeship

to the trade, who were reduced to great necessity for want of employment largely by the excessive number of apprentices. They proposed, therefore, that no one should be allowed to enter the trade who had not served an apprenticeship, and that the number of apprentices should be strictly limited. Nothing is known of the result of this petition, but it must be doubted if the journeymen printers were in a strong enough position to enforce their demands.

The fact that Parliament ceased to interest itself after 1693 in the number of printing firms has one unfortunate result—namely, that we know little or nothing about the trade for the best part of the next hundred years. In the Copyright Act of 1709 the Legislature once more showed its interest in printing, but the provisions affected booksellers and authors more directly than printers.

A proof of the spread of printing presses may be found in a list given by one Negus in 1724, and showing seventy-five printing houses in London and twenty-eight in the provinces. One result of this must have been the decay of the power of the Company of Stationers over printing. Not only can it have had little or no influence over country printers, but with the termination of its arbitrary powers in London, it is unlikely that all the metropolitan master printers joined the Company.

Doubtless, however, the Company still tried to legislate for such of the trade as belonged to it. Thus in 1775 we find it ordering every master printer before binding an apprentice to deliver in writing to the Master of the Company a list of those he already had.

Ten years later we get definite proof that the London, or the London and Westminster, master printers were shaking themselves free of the power of the Company, and acting by themselves. Similar proof of the growing organisation of the only two kinds of workmen then existing in the trade is shown by a circular submitted by the Compositors to the Masters in 1785, followed by one from the Pressmen in 1787. Capital and labour were beginning to organise in the printing trade. It should be mentioned, however, that the masters refused to meet the men in conference in 1785, and merely issued their replies, many of which were concessions, to the men's demands.

Not until 1793, when a further request came from the compositors, did the masters consent to meet the men in conference. Henceforward negotiations between the two sides became brisk, but the danger which the men ran in trying to enforce any demands was shown in 1798. The pressmen had put forward a demand that the masters should not bind more than three apprentices to every seven presses; on this being refused, the men who were organised in a Friendly Society stopped work in various offices. As the law stood then, to combine together to extort terms from employers was conspiracy. The masters obtained warrants against eighteen pressmen, of whom five were eventually tried. The unfortunate men were found guilty and sentenced to two years' imprisonment in Newgate, as a result of which one of them died. It is said that they would have been let off any penalty if they would have apologised.

In 1805 there was once more a strike of pressmen, of 250 in all. Presumably on this occasion they took good care not to be guilty of any conspiracy. Negotiations continued brisk during the period of the Napoleonic wars, when the cost of living was rising. With

the ending of war, the masters reduced wages in 1816, after which a long period of peace set in, with the result that the organisation of the masters, which had been fairly effective since 1785, at any rate effective enough to include the holding of an annual dinner, faded away after 1816, not to be refounded till 1836, from which time the second Masters' Association—in London of course—lasted until 1870, when it was dissolved.

Meantime the men's organisations had been springing up, helped by the fact that the laws forbidding combinations had been greatly modified in 1824 and 1825. A London General Trade Society was set up in 1834 for the purpose of uniting the already existing societies. This established the London Union of Compositors, which developed into the London Society of Compositors in 1845, re-established in 1848. Other societies had been springing up in the provinces in Ireland and Scotland, and these were consolidated in 1845 into the National Typographical Association.

In 1890 we find the London Master Printers' Association once more re-established, although until 1916 it called itself merely the Master Printers' Association. Similar organisations had been springing up in other centres, the oldest being that of the Manchester and District Association, founded in 1874.

In 1901 these various Associations were joined together in a Federation. Although the new Federation was of rather a loose form, and at first rarely undertook any national negotiations, it was valuable as a first step in linking up the masters' organisations. Gradually it gathered strength, especially during the war, at the end of which, under a revised constitution, which included a scheme of a dozen or so of geographical units known as " alliances " containing the various associations in their area, the Federation found itself strong enough to insist on national settlements of wages and other questions, which had formerly been dealt with sectionally to the great disadvantage of the masters.

Ranged against the Employers' Federation was the organisation of labour known as the Printing and Kindred Trades Federation, formed in 1898, in which the various printing Trade Unions were federated to the number of thirteen or fourteen. Some of these unions are national, covering the whole country, others are sectional, covering England, Scotland, or London.

The final step up to date in the organisation of the printing trade of the country was the establishment of the Joint Industrial Council in 1919 for promoting good relationship between employers and employed.

It now remains to be seen in what way information is to-day organised in the trade. This may be said to be done—

(1) By the employers ;
(2) By the employed ;
(3) By the Joint Industrial Council ;
(4) By the Industrial Fatigue Research Board ;
(5) By libraries, by the technical press, etc.

In 1911, for instance, the employers took up the difficult matter of a Standard Cost System. The finding of costs, which is a particularly involved problem in the printing trade, had been much

neglected, to the great disadvantage of the trade in which there has never been any lack of competition. A system of cost-finding was evolved, which was endorsed by the Employers' Federation, and is favoured by the Joint Industrial Council. Other useful work has been performed by the Federation of Employers in the matter of standard conditions to be recognised between printers and their customers, standard forms for estimating and accounting. Still more recently the Federation has pressed forward the standardisation of paper. Although orders for printed matter, when of any size, are given by the thousand, it is still largely the custom for paper to be supplied by the ream, the number of sheets in the ream varying from 480 to 516—a system which obviously entails much mathematical calculation.

The Federation is now insisting on paper being ordered and supplied in units of 500 or 1,000.

In addition, the Federation is now busy trying to standardise inks used for coloured illustrations.

With regard to information organised by the employees, I am not able to say much, but they are believed to compile careful statistics concerning unemployment, sickness, and accidents in the trade, some of which have been made use of in the enquiries held by the Medical Research Board.

Still more important is the information gathered together by the Joint Industrial Council, especially by its Health Committee. This exceedingly active body has issued leaflets dealing with such problems as "Healthy Habits," "Lead Poisoning: How Caused and How Best Prevented," "Precautions against Consumption," "Ventilation and Health," "Bichromatic Poisoning," "Good Lighting of Printing Offices," "The Dangers of Defective Eyesight," etc.

The joint work done by employers and employees on such questions as the above is alone a justification for the existence of the Joint Industrial Council, which is one of the most successful of such councils in the country.

Mention, too, must be made of the information amassed and circulated by the Industrial Fatigue Research Board of the Medical Research Council. The Board has recently issued a most important report entitled "An Investigation into the Sickness Experience of Printers," which has been compiled with the help of statistics furnished by some of the Trade Unions. Confirmation is hereby afforded of the belief that tuberculosis is the greatest scourge of the trade, and that it affects particularly those between the ages of sixteen and nineteen. Apart from this disease, the industry is shown to have a particularly low incidence of sickness.

The Medical Research Council has also issued a report dealing with the effect of different systems of lighting on output and accuracy in fine work (type-setting by hand). The investigation seemed to show that a direct general, or semi-indirect system, was superior to local lighting.

With regard to information supplied by libraries and the technical press, the chief periodicals devoted to printing are *The British Printer*, *The Caxton Magazine*, *The British and Colonial Printer*, and *The Printers' Register*, while from time to time more ambitious journals, such as *The Imprint* and *The Fleuron*, appear for a season. In addition there are

the organs of the master printers and of the various Trade Unions. Mention may also be made of the annual known as *Penrose's Annual*, which describes each new process in the graphic arts, as well as of what is a useful, even if not an official work, called *The Master Printers' Annual*. This sets out in detail the numerous agreements which govern the relations between employers and employees; in addition, it gives the constitution of the Joint Industrial Council, and of the Masters' Federation, together with all its members and much miscellaneous information. The issue for 1924 contains "A Short History of the London Printing Trade, 1775–1915.

A more extended reference may be allowed to the great printing library known as the

St. Bride Technical Library.

The technical library of the St. Bride Institute is entirely devoted to works on printing and the allied arts, and was founded with the object of collecting and preserving the literature that would specially instruct or interest printers, and provide a reliable source of information on all matters relating to the Craft.

The Library of William Blades, bibliographer and City printer, and the Passmore Edwards Collection form the nucleus of the Library, which was opened by Sir Walter Besant on November 20th, 1895.

Blades Library.—The Blades Collection contains about 2,400 works dealing with the antecedents, origin, and history of printing, the grammars and special treatises on the practice of the craft, and books on lithography. The collection is essentially a practical one, brought together by a working literary printer. Blades's deep typographical knowledge, coupled with a unique patience for difficult research work, gave him many advantages over earlier bibliographers. A complete set of his writings, which number thirty-six published books on various subjects connected with the history of printing, beside several unpublished works and many contributions to periodicals, form part of his collection. Under the term "tracts," in which his collection is particularly rich, Blades included the many pamphlets, brochures, extracts, and other miniature treatises on specific subjects within the scope of his researches. Many of these tracts, which Blades was careful to bind as separate items, are now of great interest and value to the student of printing and bibliography, a number of them being unobtainable in any other library.

Passmore Edwards Library.—This collection consists of books which were purchased with money given by J. Passmore Edwards. Partaking to some extent of the historical character of the Blades Library, it was intended more particularly for those who desired to acquaint themselves with the modern development of the printing arts, and especially for technical students. The Blades and Passmore Edwards collections together number about 6,000 items.

Reed Library.—The next acquisition was the complete Library of Talbot Baines Reed, a son and partner of Charles Reed, the eminent typefounder. This library was also purchased by the Governors of St. Bride through the generosity of Passmore Edwards. The Reed collection is essentially typographical. It consists chiefly of specimens from the great presses of Europe, and works relating to type and type-founding, gathered together primarily for Reed's great work on

"The Old English Letter Foundries," 1887. The importance of type specimen books in studying the progress of typography from the sixteenth century onwards was keenly appreciated by both Blades and Reed, and, realising the rarity of such ephemeral works, they searched the book markets of the world. Many important items in their libraries, together with other type specimen books since added, now form a unique collection.

Southward and L.S.C. Libraries.—In 1902 the libraries of John Southward and the London Society of Compositors were added. John Southward, the most active printing trade journalist of his time, had been in touch with every movement of the craft, the development of which is illustrated by his own writings and the other works which formed part of his collection. With the L.S.C. collection came many important documents relating to early trade societies which cannot be found in other libraries, and which throw much light on the economic conditions and industrial relations of the craft during the past one hundred and fifty years.

Wilson and Peet Collections.—Later collections to which special reference should be made were presented at the instance of the late Mr. C. J. Drummond by the executors of the late J. Farlow Wilson, a former Governor of the Institute, and the late W. H. Peet, well known as an authority on the history of the publishing trade.

Catalogues.—The technical library possesses a complete author catalogue of works added up to 1918 and a supplement in manuscript of additions since that date. There is also a subject catalogue on cards arranged according to a special classification.

The scope of the Library to-day includes all branches of typographical history, and is rich in works relating to the invention controversy, general histories of printing and monographs on certain towns, presses, and individual printers. The Library also possesses a representative collection of works from the most famous old and modern presses of all countries, including 110 incunabula. Modern private presses are represented by about 150 items.

Works on the practical side of typography number about 8,000 items. Practically all the important text-books published in later years relating to type, composition, stereotyping and electrotyping, ink, paper, presses and machines, etc., are on the shelves and these are probably more in demand than any other section of the Library.

Books on the various processes of illustration, from the early woodcut to offset, form another important section of the Library, and these works are supplemented by many hundreds of specimens of illustrations filed for reference.

The Library is particularly rich in the printing and related trade periodicals of all countries, which number about 700 sets ranging in size from journals of half a dozen issues to others which run to 100 bound volumes.

Other subjects dealt with are the history and practice of bookbinding, book plates, and library economy.

In addition to books, the Library also possesses portraits of printers, printers' trade cards, collections of type facsimiles, illustrations of printing machines, historical documents, and printing specimens of all kinds. All these collections are systematically arranged.

The Library, which is open from ten to six (Saturdays ten to one) on all week-days, the usual holidays excepted, occupies rooms Nos. 12 and 13 on the second floor of the Institute building, which is close to Ludgate Circus.

But, although it may be claimed that organised information in the printing industry is by no means wanting, nevertheless the trade is not content with what is being done, and there is a very decided movement to-day for setting up a Technical Bureau for the printing industry, the chief duties of which shall be to collect, classify, disseminate, and investigate available information of a technical and scientific nature interesting to the crafts identified with printing and its allied trades. Such a bureau would investigate new processes and report on their possibilities, obtain information about machinery and materials needed by the industry, obtain foreign publications, and provide translations of interesting technical articles, arrange lectures and conferences.

Side by side with this project is another—an even larger one—namely, an International Bureau of Master Printers. The project first adumbrated at the International Conference at Gothenburg in 1923 was there approved in outline, but slumbered till the next conference, held last year in Cologne, when the plan was revived and carried several steps further. Finally, at the International Conference held in London last spring, the Bureau was set on foot, located for the moment in London, but with the idea of transferring it before long to Berlin. The aim of the International Bureau is to do internationally much what the Technical Bureau is to do nationally. Doubtless if and when these two bodies get working, means will be found to prevent any excess of overlapping.

Thus I have tried to show that, while the printing industry itself has become highly organised only in the last ten years, it has already done something to organise information, and is to-day anxious to establish its own research association in the same way that many other industries—*e.g.*, fuel, cotton, woollen, metal, leather, and rubber, to mention but a few—have already done.

DISCUSSION.

Mr. C. C. Wharton was very glad to hear from the author that the printing trade were taking steps to standardise their practice.

He asked whether any steps had been taken to standardise the sizes of papers and publications.

In his own firm they had standardised for all publications, letter paper, specifications, small blue prints, etc., which were liable to be filed together, a quarto size, the actual dimensions being 10½in. by 8¼in.

Some difficulty had been experienced owing to the variations in the full size of various types of paper, such as large, medium, or small post, the above dimensions being settled on as a compromise. They were trying to do away as far as possible with the use of foolscap, which was clumsy for filing purposes.

While appreciating that the printers were largely in the hands of their clients, he thought that they could give considerable assistance in getting adopted standard sizes for the various types of publication.

He would like to call the meeting's attention to the German system, in which the standard paper had a ratio of width to length of $1 : \sqrt{2}$, this arrangement having the advantage that each sheet when folded into two would be of the same shape, the ratio of width to length given being $1 : \sqrt{2}$. The Germans had worked out a very complete system on this basis, the ordinary correspondence paper being something between our quarto and our foolscap.

Mr. E. Emery said: The standardisation of the paper ordered by H.M. Stationery Office to meet the requirements of the public service was undertaken some three or four years ago. It was decided—

(*a*) To discontinue the use of the terms reams and quires;

(*b*) To make 1,000 sheets the unit when inviting tenders for the supply of ordinary papers; and

(*c*) To issue such paper in terms of sheets.

At the same time careful consideration was also given to the scheme mentioned by the previous speaker (known as the Berne scheme) of confining the papers stocked to two or three large sizes in which the ratio of width to depth remains constant even when the sheets are sub-divided.

This scheme is an attractive one, but, owing to the great variation in the sizes of the very numerous forms required for all kinds of purposes by Government departments, it was found that if the Berne scheme were adopted by the Stationery Office it would either result in the cramping of the size of many forms (thus causing inconvenience to the users) or to the use of unnecessarily large paper which would have to be cut to waste.

Moreover, the Stationery Office had to take into consideration the fact that the printing machines now in use throughout the country were designed and built to take the various recognised sizes of paper. It was therefore decided to continue the use of many of the existing sizes, but it was determined that in future the dimensions of these papers, which are specified in inches, should be constant. Previously there often was a considerable variation in the dimensions.

The substance of the paper required by H.M. Stationery Office is now indicated in grammes per square metre. There has, however, been some difficulty on this point with the paper mills, who have not yet adopted this method; consequently, the weight in lbs. per thousand sheets has also to be stated.

The Stationery Office also puts out detailed specifications of the "furnish"—*i.e.*, the constituents of many of the grades of paper ordered.

In regard to printed books, the sizes of Parliamentary publications have been standardised. Instead of the old foolscap folio blue books, which were so cumbersome and unattractive in appearance, the royal octavo size has been adopted, and it is, I suggest, a great improvement. Considerable attention is also devoted to the lay-out of Stationery Office publications and to the faces of the type founts used. Legibility is, of course, the first consideration, since the primary cause for setting type is that it may be read. It will almost invariably be found that the more legible the type used, the more pleasing will be its appearance.

The binding of library books of permanent value for the Public Departments is also being gradually standardised. The use of leather, particularly calf, for such bindings has been almost entirely superseded by buckram, which is far more durable than leather and is much less expensive.

For binding sets of Law Reports and other legal books, to which reference has been made by previous speakers, buckram is eminently suitable. Buckram bindings can be made to look quite attractive if care and skill are exercised by the binder; moreover, if gilt lines and leather lettering pieces are added on the backs, such books, when placed on the shelves in a library, will not look very dissimilar from previous volumes of the same set which may have been bound in law calf.

The use of loose-leaf binders and holders is steadily increasing throughout the public service, and large quantities of various standardised patterns are purchased from time to time by the Stationery Office. There are, of course, many types of loose-leaf binders on the market, each of which is claimed by the makers to be the best of its kind.

In these circumstances, and to avoid the suspicion of favouritism, I do not propose to recommend the adoption of any particular make or type of loose-leaf binder.

Mr. A. Parker and Mr. N. I. Parley also spoke.

Technical English:

SOME CONSIDERATIONS ON THE VOCABULARY OF MODERN SCIENCES WITH SPECIAL REFERENCE TO THAT OF ELECTRICAL ENGINEERING

By E. WORSLEY ASHCROFT,
of "World Power."

The technical English vocabulary under discussion in the first part of this paper is that composed of all words which are in use other than in purely scientific writing but which do not form a part of the current language. Their incorporation into the language will depend on the degree to which the ideas and processes they describe enter into the consciousness of the age. A national activity, such as war, produces a large crop of new words: but the fate of these words is quickly decided upon. Everybody had some share in the formation of such words and those describing events or objects connected with things that were temporary quickly disappeared. But the testing of words formed to describe the activities of science is of much longer duration. Words describing new psychological or medical theories, half completed engineering or scientific processes are familiar enough in technical journals but they cannot yet be said to form part of the English language inasmuch as the theories or processes they describe are still being adapted to English life. At present such words lack any form of instinctive and emotional memory association and they are therefore not amenable to the unconscious moulding which makes a word of long standing, for all the criticism that may be brought against it from grammarians, pedants, or spelling reformers, a part of the English language.

The words of the technical vocabulary are more easily susceptible to the treatment that is accorded to them by societies, dictionaries, and other authorities than are words of the current language. The words we inherit have been made by generations of our ancestors whose word experience is not more reasonably open to our censure than their moral experience. It cannot, of course, be maintained that the vocabulary we inherit is perfect. Many criticisms can be made against our spelling, which is perhaps unnecessarily complicated. It might even be regretted that we have no inflexions to show the feminine of certain nouns, etc.: but the language as it stands has a quality more alive and more positive than have the most reasonable attempts to reform it. It can be said, too, that where the language of the past is most susceptible to criticism is where it bears most definitely the marks of men who have consciously imposed their opinions as to how it should shape itself. Such men have never been writers of genius. An instance of pedantry on the grand scale is the retention, in the French language of today, of the meaningless circumflex over the vowels in words in which, at the end of the sixteenth century, an unpronounced *s* dropped out between the vowel and the following consonant.

The sixteenth century was referred to because it was a time when both English and French were in the process of receiving very large additions to their vocabulary. The same is true to-day. It is not the scholar, but the psychologist, the economist, the socialist, and more abundantly than anyone the engineer whose conceptions and processes have words to describe them which are unfamiliar.

Some of these words will no doubt disappear: but it is not on account of the barbarity of their form that they will disappear, nor on account of the ease with which they apparently fit themselves into the language that they will survive. It is on the intrinsic worth of the conceptions and processes they describe that their survival will depend.

But however much one may mistrust the arbitrary judgment of men on as natural a process as language, and whatever confidence must necessarily be placed on the influence of Time, which alone affects, in just proportions, the matter and the form of language, any consideration of language which attempts to make clear what is occurring and which is not based on a pre-conceived idea as to how the language should evolve, is a vital influence and not a restricting one. In particular such an influence should be exerted by those whose activities have led to the creation of new words. It seems to the writer that at the future meetings of this Society, which exists to promote the wider dissemination of published information, the purpose of the Society and the interests of the English language could be well served by the presentation, by representatives of different industries and sciences, of papers reviewing the many questions affecting the vocabulary of their science in its relation with that of other sciences and of the current language. It is desirable that the guardianship of many of these groups of words that are candidates for currency should be prolonged by the contributors and editors of technical journals. It must be noticed that Mr. Fowler, in his "Modern English Usage" avoids discussion of a great many words describing industrial and scientific processes which are frequently used but whose analysis would involve questions too remote from language. The time will come, however, for the making of a dictionary of modern English usage to include the large number of words, mostly of Latin or Greek origin, formed to express new concepts of economics, engineering, industry, medicine, politics, and psychology. It has not yet come: our national temperament, opposed to judicial murder and *ex-cathedra* regulations, would find too many questions it would have to pronounce upon with dogmatic acerbity. We have always preferred to allow words to multiply so that the language may be enriched rather than officially to condemn words of doubtful value and the vitality of English is the result of the confidence our ancestors have displayed that what is bad will die of itself. But the work necessary for the future compilation of this dictionary could be begun now by the collection and definition of words that are about to acquire a wider meaning but which can still only be reasonably defined in the terms of the industry whose activities have created them.

There is another direction in which these meetings should prove valuable, and that is for the consideration of certain methods of presentation of technical matter. Each industry could with advantage present a record of the standardizing authority, with whom it is in contact. It might indeed be possible gradually to effect standardization

of house rules of technical journals which would be to the advantage of all contributors and subscribers to technical journals both now and in the future.

Before touching on certain aspects of the work of the standardizing authority in the engineering industry, the following are a few considerations affecting the evolution of the technical vocabulary:

(*a*) The regrettable lack of definition of certain words used fairly currently with meanings that are in no way reconcilable and which have their origin in different modern sciences. The word *complex* as used in many modern novels and as understood fairly generally —for instance, *an inferiority complex*—and the word *complex* in the sense of *a power-station complex*, or *an economic complex*. Another instance is the word *rationalization* which in the sense that it is used by many quite reputable psychologists has an insinuating quality almost the opposite of the word as used widely in connection with a new tendency in industry. In the case of these words, it is the meanings which presumably reflect the activity of the psychologists that are superficial and confusing. Other words which have been widely adopted from the activity of psychologists and will soon, it is hoped, fret away a tiresome and ambiguous existence are *reaction*, *polarize*, *sublimation*, *amoral*.

(*b*) The necessity, in view of the tendency in all modern sciences whose conceptions are mental and whose words are therefore derived from Latin or Greek, of enforcing the teaching of Latin and Greek in the interests of common understanding. The writer knows a firm of manufacturers of automobile spare parts who have chosen the title " Automotive Spares, Ltd."

(*c*) The retention wherever possible of phonetic elements in the language. It is unfortunate that the termination *ize* etymologically preferable to *ise* should show signs of disappearing. (*Vide* Fowler, " Modern English Usage "—*ize*.)

The importance of retaining all phonetic forms has been emphasized by Sir Richard Paget, whose pantomimic theory of language is likely to prove the most powerful single factor affecting any new judgements of the evolution of the language.

(*d*) The possibility of general agreement that the hyphen should be used as sparingly as possible. A great number of hyphens must of necessity be used in certain branches of the technical vocabulary when a string of adjectival nouns have to describe a single object. There is, therefore, all the more reason, in the interests of good craftsmanship and for the general simplification of the language, that the hyphen should disappear in cases when it is no longer needed to accustom the reader to a combination of two unfamiliar words. To give a few examples from engineering: the hyphen is no longer needed in such words as *horsepower*, *feedwater*, *slipring*, *busbar*, etc. Such words are composed of elements that the engineer naturally couples and recombines without confusion and which the layman need never analyse. At the same time it would be good that a general agreement should be made to drop the hyphen in words of the current language that do not need it. To give a few instance of words with the prefix co- which need neither a hyphen nor the pedantic diaresis: *cooperate*, *coefficient*, *coordinate*, *coopt*.

The dropping of the hyphen in these and many other cases would give a much greater significance to its purpose. Why, for instance, are printers allowed to correct, out of a ridiculous conservatism, the *today* of our pens to the *to-day* of respectable journalism? The *to* contains no vestige of its original meaning. (*Vide* Fowler, " Modern English Usage.")

(*e*) Derivations. Language is the mirror not only of the activities of men but of their natures. The way a word is recreated from a dead language or from a foreign language to the native language reveals the most intimate workings of the native language-spirit. Science, no less than the re-discovered significance of the ancient world at the time of the Renaissance, has changed our thoughts, instincts, and emotions. It may well, then, revive a suffix that has been considered dead or combine an English verb with a Latin prefix. However, one may object with Mr. Fowler to a great many hybrid derivatives: in particular to such words as *floatation*, *sendee*, *amusive*, *backwardation*, *speedometer*, *creamometer*, *floodometer*. But these words are not describing ideas or processes of a strictly scientific nature *cf. voltmeter*, *wattmeter*, etc., formed from the English verb *to mete*.

THE BRITISH ENGINEERING STANDARDS ASSOCIATION.

The standardizing authority in the engineering industry is the *British Engineering Standards Association*, which works in connection with the *International Electrotechnical Commission*. BESA have published a " British Standard Glossary of Terms used in Electrical Engineering." In preparing this glossary, the objects in view were to standardize and coordinate the electrotechnical terms used in the British Empire, and to provide a basis for the British portion of an international vocabulary in preparation by the International Electrotechnical Commission. An endeavour has been made to render the definitions as general as possible so as not to restrict their application unduly. It was originally proposed that the definitions should be arranged alphabetically, but it was found that with this method cognate terms were so far removed from one another that comparison was difficult. The method also had the disadvantage that specialized terms and general terms were intermixed. The BESA considered desirable to standardize as far as possible the ending *or* as designating a piece of apparatus or machine for accomplishing a certain purpose, leaving the ending *er* to be applied to the person who carries out an operation. This ruling has been the subject of some controversy and is by no means unanimously followed nor approved. The BESA glossary accepts certain well-known terms, however, such as condenser, controller, transformer, voltmeter.

Temperature Readings.

There is, in the electrical industry, a definite trend towards the exclusive employment of the Centigrade scale under the influence of the BESA specifications. All temperature rises recorded in the BESA specifications, some of which are international models, for the electrical performance of machinery and transformers, are quoted in Centigrade exclusively. In the specifications for steam turbines

and steam engines the Fahrenheit scale is still used on account of older standards of reference, but the Centigrade scale is always quoted in brackets. The same applies to specifications for wires and cables. The old standard of reference for the resistance of cables and wires is 60F. The new international standard is, however, quoted as 20C. The specification for the viscosity of oils issued in 1923 but for which there was no question of precedence in regard to temperature quotations, records temperature in Centigrade only. In the course of time, the use of the Centigrade scale exclusively will become the practice of the electrical industry.

Symbols and Abbreviations.

The subject of international agreement in regard to symbols employed in electrotechnics was first brought before the International Electrotechnical Commission in 1908. The final recommendations, embodied in a report issued in 1913, and revised in 1920, give rulings on the employment of letter symbols for quantities, abbreviations for weights and measures and for names of units. The two chief rulings for quantities are (1) instantaneous values of electrical quantities to be represented by small letters; (2) virtual or constant values to be represented by capital letters. It was recommended that in the printed text, a different type was to be used for the symbols from that of the text. This recommendation is largely disregarded in practice. At the same time practice shows no uniformity with regard to the writing in capitals or otherwise of common symbols such as those for the *kilowatt*, *kilowatthour*, *amperehour*, etc. It is obvious that the submultiples μ for *micro*, *m* for *milli*, should be written without capitals, but the recommendation that *k* for *kilo* should be written small, whereas *M* for *mega* is capitalized, is perhaps an oversight. Nor is the recommendation for mathematical letter symbols and rules, that the separation between any three digits constituting a whole number should be indicated by a space and not a comma, uniformly followed in electrical engineering practice.

Certain sponsor bodies in America have recently brought out a tentative list of abbreviations for engineering and scientific terms prepared by the *American Standards Association*. These bodies recommend, among other things, the avoidance of capitals in abbreviations except in words normally capitalized, the use of the hyphen in the abbreviations of compound words, and the elimination of the full stop after an abbreviation except in a few cases when such an omission results in an English word. There is no uniformity in American opinion or practice on such matters as yet, nor have the tentative American abbreviations for unit symbols followed the recommendation of the I.E.C.

It should be borne in mind that, however unimportant in itself may be the question of abbreviations and letter symbols, with the increase in the use of wireless and electrical apparatus, etc., by the public, nothing but confusion and discredit to the industry can result from the absence of a standardized expression of rating, etc. Furthermore, unlike problems affecting the form of living entities such as words, the problem could and should be settled once and for all. And it really matters very little what usages are finally adopted so long as their adoption is general.

In conclusion, no attempt has been made in this paper to deal with the specific problems of word formation of any one industry. The author has tried rather to define the spirit in which the general problem of technical language should be approached than to detail any aspect of that problem.

DISCUSSION.

The CHAIRMAN (MR. H. QUIGLEY) said that in view of the unintelligibility of a great deal of technical English, the need for standard and rational terminology was self-evident. But such standardisation could only be effected by the closest combination between the industries who created the terminology and the associations who were, in one way or another, primarily concerned with its form.

MR. C. C. WHARTON said that he had been asked by the Secretary to speak on this subject, presumably because he was co-editor with Colonel K. Edgcumbe of the British Standard Glossary of Terms used in Electrical Engineering, which had been issued by the B.E.S.A. and which is referred to in this paper.

He said that the terms of reference given to the Sub-Committee on Nomenclature were somewhat broad and vague, but they had felt that as they were a committee of a standardising body, it would be in order for them as far as possible to standardise terms. They had found that there were often three to five synonyms for the same idea. They had therefore decided, while quoting all the synonyms, to give a *preferred* term. They had also endeavoured to establish certain principles for the coining of any new words required by the industry, giving as examples the following :

The termination *ance* for the measure of certain properties or materials—*e.g.*, reactance, resistance, conductance.

The termination *ivity* for the specific quality of materials—*e.g.*, resistivity, conductivity.

The termination *or* for apparatus employed by virtue of its having a certain quality—*e.g.*, resistor, reactor, conductor—leaving the termination *er* to be used for the person carrying out any particular operation.

There are a great many electrical terms for apparatus already ending in *or*, but there are also many ending in *er*, and it was thought desirable to establish as far as possible the termination *or* for all new terms and also for those only recently adopted into the language.

A great deal of criticism was levelled at the Committee on this account, objections being raised for various different reasons. One was the question of etymology, it being claimed that only those words of Latin origin should have the termination *or*, and the terms of Anglo-Saxon origin should have the termination *er*.

He had pointed out to these objectors that there were already many words of Latin origin spelt with the termination *er*.

Another objection was the question of pronunciation. The objectors imagined that they would have to emphasise the *or* pronunciation. To answer this, Mr. Wharton took the example *governor*, in which the final syllable is not usually stressed.

He felt that the main objection to adopting the *or* termination throughout was just innate conservatism.

He stated that, while the alphabetical arrangement of terms had been considered, it had been considered preferable to adopt the logical system so that the definitions of co-related terms would come close together in the glossary—*e.g.*, positive and negative.

MR. C. C. FAGG said that as the author clearly recognised the growth of language was a natural process, it was, in fact, a function of the group mind. As such it was very difficult to control. One could not shape it as easily as one could a yew tree, and on the whole he preferred a yew tree looking like itself to one trying to look like a peacock. He felt such that the author's hope that such psychological terms as *complex*, *nationalisation*, *reaction*, and *sublimation* would " soon fret away a tiresome and ambiguous existence " would not be realised. These words are neither tiresome nor ambiguous to psychologists to whom they have clear and, definite connotations. They have " caught on " and have come to stay.

Referring to another point in Mr. Ashcroft's paper, he thought that æsthetic value was an important factor in the survival of even technical terms. He gave as an instance Haeket's term *ecology*, which had survived, while Ray Lankester's term *bionomics* for the same concept had gone out of use.

MR. R. A. AUSTEN-LEIGH, MR. D. A. GORDON, and MR. H. ROTTENBURG also took part in the discussion.

The Information Service of a Bank.

By P. A. GREEN
(*The Canadian Bank of Commerce*).

Widely differing methods are employed by banks in the operation of their information service. Some have highly-organised departments dealing solely with the collection and dissemination of information of an economic and commercial character. Others do not find it necessary to have a separate department, and the work is frequently allotted to an officer, or officers, to be carried out in conjunction with other duties. Often the manager personally attends to all enquiries which come under the heading of "business information."

There are a large number of banks in existence, and the service which a bank is called upon to render to business people naturally varies according to its size and the geographical distribution of its business. Most banks differ in their ideas as to the extent of their duty in furnishing their customers with business information. I do not pretend to be conversant with the details of the information service provided by every bank, and the particulars I am about to give you are not merely the result of my own observation, but are in many instances taken directly from newspaper articles or reports of speeches by leading bankers and economists. In many cases the actual words are used, and it is regretted that time prevents an acknowledgment in each case.

The work of an information department is either in theory or in practice divided into two sections :

(1) The Credit Information Section ;
(2) The Intelligence Section.

I will deal with them in this order.

The Credit Information Section.

It is usual for a bank to report on an individual or firm in connection with some special transaction when it has been given as a reference. Such reports are generally confined to a comment as to character, and whether or not the subject of enquiry is considered good for the amount involved. As a rule credit information is given only through the bank with which the enquirer transacts his business. In the United States, however, it is quite customary for banks to reply to trade enquiries received direct from large manufacturing companies and to some degree this custom has spread to this country.

The uses of banks have greatly increased in the last few years, but many people still do not realise the valuable service a modern bank renders to its clients. Some banks now, however, are explaining by means of booklets and announcements in the press their many and varied facilities which are available to all customers at all branches. Many banks even advertise the fact that up-to-date information can be supplied by them on matters relative to the financial standing of individuals or companies at home and abroad. Such banks can and will obtain for other banks or for people well known to them a candid opinion of practically any concern or individual, foreign or domestic, engaged in commerce.

Every business man will understand that enquiries may often take time to answer, for it is impossible for any institution to have in its office up-to-date and adequate information about every trader in the world.

Unfortunately, it has often been brought to my notice that numerous firms have suffered very serious losses through insufficient enquiries into the financial and moral standing of their customers. Shipments abroad are frequently made in the dark. Orders from new customers are accepted without question because perhaps the notepaper looks good or the name is high sounding. I am often told by shippers that they know all about the market or firm to which they are selling, and later on it transpires that their information was of the vaguest kind. Sometimes merely the opinion of friends similarly situated is taken as being sufficient to start a new venture, and when a loss is incurred it comes as a disagreeable surprise. It does seem a pity that a lesson cannot be learned from experience. It is hoped that these few remarks will indicate to business men the importance of consulting a bank's information department on every possible occasion.

The greatest problems of industry and trade centre upon where and how to get a share of the business offered without accepting undue credit risks. Banks are so closely associated with the development of commerce that they are in an exceptional position for keeping in touch with credit conditions throughout the world.

Credit reports are furnished by banks in strict confidence and without prejudice. No responsibility is undertaken by the bank in connection with such reports, which are based on the transactions which the individual or company have with the bank from which the opinion is originally obtained. It is usual to answer credit enquiries verbally, but not over the telephone.

The Intelligence Section.

The Intelligence Section of a bank's Information Department collects and files any general information which is required by or likely to be of use to the executive officers and the management generally. It is obtained from various sources, and many cuttings are taken from financial and ordinary newspapers. Trade papers and Government publications are also carefully perused. Use is then made of it not only for the benefit of the bank, but customers and others can obtain much of its value by means of the monthly bulletins which most banks now issue and in other ways.

The executive officers and the management often require all available information on a specific subject and the Intelligence Section must of necessity keep in touch with business conditions and new industries in all parts of the world.

As I have already said, information is obtained from books, trade and technical journals, as well as newspapers. Anything of special interest is brought to the notice of the branch or officer concerned. Press cuttings are filed after having been carefully indexed. Only matter of importance and likely to be referred to again is retained in this way, although some newspapers and periodicals are kept intact for a few months. A few periodicals, such as the *Statist* and *Economist*, are bound at intervals and retained indefinitely. The leading newspapers of the countries in which the bank is particularly interested are

regularly subscribed for. In addition, many periodicals which circulate particularly in those parts of the world are obtained at regular or frequent intervals. These sources of information are used in conjunction with the weekly reports supplied by the bank's own branches.

By means of the above, and with its library of year-books, encyclopædias, and directories, which are always up to date, a great percentage of questions are answered. Statistics are compiled at the head office on every leading industry, and, with the rapid development of manufacturing, it is natural that this statistical service has frequently to be enlarged.

To-day a great and growing volume of overseas trade is transacted annually. Banks endeavour to make it possible for new business to be secured, and, at the same time, losses avoided. They cannot create trade, only foster its growth, but unless the manufacturer and the trader have the energy, the skill and the foresight to exploit the fields awaiting them, the efforts of the bank are in vain. Banks realise that industry should be put in a position which will enable it to compete more effectively in the markets of the world. Technical and statistical data are, therefore, made available more extensively than before.

Realising the need they had to meet, and the further demands on their services likely to ensue from growing trade, banks have spared no efforts to make their information departments thoroughly efficient. An immense fund of accurate information for all practically interested, industrially or otherwise, is freely available to responsible enquirers. The Information Department is intended to serve business men impartially and completely. It undoubtedly plays an important part in the development of export trade. It can often advise as to which trades are prospering and developing and which are suffering from over-production, where demands are increasing and where they are falling off.

Many banks possess an extensive domestic and foreign trade connection, and have through their local officials, agents, and correspondents, reliable information which they will gladly place at the disposal of anyone interested in industrial concerns. They play a strong part in fostering local industry and in encouraging initiative in home and foreign trade. The requirements of each industry receive full consideration and their facilities are constantly being expanded to meet the growth in each line of activity.

We are all dependent on one another for information, and it cannot be too strongly emphasised that all interested in overseas markets should avail themselves of the opportunities which are afforded by banks for the investigation of their problems and opportunities. All enquiries are treated in the strictest confidence.

Through their branches and correspondents, banks are unusually well equipped to draw on the best available experience, but how many business people are aware of all the functions of a bank's Information Department, the kind of information which it can supply, and the assistance it can render? They do not usually realise its great services, and probably have never troubled to see whether any outside those they are using can be of assistance.

Banks are largely to blame for not bringing their information facilities

more to the notice of the public. Until a few years ago they viewed with horror any suggestion that they should publicly advertise their business. Secrets are not given away, but the diffusion of much valuable knowledge is obviously for the benefit and advancement of trade. In fact, the Information Department of a bank is frequently told that its reports are of the greatest value.

This study of overseas markets and their particular requirements affords an opportunity to business men for drawing on a vast amount of information which is constantly being added to. Very few business men know so much about export business that they are unable to profit by the experience of others. The conduct of an export business is a complex matter, and it behoves exporters to use every available means of improving their knowledge and efficiency. Business men are increasingly coming to appreciate that no effort is spared by banks to understand their problems, and so make rapidly and generally available the facilities which the bank has provided.

It is quite impossible for me to detail the various kinds of enquiries which are received from merchants, manufacturers, and traders generally. There is a continuous demand for commercial information, and my object is to show how and by whom it can be obtained. There is very little general commercial information which cannot be obtained from or through a modern bank, but its supply is usually limited to its customers and to other banks, because, after all, a bank cannot be maintained as a philanthropic institution for the special benefit of those who do not contribute towards its expenses either by directing profitable business to it or by rendering reciprocal services. On the other hand the service provided by banks can only be maintained in an efficient manner if it has the co-operation of those whom it serves. Exporters and manufacturers frequently merely inform the bank that they want to obtain an agent in a particular country, or an enquirer from overseas merely states that he wishes to represent a manufacturer. In such cases it is generally a waste of time to deal with the matter until the fullest particulars have been obtained from the enquirer.

Friendship and confidence go a long way towards establishing co-operative effort, but many a business man to-day does not cultivate the confidence of his bank. A bank should have an intimate knowledge of its customer's business and, for this reason, a customer should conceal nothing from his bank. If this latter point is closely observed, a bank will willingly give its customer the benefit of advice based on its knowledge and will at all times be ready to obtain helpful information.

The Information Department of a bank endeavours to help business people to overcome the difficulties that beset them when dealing with overseas markets. It assists manufacturers, merchants, and traders generally to develop business overseas, especially with those territories where the bank has established branches, and by means of its reports enables new accounts to be opened with greater confidence. It is highly desirable that business people should visit their markets themselves and obtain the latest information on the spot; but, if in some cases this is not practicable, then data should be obtained through reliable channels such as the Information Department of a bank, and, at regular intervals afterwards, such facts and figures should be brought up to date in the same way. However shrewdly an exporter chooses

his customers, the risk of difficulties and delays due to credit crises, exchange fluctuations, overstocked markets, and political troubles can never be fully foreseen. The principal officers of many banks make frequent visits to all parts of the world with the object of getting first-hand information as to conditions in various countries.

The remarkable and persistent increase in the use which exporters have made of the Information Department shows that the facilities offered are those which business people require. These facilities have been tested by a large number of exporters handling many different lines.

The increasing service given by banks to the business community may be gathered from the increase in the number of branches. In 1879 the Midland Bank had only four branches; to-day it has over 2,000. In 1868 there were only 123 branch banks in Canada; to-day there are more than 4,000. Another pronounced banking tendency (as far as Canada is concerned, at any rate) is seen in the spread of the branches of Canadian banks to other countries. This movement began towards the close of the last century, and Canadian banks now have branches in Great Britain, France and Spain, the United States, the West Indies, and in all the principal commercial countries of Latin America. The spread of these branches has done much to promote foreign trade. It is a significant fact that ninety per cent. of Canada's foreign trade is carried on with countries in which there are branches of the great banking institutions of Canada.

The London offices of these banks are always at the disposal of British industrial concerns which are considering the extension of their activities into Canada and are ready to furnish full information on such subjects as tariffs, freight, warehousing charges, regulations regarding commercial documents, and trade customs.

In a country such as Canada one finds the greatest opportunities for the development of trade. The British manufacturer's best method of serving such a rapidly-growing market in a successful and permanent manner is usually to establish a subsidiary Canadian plant. A bank will help him to select a district where manufacturing costs are low, where transportation is cheap, where electric power is reliable, and where labour is abundant and anxious to help production. The services of a bank in carrying out investigations or negotiations are absolutely *gratis* and entail no obligation. Furthermore, all communications are kept in strict confidence.

In Canada one of the distinctive economic assets of a big city is its modern bank organised to give practical service to all considering that city as a desirable place in which to establish a substantial industry and to aid in the progress of the city through the development of industries already established. A bank offers a confidential service to manufacturers who desire reliable reports relating to the successful establishment of branch plants under contemplation.

The subject of branch factories in Canada is one of the most important confronting British manufacturers interested in the Canadian market.

Banks are only too pleased to co-operate with business men who are desirous of opening up or extending their markets overseas. Many of the larger banks are of an international character, thereby making for closer relationships between the countries concerned and,

as I have already said, some maintain important branches in a number of countries.

Several advantages may be expected to flow from this direct representation. Customers can be offered bigger facilities and traders given precise, regular, and detailed information concerning conditions overseas. Moreover, the home and the overseas offices are able to some extent to feed each other in the matter of supplying information as well as new business, while the possibility is, of course, opened up of taking a share in the prosperity of developing countries. They thus become engaged, in active co-operation with all others, in the great work of building up the commercial, industrial, and agricultural fabric of these countries.

The foreign branches of Canadian banks have played a most important part in extending foreign trade. In addition to their foreign branches, these banks have built up a network of foreign correspondents to facilitate the relationships of exporters and importers with companies and representatives in every important commercial centre in the world. It will be readily realised that foreign contracts are exceedingly important to the manufacturer and exporter.

If you are contemplating establishing or expanding business connections with countries overseas, a bank is a sure and safe point of contact. The London offices of overseas banks were established primarily to assist in financing and developing overseas trade. These organisations have an intimate knowledge of traders and of their business methods and customs.

A bank obtains from its branches weekly reports on business and local conditions. A digest of these reports is made at the head office and copies of this are then circulated to all the branches. The following is a specimen of a report as it would appear in a digest:

> Wholesale houses report business quiet as retailers are only buying for present requirements in view of the somewhat adverse crop conditions.

Telephone, trade, and personal directories are kept by banks, and from these may be obtained information regarding individuals or firms with a view to developing business. The London offices of banks, whose dealings are confined to particular countries overseas, usually have a trade paper library covering the principal industries in those countries as well as the leading daily newspapers.

When indicating firms with which business may possibly be developed no guarantee, expressed or implied, is given. A list of names, if supplied, is merely a classified collection as a result of enquiries made, and business people desiring to enter into relations with the firms enumerated are recommended to observe the usual business discretion. In order to help those firms entering overseas markets or extending their existing connections, banks are prepared to arrange suitable commercial introductions and give relevant statistical information. In this way contacts are arranged between firms wishing to appoint or act as agents. Banks have special facilities for obtaining the names of responsible agents to represent manufacturers overseas. Not only is it important to our export trade that an overseas agent should be of good financial standing, but his sales organisation must be adequate and he must have the confidence of his public.

British manufacturers who have not previously shipped to a particular country should pay close attention to the regulations of that

country's Customs Department, both as regards the particular form of invoices to be used and the manner in which they must be filled up, as frequently the benefit of a preferential tariff is dependent on the same. For this reason a bank makes a point of directing manufacturers to the advantages of obtaining the fullest information in regard to customs regulations. It is essential that anyone intending to establish a market for his goods in a foreign country should first of all study the conditions and practices of that country. Ignorance often leads to pitfalls. For instance, many British manufacturers and exporters send catalogues in Spanish to Brazil, believing apparently that in so doing they are addressing Brazilians if not in their own language, at least in the nearest thing to it. As a matter of fact, the inhabitants of Brazil speak Portuguese, and it is no compliment to Portuguese-speaking people to address them in Spanish. Again, it is the usual practice in certain Latin American countries not to protest unpaid bills. This is an important matter in the conduct of export business. Of course, the importance of delivery to time when dealing with buyers overseas is always stressed by a bank's Information Department. It is impossible, however, to generalise when dealing with export trade. The Information Department therefore gives special attention to every enquiry received.

To the business man about to journey overseas a bank's Information Department will obtain particulars regarding passports, steamship reservations, railway bookings, hotels, boarding houses, golf courses, etc., and every reasonable care is taken to obtain authentic data regarding the same. It will be readily understood that a bank does not assume any responsibility, and that the information supplied is merely for the intending visitor's guidance in making a selection.

Perhaps I may be pardoned for another reference to Canada. Catering for tourists is one of Canada's greatest industries, and there is at the present time a great demand for detailed information regarding tourist travel in Canada. Any Canadian bank will gladly obtain for the prospective traveller authentic and detailed information.

A better knowledge of one another and of one another's customs encourages larger and better business, and in this connection may be mentioned the tours to the various parts of the world by groups of business men, politicians, and students. All these visits cause an interchange of ideas generally, and an increased exchange of commodities. It is worth while remembering that business and personal introductions are given by banks to individuals, firms, and trade organisations for use in all parts of the world.

Canadian banks naturally are greatly interested in the welfare of intending settlers in the Dominion, and will furnish particulars of what settlers may reasonably expect to find on arrival at their destination. Many years of practical experience have enabled these banks to gain that intimate knowledge which they gladly share with settlers and thus render material assistance in solving the problems to be faced in a new country. In this connection the locations of obscure places are obtained from gazetteers and maps. Naturally, a bank which specialises in a particular country has usually more detailed maps of that country than of other countries.

Many items of general interest to business people are now published by banks in the form of pamphlets. They are sometimes in the form

of useful hints, and frequently the bank's aim is to present facts to the reader in language comprehensible to anyone unversed in technical phraseology. For instance, The Canadian Bank of Commerce recently prepared a booklet giving an outline of the world's resources of the more important minerals in the hope that a general survey of the subject might prove to be not only of interest, but of real value. The bank's association with mining in Canada, extending over a period of sixty years, provided much valuable information, but the preparation of that booklet necessitated the examination of a great many reports issued in various parts of the world, and the consultation of numerous other authoritative sources. The booklet included statistics of world production in recent years and discussed such matters as prospecting, exploration, and development, the past record of Canadian mining industry and its possibilities in the future.

In addition to publishing such booklets, that bank issues a " Monthly Commercial Letter " from its head office, prepared by competent authorities for the benefit of all who may be interested in the current business situation in Canada. This letter is based upon official and other reliable data, including regular and special reports from the 800 branches of the bank as well as its correspondents. It deals with, *inter alia*, general conditions of trade, agricultural conditions, construction, markets, and prices. It includes under the heading " Current Statistics of Finance and Trade " such items as : Government revenue and expenditure, imports and exports, movement of crops, bank clearings, exchange rates, and bond issues.

I think the following digest of a typical " Monthly Commercial Letter " may be of interest :

> General manufacturing continues to be active. The newsprint situation has shown a noticeable improvement since the rationalisation plan was put into effect, but in the lumber trade the foreign market has lately eased. The automobile industry is marking time until a freer movement of used cars will allow it to increase its output to the high level of a few months ago.
>
> A stronger wheat market, good prospects for the crops in Central and Eastern Canada, the opening of the salmon canning season on the Pacific Coast under favourable conditions and great activity in construction work throughout the Dominion have been the salient features of the past month.
>
> The Western crop has so far progressed without serious loss from any cause, except for drought in certain parts of Saskatchewan, but weather conditions have not been altogether favourable and growth has been somewhat retarded.

These monthly bulletins, which are now issued by many banks, are reliable reports prepared by experts ; they are terse, comprehensive, authentic, and unbiassed. I have been told that many business people look every month to these commercial letters for guidance as to general conditions, etc., and in this connection I would like to quote a paragraph which recently appeared in a weekly paper :

> The apparent anomaly of depressed basic industries and unemployment co-existing with free spending on the minor luxuries, greater thrift among wage-earners, and booming secondary trades, provides the August issue of the " Westminster Bank Review " with material for one of its thoughtful and clarifying examinations of the trade situation.

I think it will be seen from what I have said that, as banks are feeling the pulse of commerce daily, they are in a position to provide facilities which are vital to business. They realise that the success of industry is due to information obtained in various ways, and they are always ready to place the service provided by their Information Departments at the disposal of business people. [*See page* 101].

The Information Service of a Public Library.

By EDWARD GREEN,
Chief Librarian, Halifax Public Libraries.

It is extremely doubtful whether business and professional men have any adequate conception of the position and function of the public library as it exists in this country to-day. The apologetic attitude of its early promoters, and the permissive character of early legislation, has found us in this twentieth century with a town library service somewhat uneven in quality and extent, and a county library service but yet in its beginnings. William Ewart's first bill to establish rate-supported libraries, it should be remembered, limited their maintenance to the product of a halfpenny rate, none of which was to be spent upon books, and the stocking of public libraries under the first act was met perforce by private munificence. Even until comparatively recent times the rate allowed by Parliament to be levied by municipalities was restricted to one penny in the pound, and yet after the recent abolition of that absurd restriction many library committees still think and act in the terms of the penny rate, and do not allow enough money to provide what is really necessary. As a matter of fact we are but just beginning to realise that a satisfactory library service the country through is as essential as schools, parks, asylums, police, health, and other services. Indeed, without the provision of, and instruction in the use of, libraries, the full educational harvest cannot be secured. Apart, however, from these limitations, there is evidence of some excellent work accomplished by our public libraries. They do attempt, so far as their means permit, to cover the varied needs of their users, not only on the recreative and humanistic side, important as both are, but also equally on the practical side. In increasing degree public libraries are becoming information bureaux: no other local agency exists which is so able to answer the queries which arise from day to day. With the more common instruction of young people in their resources and use—now a feature of the more progressive educational policies—the time is fast arriving when those of older years will turn to libraries as the chief means of continued education, and as the solvers of their mental problems.

In Halifax the service embraces a co-operative system of libraries in the schools (15,000 volumes), organised library lessons, given in the libraries to the older school children, and designed to encourage an intelligent use of the books when school days are over, and the distribution of tickets transferring leaving scholars from the school libraries to the public libraries. About 80 per cent. of these tickets are used at the central and branch libraries, and so continuity in the use of libraries is secured.

It is, however, not alone the possession of the right books and documents in public libraries, but also a personnel which knows their contents and exactly where to direct enquirers that makes for success. That this obtains in some degree is revealed by the reports of librarians and the testimony of readers, but there is room for considerable extension. One has a vision of developments which will link in the fullest

degree all local effort with national and even international service, and such modern agencies as ASLIB and the Central Library for Students indicate the way of advance.

What, exactly, we may ask, are public libraries doing as an information service? The answer may vary according to the particular area to which so pertinent a question is addressed. But it may be frankly stated that even in the smaller, and often starved, libraries there is great ambition to supply required information. In the larger and wealthier areas there is, naturally, fuller scope and opportunity, and current activities point to an increasing realisation of the value of such service. So it is that we find in some places an " information desk " installed at some central point where enquiries can be dealt with, or separate departments may be set up to meet technical and commercial needs, and these are known as technical and commercial libraries. All the larger cities now possess such special services, and the use made of them is quite considerable and increasing. The business men of this country are slowly realising that they can no longer afford to ignore the help of books and libraries if they wish to keep abreast of their competitors abroad. But it is not in the commercial realm alone, or even chiefly, that the information service of libraries is to be valued. In a much wider field it is of paramount importance. No longer will hazy ideas and haphazard methods suffice; the well-equipped mind will be among the chief factors in the new world now emerging. Is it not a startling fact that after seventy years of popular education we are but just beginning to realise the need of books and libraries to reinforce scholastic effort. Nay, it is really staggering that the bulk of the primary schools of the country have omitted library provision, and that educationists are but just discussing the advisability of such provision in schools of different types. No wonder, then, that the average artisan or labourer is ignorant of many things that help towards a fuller understanding and enjoyment of life, and of the knowledge necessary to secure needed reform. Whilst this is so, it is encouraging to note that the more active public libraries have, by different methods, made widely known their resources and captured the active interest of many people. In such places no one remains in doubt or ignorance, because he just turns at once to his public library, there to be directed to the books required. As every public librarian is aware, the information sought is very varied. It may be a date in local history, who was mayor at a given date, or the rateable value of the town at a certain period. Or it may relate to current affairs, such as the composition of the town council, the representatives of particular wards, or some such matter which can be easily answered from a municipal year book or a local almanack. On the other hand, it may be something of national importance: a date in general history, a piece of legislation, or a phase in social development about which the enquirer is puzzling his mind. The need of the moment, however, is not so much the storing of vast masses of knowledge in the individual brain, as the training to know where to look for the information sought. More instruction of the adolescent in such common documents as those referred to, and also in the resources of, say, a good encyclopædia, " Whittaker's Almanack," " Who's Who? " Haydn's " Dictionary of Dates," " The Dictionary of National Biography," " The New

Oxford Dictionary," "ASLIB Directory," "The Subject Index to Periodicals," gazetteers, and atlases would prove a good introduction to the more specialised works to be found in libraries.

Apart from the general queries addressed to libraries, the apparently more specialised ones are often easily dealt with if the library worker is up to his job and knows the contents of the books in his charge. One fruitful method is to tabulate every out-of-the-way enquiry, so that the information is already filed for the next enquirer who may come along. Such an index to questions dealt with becomes of growing importance as it increases in bulk. Whilst it is reasonable to expect every efficient local library to answer the bulk of the enquiries received, yet it is certain that some queries must of necessity be passed along to a greater or more specialised agency, and that is just where ASLIB and the C.L.S. effectively function.

Growing recognition of the value of co-operative effort in all varieties of library endeavour is a most healthy sign, and the removal of bans and prohibitions to the use of books in libraries of other areas is also calculated to increase their usefulness and promote that extension of knowledge we cannot afford to neglect.

DISCUSSION.

The two papers, "The Information Service of a Bank" and "The Information Service of a Public Library," were discussed together.

DR. E. E. LOWE said that libraries and banks did not appear to him to have many characteristics in common; in fact, they appeared to be as remote as the poles in some of their characteristics, notably with regard to their financial resources. It seemed, however, that they were alike in their desire to dispense information. If any co-operation between libraries and banks were possible joint considerations should indicate the line it might take.

MR. L. E. CRIDLAND said: Mr. P. A. Green's paper is an excellent one, and he is to be very much congratulated. He has, I think, brought the subject of Banks' Information Services into the educational limelight for the first time—at any rate, in this country. I am sure that you all respect your bankers!

Every one in these days—unless he be a miser of the old-fashioned sort—needs a banker. He can do without a bookmaker or a stockbroker if he is not speculative; he can do without a lawyer if he is cautious; he can do without a doctor if he studies the rules of health; he may be able to do without a dentist if he masticates his food properly from his youth up—but he must have a banker. All trades and professions use the banks; they are widespread and can see round the corners when people who are experts in their own calling often cannot. A bank thus has a knowledge of affairs that is impartial and reliable. English banks' interests stretch from Penzance to Liverpool and from Cambridge to Glasgow. They are involved in all industries, and a slump in one industry does not push them under, as it did in some cases with the local private banks. Overseas banks' interests are both sides of the Atlantic, and sometimes both sides of the Pacific as well. They must have reliable up-to-date information on traders' credit and on world conditions which they can pass on to their clients, and are willing to do so. I foresee a big increase in the Information Bureau service of banks, and the trading community will use them more and more. If a bank doesn't know something it tells you so—it is not like a newspaper!

MR. K. A. RYDE said: At the library which I am pleased to represent there is no separate Commercial Library—not being an industrial town—but there is a Commercial Section in connection with the Reference Library. The local Chamber of Commerce co-operate with us and, when necessary, give us their assistance by means of an Advisory Committee, whereby members who are experts in different branches of business help to answer questions which are difficult to obtain from books. The business and professional people have thereby come to fully realise the value and utility of its library. A further means to remind business people of the use and opportunities they possess at their library is the distribution of printed lists of directories, year books, code books, and lists of books of commercial subjects, which can be pinned up in their offices. As regards the future

generation, boys and girls are brought to the libraries just before leaving school and are introduced to the adult departments. They are told of the value of the library to them and then shown over each department by the librarian in charge of it. They learn by this what each department can do for them. In the Reference Library they learn also of the Commercial Section and how it can help them when they get into the business world.

This personal touch with boys and girls by librarians does much good and reveals the fact that a feeling of welcome and ready help awaits them at their library at any time.

With regard to locating business information, a regular use of and acquaintance with the contents of year books, directories, and particularly periodical literature is essential, as the amount of " information " derived from these sources is enormous. The aim of the Information Department should be to get the information required and to use every possible means at its disposal to that end.

Mr. B. M. Headicar said he wished it were possible to get rid of the illusion that a public library was a rate-aided one controlled by a municipality. He pointed out that there were many libraries outside this category which were public libraries, and the title of Mr. Edward Green's paper should be " The Information Service of a Municipal Public Library." He regretted that a large number of the members of ASLIB had concluded that the municipal library was of little use to them, although most of them had never attempted to explore how much could be done by the local library for commerce and industry. He would like to see the closest and most intimate co-operation between the municipal library and the libraries of banks and other business houses. Undoubtedly each could help the other to an extent which was not yet realised. The banks in particular could be of service to the community if the valuable stock of periodicals and annuals which they usually purchased were transferred to the local library whenever the bank's shelves became unduly congested. In the municipal library this material would in many cases be welcomed and carefully indexed and preserved, and the information made permanently available not only to the bank, but to the public at large.

Mr. W. A. Briscoe said that the Public Library could justify its claim to exist for the education and information of the public.

The following were examples of the information asked for in his own experience. They include questions on the manufacture of cartridges for rifles, the thickness of armour plate, relics of the Reformation, expansion and contraction of gases under explosion, dispersal of seeds, legality of torture in the Tudor period, political ideas of the early Christians, opium traffic between India and China, Mothering Sunday, a page's dress in the twelfth century, dates of wheat harvests in various countries, the reign in which silver pennies and twopenny pieces were used, the effect of water on iron pipes, a comparison of the institutions in an Indian community (eighteenth century) with those of an English community at the time of the English Conquest of Britain, rational mysticism, the quantum theory, history of Goose Fair, the loom machine, and capital punishment.

The following enquiries were received within one hour last week :

Chief histories relating to the Doomsday Book.
A work on photosynthesis.
Comparative mortality statistics from 1870.
Is it beneficial to know the future ?
What is the object of religious education ?
Origin and history of the Crystal Palace Band Contest.

The following were asked for by one lady in three minutes :

A book about aeroplanes.
List of Jewish feasts.
Scottish dictionary.

Other questions asked included information on the—

History of leper colonies.
Illustrations of the flora of Burma.
Origin of the tradition that a barrister must defend a client whether he believes him innocent or guilty.
Are the Trappist monks still in the Garden of Gethsemane ?
How much does it cost to cut letters on gravestones ?
A book on aerial ropeways and Blondinism.

And we shall probably be asked for an illustration of an " Uncertain Trumpet " —after the title of Hutchinson's new book.

Mr. R. J. Martin also spoke.

Suggestions on the Training of Special Librarians.

By ARTHUR F. RIDLEY, F.L.A.

"It is certainly far from being the case at present that all libraries are manned by trained staffs,"* and this is at least as true of the section comprising "special" libraries as of the whole of the libraries in this country. Organised systems of training in librarianship are of so comparatively recent establishment that a considerable proportion of the present-day senior staffs of British libraries attained their undoubted proficiency without any opportunities for training other than those afforded by private study and practical work in established libraries.

There began in 1893, however, under the auspices of the Library Association, and in 1919 at the University of London School of Librarianship, founded at the request of the Library Association and supported by the Carnegie United Kingdom Trustees, recognised courses of training in library science; these two systems† have developed and are working in parallel and in harmony at the present time. Each aims to make possible a fully complete course of training to proficiency in librarianship, and both have more particularly in view the needs of general libraries.

The increase of special library activity is in the main the most recent development in the movement for "putting knowledge to work" and began to take organised shape in this country with the formation of ASLIB, following a conference of representatives of interested institutions and industrial concerns in 1924.‡

The needs, aims, and working of individual special libraries and information bureaux are of the most varied character§, but five years of co-ordination and inter-communication between these agencies has served to emphasise at least one outstanding common characteristic earlier noted by the present author, i.e. the importance in special library work of specially trained staff ‖¶. In the fullest sense this must be interpreted as the possession by each member of staff, or the joint possession by collaborating staff, of:

* Public Libraries Committee: Report on Public Libraries in England and Wales, 1927, p. 83. (Cmd. 2868).

† University of London: School of Librarianship at University College. Prospectus, 1929.

The Library Association. Syllabus of Information on Facilities for Training in Librarianship and the Professional Examination, 1928.

‡ *See* Association of Special Libraries and Information Bureaux. Reports of Proceedings of the First–Fifth Conferences, 1924–28.

§ *See e.g.*, The ASLIB Directory: A Guide to Sources of Specialised Information in Great Britain and Ireland, 1928.

‖ A. F. Ridley. Special Libraries and Information Bureaux: Their Development and Future in Great Britain. Library Association Conference, Birmingham, September, 1925. *Library Association Record*, 1925, 3, pp. 242–55.

¶ Public Libraries Committee Report, 1927. Chapter IV, Special Libraries, p. 129.

(1) A knowledge of the subject or subjects covered by the field which the special library serves.

(2) A knowledge of library technique and the acquisition, recording, and distribution of information.

The writer holds the opinion that if maximum efficiency is desired in any special library both these techniques are indispensable; if either is inadequately represented in available personnel, the special library or information bureau concerned will operate at less than its full power and yield less than its potential service.

Facilities in Great Britain for acquiring knowledge of the arts, sciences, or technology which may concern any individual special library are probably unsurpassed throughout the world, but, in common with most other countries, organised instruction in librarianship is of comparatively recent establishment, as has been already noted.

In relation to the question of training for special library work, one must not fail to take into consideration two important factors—namely, that the value of any kind of library work has yet to be fully recognised in this country, as one may judge, for example, from the long delay which is being experienced in implementing the recommendations of the Public Libraries Committee, which after four years' work has set forth in its report a scheme to provide an organised National Library Service at what could only be regarded as a very meagre cost.

Secondly, the inherent smallness in numbers of the library profession is an important practical consideration. The last official figures available* showed that the number of posts in Great Britain open to librarians was not less than 1,700 and that the number of new entrants required annually is about eighty-five. Whilst it is true that these figures were arrived at without taking into account the more recent demands for special librarians, it is also true that a proportion of posts falling vacant will continue for a time to be filled by other than those trained under the recognised schemes. It would seem desirable, therefore, for practical reasons and because of the small numbers involved in any case, that proposals for training special librarians should contemplate the utilisation and adaptation, where necessary, of the existing main schemes of training—namely, those of the University of London School of Librarianship and of the Library Association.

The fundamentals of library science are the same both for the general and special library—this is a principle maintained by British librarians and also backed by the experience over seventeen years of the American Special Libraries Association, as reported in 1926 by its Committee on Training for Special Librarians.†

At the same time there has long been recognition in varying degrees of the need for special training for those working in special libraries and information bureaux.‡ The Director of the School of Librarianship brought the subject before this Association in a paper presented

* Public Libraries Committee Report, 1927, p. 87.

† *Special Libraries*, November, 1926, Vol. 17, No. 8, p. 330.

‡ *See e.g.*, H. V. Hopwood. The Educational Standard of Librarianship in relation to Technology, *Library Association Record*, 1917, XIX, pp. 323–7.

to the very first ASLIB conference.* It must be admitted, however, that neither of the present schemes of professional training take fully into consideration the increasing scope of special library work, which statement is by no means intended as any unfavourable criticism of the present curriculum. In the earlier days of the present special library movement the University of London School of Librarianship offered a course of lectures on various phases of special library work, and the response from those working or interested in special libraries was disappointing. It is equally true to say that many special libraries and information bureaux at present producing good results without the help of trained librarianship are not yet aware of the increased power which such co-operation would give them.

The attached schedule presents the main outline of proposals for a course of training for special librarians. The scheme contemplates building on the existing fabric of the present course of training in librarianship, and mainly comprises the extension of the course in some directions and the optional deletion of some subjects which are considered to be less important to the special than to the general librarian. The number of compulsory subjects in the curriculum would remain as at present—there would be additional lectures needed in some subjects and two entirely new sections to meet the needs of students in special library work. Students in special librarianship who might be aware of the nature of their future field of work could also take some concurrent instruction in special subjects in the other schools of the university.

While for purposes of comparison the suggested scheme has been placed alongside the list of subjects covered in the London University two-year course (or one year for post-graduate students), the same process could be followed with the Library Association syllabus.

The suggested scheme is advanced as a practical objective within easy reach and likely to produce beneficial results. The writer has had some small practical experience of the work of young librarians trained under both the Library Association and London University schemes and in each case has super-imposed on their earlier training the extra subjects represented in these proposals. Judging by the after-capability of the assistants to give satisfactory service in the special library of the organisation concerned,† the result was satisfactory.

Undoubtedly it is true that the training of the general librarian may be admirably utilised in the service of special libraries, but if the few necessary adjustments which have been indicated could be introduced in the original course of training it would more nearly meet the needs of those students who elect to enter the special libraries field.

* E. A. Baker. Training of Men and Women for Work in Bureaux of Information. Association of Special Libraries and Information Bureaux, Report of First Conference, 1924, pp. 95–8.

† British Non-Ferrous Metals Research Association.

TRAINING OF SPECIAL LIBRARIANS.

Comparison of Subjects taken by Students in University of London School of Librarianship and in Suggested Course for Special Librarians.

School of Librarianship Course for Training of Librarians.	*Proposed Course for Training of Special Librarians.*
I. English Composition.	1. English Composition. To include business correspondence. To include familiarity with the structure of various types of scientific, technical, economic, and official reports.
II. Latin or Greek or Sanskrit or Classical Arabic.	Latin or Greek, etc.; optional subject to be taken in special cases.
III. An approved Modern European or Modern Oriental Language.	2. Modern European Languages. Preferably two, but at least one, studied to an advanced stage.
	3. Scope and Types of Special Libraries and Information Bureaux. Including a "Bias" or "Point of View" course, showing the use and adaptation for particular purposes, in special libraries with varying functions, of library principles, organisation, classification, cataloguing, equipment, and routine and methods.
IV. Bibliography.	4. Practical Bibliography and Book Selection. Emphasis on methods of compilation of bibliographies on special subjects; to include detailed study of sources of information; books of reference; basic books and indexes in major divisions of knowledge; periodicals; societies, etc.; abstracts.
V. Library Organisation (including Public Library Law).	5. Library Organisation. An abridged course excluding Library Law.
VI. Library Routine.	6. Special Library Routine. Compared with VI a much abridged course in so far as it relates to public library routine and extended to include business appliances and equipment; also full range of methods of reproducing material—*e.g.*, printing, multigraphing, mimeographing, duplication, photostat, blueprinting, photography, etc.
VII. Cataloguing and Indexing	7. Cataloguing and Indexing.
VIII. Literary History and Book Selection.	8. English Literary History.
IX. Classification.	9. Classification. Including special attention to extensions of established classification systems and their application in special libraries.
X. Paleography and Archives.	Paleography and Archives: Optional subject in special cases.
	10. Information Services. Including methods of acquiring, recording, presenting and distributing information; questionnaires; statistical and graphic records; publicity; bulletins; digests, information circulars; survey of periodical and patent literature; reception, routing, and answering of enquiries, etc.

DISCUSSION.

MR. A. F. RIDLEY, in introducing his paper, said : The paper which I am called upon to introduce to you has already been circulated, and I feel I may safely assume that most of you have lost no time in reading it. I was glad to accept the Council's suggestion to bring this subject before the conference, not because I am specially competent to do so, but because I believe that it is a matter upon which early action is vital to the progress and efficiency of very many special libraries and information bureaux.

We are an association of users of information ; it has become almost an ASLIB platitude to say that we should use it to the greatest advantage, and I am going to suggest that we should adopt another platitude—namely, that we must learn how to use it. I realise that many of the organisations represented in ASLIB's membership are already well-nigh perfect in the methods of operating their special libraries and information departments. Others, like myself, are seeking for better and the best ways in which to carry on our information services. We have all witnessed at times instances of surprising differences in the treatment by two individuals of the same problem in supplying information on a given topic. One person will seek earnestly in a well-provided library, and the information sought is not found in hours ; another will go out into a bye-way, and following, say, a chance call at the fire station and a glance at the evening paper, the desired information is miraculously produced. Such examples should teach those working in special libraries that the greatest catholicity of outlook should be preserved in regard to the sources from which they may draw their information. However specialised may be our department of work, we should never despise any avenue which may conceivably, or, for that matter, inconceivably, help us to secure knowledge required at a particular time. I am able to give you an example of the value of this outlook from my own very recent experience. A few days ago I was asked by telephone to provide any information available in regard to something called *Belco*. My records at the office and other convenient sources failed to provide me with the desired information. I have no doubt that probably everybody in this room is fully aware of what *Belco* is and of its uses and properties. I must admit that until the enquiry reached me I had no knowledge whatever of this substance, and it is perhaps not surprising that in my home that evening I may have murmured such things as " Where is *Belco ?* What is *Belco ?* Why is *Belco ?* " so often, indeed, that at last my wife said " Both you and *Belco* ought to be in ' Punch,' preferably in one of the simple stories ! . . . There was once a poor yet honest librarian who conceived a violent passion for a fair maiden called *Belco !* ". . . I felt that to be an idea worth pursuing, and there, sure enough, in the advertisement pages of the current number of " Punch " I was able to find sufficient information regarding *Belco* to enable me to secure later all that was needed. You are more competent than I to decide what deductions may be drawn from this little incident : I do not know whether you might regard it as an argument in favour of marriage, or perhaps as an argument in favour of a subscription to " Punch " by all special libraries ; but I am quite sure that I may say it indicates clearly the necessity for the widest possible outlook in seeking our information in special library work, however narrow may be our field of nominal interest.

Power and facility in producing information required when it is required is probably the most important factor by which our special libraries and information bureaux will be judged, and to a large extent this power is a matter of training. I realise it has been said that the true librarian is born, not paid. Undoubtedly there are a few fortunate individuals with a native ingenuity and grasp of sources of information which makes their success the admiration and envy of those born under lesser stars. Fortunately for the remainder and for me there do exist two systems of training for library work. These are those provided by the University of London School of Librarianship and the Library Association. I feel that, with me, you will regard it as a great stimulus that our discussion of this important topic is to be carried on under the chairmanship of the Director of the School of Librarianship, and, although there is present no official representative of the Education Committee of the Library Association, we have with us a sufficient number of distinguished Fellows of that Association to ensure that our deliberations shall be reported to the Library Association. It happens that I have had experience, both as regards my own training and also in relation to the staff with whom I have been privileged to work, of both these systems of training, and I mention this personal note only because I have also had experience of a third system. That was nearly twenty years ago, when the views of even library governors were perhaps

less enlightened than they are to-day ; when attendance at the Library Association lectures, then the only system of training, was not too easy ; when, in short, the Library Association provided an enormous syllabus, and candlelight, plus a measure of determination, provided the means to a partial proficiency. It is because I think that you will with me appreciate the disadvantages of this method that I would particularly wish you to take into mind the advantages of the two other methods of training.

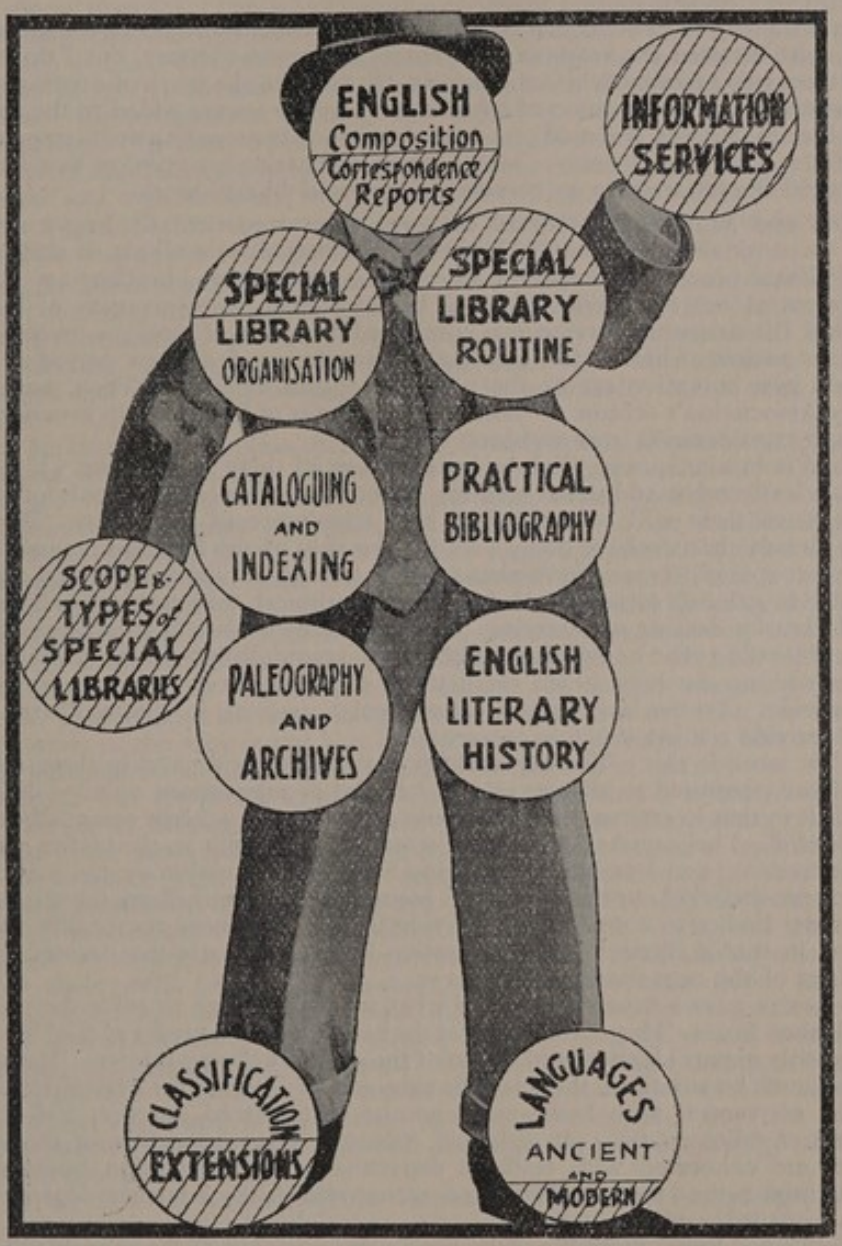
Allowing for the essential differences between the training provided by a university school and that of a professional association, the range and extent of both the School of Librarianship scheme and that of the Library Association are similar. Briefly, they each demand from entrants a sufficient standard of general education, they each aim to carry on study of the complete technique of librarianship, and they each require, before awarding their diploma or other mark of proficiency, that the candidate shall have had a certain amount of practical experience of library work. This is an arduous course of training, and not everybody would be attracted by it, but it is my opinion that special librarians would be wise to take advantage of it, as far as it goes.

This brings me to the main point of my paper, what I might presently hope to call the ASLIB view-point on the training of librarians. This view is that the special librarian needs more training than is offered by either the School of Librarianship or the Library Association. This is, of course, a personal view—it is the view of one of the rank and file who has been required to do the job ; this may perhaps give it a certain value. It is also the opinion of one whose tasks so far in libraries have been carried out, as to the first half in general libraries, and for the last ten years in a special library ; this may possibly give it an added value. At least I may be expected to have some idea what are the essential differences between the work of general and special librarians. I am not going to detain you with details of these differences, but would like to present to you two thoughts which sum up my view of the matter. The first is that I regard training in library work as essential for work in libraries if it is desired to produce the highest possible yield of service, whether such work be carried on in a general library, a special library, or an information bureau solely. Particularly in regard to special library work, a knowledge of the subjects with which the library is concerned is good, but a knowledge of these subjects added to a competence in the technique of librarianship is better. It is my view also that these multitudinous accomplishments fortunately *need* not be found in the same person, but the closest possible liaison is essential between individuals possessing the separate qualifications in order to obtain the best results. May I repeat, then, that I regard training in librarianship as essential for satisfactory work in any library.

The second idea I should like to bring before you is that special library training is necessary for special library work ; the differences between such training and that required for general library work are not serious, and I would here like to refer to the picture, which you will see is the portrait of a librarian who became a special librarian. He looks rather like a juggler, and, in fact, I believe almost all special librarians do a certain amount of juggling, but not all show as plainly as he does how it is done. This gentleman was a librarian trained in the ordinary way who obtained a job in a special library. It was a special library of a type which we have sometimes heard described at ASLIB conferences. It possessed no books, no pamphlets, no files, nothing except streams of notions which from all directions floated in upon the ether towards the unfortunate special librarian. He sat down —he could do nothing else, for he was quite unable to stand upon his own feet ; he was aware of the classification number for zoology, but his special library was to be concerned in great detail with, say, parisitology, and he was unable to differentiate (in a classifying sense) between the business end of a parasite and the other end. Similarly, in regard to languages, these notions of which his special library stock was composed spoke to him in modern German and French, whilst it had chanced that at the University School he had studied Greek and Sanskrit. It was some time, therefore, before he was able to stand up, and still further time elapsed before he had studied the activities of other special libraries, had developed an efficient information service such as is typical of modern special libraries, and was finally able to wave his arms to some effect. His portrait indicates clearly the chief details of difference between general library work and that of special libraries that I will content myself with putting before you the main ideas of these differences.

First let us take the ASLIB Directory as a text-book for a few minutes. We find in it descriptions of the special libraries of many organisations which, in

addition to maintaining ordinary library services, regularly carry out such tasks as the preparation of specialist bulletins, translations, abstracts, the reply to enquiries necessitating the exercise of technical judgment, and, what is perhaps more vital than any single department of their work, they carry through the whole of it a process of appraisal and selection which is beyond the essential impartiality of the general librarian. For example, in the work of my own organisation, the British



PORTRAIT OF A LIBRARIAN WHO BECAME A SPECIAL LIBRARIAN.

Non-Ferrous Metals Research Association, all these jobs are done, and more; the sum of our activities is that we are willing to put the light of all scientific, technical, and commercial knowledge through a screen which releases only those rays likely to brighten the path of the metals manufacturer and his scientific and technical staffs. This is a most comprehensive task, and there are many indications in the ASLIB Directory of organisations with comparable activities. It is, in my view, a task which the librarian, by nature of his training, is the person most fitted to perform. Admittedly, much of it is outside the ordinary curriculum of library

training. I would claim that such matters are right in the heart of affairs which are inseparable from the legitimate functions of special librarians.

The other department of work is that which we call information services. In seeking out, assimilating, and issuing in many different forms all kinds of information we find one of the most important aspects of special library work. The ordinary training of the librarian does not attempt to cover it, and yet, as we know, a large part of the work of our members is concerned with information services of various kinds.

I am not going to pretend that these two examples demonstrate all the differences which exist between the work of the general and special library, but I do believe that if these two practical subjects—namely, the study of the work of existing special libraries and of the organisation of information services—were added to the training of our library students, it would go a long way towards preparing staffs more nearly fitted for special library needs. May I, then, emphasise my opinion that I regard this special library training as necessary for special library work.

Ladies and gentlemen, I regard the present as a particularly happy moment for us to consider this subject. The library profession, as a whole, is undergoing a re-vitalising process. I believe I am right in saying that librarians are alive to their opportunities for service as never before. Also, the University of London School of Librarianship, having just completed ten years of work, is bracing itself for a new period of life. I feel sure that in its schemes for a new period of work it would give attentive ear to the needs of special libraries. Then, again, the Library Association's scheme of training for students of librarianship is undergoing thorough consideration and revision.

ASLIB is in a unique position to benefit from all these movements. If we will but say clearly what additional training is required to meet the needs of special librarians, all these will be enabled to take cognisance of our wants. We have shown already that we have many uses for the skill of the librarian: some of the staff in our special libraries have already been trained in librarianship and are now occupied in gaining some knowledge of the technical subjects with which their special libraries deal or are carrying out their duties in careful collaboration with others possessing that knowledge. Others are accomplished on the technical side and are seeking the help which the craft of the librarian and information officer may provide. To the latter group, in particular, training in special library work would provide a most valuable opportunity.

My last word is this: The ideas which both in my paper and in these remarks I have been permitted to address to you I regard as suggestions only. I do, however, believe that in essence they constitute the basis of a scheme essentially simple and practical. I believe that this scheme would be acceptable to the bodies responsible for training, and I earnestly hope that from our discussion on the matter this morning we shall find out exactly what is required; that we shall ask the responsible educational bodies to consider and provide it, and that those responsible for and working in special libraries and information bureaux will use that training to the advantage of the organisations they serve.

Dr. Baker gave a brief summary of what was being done to solve the problem in the United States. He pointed out that the basic requirements for special librarianship are only in part identical with those of the ordinary library service. The special librarian must be strong on the scientific side, and, if destined for a business library, must be conversant with business economics, commercial practice, and the ins and outs of office routine. In England, where a large proportion of the special libraries are connected with research departments or information bureaux, the first essential is the kind of scientific education attested by a science degree, along with a knowledge of languages.

In the United States there is not the same preponderance of the scientific library; the special libraries are mostly commercial. The question of special training has been considered from time to time since 1912, and in 1917 the University of Illinois gave some business courses. A regular course was run in 1919 by the Library Service School at Riverside, California. The New York Public Library School and Simmons' College followed suit, and other libraries introduced courses of lectures, sometimes quite short, in a wider curriculum. The situation was felt to be unsatisfactory, and was discussed by a special committee in 1926, the result being an outline for a full year's course, comprehending: Point-of-view course, applied psychology, statistics, business appliances, typewriting, special bibliographies, classification, cataloguing, subject terminology, indexing, filing, sources of information, research, publicity, acquisition methods, special library administration. In 1927 a second report emerged. Meanwhile, McGill, Columbia, and

Chicago are providing brief courses, and half a dozen other schools are giving special lectures. In England little has yet been done. The special course organised by the School of Librarianship in 1926-27 received so little support that it has not yet been repeated.

He pointed out, however, that Bachelors of Science, with a fair knowledge of languages, who entered the School of Librarianship and who received training in professional branches of the curriculum, would be well fitted to take responsible posts in special libraries. This would mean a course of a single session. At present the university diploma was not open to such candidates without qualifying in subjects such as Latin or Greek, palæography, etc., which are usually not required by workers in special libraries. But if they could not obtain the diploma they could obtain the professional training that would fit them admirably for their special functions. In time, when would-be special librarians had shown a desire to make use of the training offered by the School, the courses now provided might be modified and expanded, and the Librarianship Committee might be induced to provide a special set of courses and a special diploma for them. He thought it was advisable to go slowly and proceed gradually towards this end.

Mr. D. A. Gordon stressed the special point of view of a special librarian, and urged that technical and scientific training was all-important. He illustrated by the case of classification the worker in a special library could not really classify without adequate technical and scientific training. The only solution of the problem was that the library-trained man and the technically trained man should co-operate.

Mr. B. M. Headicar said that there were still many special libraries and information bureaux which appointed as librarians people without technical training in librarianship. There were known cases where firms, when starting such a department, appointed to organise and work it a clerk who was not considered good enough for his ordinary work, and it was not surprising that in a few instances the department had been closed down because the firm considered it had not justified the expenditure on it. Others argued that the special librarian should be an expert in the subject to be specially covered, chemistry, engineering, metallurgy, etc., and that it was easier for a chemist to learn librarianship than for a librarian to learn chemistry. This was an absolute fallacy. It was not necessary for the librarian to have an intimate knowledge of the science, but to know the sources of the literature of the subject and how to use them, and to know the best methods for filing information and making it available to those who were to use it. Mr. Ridley himself was appointed to his present post possessing a sound knowledge of and training in librarianship, but with no knowledge of metallurgy. There were others in the room holding similar appointments with the same qualifications, and all the evidence went to show that their work had undoubtedly produced a maximum of satisfaction to their employers. It seemed clear that the person who was trained to arrange, classify, and distribute data of all kinds, and who was able not only to supply the needs of enquirers when asked to do so, but who could also sense their needs before being asked, was bound to make good, and Mr. Headicar asserted that the trained librarian did this whether he were an expert in science or not. Obviously, the two things, scientific knowledge and training in librarianship, combined in one individual was bound to be an advantage, but this was hardly possible in present circumstances. He did not agree with Dr. Baker's suggestion that Latin and Greek should be dropped altogether from the special librarian's course of training. In medical and legal libraries knowledge of Latin would be considered essential.

Mr. P. K. Turner emphasised the necessity of technical knowledge, which must somehow be combined with training librarianship : it is, however, the former that requires the longer and more intensive study. Therefore, he would urge : Send your Bachelor of Science, who has been selected for a job, to take his course in librarianship at the expense of the firm.

Mr. H. Rottenburg drew a careful distinction between education and training : education, as he put it, produces an attitude of mind ; training produces an aptitude of mind. We must begin by educating the entrant into the special library.

Colonel L. Newcombe said that the difficulties raised by some of the previous speakers might be met if some provision were made for giving graduates in faculties other than arts an opportunity to qualify for the School of Librarianship Diploma in one year. At present only graduates in arts were able to do this. He believed that a number of graduates in science, engineering, and other faculties would take up special library work, but were prevented from obtaining suitable positions as they had no training in library technique, and were unable to spend two years

at the School of Librarianship. The combination of a science or other suitable degree and a year's training in librarianship should produce an excellent embryo special librarian. He suggested that the Committee of the School of Librarianship should be asked to consider the matter.

Mr. Theodore Besterman said that the ideal custodian for a technological library—namely, one who had both a scientific training and that of a special librarian—was not yet available. In the meanwhile it should not be forgotten that the chief qualification of a special librarian was a natural flair or aptitude for finding information. It was this that had to be chiefly brought out and developed, and, failing the combination of the two, the training of a special librarian was more suited for this purpose than a purely scientific one. The expert special librarian who could not, in a very short time, find his way about any collection of information was not worthy of the name.

Mr. C. C. Wharton spoke as a representative of a large industrial concern in which the man in charge of a special library should be primarily a specialist and only secondarily a librarian.

The training as a specialist would take from three to five years, whereas the knowledge in librarianship which would be necessary to him could probably be obtained by a six months' course, and that industrial concerns of this character would not be able to afford either the time or the money for him to take an extended course as librarian.

Mr. J. G. Pearce, Mr. P. C. Bursill, Mr. J. McAdam, Mr. C. C. Fagg, Mr. H. L. Jackson, Mr. G. F. Herbert Smith, Mr. H. M. Cashmore, and Mr. L. F. Gilbert also took part in the discussion.

Colonel Newcombe moved, and Mr. C. C. Wharton seconded, the following resolution, which was carried unanimously:

"That the Committee of the School of Librarianship be asked to consider the possibility of admitting graduates in faculties other than arts on the same terms as holders of arts degrees, and that special attention be given to the provision of one year's intensive course in training for special librarians on the lines of the scheme suggested in Mr. Ridley's paper."

"A similar resolution to be sent to the Council of the Library Association."

Indexing and Classifying of Individual Collections of Data.

By H. ROTTENBURG.

The title of this paper is unfortunately ambiguous in regard to the word "individual." For this reason the words "one-man collection" will be used in the paper.

The subject of classifying, indexing, etc., one-man collections of data as envisaged in this paper is not one that has been discussed much in the technical press, so that a paper on the subject is almost certain to contain in too great a measure the opinions of the individual preparing it instead of a digest of many opinions. For this reason it is hoped that this paper will form a basis for systematic discussion of the subject rather than a record of the writer's opinions, so that the final result may prove of real help to others and contain the opinions of a number of people.

The points which will be taken as distinguishing a "one-man" from a "public" collection of data are, firstly, that in the former the compiler, the custodian, and the user are one and the same; secondly, that the efficiency of the collection, that is the information derived from it divided by the total work of compiling, looking after, and searching, may easily be very small; and, lastly, that in most cases in order to decrease the total work per unit of information got out of the collection it is permissible to increase the work of searching and to decrease the work of compiling, because every additional refinement in compiling means extra work put into every item filed, while the extra work in searching is only required in the case of items referred to or made use of. Of course, if the user considers, or finds, that the numbers of items of information taken from any part of his collection begins to approach the total number in that part it will obviously pay him to devote more time to the filing, classifying, and indexing of that part.

One-man collections of data will be considered to consist of:

(A) Books and bound volumes of periodicals;
(B) Pamphlets and odd numbers of periodicals;
(C) Cuttings;
(D) Notes, references, personal abstracts of articles, etc.

Each of these sections can be considered from three aspects:

(1) The mechanical method of storing or keeping the data;
(2) The arrangement and classification of the data;
(3) The indexing of the data.

A1. Keeping Books.

The question of what type of bookcases to use for a one-man collection need only be considered in the case of individuals who on account of their work have to move house at frequent intervals. In such cases the writer feels that there is a demand for a new type of bookcase which can be easily converted into a packing case to pack the books in. To show what can be done a model has been constructed and will be shown. In this design the bookcase consists of an upper and a lower portion which can be bolted together face to face to form a packing case.

In regard to binding volumes of periodicals, various ideas have been described from time to time in technical journals for eliminating the expense of binding. One of these methods will be shown in which the process of binding is reduced to making six or eight saw cuts in the backs of the complete set of numbers clamped together and tieing the volume together with twine liberally coated with glue, the twine being laid in the saw cuts. The end papers are reinforced with linen, which enables the complete volume to be glued into the cover supplied by the publishers.

B1. Keeping Pamphlets.

A large selection of box files are on sale for storing pamphlets, but makers of even the simplest still seem to think it necessary to provide a lid. This makes the cheaper cases very liable to give trouble, or wear out too soon, as the hinge or the catch is generally not strong enough. The writer has found the simplest plan is to use containers open at the top. These are easily made, and a specimen of such a container is shown.

C1. Keeping Cuttings.

The first impulse is to gum cuttings into a book, either fixed or loose leaf. This results in a great deal of work being done which may ultimately be wasted. The better plan undoubtedly is to collect cuttings, as they are made, in envelopes, vertical file folders, or boxes, each of which covers a fairly wide range, and leave the more precise classifying or sorting out till the occasion to consult or search one of the wider classes arises. The envelopes can be treated as pamphlets and kept with the pamphlets. If it is intended ultimately to paste the cuttings for safer keeping into a book a good plan is to select a convenient loose leaf book, buy some of the sheets, mount selected cuttings on them, and keep the pages in the appropriate envelopes till sufficient have accumulated to warrant a binder being got, which, when only a few pages are used, is bulky.

D1. Notes, References, Personal Abstracts.

The systematic keeping of notes is a subject that demands much more consideration from teachers of technical and scientific schools. It might be described as "mechanised Pelmanism." The writer has found the following procedure involves very little work: Carry a notebook, loose or fixed leaf, and put down all notes, abstracts, and references if possible in ink. Keep notes or memoranda which require cross indexing (*i.e.*, multi-key notes) on separate pages from those which do not (*i.e.*, single-key notes). In the case of references or mems. which require cross indexing (*i.e.*, multi-key notes) underline all the key words under which the reference is to be cross indexed or filed. Periodically remove leaves as they are filled up, or when the book is full; sort into two boxes—namely (*a*) single-key notes and (*b*) multi-key notes. Notes (*b*) are typed with two, three, or four carbon copies, the key words being underlined, and different tinted papers being used for the copies. All the notes can now be gummed into a loose leaf notebook or put on cards; in the case of the (*a*) notes, the original notes, and in the (*b*) ones, the copies. The tint of each sheet in the case of (*b*) will indicate whether the copy is to be filed under the first, second, etc., key word (*cf.* paper by writer in "Proceedings of 1927 ASLIB Conference"). Where a note of type (*b*) is of some length it is better to treat it as a cutting and cross index it.

Two questions now arise. Should cards, or loose leaf books, be used for pasting in memoranda, small cuttings, etc., and what size? For the "one-man" case the writer feels that card indexes are too bulky, and he confesses that the ease with which cards can be taken out, and not replaced correctly, constitutes in his mind a deciding argument against them. This leaves the loose leaf book.

As regards size, the League of Nations has standardised two sizes of format. The smaller one is practically 3in. by 5in., which is too small, while their larger standard is too large if use as a pocket book is considered. The writer finds 5in. by 8in. without doubt the best. It is a standard size, so that card indexing boxes can be used for sorting out, etc.; it is large enough for graphs, apart from really accurate large scale ones, or for tables; it is small enough to go into most coat (side) pockets, especially post-war coats; several makes of 5in. by 8in. L.L. binders are on the market.

Of the types of L.L. books, the ring binder type, though admirable for a pocket book in which to make notes and mems., which are filed in another one later on, is unsatisfactory for permanently binding leaves, and the post type of binder alone is suitable for this. Unfortunately all the binders that the writer has seen have a mechanism which makes the thickness of the leaves small in comparison with the total thickness—*i.e.*, leaves plus binder. There is one drawback in the use of the 5in. by 8in. loose leaf book, but it has proved in the end an incentive to what has become an advantage, As the sheets are held or bound along one 5in. side there is a great tendency for the leaves to sag or buckle, if the book is kept on a shelf as an ordinary book is kept, owing, of course, to the leaf projecting 8in. from the binding edge. To overcome this a simple method is to fix flat pieces of wood to the back of the binder which project above and below the back. The books are then kept in a rack constructed like a miniature "parallel bars," the projections resting on the two parallel bars and the leaves hanging between the bars. Such an arrangement can be fitted inside a drawer or a box provided it is about 8½in. deep. It provides a great deal of the accessibility of the card index and keeps dust out of the books.

Gumming Pocketbook Notes, Mems., etc., into Notebooks may seem at first a messy and tiresome job, but two methods simplify it considerably. In the first, each page of notes is gummed on the back and the gum allowed to dry. Then cuts are made with a pair of scissors so as to separate very nearly the different notes. The separate notes can then be torn off, moistened, and stuck in. Gummed paper has been tried for the pages of a pocketbook, but they are too liable to stick together. Notes on a page can, of course, be cut up straight away, but a lot of small gummed coupons lying about is not convenient to work with. The other method of mounting is to lay the page of notes face down and gum the back of the topmost note only; press this on the notebook page face up and tear off the remainder of the page using a steel rule as one does a coupon tearer.

A2. Arranging and Classifying Books.

In a one-man collection the sizes of books and shelves may have a warping influence on the arranging and classifying. This difficulty and the risk of books being wrongly replaced can be got over by

marking all books of one class with a definite colour mark at a definite height across the back. A very convenient way of doing this is to gum strips of bookbinder's cloth (say ⅜in. wide) across the back, carrying the strips across the two cover boards and ending inside the cover. By using distinctive colours, widths of strip, and distance of strip from the bottom of the book it is possible at a glance to see which books are out of place and also to recognise which books are in the same group when a group may be in two shelves.

For sub-dividing books into groups and labelling the groups the writer has lately had metal label holders made. These holders have a flange which the books rest on and one that stands up between the books, a card being slipped into a holder which rests against the front of the shelf.

As regards decimal classification of books, it might be urged that the smallness of most one-man collections made the use of the Dewey or the Brussels systems unnecessary, but against this there is the important fact that the use of it in a one-man collection for classifying books, pamphlets, cuttings, etc., keeps the individual's mind attuned to the system and assists him when he comes to use the public bibliographies, indexes, etc. It must also be borne in mind that it is unnecessary for the individual to use the full range of sub-division of either system, and a three or four-figure set of numbers of either system should cover all his needs.

There is another argument in favour of the individual classifying his collection according to one of the recognised standard systems such as the Dewey or Brussels, and that is that any man who values his collection may want to bequeath it to some society or association at his death and the fact that it is already decimally classified will materially increase its chance of being properly incorporated in some larger collection and made use of.

B2 AND C2.—As cuttings can be kept in scrap books, or on sheets, or loose in envelopes, which can be filed with pamphlets in boxes, which themselves can be kept with books, the question of classifying books (A2) covers these.

D2.—If a loose leaf book system is used for references, notes, etc., it is better to keep these L.L. books in a part of the bookcase by themselves, as many different sections may be included in one volume.

A one-man set of notebooks will fall into three main classes :

CLASS 1.—Notes, etc., which can be classified and arranged according to the Dewey or Brussels decimal classification.

CLASS 2.—Notes which are not suitable for filing under a number. These are generally of the personal type in which the key-word is a name. Pure alphabetical filing is the simplest for these.

CLASS 3.—Notes which are in constant use, such as data sheets, calculating graphs, etc.

A3. INDEXING BOOKS.

This includes B3, C3, and D3. If books, cuttings, pamphlets, etc., are filed according to a decimal system, then strictly speaking an index is not needed in order to find a given piece of information, but as the index is also a list of all the collected information many may decide to make one. In that case a loose leaf book will be found the most convenient, and the index may be conveniently incorporated in Class 1 of D2, while the entries may be made as described above by

typing with carbon paper and pasting in. In this case one copy can be filed in Class 2 under the author's name. Class 1 L.L. books will then give either the information required or a reference to where it may be found in the one-man collection or in some public library.

Decimal Classification.

One objection may be raised to the use of the decimal classification in a one-man collection, and that is that the owner may not be able to keep the numbers in his head and then he has to consult an index before referring to the information under its number. This objection may be overcome in a simple way with a L.L. book. A special thumb index is made as follows : Blank pages are provided with tabs, which, for a 5in. by 8in. book, should be about $\frac{1}{2}$in. wide and project about $\frac{1}{8}$in. *Passe partout* binding is very suitable material for these tabs, though gummed linen strip is, of course, better. For a book to be divided into 100 sections one requires ten pages with one tab on each, the tabs occupying ten different positions along the top edge, and 100, or ten sets of, pages tabbed along the right-hand edge. As these pages are not written on they can be used again and again if the book is re-arranged. On opening the book one finds on the first page a list of the ten main sections, each section name having an arrow pointing to the tab position corresponding to that main section. Suppose the section wanted is actually numbered 47, then one finds the main section covering the subject on page 1 with an arrow pointing to tab position 4. Opening the book with the help of this tab one would find a list of the ten sub-sections into which Section 4 was divided, each sub-section heading pointing to the appropriate tab position on the right-hand side of the page.

The required sub-section name would have an arrow pointing to tab position number 7. Opening the book again with the help of this tab gives sub-section 47, and, as the numbers appear beside the word which is the key to the main and sub-sections, one is also reminded that the information required is in class numbered 47.

By using the top, side, and bottom edges of the leaves of the book it can be thumb indexed into 1,000 sub-sub-sections, any of which can be easily turned up without remembering the key number.

At this point one is entitled to consider the question as to whether ASLIB can be of any assistance to private collectors of data, etc., and thereby to knowledge in general. Many people in the course of their work, or hobbies, make out bibliographies of some, perhaps, narrow subject. A recent event might be cited as an example, say, the Wailing Wall. Were this a subject of interest to only a few one can imagine someone spending a lot of time delving in libraries noting references to the history of the Wall. Were ASLIB to publish standard printed 5in. by 8in. pages for making bibliographies on, such pages could be used by individuals and bequeathed to, or a copy sent to, some library where it could be incorporated in a set of L.L. books, thumb indexed as above, and so help to build up a most valuable library of bibliographies. The Capital System rightly claims that one of its greatest effects is to make men save and out of the saving create new capital. When one thinks of the vast total amount of work done by individuals in collecting data and references to sources of special knowledge one does not need much imagination to see that here is an opening for saving at any rate part of it from destruction

at the death of the collector, and ASLIB seems to be placed in a position where it might easily create such a saving of great potential value.

DISCUSSION.

Mr. J. McAdam gave an account of a valuable bequest of zoological data arranged by a gentleman who had left it to the Warrington Public Library. A collection which might have been of very little value had proved of the highest utility, mainly because it was so thoroughly and intelligently organised.

Mr. L. C. Wharton criticised some of the devices, and preferred the 5in. by 3in. international size of cards to the one specified by Mr. Rottenburg. At the International Congress of Linguists a Rumanian scholar had propounded a scheme, on the lines of the one suggested, for note-books which could be classified and used by others. This had been submitted to the Committee on Intellectual Co-operation.

Mr. Theodore Besterman felt that the very ingenuity of Mr. Rottenburg's appliances defeated the ends for which they were devised. They were too complicated and numerous to simplify the collection and organisation of comparatively small collections of information. The great thing was to have everything compactly arranged and easily available. For these purposes the filing cabinet in conjunction with filing drawers had not yet been improved on. Some of Mr. Rottenburg's appliances tended rather to aggravate than to solve the dust problem. His system also tended to disfigure and thus to reduce the value of books, which was an important consideration for the private collector. Aesthetic considerations also had been entirely overlooked. In short, Mr. Rottenburg's scheme seemed to be admirably adapted for a large and well-staffed accumulation of material, but not for a small private collection.

Mr. B. M. Headicar, Dr. A. P. Thurston, and Mr. P. K. Turner also spoke.

In replying to the discussion, Mr. Rottenburg described the "tabbed page system" of sectioning a book by means of illustrations (see Figs. 1, 2, and 3). They showed the "tab guide pages" which were encountered in looking up references to "Driving machine tools by electric motors." In the case illustrated it is assumed that the volume used is devoted to engineering in general, or Section 62 in the Brussels system. The first page in the book (Fig. 1) gives the sub-divisions of engineering and Section 621 will obviously contain the reference. The arrow-tail against this line guides to tab one and on turning the pages over by this tab the book opens at the page (Fig. 2) on which Sub-section 621–3 is clearly the correct one. Here the guide is to tab three on the right-hand side of the page, which, in the same way, leads to the page (Fig. 3) where sub-sub-section 621–34 is the right

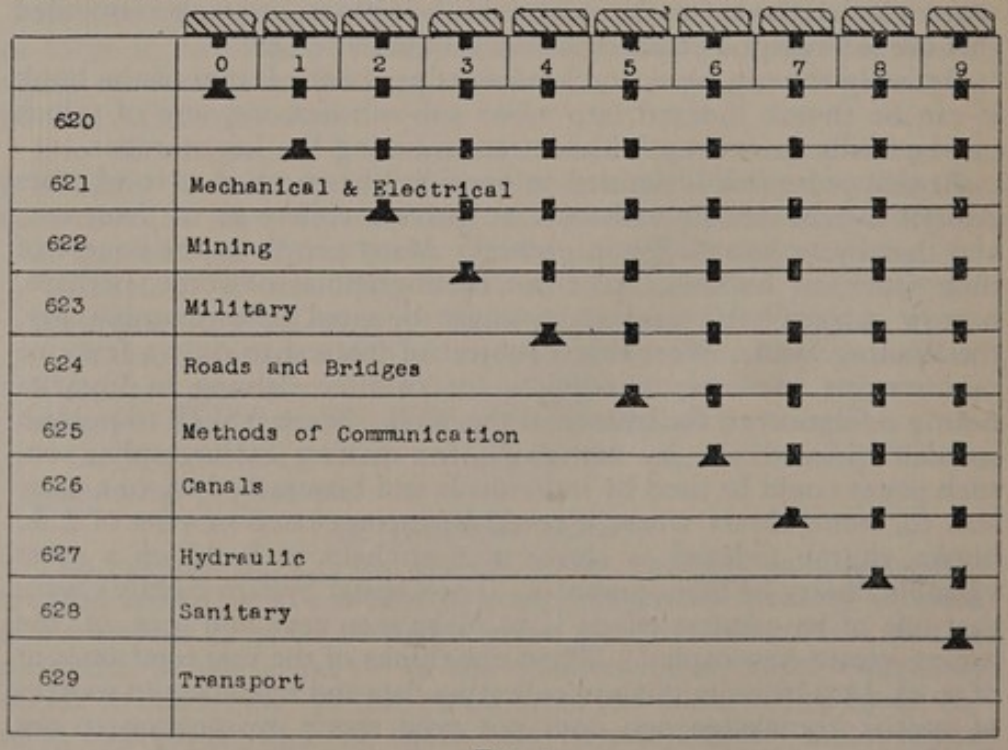


Fig. 1.

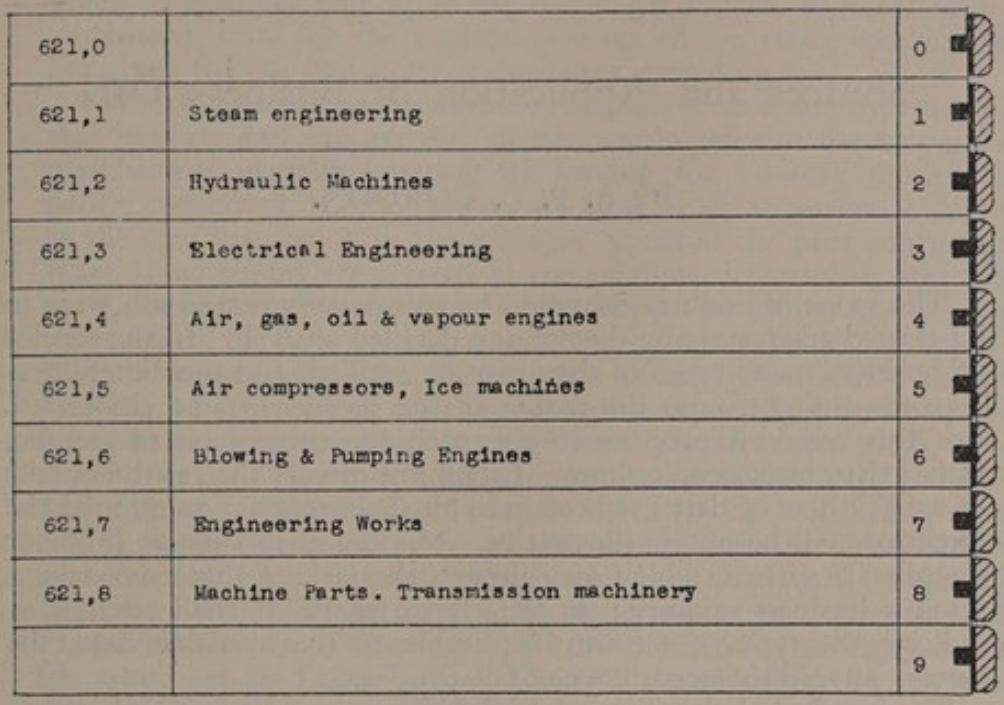


FIG. 2.

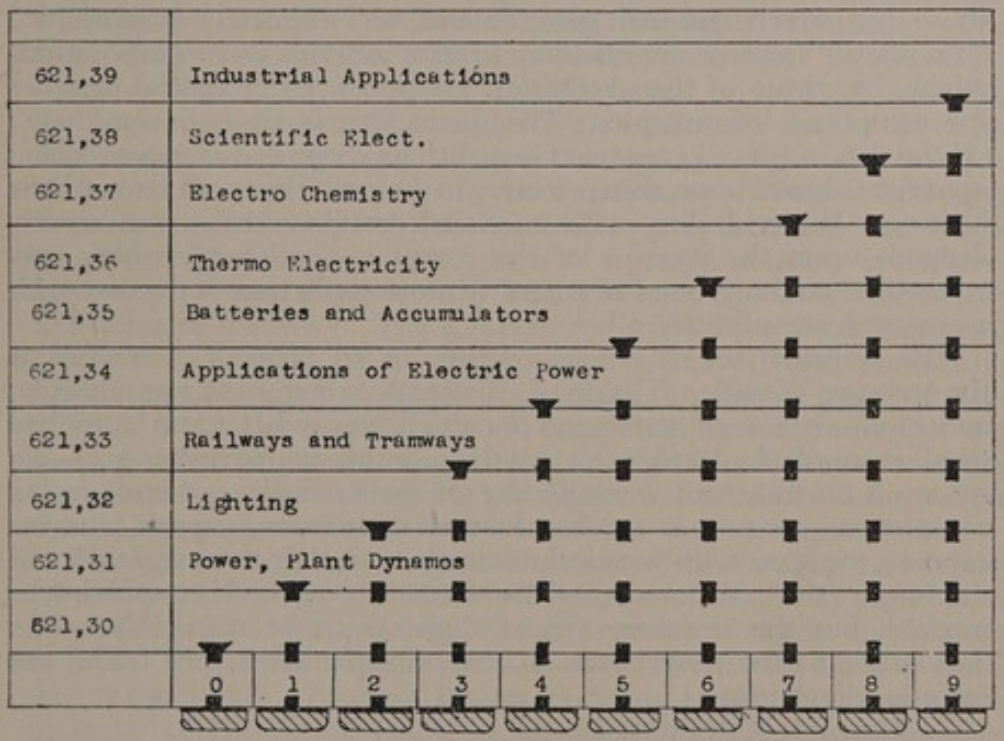


FIG. 3.

one pointing to tab four, which will open the book at the page or pages where the references to the subject in hand will be found. In the Brussels system 621–34 is further sub-divided so that it might be necessary to look through, possibly, ten pages to get to the right sub-section. The system can be extended by using smaller tabbed pages within the large ones, thus sub-dividing the book into a million sub-sections. Such a book could be used as a key to the Brussels system—*i.e.*, a means of finding the correct number to look up in the card index—or the actual reference slips could be gummed in the book.

Sources and Application of Business Data.

By A. P. L. GORDON.

The scope of enquiry connoted by this paper's title is too wide to be treated adequately by dint of any detailed analysis. In the service of business many types of data may be applied, and their usefulness depends entirely upon the nature of the problem to be eludicated. For this reason I propose to approach the subject on panoramic, rather than microscopic, lines. I shall not discuss the relative merits of specific sets of data: where individual sources are mentioned the intention will be purely illustrative. My aim is to suggest (but not describe) a system, which may lighten the task of those embarking upon a business enquiry; in the course of this I shall attempt to indicate the type of scrutiny applicable to the available data, the better to avoid the occurrence of fallacy.

The best broad classification of data lies in the distinction between official and unofficial returns. By "official" returns are meant all those for which national governments are ultimately responsible; "unofficial" returns are made by private individuals or corporations which, by virtue of their activities, are possessed of special facilities for compiling information. The distinction is an important one: official data are, at all events in Great Britain, regarded as unassailable; arguments based upon them receive, in general, the most sympathetic hearing. When dealing with unofficial returns, credence invariably depends upon the prestige of the compiling authority, which may be assailed on the ground of partiality more easily than is the case with a government authority.

The principal set of official returns, in all countries, consists of the accounts of trade. The chief governments compile these monthly, and issue an annual statement in which somewhat more complete detail is supplied. In this country the monthly statement* is available by noon on the tenth working day of each month, and contains as complete an account as can be obtained of imports, exports, and re-exports, together with certain information relating to navigation and shipping; the returns are, where necessary, revised in subsequent months, but the revisions are so slight as to be negligible. The data relate to the movements in the principal articles of trade, the main headings being:

(*a*) Food, drink, tobacco.
(*b*) Raw materials and articles mainly unmanufactured.
(*c*) Articles wholly or mainly manufactured.

In the case of important articles, the returns are further sub-divided according to country of origin (in the case of imports) and country of destination (in the case of exports). The imports and exports are

* *Accounts of Trade and Navigation in the United Kingdom*, published by H.M. Stationery Office, 4s. 6d. monthly.

given in quantity and value for the single month, together with a cumulative total for the expired portion of the year; similar data are given for the two years immediately preceding.*

In making deductions from these returns it is necessary to remember that imports and exports do not necessarily refer to the amount of merchandise actually entering or leaving the country during the period concerned. Certain papers are filed, by the importer or shipper as the case may be, with the customs officer at the port concerned; when these papers are cleared in the customs department, and their particulars entered in the records, the import or export has officially taken place. It follows that, over short periods, the official imports may differ markedly from the amounts of any given article actually arriving. In the case of basic commodities, especially when industrial considerations assure their consignment to particular ports, it is sometimes possible for brokers, acting in concert with warehousemen and shipping companies, to prepare statistics of "arrivals" more nearly representative of the actual movement of trade. These returns are often of great interest, particularly for comparative purposes; but they depend, almost invariably, upon special recording facilities at individual ports. For example, if a raw commodity normally arrives for treatment in Lancashire, a broker's return might be made to depend, chiefly, upon reports from Liverpool; a new treatment-centre established in the south-west might divert the trade to Bristol, thus robbing the Liverpool returns of their comprehensive nature. This is an elementary instance; in practice there are many factors which make it dangerous to accept figures based on private reporting facilities. Importation of a single article is, at best, a sporadic rather than a continuous process; delays occasioned by weather, for example, may cause the arrival statistics to show an illusory shortage. In dealing with trade, particularly in basic commodities, it is extremely undesirable to draw inferences from the figures of a single month; cumulative figures, covering three months or more, are the only satisfactory indication of tendency. The errors introduced by the official reporting system are entirely of a compensating character, and cumulative figures may be regarded as strictly reliable; unofficial figures of shipment or arrival may contain a non-compensating error which it will be impossible to detect. Unofficial data regarding trade movements, though they throw interesting sidelights upon official information, should not be given the preference without very strong reason.

The factor which lends importance to unofficial returns, particularly to the specialised type of commodity statistics issued by brokers, is the speed of their compilation. Official returns of export and import, as far as Great Britain is concerned, are available on the tenth working day of the month; brokers' figures, covering commodity movements in many countries, are ready by the second or third working day. To compile an even comparatively complete record of commodity movements—especially in the case of commodities widely spread geographically, such as sugar or tin—would be virtually impossible if official figures stood alone. Few trading nations issue returns so

* A Revision Committee sits in the autumn of every year to consider questions relating to the proper form of the returns—such, for example, as whether "Lubricating oils" should be classified as a "Mineral product."

promptly as the United Kingdom, and many commodity markets must be content either with unofficial data, or with compilations first available several months after the event. In uncontrolled markets the urgent necessity is for statistical guidance; to be satisfactory from this standpoint, figures must be of current, rather than historical, interest. Thus, on the principle that an indifferent guide is better than a late one, markets tend to rely increasingly upon current and incomplete returns. In the metal market, for example, brokers' figures are religiously accepted: the Board of Trade and other official returns are recorded unostentatiously in the trade press; even if records are broken, the effect on sentiment is negligible. It is only in the case of tin that any effort has been made to reconcile the brokers' figures with those officially issued.

A further point to be borne in mind, if returns of British trade are to be compared with those of other countries, is the difference between the "Anglo Saxon" and the "Continental" method of classification. In Great Britain, the United States, and the British Dominions, an import becomes recordable as an import in virtue of its entry to the country: if, subsequently, it leaves the country, in the form in which it entered, and with its value not sensibly modified by further manufacture, it is again recorded, this time as a re-export. Net imports, or imports for consumption, are therefore obtained by subtraction. The Continental system, on the other hand, does not record the importation of articles brought to the respective countries for re-export; imports recorded in continental countries, therefore, are roughly comparable with net imports in this country.

The peculiar authority attaching to British official statistics, more particularly to those issued from the Board of Trade, is derived from the restrained manner in which they are edited. The first-hand figures are made available in such a form as to tell their own story, and no attempt is made to point a moral. In this respect there is a very marked difference between the official publications of Britain and America. The Census of Production returns, compiled by the Board of Trade, contain an immense quantity of information which is individually used or neglected by the business investigators concerned: among the conceivable bye-products of these returns are approximate accounts of the distribution of various raw materials among the consuming industries. Here, however, only approximation is possible, and officialdom, perhaps wisely, leaves this to the individual interpreter. In America the case is very different: not only is commodity consumption carefully analysed, but the results are presented to an almost alarming degree of accuracy. An interesting example of this is provided by the Department of Commerce analyses of tin consumption in 1925 and 1927: in the former year, during which consumers' stocks were, if anything, increasing, the analysis accounts for several thousand tons in excess of the apparent consumption of virgin and secondary tin. In 1927—a year in which consumers' stocks were being, to a large degree, depleted—an attempt was made to exclude secondary tin from the scope of the analysis; as a result, the total consumption figure is several thousand tons *less* than the apparent consumption of virgin tin only. Surprisingly, the total is given to two decimal places of a ton.

The principal source of official statistics in America is the monthly

circular of the Department of Commerce; this does not exactly correspond with the monthly trade returns of the United Kingdom, but it is the source from which the corresponding information is most usually derived. It is not, strictly, a record of trade; import and export figures are available, but the Department's circular is of primary importance because of its medley of commercial and industrial information. Reports are included of the progress recorded in each of the principal industries and, in the case of raw commodities, there is an indication of the world stock position; the last-named figures are, of course, copied from other sources, and it is perhaps unfortunate that the lay-out of the circular offers a grave temptation to the student to ignore the footnotes and thrust the responsibility for all data upon the Department.

The most striking difference between the data available in America and elsewhere lies in the sphere of industrial information. The latitude conferred by legislation upon enquiries instituted in Washington greatly exceeds the scope offered to the Board of Trade, the Ministry of Labour, and other official recording bodies. Again, the American industrialist is far less secretive in imparting information: as a result, it is easier to trace the evolution of industrial productivity in America than in any other country.

In Great Britain the industrial information before the public is extremely scanty. The production of coal is published every week, and the output of electricity, as stated monthly by the British Electrical and Allied Trades Manufacturers' Association, forms an interesting and, after adjustment, a sensitive indicator of the general progress of industry. The only record of events in particular trades—apart from occasional, and often unreliable, items of news—is the indirect evidence of the unemployment returns. These figures, which are compiled by the Ministry of Labour, are of great value: they are the only first-hand industrial information in the country, and their scope is wide. Their study is a specialised one, and it is certainly inadvisable to use them without a very careful examination of their content: this involves a study both of law and practice of unemployment insurance and need not detain us here.

In America the supply of industrial information is very much greater, but there is a corresponding difficulty in deciding the precise ground to which different returns have reference. The chief issuing sources are the various Trade Associations, most of which cover almost the whole of their respective industries. This is not invariably the case, and it is advisable to enquire the source and obtain some indication of that source's authority before making use of American industrial data. Such a scrutiny is very ably undertaken by the Harvard authorities, which edit and publish comprehensive data in a form which is extremely serviceable. It is certainly preferable to rely upon information from this source, rather than to pay undue heed to information published in the press; the latter is generally an accurate report, but its scope is often insufficiently described.

An example of the type of error which may arise from this cause is afforded by the monthly statement of automobile output. Of this there are two recognised forms, both practically complete: one covers the United States and Canada, the other the United States alone. The actual Canadian output is, as compared with that of the United States,

not large; but it is frequently misleading to compare one with the other. Early press reports speak frequently of "Last month's automobile output," without geographical definition; in such cases it is easy to reach a premature conclusion.

While on the subject of American data, it behoves me to mention one type of return which is unusually interesting, and which no industrial system but the American would produce. I refer to the returns of "Unfilled Orders" at the end of every month. These figures refer to the number of orders actually booked by the industry for future delivery: they provide, therefore, an excellent barometer of future activity. The "Unfilled Orders" of the United States Steel Corporation, which are given monthly in tons, are the best known of these series. In industries where the product is more diverse, as in the machine tool industry, the "Unfilled Orders" are expressed as an index: the precise method by which this index is computed is not generally stated, but the index itself forms an interesting key to the progress of a branch of manufacture which is among the most sensitive to movements of the trade cycle.

In using statistics of American industry it is needful to keep in mind the extreme rapidity with which conditions change. For this reason it is sometimes misleading to make comparisons with corresponding data in previous years: for example, the "Unfilled Orders" of the United States Steel Corporation grew to an immense peak during the post-war boom; subsequently they receded to a much lower level, owing to the fact that orders are not now booked so far ahead. A comparison between the present and dates six or seven years ago can be valid only if the trend is taken into account.

A tendency to be noted, and discounted, in all American statistics, even in those emanating from official quarters, is an apparent claim to an altogether fictitious accuracy. A classical example of this was afforded early in 1929 by a trade newspaper, which attempted to use January's figures to forecast the year's automobile production. On this basis a forecast was made, and headlines recorded the anticipated increase per centum as compared with previous years. The journalist who made the calculation did so, apparently, in a hurry: he omitted to state that the probable error (using the data from which he worked) was more than $\pm$ 25 per cent., and that the more the data included in the working basis, the greater did the probable error become. This was a case in which guessing could give a forecast of far greater reliability than the type of statistical argument actually put forward.

The field of commodity statistics is one of which it is difficult to speak in general terms. Each commodity is in itself a specialised study, and I cannot attempt to discuss them in such a way as to interest the specialists concerned. For the non-specialist who adventures, as it is sometimes necessary to do, into a new field, one principle will suffice: always accept brokers' figures with caution, investigating the meaning of each separate heading. These figures are often incomplete, and they carry no sign of this incompleteness: it is only by rigorous scrutiny that it is possible to find out the extent to which they have a meaning. On the other hand, they are frequently more up to date than official statistics, particularly when the latter have to be collected from distant countries, and the statement of stocks is a unique and valuable feature. Often, however, the returns are obscure:

who, for example, would imagine that " Arrivals of standard tin in U.K. and U.S.A." really means " Tin of standard or common grade smelted in Great Britain and put into warehouses in order to form collateral for a loan, or put on board ship for purposes of export to America, but not elsewhere, together with Chinese tin arriving at British and American ports ? "

There is one statistical concept which is peculiar to commodity markets and which, at least in the more important uncontrolled markets, completely governs the interpretation of data. This is the concept of " Visibility," as expressed in such items as " Visible stocks," " Total visible supply," and " Supplies coming into sight." The phraseology is introduced to express the meaning of certain data relating to commodities which originate over a wide geographical area : the criteria of visibility vary as between different commodities, but there are certain features which occur in all cases.

A commodity becomes visible on entering the purview of market statistics. This point is usually as near to the commodity's origin as is consistent with homogeneous returns : thus, in the case of metals, where the ores are of diverse content, visibility begins at the first recording-point after leaving smelter.* It ends when the commodity passes out of the purview of the market into the hands of a consumer or private stock-holder. Between these two points supplies remain visible, whether actually in stock (*i.e.*, in warehouses which report their holding to the market authorities concerned), or in transit. The total visible supply at any date is the amount which has become visible and which has not yet been delivered ; it is, theoretically, a presentation of the world stock position.

The value of visible supplies as an indication of the world's available stock depends, in large measure, upon the commodity itself and the criteria of visibility. If, as is frequently the case, visibility begins upon a ship's clearance from the port of shipment, the total visible supply at the last day of any month may be falsified by delayed, or accelerated, shipments at the month's end. This applies particularly to commodities which are shipped in large quantities as compared with the amount brought forward during a month : thus, if the month's supplies are composed of, say, a dozen shiploads, the delay of a single ship may materially affect the total ; on the other hand, if a month's supplies are recruited from a hundred shiploads, individual clearances are of less importance.

This point is a vital one in interpreting the various stock figures which are issued in the commodity markets. Still more important is it to determine just what proportion of the supply actually comes within the scope defined in the returns. This is difficult, since statistics issued for market guidance are frequently published in the apparent expectation that everybody knows their scope, and quoted on the manifest assumption that they mean precisely what they appear to say. Actually, brokers' statistics, and the semi-official returns made by the commodity exchanges, are seldom complete : in fact, basic commodities often find their way to consumers without passing

* In the case of tin, for example, supplies become visible when they are shipped from the Eastern smelters ; in the case of tin smelted in the United Kingdom, visibility begins when the metal is warehoused locally or exported to America.

through any of the market authorities' recording-points. It is always desirable to ascertain the possibility of leakage—which may be done by comparing returns from different sources in their application to past years—and to read a conclusion as to whether the error is cumulative and, if so, what is the nature and probable extent of the leakage.

Before concluding this paper it would be well to mention the extremely valuable work of collation done by the various economic services. If it is desired to bring economic data into the service of business, the use of these sources is very much to be recommended. In America there are a number of "Economic Services" which are, in reality, agents for "tipping" sundry speculations; these, which are usually recognisable, should be eschewed.

I have endeavoured to pass in review the various sources from which business data are derived. As I said at the outset, exhaustive treatment is impossible; the paper is designed merely to point to means of research, and to suggest the type of scrutiny that may most conveniently be made. Specialised questions require specialised treatment; it is not possible in little space to solve everybody's problems; it is possible merely to contribute some iota toward the construction of a system which shall facilitate good work.

DISCUSSION.

In the unavoidable absence of Mr. Gordon, the CHAIRMAN (MR. J. FEARN) presented the paper. In the absence of the author, there was only a short discussion.

An Indexing System for Published Business Information.

By EDWARD T. ELBOURNE, M.B.E.,
Hon. Director, Institute of Industrial Administration.
Assisted by H. G. T. CANNONS, F.L.A.,
Public Librarian, Finsbury, London, E.C.1.

Introduction.

It seems desirable to preface this paper by a brief personal note. Mr. Cannons and the writer had been working independently on evolving a satisfactory scheme for the present purpose. Mr. Cannons produced a comprehensive "Bibliography of Industrial Efficiency and Factory Management," which was published in 1920. The field covered was not quite as wide as that to be discussed here, but Mr. Cannons' pioneer work entitled him to be consulted in any effort to meet a later and more complex situation. The collaboration that has resulted has been in connection with the subject classification, and, so far as the scheme now propounded goes beyond that aspect, it is only fair to absolve Mr. Cannons from any responsibility. The full development of the subject classification, that for want of space can only be applied here in its main headings, is a matter of skilled librarianship which for obvious reasons has been left in Mr. Cannons' hands. Needless to say, therefore, investigation in this connection has been on an exhaustive scale, in which already nearly four thousand index headings have been examined and classified.

To those who do not know the Finsbury Public Library, it will be of interest to mention that since the war a very fine collection of nearly two thousand business books has been brought together there and is being added to continually. Mr. Cannons is also building up in continuation of his book, above mentioned, a bibliography which already comprises over 15,000 items.

Purpose of the Scheme.

The title of the paper would sufficiently define the purpose of the scheme were it not that the term "Business Information" in itself is so indefinite. It becomes significant only when its scope is particularised. Even then there will remain a borderland that can only be interpreted as falling inside or outside the scheme according to the understanding as to its precise purpose.

The writer's original objective was to meet the requirements of the student of modern industrial administration. Ultimately it was decided to work out a scheme to serve all industries and meet a multiplicity of requirements, and at the same time provide a standardised system which any industrial administrator could apply as and when he found it necessary. As this paper is addressed in part to experts who are in charge of information bureaux for particular industries or industrial corporations, it is likely that the system to be described will be thought

by them to be too general to compare favourably with their own established arrangements. It was not for them, however, that any assistance or suggestion seemed necessary.

The writer had hoped to be able to apply the subject headings as defined by the Institute of Industrial Administration for the purpose of its educational scheme for general management. As a matter of interest these headings are set out below :

I (1) Economic Theory.
I (2) Industrial History.
I (3) The Law and Industry.
I (4) Introduction to Industrial Administration.
II (5) Personnel Policy and Administration.
II (6) Market Investigation and Sales Forecasting.
II (7) Sales Policy and Administration.
II (8) Distributive Policy and Methods.
II (9) Publicity Policy and Administration.
II (10) Office Administration and Methods.
II (11) Costing and Management Statistics.
II (12) Financial Management and Budgetary Control.
II (13) Production Policy and Progress Control.
II (14) Design Administration and Quality Control.
II (15) Process Planning and Production Estimating.
II (16) Building Planning and Plant Management.
II (17) Foremanship.
II (18) Purchasing and Material Control.
II (19) Home and Overseas Transportation.
III (20) The Management Function.
III (21) Business Statistics.
III (22) Business Organisation.
III (23) Industrial Relationships.
III (24) Social Factors and Industry.

Since the above headings have particular reference to industrial administration, and (wide though that subject may be) are not designed to cover the whole field of industry, commerce, and finance, the subject classification ultimately decided upon is given below and comprises twenty headings.

A Economics.
B Industrial and Commercial Law.
C Business Organisation and Management.
D Industrial Relationships.
E Industrial Psychology, Health and Welfare.
F Personnel Administration.
G Office Organisation and Methods.
H Purchasing and Materials.
J Production Control.
K Factory Planning.
L Marketing, Distribution, Salesmanship.
M Advertising.
N Transport, Internal and External.
P Management Records, Budgetary Control, Statistical Research, Costing.
Q Accountancy and Auditing.

R Finance and Currency.
S Banking.
T Investment.
V Insurance.
Z Business Reference Books.

For reasons which will appeal to all librarians using the Dewey Decimal System,* which is admittedly ill adapted for the field under consideration, the adoption of single code letters for each class constitutes a desirable simplification. To maintain the simplification the sub-headings are limited to 99 in each case, so that A31 would be as precise as, say, 330.123. This plan has involved one or two extra divisions since otherwise the sub-headings would have exceeded 99. Classes D, E, and F together constitute a case in point. The sub-headings make clear the precise scope of each class and from the librarian's point of view no confusion need arise because certain classes are intimately related.

Class Z, Business Reference Books, calls for special mention. It is a convenient grouping of those publications which are likely to be referred to for business purposes but do not belong to a particular executive aspect of business. Under this definition, Business Reference Books may range from dictionaries to directories. There are, it is to be feared, too many so-called public commercial libraries which are no more than a collection of business reference books within this narrow meaning, or, in other words, which cover only one section of business information out of a possible twenty.

Not all the material that would fall within the classification now presented would be considered appropriate to the most extensive public commercial library, or to the best-organised information bureau. There must always remain the discretion of the librarian as to what he selects to meet the requirements of his particular clientele. The purpose so far as he is concerned of the index service contemplated under the scheme is to supply him with full particulars, suitably indexed, of all the significant material from which to make his choice. Needless to say, it is a considerable problem to ensure that all the significant material shall be brought under notice, and this calls for organised co-operation, of which more will be said later.

Commodity Code.

An important feature of the proposed system of indexing is to recognise the commodity (in other words, the trade or industry) to which the material indexed refers—that is, of course, where there is a dominating commodity interest.

In the nature of things, business executives are more attracted by publications labelled as bearing on their trade than by the abstract treatise. It would not be difficult to show that to those who can assimilate it, the abstract treatment may be incomparably more stimulating.

The question of being interested in the study of published business information is fundamental, and every feature of an index service should be considered from the point of view of its capacity to arouse interest, particularly on the part of that large number who consider

* See page 149.

that intensive practical application to the day's work is the only way to accomplish anything. They forget that the wider vision that suitable study might give them would encourage them to a higher achievement and a fuller life. Not least it should lead to a greater readiness to co-operate with competitors and interchange information.

In devising a commodity code there is the problem of grouping related or intermingled trades, so that material that is general to a whole industry and also that which has reference to a sectional trade may be identified accordingly. After pursuing the matter at some length, the best course seemed to be to devise a code that would serve to classify the data provided by the Preliminary Reports of the 1924 Census of Production for Great Britain. This assured due recognition of the dominant British trades as at present conducted.

The results are set out in tabular form on pages 136–139. Some arbitrary classification has been necessary here and there—*e.g.*, whether coke and by-products should be grouped with mine and quarry products or with chemicals.

To the librarian any fixed code might serve, but to the statistician, and to-day we are all in some degree in that category, the code should presumably serve to group related data.

By including in the tables the statistics of persons employed and net output* it is possible to get a better perspective of the suitability of the code for business purposes. It is thought that the result is a useful picture of the nation's industrial activities arranged in five main divisions and a sixth division covering the remaining trades, as follows :

Division.	*Group.*	*Description.*	*Persons employed.*	*Net Output. £ Millions.*
1	100	Mine and Quarry Products	1,280,673	226.126
	150	Mineral Manufactures (non-metallic)	214,085	44.902
			1,494,758	271.028
2	200	Building and Structural Work	975,684	183.103
	290	Wood, Wood-working, and Upholstery	212,660	40.682
			1,188,344	223.785
3	300	Metal Manufactures & Engineering	1,718,812	367.673
4	400	Chemicals (general)	297,237	100.675
	440	Alcohol and Manufactures	110,247	64.220
	450	Food	369,672	102.993
			777,156	267.888

* *Net output*, as applied to the Census of Production, is defined as the sum representing the total amount by which the selling value of the output exceeded the cost of the materials purchased and used and the total amount paid to other firms for work given out.

Division.	*Group*	*Description.*	*Persons employed.*	*Net Output. £ Millions.*
5	500	Textiles	1,068,556	194.785
	550	Apparel	742,930	114.868
			1,811,486	309.653
6	610	Paper, Printing, and Stationery .	351,564	94.764
	620	Tobacco and Manufactures .	38,802	23.942
	630	Leather and Manufactures . .	63,389	14.959
	640	Rubber and Manufactures . .	46,565	11.503
	650	Sundry Utility Products . .	47,503	9.006
	660	Precious Metals and Manufactures	35,451	7.088
	670	Fancy and Sports Goods . .	33,746	5.991
			617,020	167.253
		GRAND TOTAL .	7,607,576	1,607.280

In the main the sequence of the classification in the respective divisions and groups has followed the order of importance as measured by net output.

The decimal system has been followed, though the classification has not been carried far enough to require the use of the decimal point. The three figures that are used serve to differentiate the Commodity Code from all others in use for the purpose of this indexing system.

The statistics presented with the Commodity Code do not quite tally in total with the official summary : *Numbers employed*, tabulated as 7,607,576, should be 7,612,800 ; *net output*, tabulated as £1,607,280,000, should be £1,604,500,000.

For those who are interested in industrial administration as a professional field, it may be pointed out that of the total number of persons employed in industry practically ten per cent., or 755,000 comprise what is called officially Administrative, Technical, and Clerical Staff, of which nearly one-fourth are women and girls. The figures in all cases refer to Great Britain and relate to production only.

COUNTRY CODE.

The purpose of the country code is to identify material with the country to which it refers and not with the nationality of its authorship It is worked out on a system of using the first two letters (enclosed in brackets) of the name of the country, except where it is necessary, to avoid duplication, to choose another letter for the second letter of the code. In the table on page 134 it will be noted that the countries are given in alphabetical sequence and consequently the code is not always in that sequence as to the second letter. By way of making the table of rather more interest, the latest available estimates of population are given. It should perhaps be pointed out that, out of the world's estimated population of 1,948,526,000 there are 176,641,000 unaccounted for in the table. The probabilities are remote of there being any literature dealing with the omitted territories to be indexed, but in such event the code could easily be extended accordingly.

The Document Register.

The basis of the present system is little more than what the librarian would call an accession list, where the accession number becomes a registration number for identifying the respective documents in the several indexes contemplated—*viz.*, subject index, commodity index, and author index. It is proposed that the Document Register should be issued in monthly sections.

The term document is used as applicable equally to a pamphlet or book, official report, or number of a periodical.

The register commences with a four-figure number to avoid confusion with either subject code or commodity code, and the series could be allowed to continue until, say, 99,999 was reached, when it would probably be safe to restart at 1,000.

In the demonstration document register appended to this paper, the selection has deliberately not included periodicals so as to avoid the problem of selection. It will be noted that against each entry is given the appropriate index marks for (1) *Subject Code;* (2) *Country Code;* and (3) *Commodity Code.*

Under this arrangement multiple index marks may be used where the documents refer to more than one subject, country or commodity. The indexes themselves have only to carry document registration numbers as a book index carries page numbers, and multiple references do not therefore necessitate repetition of bibliographical detail as under the ordinary bibliographical method.

For the present purposes it has been convenient to restrict the subject indexing to the main classes, A, etc., but as sub-classification will be adopted later the code is expressed temporarily as A00, etc.

By giving the subject index marks in this way, the enquirer will be better able, particularly when the subject classification is fully applied, to judge the scope of any document than the title alone might permit, Further, if the indexes are only issued at, say, quarterly intervals. as would probably be most convenient to all concerned, the enquirer could quite readily trace through the Document Register later relevant items not yet indexed.

Union Catalogue.

Whatever merits there may be in a cumulative bibliography as provided for under the proposed system, all librarians will agree that it is a matter of considerable importance to know where each document can be consulted.

To this end it is proposed that there should be a union catalogue in cumulative form. This would obviously involve co-operation on the part of a suitable range of libraries. If these reported regularly their accessions of published business information there would be provided not only the data for a union catalogue, but also a valuable guide to current publications which could be utilised to make the document register the more comprehensive.

The suggested form of union catalogue is that each monthly issue of the document register would be repeated six months later with an annotation of the libraries possessing the respective documents. To condense the references, each co-operating library could be given a serial number as it came into the scheme; thus (1) might denote

Finsbury Public Library, (2) Institute of Industrial Administration Library, (3) Industrial Institute Library, and so on.

Subscribers to the Index Service could apply to be advised when any specified library reports the acquisition of registered documents. This advance information could be circulated monthly, and the subscriber could mark his own Document Register accordingly without waiting for the complete union catalogue.

The union catalogue would possibly serve to strengthen the hand of the smaller libraries in the allocating of strictly limited resources.

Supply Service.

For many subscribers it would doubtless be a great convenience to be able to obtain through the Index Service copies of documents not published through the usual channels. There are numerous publications of special value which an ordinary bookseller would find great difficulty in obtaining, if at all.

Organisation of the Service.

It need not be argued here that the only hope of providing the service now outlined is by obtaining a considerable number of subscribers, and it is for some publisher to take this risk. Unfortunately, the cost of obtaining subscribers in sufficient numbers by individual canvassing is likely to be much greater than the cost of providing the service for the first year or more. The remedy seems to be, therefore, for organised societies and trade associations to come into the scheme on a preferential basis according to the number of subscriptions guaranteed : thus a guarantee of fifty subscriptions annually might carry a reduction of twenty-five per cent. on the regular rates, and a guarantee of one hundred a reduction of fifty per cent.

What the regular rates would have to be requires further working out, but it is thought that a small monthly subscription would carry the scheme on the basis of a circulation of 500.

Advisory Committee.

Obviously the value of this scheme would be greatly enhanced if its operations as to choice and treatment of material were under the guidance of an expert Advisory Committee. Such a committee might reasonably be formed of representatives from those societies which entered into a guarantee of, say, not less than fifty subscriptions.

Periodicals.

A special reference is necessary to the question of indexing periodicals. Presumably only articles of permanent value would be noted in the Document Register for indexing, but this limitation leaves the problem still very difficult to tackle owing to the large number of periodicals that might conceivably be dealt with. In this connection, an Advisory Committee could function in a very important way—

(1) In selecting the periodicals to be indexed.
(2) In securing co-operation of their members for voluntary indexing of the selected periodicals ;

(3) In arranging with the index publishers as to the number of items that could appear in each monthly issue of the Document Register.

The last point is one not confined to periodicals, as the index publishers would have to set a limit to the number of items of all sorts to appear in the Document Register each month, and it would be for the Advisory Committee to be satisfied on this point, and to settle the proportion to be allotted to items from periodicals.

Access to Material Indexed.

In the matter of obtaining access to the material to be indexed, the writer has enjoyed facilities for some time from the London School of Economics, the Royal Statistical Society, and the Institution of Mechanical Engineers for taking note of all their accessions. Under the ægis of an Advisory Committee these facilities could doubtless be multiplied. It might even be that here and there competent librarians would be willing to co-operate not only in sending in their own list of accessions, but also by endorsing thereon the various index marks required under the system under discussion. On such authority the entry could be made straight away in the Document Register when not already included.

Date of Material Indexed.

A final point is that the usefulness and current applicability of information is not to be measured by the date of publication. Much newly-printed material is misleading and mischievous in its outworn attitude. Other material may bear the imprint of a generation ago, and still represent in some measure the ideal to which we are working. To take one or two examples, is there anyone here with any real knowledge of costing who does not consider Hamilton Church's "Proper Distribution of Expense Burden," published in 1908 (itself a reprint of articles which originally appeared in 1901), as being still in advance of current practice. Or, to take more famous works, what of the papers published earlier still, of F. W. Taylor, the founder of the U.S.A. Scientific Management School? Taylor's influence to-day is permeating the whole industrial world though more pronounced in other countries than here.

No indexing system ought therefore to be rigidly confined to new publications, but should reach backwards, under proper guidance, to older material that still has current application or inspiration.

COUNTRY CODE.

Figures refer to estimated population in millions for 1927, taken from International Statistical Year Book, 1928.

(AL)	Albania	0.850	(BU) Bulgaria	5.597	(CZ) Czechoslovakia 14.439
(AG)	Algeria	6.100	(CA) Canada	9.580	
(AR)	Argentine	10.647	(CE) Ceylon	5.289	(DE) Denmark 3.485
(AU)	Australia	6.235	(CH) Chile	4.219	(DO) Dominican Repub. 0.900
(AS)	Austria	6.680	(CN) China	458.090	
(BE)	Belgium	7.932	(CO) Colombia	8.100	(DI) Dutch E. Indies 52.700
(BO)	Bolivia	3.465	(CR) Costa Rica	0.540	
(BR)	Brazil	37.970	(CU) Cuba	3.568	(EC) Ecuador 2.000

(EG)	Egypt	14.400	(LI)	Lithuania	2.286	(PT)	Porto Rico	1.460
(ES)	Esthonia	1.116	(LU)	Luxembourg	0.274	(PR)	Portugal	5.840
(FI)	Finland	3.597	(MA)	Malaya, British	3.870	(RO)	Roumania	17.694
(FR)	France	41.000	(ME)	Mexico	14.953	(RU)	Russia	150.500
(GE)	Germany	63.440	(NE)	Netherlands	7.626	(SL)	Salvador	1.688
(GB)	Great Britain & N. Ireland	45.640	(NZ)	New Zealand	1.450	(SE)	Serb, Croat, and Slovene Kingdom	13.200
(GR)	Greece	6.200	(NF)	Newfoundland	0.265	(SI)	Siam	10.060
(GU)	Guatemala	2.100	(NI)	Nicaragua	0.730	(SA)	S. African Union	7.700
(HA)	Haiti	2.000	(NG)	Nigeria	18.766	(SP)	Spain	22.444
	Holland *See* (NE)		(NO)	Norway	2.779	(SW)	Sweden	6.088
(HO)	Honduras	0.750	(PL)	Palestine	0.887	(SZ)	Switzerland	4.000
(HU)	Hungary	8.522	(PA)	Panama	0.500	(TU)	Turkey	13.850
(IN)	India	331.500	(PG)	Paraguay	0.824	(US)	United States of America	119.300
(IQ)	Iraq	3.175	(PS)	Persia	9.000	(UR)	Uruguay	1.762
(IR)	Irish Free State	2.950	(PE)	Peru	6.147	(VE)	Venezuela	3.050
(IT)	Italy	40.795	(PH)	Philippines	11.750	(WD)	(World)	1,948.526
(JA)	Japan	61.275	(PO)	Poland	30.213			
(LA)	Latvia	1.883						
(LB)	Liberia	2.000						

COMMODITY CODE.

The statistics and, for the most part, the descriptions appearing in these tables are derived from the Board of Trade Preliminary Reports on the 1924 Census of Production for Great Britain.

Group	*Class*	*Description*	*Persons Employed*	*Net Output £ Millions*
		DIVISION 1 (*Mining & Mineral Manufactures*)		
100		**Mine and Quarry Products :**		
110		METALLIFEROUS MINES AND QUARRIES .	17,549	3.265
120		COAL	1,197,941	209.820
130		NON-METALLIFEROUS MINES, ETC., other than Coal :		
	131	Quarries, other than Metalliferous and Slate	50,072	9.902
	132	Slate Mines and Quarries	10,067	2.023
	133	Salt Mines, Brine Pits, and Salt Works .	5,044	1.116
150		**Mineral Manufactures (non-metallic) :**		
160		BUILDING AND ROAD MATERIALS, ETC. :		
	161	Building Materials (not otherwise classified)	7,122	1.781
	162	Brick and Fireclay	68,354	14.267
	163	Cement	12,874	4.679
	164	Tar Paving and other Paving and Road Materials	7,973	3.046
	165	Stone and Slate, Dressed	10,839	2.147
170		GLASS MANUFACTURES	37,713	8.174
180		CHINA AND EARTHENWARE . . .	69,210	10.808
		DIVISION TOTAL .	1,494,758	271.028
		DIVISION 2 (*Constructional*)		
200		**Building and Structural Work :**		
210		BUILDING AND CONTRACTING . . .	461,126	94.389
220		PUBLIC WORKS :		
	221	Admiralty—Civil Engineering Depts. .	4,470	0.686
	222	Canals, Docks, Harbours, etc. . . .	4,064	0.603
	223	Office of Works	1,502	0.211
	224	Lighthouse Authorities	167	0.033
230		G.P.O. TELEGRAPH AND TELEPHONE CONSTRUCTIONAL WORK	31,559	7.340
240		RAILWAY CONSTRUCTIONAL WORK :		
	241	Railway Companies	249,425	43.071
	242	Railway Carriage and Wagon-Building .	28,344	5.140
	243	Tramway and Light Railway Undertakings .	6,131	0.890
250		CONSTRUCTIONAL WORK CARRIED OUT BY LOCAL AUTHORITIES other than Gas, Electricity, and Water Undertakings .	188,896	30.740
290		**Wood, Woodworking, and Upholstery :**		
	291	Furniture, Cabinet-making, and Upholstery .	82,841	16.245
	292	Timber	68,638	12.714
	293	Carriages, Carts, and Wagons . . .	32,870	6.192
	294	Wooden Crates, Boxes, Cases and Trunks .	12,211	2.280
	295	Packing	8,043	1.704
	296	Coopering	4,646	1.052
	297	Baskets and Wickerwork	3,411	0.495
		DIVISION TOTAL .	1,188,344	223.785

Group	Class	Description	Persons Employed	Net Output £ Millions
		DIVISION 3 (*Engineering*)		
300		**Metal Manufactures and Engineering :**		
310		Iron and Steel Process Products :		
	311	Smelting, Rolling, and Founding	218,310	44.175
	312	Tinplate	28,024	6.354
	313	Anchors, Chains, Nails, Bolts and Nuts, Screws, and Rivets	33,620	6.123
	314	Wrought Iron and Steel Tube	24,275	5.245
	315	Blast Furnaces	25,209	5.172
	316	Blacksmithing	16,992	2.524
320		Non-Ferrous Process Products :		
	321	Other than Brass and Copper, Gold and Silver (Smelting, Rolling, and Casting)	20,544	5.943
	322	Copper and Brass (Smelting, Rolling, and Casting)	25,328	5.467
330		Machinery (General) :		
	331	Machinery (not otherwise classified)	221,895	45.410
	332	Prime Movers and Boilers (other than Marine Engines and Boilers)	79,187	15.339
	333	Textile Machinery	60,855	11.319
	334	Heating, Ventilating, and Sanitary Engineering	47,620	10.729
	335	Ordnance Factories and Ordnance Dept. Workshops	18,694	3.838
	336	Machine Tools	9,677	1.810
340		Motors and Cycles	200,272	45.329
350		Shipbuilding and Marine Engineering :		
	351	Shipbuilding	135,600	22.222
	352	Marine Machinery	59,700	9.820
	353	Admiralty—Naval Dockyards	35,669	6.552
360		Electrical Engineering	156,508	33.393
370		Public Utilities :		
	371	Generation of Electricity	47,197	22.149
	372	Waterworks Undertakings	31,733	16.161
380		Hardware :		
	381	Hardware, Hollow-ware, and Bedsteads	72,400	12.284
	382	Wire Manufactures	25,015	6.060
	383	Finished Brass Manufactures	33,184	5.894
	384	Tools and Implements	28,072	5.638
	385	Cutlery	11,354	1.818
	386	Small Arms	2,446	0.472
390		Scientific Instruments, Etc. :		
	391	Scientific Instruments, Appliances, and Apparatus	25,117	5.304
	392	Musical Instruments	20,053	4.448
	393	Watch and Clock-making	4,262	0.681
		Division Total	1,718,812	367.673
		DIVISION 4 (*Chemical*)		
400		**Chemicals (General) :**		
410		Gas Works Undertakings	108,421	29.471
420		Coke and Manufactured Fuel :		
	421	Coke and By-products	18,548	5.001
	422	Manufactured Fuel	1,675	0.401

Group	Class	Description	Persons Employed	Net Output £ Millions
430		CHEMICAL MANUFACTURES :		
	431	Chemicals (not otherwise classified) . .	68,576	25.289
	432	Soap and Candles	27,599	11.335
	433	Paints, Colours, and Varnish . . .	17,761	7.739
	434	Oil and Tallow	14,361	6.245
	435	Starch, Blue, and Polishes	11,663	4.891
	436	Matches	5,108	3.448
	437	Explosives and Fireworks	8,635	2.815
	438	Fertiliser, Glue, Sheep-dip, and Disinfectant	10,323	2.340
	439	Ink, Gum, and Sealing Wax . . .	3,567	1.700
440		**Alcohol and Manufactures :**		
	441	Spirit Distilling	4,622	2.575
	442	Spirit Compounding, Rectifying, and Methylating	952	1.000
	445	Brewing and Malting	67,069	45.942
	446	Wholesale Bottling	19,387	8.952
	447	Aerated Waters, Cider, Vinegar, British Wine, etc.	18,217	5.751
450		**Food :**		
460		CEREAL MANUFACTURES :		
	461	Bread and Biscuits	151,341	38.504
	462	Grain Milling	34,520	11.763
	463	Seed Crushing	14,027	3.832
	464	Cattle, Dog, and Poultry Foods . . .	5,349	2.088
470		PRODUCE :		
	471	Preserved Meat, Fish, Fruit and Vegetables, Pickles, and Sauces	34,980	11.625
	472	Butter, Cheese, Condensed Milk, and Margarine	11,747	4.497
	473	Bacon Curing and Sausages . . .	13,106	4.420
	474	Fish Curing	9,714	1.801
	475	Ice	2,766	1.220
480		SUGAR MANUFACTURES :		
	481	Sugar and Glucose	12,626	6.110
	482	Cocoa and Sugar Confectionery . . .	79,496	17.133
		DIVISION TOTAL .	777,156	267.888
		DIVISION 5 (*Textile*)		
500		**Textiles :**		
510		TEXTILE FABRICS :		
	511	Cotton Spinning	245,646	46.763
	512	Cotton Weaving	271,586	35.617
	513	Woollens and Worsted	275,926	51.733
	514	Silk and Artificial Silk	39,211	9.997
	515	Jute, Hemp, and Linen	60,855	8.540
520		BLEACHING, DYEING, PRINTING, AND FINISHING	107,812	27.040
530		TEXTILE MANUFACTURES :		
	531	Linoleum and Oilcloth	12,349	5.248
	532	Lace	18,103	2.952
	533	Rope, Twine, and Net	13,764	2.332
	536	Canvas Goods and Sacks	10,036	1.949
	535	Flock and Rags	7,730	1.761
	536	Elastic Webbing	5,538	0.853

Group	Class	Description	Persons Employed	Net Output £ Millions
550		**Apparel :**		
560		CLOTHING, ETC. :		
	561	Clothing and Millinery	345,304	52.273
	562	Hosiery	96,003	15.233
	563	Hats, Bonnet, and Cap Making	30,485	5.224
	564	Gloves	5,560	1.023
570		BOOTS AND SHOES	147,300	25.035
580		LAUNDRY, CLEANING, AND DYEING TRADES	118,278	16.080
		DIVISION TOTAL	1,811,486	309.653
		DIVISION 6 (*Other Trades*)		
610		**Paper, Printing, and Stationery :**		
	611	Printing and Bookbinding	180,256	38.508
	612	Printing and Publication of Newspapers and Periodicals	56,837	31.052
	613	Paper	50,707	12.814
	614	Manufactured Stationery	29,412	5.378
	615	Cardboard Boxes	19,472	2.972
	616	Typefounding, Electro-typing, Engraving, Process-block Making, and Die-sinking	9,715	2.305
	617	Wall Paper	4,596	1.565
	618	Film Printing	569	0.170
620		**Tobacco and Manufactures**	23,942	23.942
630		**Leather and Manufactures (not including Boots and Shoes) :**		
	631	Leather	30,458	8.711
	632	Saddlery, Harness, Travelling Bags, and Leather Goods	21,457	3.147
	633	Fur	9,080	2.313
	634	Fellmongery	2,394	0.788
640		**Rubber and Manufactures :**	46,565	11.503
650		**Sundry Utility Products :**		
	651	Engine and Boiler Packing and Asbestos	6,641	2.127
	652	Brush Making	10,997	1.738
	653	Needles, Pins, Fish-hooks, and Buttons	12,084	1.698
	654	Pens, Pencils, and Artists' Materials	6,932	1.218
	655	Umbrellas and Walking Sticks	5,528	1.056
	656	Coconut Fibre, Horsehair, and Feathers	4,498	0.880
	657	Roofing Felts	823	0.289
660		**Precious Metals and Manufactures :**		
	661	Jewellery, Gold, Silver, and Electro-Plate	33,521	6.075
	662	Gold and Silver Refining	1,930	1.013
670		**Fancy and Sports Goods :**		
	671	Ivory, Horn, Picture Frames, and Fancy Articles	16,668	9.251
	672	Billiard Tables and Sports Requisites	7,406	1.750
	673	Games and Toys	5,096	0.706
	674	Artificial Flowers and Ornamental Feathers	4,576	0.584
		DIVISION TOTAL	617,020	167.253

Where the publisher's name is not given it is to be understood that the document has been published by the author or editor. The prices given are publisher's net prices. n.d. means *not dated*.

The index marks below each bibliographical entry are placed in the following sequence:

SUBJECT CODE: *e.g.*, Aoo, meaning Economics (sub-classification not yet applied).

COUNTRY CODE: *e.g.* (GE) meaning Germany.

COMMODITY CODE: *e.g.*, 360, meaning Electrical Engineering, or 3, meaning Division 3, Metal Manufactures and Engineering. Where a document has substantial reference to a wide range of commodities the appropriate division numbers are used.

1000. Quigley, Hugh. Towards Industrial Recovery. pp. 191. London, 1927. Methuen, 4s. 6d.
Aoo. (BE) (GE) (FR). 120, 310, 360, 371, 400.

1001. Quigley, Hugh. Electrical Power and National Progress. pp. 759. London, 1925. Allen and Unwin, 8s. 6d.
Aoo. (CA) (FR) (GB) (GE) (IT) (SZ) (US). 120, 371.

1002. Stern, Alfred. Memorandum Outlying the Case for Price Maintenance of Proprietary Articles. pp. 28. London, 1928.
Loo. 560.

1003. National Distribution Conference. 1. Collection of Business Figures. pp. 42. Washington, 1925.
Poo. (US).

1004. National Distribution Conference. 2. Trade Relations. pp. 93. Washington, 1925.
Loo. (US). 200, 290, 380, 450, 514, 562.

1005. National Distribution Conference. 3. Market Analysis: Advertising and Advertising Mediums. pp. 44. Washington, 1925.
Loo, Moo. (US).

1006. National Distribution Conference. 4. Expenses of Doing Business. pp. 113. Washington, 1925.
Loo. (US). 380, 391, 450, 550, 570.

1007. National Distribution Conference. 5. Methods of Distribution. pp. 37. Washington, 1925.
Loo. (US).

1008. National Distribution Conference. 6. General Conditions Affecting Distribution. pp. 41. Washington, 1925.
Loo. (US).

1009. Rowntree, B. S. The Human Needs of Labour. pp. 168. London. n.d. Nelson.
Eoo.

1010. Powell, J. E. The Output Problem. pp. 168. London. n.d. Library Press.
Joo.

1011. Powell, J. E. Payment by Results. pp. 411. London, 1924. Longmans, 21s.
Foo, Joo.

1012. Incorporated Sales Managers' Association. Pickup, H., ed. Salesmen's Agreements. pp. 76. London, 1927. Pitmans. 5s.
Loo. (GB).

1013. Management Research Groups. Bibliography of Scientific Management in Great Britain. pp. 48. London, 1928. 1s.
Coo.

1014. Carpenter, Charles. Industrial Co-partnership. pp. 102. London, 1921. Co-partnership Publishers, Ltd.
Doo. 410.

1015. British Electrical and Allied Manufacturers' Association. Combines and Trusts in the Electrical Industry. pp. 182. London, 1927. £5 5s.
Coo. (AS) (BE) (FR) (GE) (IT) (SW) (SZ). 360.

1016. Bowie, J. A. Sharing Profits with Employees. pp. 222. London, 1922. Pitmans, 10s. 6d.
Doo. 410, 432.

1017. Alford, L. P., ed. Managements' Handbook. pp. 1,607. New York, 1924. Ronald Press.
Aoo, Coo, Foo, Goo, Hoo, Joo, Koo, Loo, Noo, Poo, Soo, Voo. (US).

1018. Cherington, P. T. The Elements of Marketing. pp. 238. New York, 1921. Macmillan, $2.10.
Loo. (US). 450, 460.

1019. Dunlop Rubber Co. Dunlop Staff Training. pp. 7. n.d.
Foo. 640.

1020. Boot Manufacturers' Federation of Great Britain and Ireland. Year-Book. pp. 432. London, 1928.
Doo, Zoo. (GB). 570.

1021. Graham, William. The Wages of Labour. pp. 166. London, 1921. Cassell, 5s.
Doo.

1022. League of Nations. International Statistical Year-Book, 1928. pp. 233. Geneva, 1929. 7s. 6d.
Zoo. (WD).

1023. Farmer, E. Time and Motion Study (Report No. 14 of the Industrial Fatigue Research Board). pp. 63. London, 1923. H.M. Stationery Office, 2s.
Eoo, Foo. 482.

1024. Jenkinson, M. Webster. Costing at National Factories. pp. 28. London, 1918. Gee, 2s. 6d.
Poo. 310, 335.

1025. Flux, A. W. Economic Principles. pp. 327. London, 1923. Methuen, 12s. 6d.
Aoo.

1026. Church, A. Hamilton. Production Factors. pp. 187. New York, 1910. "Engineering Magazine."
Poo.

1027. "Daily Mail" Year-Book. pp. 258. London, 1929. 1s.
Zoo.

1028. Spicer, R. H. S. British Engineering Wages. pp. 159. London, 1928. Arnold, 10s. 6d.
Doo. (GB). 3.

1029. Lee, John, ed. Dictionary of Industrial Administration. 2 vols. London, 1929. Pitmans, 63s.
Boo, Coo, Doo, Eoo, Foo, Goo, Hoo, Joo, Koo, Noo, Poo.

1030. Milne-Bailey, W., ed. Trade Union Documents. pp. 580. London, 8s. 6d.
Doo.

1031. Lawson, F. M. Industrial Control. pp. 130. London, 1920. Pitmans, 8s. 6d.
Joo.

1032. Mond, Sir A. (Lord Melchett). Industry and Politics. pp. 337. London, 1927. Macmillan, 12s. 6d.
Aoo.

1033. Gushée, E. T., and Boffey, L. F. Scientific Purchasing. pp. 196 New York, 1928. McGraw-Hill, 15s.
Hoo.

1034. Association of Special Libraries and Information Bureaux. The ASLIB Directory, ed. by G. F. Barwick. pp. 425. London, 1928. Oxford University Press, 21s.
Zoo.

1035. Pearce, J. G., and others. Goodwill in Industry from a New Angle. London, 1929. London General Press, 2s.
Doo.

1036. Withers, Hartley. Money. pp. 80. London. Benn, 6d.
Too.

1037. **Meakin, Walter. The New Industrial Revolution.** pp. 284. London, 1928. Gollancz, 9s.
Coo. (GE). 120, 310, 400.

1038. **Gardiner, G. L. Practical Office Supervision.** pp. 294. New York, 1929. McGraw-Hill, 15s.
Goo.

1039. **Filene, E. A. The Way Out: A Business Man Looks at the World.** London. n.d. Routledge, 7s. 6d.
Aoo.

1040. **Shibley, F. W. The Way to Net Profits.** pp. 213. New York, 1929. Harper, 12s. 6d.
Coo. (US).

1041. **Hackett, J. D. Labor Management.** pp. 681. New York, 1929. Appleton, 21s.
Foo.

1042. **Committee on Industry and Trade. Survey of Industrial Relations.** pp. 497. London, 1926. H.M. Stationery Office, 5s.
Doo. (GB). 1, 2, 3, 4, 5, 6.

1043. **Committee on Industry and Trade. Survey of Overseas Markets.** pp. 740. London, 1925. H.M. Stationery Office, 6s.
Loo. (WD). 1, 2, 3, 4, 5, 6.

1044. **Committee on Industry and Trade. Factors in Industrial and Commercial Efficiency.** pp. 544. London, 1927. H.M. Stationery Office, 5s.
Coo. (FR) (GB) (GE) (US). 120, 170, 180, 290, 3, 310, 350, 390 4, 5, 560, 610.

1045. **Committee on Industry and Trade. Further Factors in Industrial and Commercial Efficiency.** pp. 361. London, 1928 H.M. Stationery Office, 3s. 6d.
Coo. (GB).

1046. **Committee on Industry and Trade. Survey of Metal Industries.** pp. 528. London, 1928. H.M. Stationery Office, 5s.
Aoo, Coo. (GB). 120, 3.

1047. **Committee on Industry and Trade. Survey of Textile Industries.** pp. 328. London, 1928. H.M. Stationery Office, 3s. 6d.
Aoo, Coo. (GB). 500.

1048. **Cole, G. D. H. Payment of Wages.** pp. 161. London, 1918. Allen and Unwin, 6s.
Doo. 120, 200, 290, 330, 350, 570.

1049. **Emmott, Lord, chairman. Report of an Enquiry into the Relationships of Technical Education to other Forms of Education and to Industry and Commerce.** pp. 50. London, 1928. 1s.
Zoo. (GB).

1050. **Percy, Lord Eustace. Reply to the Emmott Report on Relationships of Technical Education to other Forms of Education and to Industry.** pp. 16. Bootle, 1928.
Zoo. (GB).

1051. **World Economic Conference. Chemical Industry. CEI 10.** pp. 117. Geneva, 1927. 4s.
Coo. (FR) (GB) (GE) (IT) (PO). 400.

1052. **World Economic Conference. Retail Price Comparisons in Private and Co-operative Trade. CEI 11.** pp. 31. Geneva, 1927. 1s. 3d.
Loo.

1053. **World Economic Conference. Potash Industry. CEI 21.** pp. 41. Geneva, 1927. 1s.
Coo. (FR) (GE) (PO). 400.

1054. **World Economic Conference. Mechanical Engineering Industry. CEI 15 (I).** pp. 193. Geneva, 1927. 6s.
Coo. (WD). 330.

1055. **World Economic Conference. Mechanical Engineering Industry. CEI 15 (II).** pp. 87. Geneva, 1927. 3s.
Coo. (AS) (GB). 330.

1056. World Economic Conference. Electrical Industry. CEI 16. pp. 104. Geneva, 1927. 4s.
Coo. (AS) (FR) (GB) (GE) (IT). 360.

1057. World Economic Conference. Iron and Steel Industry. CEI 17. pp. 107. Geneva, 1927. 4s.
Coo. (FR) (GB) (GE) (WD). 310.

1058. World Economic Conference. Coal Industry. CEI 18 (I.) pp. 75. Geneva, 1927. 2s. 6d.
Coo. (WD). 120.

1059. World Economic Conference. Coal Industry. CEI 18 (II). pp. 45. Geneva, 1927. 2s.
Coo. (FR) (GB) (GE) (US). 120.

1060. World Economic Conference. Shipbuilding Industry. CEI 8. pp. 48. Geneva, 1927. 1s. 6d.
Coo. (WD). 350.

1061. World Economic Conference. Cotton Industry. CEI 9. pp. 78. Geneva, 1927. 3s.
Coo. (WD). 511, 512.

1062. World Economic Conference. Natural Silk Industry. CEI 24. pp. 27. Geneva, 1927. 1s. 3d.
Coo. (GE) (WD). 514.

1063. World Economic Conference. Artificial Silk Industry. CEI 30. pp. 42. Geneva, 1927. 2s.
Coo. (FR) (GE) (PO) (WD). 514.

1064. World Economic Conference. Summary Memorandum on Various Industries. CEI 19. pp. 40. Geneva, 1927. 1s. 6d.
Aoo. (WD).

1065. World Economic Conference. Population, Resources and Products. CEI 39. pp. 70. Geneva, 1927. 2s. 6d.
Zoo. (WD). 1, 2, 3, 4, 5, 6.

1066. Society of Motor Manufacturers and Traders. Home Market Analysis No. 3. pp. 32. London, 1929.
Loo, Zoo. (GB). 340.

1067. Shadwell, Arthur. Industrial Efficiency. pp. 720. London, 1913. Longmans, 10s. 6d.
Aoo. (GB) (GE) (US).

1068. Castenholz, W. B. Cost Accounting Procedure. pp. 333. Chicago, 1925. La Salle Extension University.
Poo.

1069. Labour Research Department. Labour and Capital in the Engineering Trades. pp. 48. London, 1922. Labour Publishing Co. 1s.
Doo. (GB). 3.

1070. Lewis, J. Slater. The Commercial Organisation of Factories. pp. 540. London, 1896. Spon. (out of print).
Coo, Poo.

1071. Sheldon, Oliver. The Philosophy of Management. pp. 291. London, 1923. Pitmans, 10s. 6d.
Coo.

1072. Whiteford, J. F. Factory Management Wastes. pp. 230. London, 1919. Nisbet, 12s. 6d.
Coo.

1073. Board of Education. Education for Industry and Commerce. Pamphlet No. 64. pp. 103. London, 1928. H.M. Stationery Office, 6d.
Zoo. (GB). 120, 2, 371, 400, 410, 450, 500, 610, 640.
Coo. (GB). 120, 2, 371, 400, 410, 450, 500, 610, 640.

1074. Liberal Industrial Enquiry. Britain's Industrial Future. pp. 503. London, 1928. Benn, 2s. 6d.
Aoo. (GB). 120, 310, 330, 350, 370, 500.

1075. Diemer, Hugo. Factory Organisation. pp. 378. New York, 1914. McGraw-Hill, $3.
Coo, Hoo, Joo, Koo, Poo.

1076. Urwick, L., Aston, E., and Cordukes, F. H. Organising a Sales Office. pp. 213. London, 1928. Gollancz, 7s. 6d.
Goo, Loo, Poo. 482.

1077. **Church, A. Hamilton. The Proper Distribution of Expense Burden.** pp. 116. London, 1908. "Engineering Magazine."
Poo.

1078. **Knowles, L. C. A. The Industrial and Commercial Revolutions in Great Britain during the Nineteenth Century.** pp. 412. London, 1922. Routledge, 7s. 6d.
Aoo. (GB).

1079. **Deeley, W. J. Labour Difficulties and Suggested Solutions.** pp. 228. London, 1919. Benn.
Doo, Foo.

1080. **Fleming, A. P. M., and Pearce, J. G. The Principles of Apprentice Training.** pp. 202. London, 1916. Longmans, 3s. 6d.
Foo. 360.

1081. **Hunter, J. A., ed. South American Handbook.** pp. 746. London, 1928. S. American Publications, Ltd. 2s. 6d.
Zoo. (AR) (BO) (BR) (CH) (CO) (CR) (CU) (EC) (GU) (HO) (ME) (NI) (PA) (PG) (PE) (SL) (UR) (VE).

1082. **Empire Marketing Board. Progress in Empire Marketing.** pp. 54. London, 1929. H.M. Stationery Office, 1s.
Loo.

1083. **Association for Education in Industry and Commerce. Report on Education for Foremanship.** pp. 48. Birmingham, 1928. 9d.
Foo. (GB).

1084. **Association for Education in Industry and Commerce. Report on Education for Management.** pp. 56. Birmingham, 1928. 1s.
Foo. (GB).

1085. **National Industrial Conference Board. Industrial Group Insurance.** pp. 44. New York, 1927. 75c.
Foo, Voo. (US).

1086. **Weld, L. D. H. The Marketing of Farm Products.** pp. 483. New York, 1921. Macmillan.
Loo. (US). 460, 470.

1087. **London Advisory Council for Juvenile Employment. A Guide to Employment for London Boys and Girls.** pp. 249. London, 1928. H.M. Stationery Office, 2s.
Foo, Zoo. (GB). 2, 3, 4, 5, 6.

1088. **Elbourne, E. T. Factory Administration and Cost Accounts.** pp. 811. London, 1921. Longmans, 45s.
Coo, Doo, Foo, Goo, Hoo, Joo, Koo, Poo.

1089. **Elbourne, E. T. The Marketing Problem: How it is being Tackled in U.S.A.** pp. 228. London, 1928. Longmans, 5s.
Loo, Poo. (US).

1090. **Spinney, R. D. Drawings for Medium-sized Repetition Work.** pp. 91. London, 1909. Spon, 3s. 6d.
Goo. 3.

1091. **Wilson, G. Lloyd. Motor Traffic Management.** pp. 251. New York, 1928. Appleton, 12s. 6d.
Noo. (US).

1092. **Williams, Gertrude. Social Aspects of Industrial Problems.** pp. 272. London, 1923. King, 6s.
Aoo.

1093. **Committee on Elimination of Waste in Industry. Federated American Engineering Societies. Waste in Industry.** New York, 1921. McGraw-Hill, $4.
Coo. (US). 200, 300, 500, 570, 610.

1094. **Weston, W. J. Banking and Currency.** pp. 310. London, n.d. Clive.
Roo.

1095. **White, Percival. Advertising Research.** pp. 597. New York, 1927. Appleton, $6.
Moo.

1096. Tolman, W. H., and Kendall, L. B. Safety. pp. 422. New York, 1913. Harper, $3.
Eoo. (US). 100, 310, 371, 400.

1097. Thompson, W. Gilman. The Occupational Diseases. pp. 724. New York, 1914. Appleton, $6.
Eoo. 1, 2, 3, 4, 5, 6.

1098. Tillyard, Frank, and Potter, Harold. An Introduction to Commercial Law. pp. 315. London, 1925. Black, 10s. 6d.
Boo. (GB).

1099. Stephenson, W. Tetley (F.B.I.). Resources of the Empire: Communications. pp. 180. London, 1924. Benn, 21s.
Noo, Zoo. (AU) (CA) (GB) (IN) (SA) (NZ).

1100. Starch, Daniel. Principles of Advertising. pp. 998. Chicago, 1923. Shaw, $5.
Moo.

1101. Smith, W. H. Graphic Statistics in Management. pp. 360. New York, 1924. McGraw-Hill, $4.
Goo, Poo.

1102. Burlton, Gladys. Retail Selling. pp. 192. London, 1927. Cape, 5s.
Loo.

1103. Ashley, Sir Wm. Business Economics. pp. 79. London, 1926. Longmans, 2s. 6d.
Aoo.

1104. Clay, Henry. The Problem of Industrial Relations. pp. 322. London, 1929. Macmillan, 12s.
Doo.

1105. Cropper, L. C. Book-keeping and Accounts. pp. 946. London, 1925. Macdonald and Evans.
Qoo.

1106. Brunner, C. T. Problem of Motor Transport. pp. 188. London, 1928. Benn, 12s. 6d.
Noo.

1107. Hawtrey, R. G. Trade and Credit. pp. 487. London, 1928. Longmans, 10s. 6d.
Aoo, Roo.

1108. Henderson, John, and Matthews, J. E. Profits Insurance. pp. 166. London, 1923. Blackwood. 6s.
Voo.

1109. Chisholm, Cecil. Simplified Practice. pp. 164. London, 1927. Chapman and Hall, 12s. 6d.
Coo. (GB) (US). 330.

1110. Dunnage, J. A. The Importers' Handbook. pp. 384. London, 1924. Pitmans, 10s. 6d.
Loo, Noo.

1111. Cohen, J. L. Insurance by Industry Examined. pp. 120. London, 1923. King, 5s.
Foo, Voo. 330, 511, 512, 513.

1112. Keppel, A. J. W. The Theory of the Cost-Price System. pp. 90. London, 1928. Allen and Unwin, 6s.
Aoo.

1113. Leaf, Walter. Banking. pp. 255. London, 1926. Williams and Norgate. 2s.
Soo.

1114. Northcott, C. H., Sheldon, O., Wardropper, J. W., and Urwick, L. Factory Organisation. pp. 264. London, 1928. Pitman, 7s. 6d.
Coo, Koo, Loo, Noo, Poo.

1115. Mess, H. A. Factory Legislation and its Administration. pp. 240. London, 1926. King.
Boo. (GB).

1116. Martin, C. C. Export Packing. pp. 723. New York, 1921. Library Press, $10.
Loo, Noo. 170, 291, 3, 500.

1117. **Persons, Foster and Hettinger. The Problem of Business Forecasting.** pp. 317. Cambridge, Mass., 1924. Pitmans, 16s.
Aoo, Poo. 100, 120, 200, 3, 340.

1118. **Pigou, A. C. Industrial Fluctuations.** pp. 419. London, 1927. Macmillan, 25s.
Aoo.

1119. **Seymour, J. B. The British Employment Exchange.** pp. 302. London, 1928. King, 12s.
Foo, Zoo. (GB).

1120. **Hough, B. Olney. Practical Exporting.** pp. 526. New York, 1920. Library Press, $6.
Loo, Noo.

1121. **Clark, Wallace. Shop and Office Forms.** pp. 139. New York, 1925. McGraw-Hill, $2.50.
Goo, Poo.

1122. **Jacobs, Herbert. Stevens' Elements of Mercantile Law.** pp. 685. London, 1925. Butterworth, 10s. 6d.
Boo. (GB).

1123. **Clark, J. M. Studies in the Economics of Overhead Costs.** pp. 502. Chicago, 1923. University of Chicago. $4.
Poo.

1124. **Creedy, F. Human Nature in Business.** pp. 345. London, 1927. Benn, 12s. 6d.
Doo, Eoo.

1125. **Smith, Sir H. L. The Board of Trade.** pp. 302. London, 1928. Putnam, 7s. 6d.
Aoo, Boo. (GB).

1126. **Sells, Dorothy. The British Trade Boards System.** pp. 290. London, 1923. King, 12s. 6d.
Boo, Doo. (GB). 1, 2, 3, 4, 5, 6.

1127. **Quiett, G. C., and Casey, R. D. Principles of Publicity.** pp. 420. New York, 1928. Appleton.
Moo.

1128. **Emsley, H. H. Factory Costing.** pp. 259. London, 1924. Constable, 7s.
Poo.

1129. **Crew, Albert, and others. A Synopsis of Mercantile Law.** pp. 323. London, 1927. Butterworth, 7s. 6d.
Boo. (GB).

1130. **Chartered Institute of Secretaries. Secretarial Practice.** Cambridge, 1926. Heffer, 10s.
Boo, Goo.

1131. **Davison, R. C. The Unemployed: Old Policies and New.** pp. 292. London, 1929. Longmans, 10s. 6d.
Aoo. (GB).

1132. **Kirkaldy, A. W. The Romance of Trade.** pp. 246. London, 1929. Kegan Paul, 6s.
Aoo.

1133. **Copeland, M. T. Problems in Marketing.** pp. 803. Chicago, 1923. Shaw, $3.00.
Loo. 1, 2, 3, 4, 5, 6.

1134. **General Council of the Trades Union Congress, etc. Labour Year-Book.** pp. 561. London, 1928. 3s. 6d.
Doo, Zoo.

1135. **Society of Motor Manufacturers and Traders. The Motor Industry of Great Britain.** London, 1928.
Zoo. (GB). 340.

1136. **Thompson, J. Walter. Population Handbook of Great Britain and Ireland.** pp. 48. New York, 1924.
Zoo. (GB). 1, 2, 3, 4, 5, 6.

1137. **Jackson, V. E. Labour-Saving Office Appliances.** pp. 158. London, 1927. Macdonald and Evans, 5s.
Goo.

1138. **Taylor, F. W. Shop Management.** pp. 207. New York, 1911. Harper.
Joo. (US). 3.

1139. **Dearle, N. B. Industrial Training.** pp. 596. London, 1914. King, 7s. 6d.
Foo, Zoo. 2, 3, 570, 610, 630.

1140. **Cannons, H. G. T. Bibliography of Industrial Efficiency and Factory Management.** pp. 167. London, 1920. Routledge, 10s. 6d.
Coo.

1141. **Walls, Ernest. Progressive Co-partnership.** pp. 292. London, 1921. Nisbet, 12s. 6d.
Doo. 410, 432, 436, 5.

1142. **Lissenden, G. B. Industrial Traffic Management.** pp. 243. London, n.d. Pitmans, 7s. 6d.
Noo. (GB).

1143. **Leake, P. D. Depreciation and Wasting Assets.** pp. 257. London, 1917. Pitmans, 10s. 6d.
Poo.

1144. **U.S. Department of Commerce. Trade Association Activities.** pp. 368. Washington, 1923. Government Printing Office, 50c.
Coo, Doo, Zoo. (US).

1145. **Morris, Ray. Railroad Administration.** pp. 309. New York, 1920. Appleton, $3.50.
Noo. (US).

1146. **R. R. Donnelly and Sons. A Rod for the Back of the Binder.** pp. 32. Chicago, 1929.
Zoo. 610.

1147. **Newspaper Press Directory.** pp. 673. London, 1929. Mitchell. 5s.
Zoo.

1148. **U.S. Paint Manufacturers' Association. Budgetary Control.** pp. 36. Chicago, 1923.
Poo. (US). 433.

1149. **Tanners' Council (U.S.). Uniform Cost Accounting System.** pp. 174. New York, 1922.
Poo. (US). 630.

1150. **Cotsworth, M. B. Direct Calculator.** York, 1903. 21s.
Zoo.

1151. **Associated Knit Underwear Manufacturers of America. Cost Control for Knit Underwear Factories.** pp. 259. New York, 1924. Ronald Press, $5.
Poo. (US). 562.

1152. **Simons, E. N. Marketing the Technical Product.** pp. 200. Manchester, 1924. Emmott, 7s. 6d.
Loo. 3.

1153. **Temple, W. A. Buyer's Order Book.** pp .57. London, n.d. Passmore, 2s.
Zoo.

1154. **Souster, E. E. W. Design of Factory and Industrial Buildings.** pp. 158. London, 1919. Scott and Greenwood, 10s. 6d.
Koo.

1155. **U.S. Department of Commerce. Shoes, Leather, and Hides in Great Britain.** pp. 201. Washington, 1924. Government Printing Office, 25c.
Coo, Doo, Loo, Zoo. (GB). 570, 630.

1156. **Hutton, J. E. Welfare and Housing.** pp. 192. London, 1918. Longmans, 5s.
Eoo. (GB).

1157. **U.S. Department of Commerce. Commercial Survey of Philadelphia Marketing Area.** pp. 130. Washington, 1925. Government Printing Office, 20c.
Loo, Zoo. (US).

1158. U.S. Department of Commerce. Foreign Trade Bulletins.
pp. 148. Washington, 1927. Government Printing Office.
Loo, Zoo. (US).

1159. U.S. Department of Commerce. Market Research Agencies.
pp. 81. Washington, 1926. Government Printing Office, 15c.
Loo, Zoo. (US).

1160. Matheson, Ewing. The Depreciation of Factories and their Valuation. pp. 230. London, 1910. Spon, 10s. 6d.
Poo.

1161. Lee, F.S. The Human Machine and Industrial Efficiency.
pp. 119. New York, 1918. Longmans, $1.10.
Eoo.

SUBJECT INDEX.

Sub-classification will be applied in due course and under each heading will be shown the corresponding classification under the Dewey, Brussels, Congress, and other recognised systems.

DIVISION 1 (*Mining and Mineral Manufactures*).

1042 (Doo) (GB), 1043 (Loo) (WD), 1065 (Zoo) (WD), 1097 (Eoo), 1126 (Boo) (Doo) (GB), 1133 (Loo), 1136 (Zoo) (GB).

100. Mine and Quarry Products.
1096 (Eoo) (US), 1117 (Aoo) (Poo).

120. Coal.
1000 (Aoo) (BE) (GE) (FR), 1001 (Aoo) (CA) (FR) (GB) (GE) (IT) (SZ) (US), 1037 (Coo) (GE), 1044 (Coo) (FR) (GB) (GE) (US), 1046 (Aoo) (Coo) (GB), 1048 (Doo), 1058 (Coo) (WD), 1059 (Coo) (FR) (GB) (GE) (US), 1073 (Zoo) (GB), 1074 (Aoo) (GB), 1117 (Aoo) (Poo).

170. Glass Manufactures.
1044 (Coo) (FR) (GB) (GE) (US), 1116 (Loo) (Noo).

180. China and Earthenware.
1044 (Coo) (FR) (GB) (GE) (US).

DIVISION 2 (*Constructional*).

1042 (Doo) (GB), 1043 (Loo) (WD), 1065 (Zoo) (WD), 1073 (Zoo) (GB), 1087 (Foo) (Zoo) (GB), 1097 (Eoo), 1126 (Boo), 1133 (Loo) (Doo) (GB), 1136 (Zoo) (GB), 1139 (Foo) (Zoo).

200. Building and Structural Work.
1004 (Loo) (US), 1048 (Doo), 1093 (Coo) (US), 1117 (Aoo) (Poo).

290. Wood, Woodworking, and Upholstery.
1004 (Loo) (US), 1044 (Coo) (FR) (GB) (GE) (US), 1048 (Doo).

291. Furniture, Cabinet-making, and Upholstery.
1116 (Loo) (Noo).

DIVISION 3 (*Engineering*).

1011 (Foo) (Joo), 1028 (Doo) (GB), 1042 (Doo) (GB), 1043 (Loo) (WD), 1044 (Coo) (FR) (GB) (GE) (US), 1046 (Aoo) (Coo) (GB), 1065 (Zoo) (WD), 1069 (Doo) (GB), 1087 (Foo) (Zoo) (GB), 1090 (Goo), 1093 (Coo) (US), 1097 (Eoo), 1116 (Loo) (Noo), 1117 (Aoo) (Poo), 1126 (Boo) (Doo) (GB), 1133 (Loo), 1136 (Zoo) (GB), 1138 (Joo) (US), 1139 (Foo) (Zoo), 1152 (Loo).

310. Iron and Steel Process Products.
1000 (Aoo) (BE) (GE) (FR), 1024 (Poo), 1037 (Coo) (GE), 1044 (Coo) (FR) (GB) (GE) (US), 1057 (Coo) (FR) (GB) (GE) (WD), 1074 (Aoo) (GB), 1096 (Eoo) (US).

330. Mechanical Engineering.
1048 (Doo), 1054 (Coo) (WD), 1055 (Coo) (AS) (GB), 1074 (Aoo) (GB), 1109 (Coo) (GB) (US), 1111 (Foo) (Voo).

335. Ordnance Factories and Ordnance Dept. Workshops.
1024 (Poo).

340. Motors and Cycles.
1066 (Loo) (Zoo) (GB), 1117 (Aoo) (Poo), 1135 (Zoo) (GB).

350. Shipbuilding and Marine Engineering.
1044 (Coo) (FR) (GB) (GE) (US), 1048 (Doo), 1060 (Coo) (WD), 1074 (Aoo) (GB).

360. Electrical Engineering.
1000 (Aoo) (BE) (GE) (FR), 1015 (Coo) (AS) (BE) (FR) (GE) (IT) (SW) (SZ), 1056 (Coo) (AS) (FR) (GB) (GE) (IT), 1080 (Foo).

370. Public Utilities.
1074 (Aoo) (GB).

371. Generation of Electricity.
1000 (Aoo) (BE) (GE) (FR), 1001 (Aoo) (CA) (FR) (GB) (GE) (IT) (SZ) (US), 1073 (Zoo) (GB), 1096 (Eoo) (US).

380. Hardware.
1004 (Loo) (US), 1006 (Loo) (US).

390. Scientific Instruments, etc.
1044 (Coo) (FR) (GB) (GE) (US).

DIVISION 4 (*Chemical*).

1042 (Doo) (GB), 1043 (Loo) (WD), 1065 (Zoo) (WD), 1087 (Foo) (Zoo) (GB), 1097 (Eoo), 1126 (Boo) (Doo) (GB), 1133 (Loo), 1136 (Zoo) (GB).

400. Chemicals (General).
1000 (Aoo) (BE) (GE) (FR), 1037 (Coo) (GE), 1044 (Coo) (FR) (GB) (GE) (US), 1051 (Coo) (FR) (GB) (GE) (IT) (PO), 1053 (Coo) (FR) (GE) (PO), 1073 (Zoo) (GB), 1096 (Foo) (US).

410. Gas Works Undertakings.
1014 (Doo), 1016 (Doo), 1073 (Zoo) (GB), 1141 (Doo).

432. Soap and Candles.
1016 (Doo), 1141 (Doo).

433. Paints, Colours, and Varnish.
1148 (Poo) (US).

436. Matches.
1141 (Doo).

450. Food.
1004 (Loo) (US), 1006 (Loo) (US), 1018 (Loo) (US), 1073 (Zoo) (GB).

460. Cereal Manufactures.
1018 (Loo) (US), 1086 (Loo) (US).

470. Produce.
1086 (Loo) (US).

482. Cocoa and Sugar Confectionery.
1023 (Eoo) (Foo), 1076 (Goo) (Loo) (Poo).

DIVISION 5 (*Textile*).

1042 (Doo) (GB), 1043 (Loo) (WD), 1044 (Coo) (FR) (GB) (GE) (US), 1065 (Zoo) (WD), 1087 (Foo) (Zoo) (GB), 1097 (Eoo), 1126 (Boo) (Doo) (GB), 1133 (Loo), 1136 (Zoo) (GB), 1141 (Doo).

500. Textiles.
1047 (Aoo) (Coo) (GB), 1073 (Zoo) (GB), 1074 (Aoo) (GB), 1093 (Coo) (US), 1116 (Loo) (Noo).

511. Cotton Spinning.
1061 (Coo) (WD), 1111 (Foo) (Voo).

512. Cotton Weaving.
1061 (Coo) (WD), 1111 (Foo) (Voo).

513. Woollens and Worsted.
1111 (Foo) (Voo).

514. Silk and Artificial Silk.
1004 (Loo) (US).

550. Apparel.
1006 (Loo) (US).

560. Clothing, etc.
1002 (Loo), 1044 (Coo) (FR) (GB) (GE) (US).

562. Hosiery.
1004 (Loo) (US), 1151 (Poo) (US).

570. Boots and Shoes.
1006 (Coo) (US), 1020 (Zoo) (Doo) (GB), 1048 (Doo), 1093 (Coo) (US), 1139 (Foo) (Zoo), 1155 (Doo) (Loo) (Zoo) (Coo) (GB).

DIVISION 6 (*Other Trades*).

1042 (Doo) (GB), 1043 (Loo) (WD), 1065 (Zoo) (WD), 1087 (Foo) (Zoo) (GB), 1126 (Boo) (Doo) (GB), 1133 (Loo), 1136 (Zoo) (GB).

610. Paper, Printing, and Stationery.
1044 (Coo) (FR) (GB) (GE) (US), 1073 (Zoo) (GB), 1093 (Coo) (US), 1139 (Foo) (Zoo), 1146 (Zoo).

630. Leather and Manufactures (not including Boots and Shoes).
1139 (Foo) (Zoo), 1149 (Poo) (US), 1155 (Doo) (Loo) (Zoo) (Coo) (GB).

640. Rubber and Manufactures.
1019 (Foo), 1073 (Zoo) (GB).

661. Jewellery, Gold, Silver, and Electro Plate.
1006 (Loo) (US).

AUTHOR INDEX.

DISCUSSION.

In opening the discussion MR. J. FEARN (the chairman) said that he was one of the, should he say, uninformed business community which it was the object of ASLIB to enlighten, and he did not intend to enter the lion's den by discussing the technicalities of indexing. But there appeared to him to be two distinct problems for consideration, of supplying the business world with an index and perhaps something more than an index, and of the form of the index.

In a written communication MR. P. K. TURNER said : I am not a business expert, but I find it hard to believe that the matters dealt with in their indexing system cannot be covered by the decimal classification or some other of the great systems ; and I wish to deplore the lamentable expenditure of time and energy in producing a classification which, however good in itself, forms no part of, and is not related to, the systems used by others. Why not have used the decimal classification, with extensions where necessary, and so fall in with the ASLIB ideal of co-operation ?

MISS A. BELL communicated a letter which she had received from the President of the New York Special Libraries Association as follows :

" In the first place there is some confusion in my mind as to the use of the term ' indexing.' As we use it in this country, I would suppose they are going to refer to some such service as our Industrial Arts Index or Public Affairs Information Service. As you know, the latter is a current bibliography of economic, social, and political subjects selected from a varied collection of books, Government document, pamphlets, and magazine articles, while the first mentioned—Industrial Arts—indexes current engineering, trade, and business literature.

" I mention them in detail because they affect so directly the amount of cataloguing we do in our business libraries. That is, they reduce the necessity of covering general subjects in our card catalogues, leaving us free to concentrate on our peculiar specialisations, such as insurance, advertising and publicity, industrial relations, finance, or public health. *For these subjects taken as specific, detached forms of literature there are no adequate indexes.*

" If the term ' indexing ' refers to the larger one of the classification with the attending evils of subject-headings, then you will find great difficulty in giving a British audience any idea of American practices. Unfortunately they are in the plural instead of the singular. Our public libraries have been able to adopt a common classification—the Dewey Decimal. But the business libraries of the country have as many systems as there are libraries. But we begin now to hope that a simplification is to be accomplished by Mr. Charles Cutter, of the Harvard Business Library. For two or three years he has been at work, but has evolved only a few subjects, notable among them industrial relations. We look to him, however, for the first achievement that will result in new business libraries finding a classification that will serve their common needs.

" In the smaller highly-specialised business libraries I think there has been more and more a tendency to use very informal schemes of arrangement—by authors for books and simple alphabetical filing by subjects for pamphlet material—not a detailed and formal scheme of classification. That this is workable for book collections is due to the fact that certain authors' names have become practically synonymous with certain subjects. This seems an especially wise practice for a new library or a new librarian—making it possible to suspend judgment until an adequate working knowledge of the literature has had time to take form. Of course, with such an arrangement very close card indexing is necessary to furnish a key to the library's resources, but time and effort spent in such indexing may be the means of bringing to light treasures of information hidden in a chapter, a page, or even a line.

" Perhaps one of the most helpful activities we have organised within our Special Libraries Association has been the Classification Committee, of which Miss Louise Keller, of Philadelphia, has been chairman for several years. To her we have all sent copies of our classifications, subject headings, and filing schemes whenever they seemed to be sufficiently original to serve others. To her also we refer all questions regarding classification problems, with copies of any information we may have forwarded. Until Mr. Cutter's classification is available this committee must continue to do what it can in this respect."

Mr. F. Donker Duyvis made three observations on the paper:

(1) There seems to be a danger in the fact that the Commodity Code has been based on the census of production of Great Britain. The best way to render service to a national industry is to inform it about international business data. In those trades where Great Britain is leading, the business men appear to be well informed about what is going on in other countries.

In those industries where this country is behind, the main fault of directors is that they do not profit by the experience of foreign countries.

Some years ago I had an opportunity to study the British census scheme, and I think it is not adequate for classing commodities from an international point of view, since it has not been made for that purpose. It would be a bad service to British business if only information on national business data is supplied. It will be necessary to take an international scheme as a basis in order to render accessible all necessary information.

(2) The question might be put whether it is not desirable to make use of a general encyclopædic scheme. The intelligence departments of modern works have to supply a lot of information other than " business information " in the limited sense as set out in the paper of Mr. Elbourne. In a big engineering works in Berlin I visited some weeks ago I was informed that in some sixteen departments different systems were used—*e.g.*, for pure scientific research, standards, commodities, social affairs, production methods, sales, etc.

All those systems overlapped each other more or less. The only way to come out of the trouble was to use an encyclopædic system covering all branches of knowledge, either an " own made " system or the International Decimal Classification, since no other sufficiently developed classification is available. If *different* systems are standardised for business data, technology, social science, pure science, etc., the only result will be that there will be nothing standardised at all, and that business information will remain as badly organised as it is up to now.

Mr. Elbourne has observed that it is rather tiring to find out in a huge system, such as the international one, where the various commodities are classed, but this difficulty is easily to be met by picking out the class-numbers for commodities from the international classification and establishing a Commodity Code, once for all, based on the international numbers.

I presume that the international classification provides numbers for about 15,000 commodities, so that goes far more into detail than is indicated in the commodity code proposed in the present paper. Moreover, it is more complete as to the general headings, and has been put on an international basis.

The great merit of Mr. Elbourne's work is that he has clearly separated three kinds of divisions: (1) A Subject Code of Business Economics; (2) a Commodity Code; and (3) a Country Code. The same principle underlies the classification of business data according to the International Classification. It is just because such a principle has not been recognised in the Dewey Decimal Classification that this is not adequate for filing commercial and industrial information.

In fact, it will not be difficult to continue the important work of Mr. Elbourne on the basis of the International Classification.

(3) Finally, I want to point out that Mr. Elbourne's remark that no hesitation should be made to assign a series of reference numbers to one single paper much appealed to me. In fact, best service is rendered to the searchers if the subjects they are interested in are rendered accessible from several sides. Assigning one single number to one publication may be a simplification to the librarian ; it certainly is not to the public to whom the library should be a service.

Mr. T. R. Dawson said : As the Chairman has mentioned, the ideas suggested in this paper fall into two parts—a mechanism of classification and an idea of service. Regarding the first, no doubt most trained librarians and classifiers will object to the proposed mechanism because it is not standard.

But the idea does not stand or fall solely on the machinery. As a man who has to supply a certain amount of business information in the absence of any specialised knowledge of the field, the proposed service, whether carried out on an arbitrary or a standard system of classification, would seem of real value. It offers a means by which technical men may obtain easily and speedily the detailed information they require in unfamiliar departments of knowledge. Special stress may be laid on the word detailed. No classification of book titles, however standardised, is sufficiently thorough to bring all the valuable information on a given subject.

Such a service, however, would be of full usefulness only so far as it was accurate and complete. Glancing over the entries in the paper relating to a subject with which I am familiar I notice that the rubber industry, p. 152 (640), receives only a single entry, though items 1019, 1066, and 1135 in the Document Register are all of first-rate interest to the rubber industry also. Possibly the illustrative classification has been put together somewhat hastily, but this example will serve to underline the fact that such a proposed service as the author's would suffer greatly from lack of thoroughness in the preparation of the references.

Dr. S. C. Bradford said : The authors appear to have taken a great deal of trouble in elaborating a scheme of classification for use in indexing published business information, and propose that their classification should be adopted as a standard. But I think that it is incumbent upon the author of any new scheme to show in what respects existing codes are deficient, and how his scheme is superior to these. Until the authors of this paper have attempted to fulfil this obligation, and having regard to the deficiencies in their scheme that have already been pointed out, I think it is waste of time to discuss it.

Miss Dowding, Miss Forcey, Dr. R. S. Hutton, Mr. A. Parker, Mr. K. A. Ryde, and Dr. E. E. Lowe also spoke.

Mr. Elbourne having replied to the discussion, Miss R. Tomlinson said : Our thanks are due to Mr. Elbourne for having given so much thought and time to the subject. Those of us who occupied positions where we had to collect information understood the importance of getting it promptly and accurately and comprehensively, and it would be a mistake to let Mr. Elbourne's proposals remain with the present conference without suggesting some action. The stream of business information was growing rapidly, and the importance of having it indexed, not only for business organisations and business men, but for students who would hold the positions of responsibility in the future, could not be too strongly stressed.

ASLIB certainly was the right organisation to consider such proposals as Mr. Elbourne had submitted ; it could render a real service in considering them, and it was hoped that the meeting would support a resolution inviting the Council to set up a sub-committee to examine Mr. Elbourne's proposals and any other suggestions that had been made during the discussion.

She thereupon moved, and Mr. T. R. Dawson seconded, the following resolution, which was carried *nem con.* :

> "This meeting recommends the Council to consider the appointment of a sub-committee to examine the proposals made in the paper and the suggestions put forward during the discussion."

The International Organisation of Information Services.

By P. OTLET.

[Because of illness Monsieur Otlet was prevented at the last moment from attending the Conference. His paper arrived only a few hours before the meeting and, it being impossible to have a translation circulated in time, Mr. F. B. Bourdillon, chairman of the session, kindly undertook to present a summary, which is printed below.]

The main object of the International Institute of Bibliography, since its foundation in 1895, had been what was the subject of this paper. It was, no doubt, Monsieur Otlet's connection with the Institute which had led to his being invited to deal with the subject at the conference.

The *materials* which have to be dealt with are:

(1) Books and other publications.
(2) Bibliographical material.
(3) Unpublished documents.
(4) Official archives, reports, and statistics.
(5) Collections of specimens, samples, models, etc.

The *objects* to be pursued are:

(1) Universality; *i.e.*, to be able to answer every question, falling within a given scope, which was asked.
(2) Actuality; *i.e.*, to be up to date to the greatest possible extent.
(3) Availability; *i.e.*, the information must be arranged in advance and in a form which makes it easily communicable.

The *institutions* which are involved are:

(1) Public General Libraries.
(2) Special Libraries.
(3) Information Services, both those which are independent and those which are attached to scientific institutions, public departments, or bodies with material or social objects.
(4) Information Services of industrial, commercial, or financial houses and corporations.
(5) Private Libraries and private collections of research material.

The mass of material is immense. It is estimated that twelve million books have been published since the invention of printing. Two hundred thousand are produced annually, besides seventy-five thousand periodicals. There are four hundred international associations.

These documents and associations have developed, like the cities, without system. For the cities schemes of town planning have been devised and these have been extended to regional planning and will, no doubt, expand to wider areas still. In the same way organisation of documents and information must be planned locally, regionally, nationally, and internationally. The problem is to fit the existing services into a universal scheme and to devise the best system of

general co-ordination. It is necessary to take a wide view and to attack the problem on a great scale, and whatever is done must take into account the requirements of the future.

Three possibilities may be contemplated:

(1) We may be such super men as to require no books.
(2) We may be able to compress all knowledge into an encyclopædia which everyone can keep in his office or study.
(3) We may have a system, such as H. G. Wells might describe, whereby we can get all the information we want by telephoning to a central station where the references required will be selected and thrown for us into a television screen at our sides. This system might even be worked automatically.

Of the three possibilities a system of highly-organised reference centres seems to be the most likely. The scheme towards which efforts should be planned is, therefore, in general terms, as follows:

1. There should be an open unofficial international convention establishing a World Network of Co-operation for all information services, both for the production and utilisation of information, with a central International Institute.

2. The entire field of human activities and knowledge should be covered.

3. Information centres should be multiplied to whatever extent is necessary to meet the demand.

4. They should be divided on an agreed plan into specialised groups—

(*a*) According to the subjects dealt with;
(*b*) According to the locality which they serve;
(*c*) According to the nature of the service given (librarians, bibliographies, etc.).

Country 100 subjects, 60 countries, 6 classes of material, and 2 services (collection and dissemination), there is a total of some 70,000 units or individual components in the system.

5. There should be such a gradual "rationalisation" of work as would promote efficiency by sub-division, amalgamation, concentration, decentralisation, etc.

6. The general network of centres should be so planned that the local centres would be attached to regional centres, the regional centres to national centres, and the national centres to international centres.

7. The national organisations should be controlled by national councils representative of existing official and unofficial bodies. The international organisations could be controlled by a central international body, under whose ægis the specialised international centres would function, whether official, such as the League of Nations, or unofficial.

8. The nuclei for such a system exist, but they are scattered, incomplete, and uncoordinated.

It is hoped that ASLIB may be willing to take the initiative in this matter, in conjunction with the International Institute of Bibliography, and to appeal to all the bodies which are associated with it to join in making a collective study of the practical procedure which should be adopted.

DR. S. C. BRADFORD said: Although M. Otlet's proposals are ideal and cannot be realised in a moment, it is possible to commence to put some of them into effect at once. In a paper, which, unfortunately, I was prevented from reading to this Association at the conference last year, I published some calculations to show that bibliographical references are being made at about the same rate as scientific and technical papers are being issued; so that, if bibliographical work were co-ordinated, and a standard system of classification were adopted, it would be possible, with the same expenditure of energy, to index almost the whole of this published information, and collect the references together into one series. In this great index all the entries relating to a single subject would fall together automatically into one place, where they could be found in a moment. There is a classification in existence—*i.e.*, the Universal Decimal Classification of the Institut International de Bibliographie—which is sufficient to classify the total mass of published information on all branches of knowledge. The scheme has deficiencies, but, as a whole, it is good, and there is a mechanism for removing the deficiencies as they become evident, and providing extensions as they are required. In this country the British Society for International Bibliography is the agent of the Institut International de Bibliographie appointed for this purpose.

In the Science Library we are not able to do much in the way of indexing periodical literature, on account of lack of staff. We cannot do much more than catalogue and classify the books and monographs we receive, and, indeed, no single institution could cope with the total output of scientific literature. The only way is to index it by collaboration. But in order to show what can be done in this direction I may refer to the nucleus of one and a quarter million cards that have been collected in the Science Library, by cutting up and mounting bibliographies classified by the Universal Decimal Classification. This may seem a large collection of references, and in reality it is already proving of considerable service in supplying bibliographies of special subjects. But it is, of course, merely an indication of what could be done by the general adoption of a standard system of classification.

If, therefore, bibliographers would be willing to submit to a little standardisation, which means merely the general adoption of a proven classification, it would be possible to bring their work together into a single repertory, and the desired index to published information would be well on the way towards achievement. I want to suggest that you should agree to work together for the common good by adopting the Universal Decimal Classification for all published bibliographies.

MR. P. K. TURNER said he very much regretted that M. Otlet was unable to be here. M. Otlet's ideas were always interesting. They were somewhat Utopian, of course, but, on the other hand, one of them already, which he had put forward a number of years ago, was now about half way towards being carried out.

Though the ideas put forward were big ones, there were, nevertheless, many things which could be done or begun at once, and one of these was the co-ordination of abstracts.

MR. H. ROTTENBURG said we must not think about M. Otlet's scheme as if it were impracticable. One should think what two men did in Russia, Lenin and Trotzky, on the basis of what is really an absurd, detestable, and impossible scheme. In two years, by means of propaganda, they turned the whole of Russia upside-down, with the consequences which we know. If two men could do that on a basis which was hopelessly unsound and impossible, how much more could be done with a reasonable plan?

Now there was nothing impossible of any kind in M. Otlet's scheme. Much could be done immediately towards it; for example, a great step forward would be taken if some numerical system (the Brussels system if not better is found) were adopted and applied to all articles printed. Again, it would be a great step forward if all writers of articles prefaced their articles with abstracts.

DR. E. E. LOWE doubted if previous speakers in the discussion had been speaking on the real point of M. Otlet's paper. This was to his mind the question: Is ASLIB willing to undertake, as far as this country is concerned, the work of co-ordination along the lines suggested?

MR. B. M. HEADICAR said that M. Otlet's scheme was, of course, an ideal one. He suggested that we ought to begin, not at the top, but on national lines. In that way we could proceed slowly but surely towards M. Otlet's ideal. As one

example of what might be done, he suggested that the systematic practice might be adopted whereby all bodies represented in ASLIB should send abstracts to ASLIB, which would there be formed into a central national collection for reference purposes.

MR. F. B. BOURDILLON said he felt he could hardly reply to the discussion as M. Otlet would have done, but would like to say something on the sphere of the study of international relations, in which a beginning had been made in international co-ordination. The scheme was that in each country there should be a national co-ordinating committee consisting of representatives of the institutions concerned with the study of international relations. Such bodies had been formed in Germany and this country and nuclei of similar bodies existed in France, Italy, the United States, Canada, Australia, Poland, China, and Japan.

At a conference in London in March, 1929, these bodies had resolved to form a skeleton international co-ordinating committee, to arrange annual conferences and facilitate co-operation.

Mr. Bourdillon then proposed the following motion, which was seconded by MR. P. K. TURNER. The CHAIRMAN having put it to the meeting, the motion was carried.

> "That the Council of ASLIB be requested to consider the setting up of a sub-committee to consider Monsieur Otlet's scheme and the practical proposals which have been made at this meeting, and to take such action as it may think fit."

Final Session.

At the final session of the conference the chair was taken by Dr. R. S. Hutton. He announced that several resolutions had been received for submission to the General Session. If these were approved they would be passed to the Council for consideration and necessary action. The resolutions, having been spoken to by their movers and seconders, were discussed, and in each case it was agreed to refer them to the Council. The resolutions were as follows :

1.—That this Conference would like to draw the attention of those responsible to the inadequate bibliographical details given in the majority of publishers' catalogues. The minimum information which should be supplied is : Author, title, editor and/or translator (if any), date, illustrations (if any), number of pages, binding, edition or impression, size, and price. In addition, the Conference deplores the common misuse of the terms " reprint," " impression," and " edition." They would suggest that much confusion would be avoided and much time saved if the precise meaning of these terms were strictly adhered to by all concerned.

Proposed by Mr. Seymour Smith, *seconded by* Mr. J. McAdam.

2.—That in view of the importance of an increased provision of information bureaux for industry and commerce, covering imperial and foreign sources, and of the desirability of broadening the training of the personnel thereof, the Council of ASLIB be instructed to prepare and offer evidence before the Board of Education Committee on Salesmanship and also to approach the Empire Marketing Board.

Proposed by Mr. J. G. Pearce, *seconded by* Mr. T. T. Rush.

3.—That the Committee of the School of Librarianship be asked to consider the possibility of admitting graduates in faculties other than arts on the same terms as holders of arts degrees, and that special attention be given to the provision of a one year's intensive course in training for special librarians on the lines of the scheme suggested in Mr. Ridley's paper.

Proposed by Colonel L. Newcombe, *seconded by* Brig.-General Mowat.

4.—That this meeting recommends the Council to consider the appointment of a sub-committee to examine the proposals made in Mr. Elbourne's paper and the suggestions put forward during the discussion.

Proposed by Dr. R. S. Hutton, *seconded by* Mr. P. K. Turner.

5.—That the Council of ASLIB be requested to consider the setting up of a sub-committee to consider Monsieur Otlet's scheme and the practical proposals made during the discussion, and to take such action as they think fit.

Proposed by Mr. F. B. Bourdillon, *seconded by* Mr. P. K. Turner.

On the proposal of Dr. R. S. Hutton, the best thanks of the conference were accorded to the Master and Fellows of Trinity College for their permission to hold the conference there. Votes of thanks were passed also to the Junior Bursar and the college staff, to the institutes and individuals who had provided facilities for visits and assisted in conducting parties, to the authors of the papers and the chairmen of the meetings, to Mr. H. Rottenburg for his assistance with the exhibition, to the Chairman of the Council (Brig.-General Magnus Mowat), and to the staff of ASLIB.

The proceedings of the Conference then ended.

Report of the Fourth Annual General Meeting.

The Fourth Annual General Meeting (second since incorporation) of Members and Associate Members was held at 5.30 p.m. on Saturday, September 21st, 1929, at Trinity College, Cambridge.

Present : Eighty-one Members and Associate Members were present.

Chairman : Brig.-General Magnus Mowat (Chairman of the Council of the Association) acted as chairman of the meeting.

ITEM 1.

The minutes of the Third Meeting, having been circulated, were taken as read. It was agreed that they should be confirmed and signed as correct by the Chairman.

ITEM 2.

The audited Statement of Accounts had been circulated. In presenting them, BRIG.-GENERAL MOWAT referred to the need for increased membership and also to the fact that several members were now paying amounts in excess of the minimum subscription. On the motion of MR. J. EATON, seconded by MR. SHAW SCOTT, the accounts were accepted.

ITEM 3.

On the motion of MR. F. A. HOARE, seconded by MR. T. BESTERMAN, it was resolved unanimously that Messrs. West and Drake be re-appointed auditors to the Association.

ITEM 4.

Before proceeding to the election of the Council, the CHAIRMAN referred to the deaths of two members, Sir Geoffrey Butler and Sir George Fordham. The meeting stood in silence for a moment.

The CHAIRMAN reported that Sir Richard Gregory and Mr. F. W. Smith had resigned from the Council. The following members had accepted nominations to serve on the Council : Mr. A. Brammer, Mr. James J. Eaton, Mr. Charles E. Hobbes, Miss D. W. Hughes, Colonel Sir Frederic Nathan, Mr. Albert Parker, and Dr. A. P. Thurston. As the number of nominations did not exceed the vacancies, it was resolved unanimously on the motion of MR. C. C. WHARTON, seconded by Mr. N. I. PARLEY, that the Council be re-elected as follows :

Brig.-General Magnus Mowat, C.B.E., M.Inst.C.E., M.I.Mech.E., Institution of Mechanical Engineers.
P. K. Turner, M.I.E.E., M.I.R.E., Graham Amplion, Ltd.
Miss A. L. Lawrence, M.B.E., M.A., LL.B., British Medical Association.
A. Brammer, Association of Supervising Electrical Engineers.
F. W. Clifford, F.L.A., The Chemical Society.
Percy Cohen, Conservative and Unionist Central Office.
James J. Eaton, *The Yorkshire Post*.
A. P. M. Fleming, C.B.E., M.Sc., M.I.E.E., Metropolitan-Vickers Electrical Co., Ltd.

H. Vincent Garrett, Rowntree and Co., Ltd.
B. M. Headicar, F.L.A., London School of Economics and Political Science.
Charles E. Hobbes, International University Society.
L. Honeyburn, Imperial Chemical Industries, Ltd.
Miss D. W. Hughes, The Career Advisory Bureau.
E. Wyndham Hulme, B.A. (late Librarian, Patent Office).
R. S. Hutton, D.Sc. (Director, British Non-Ferrous Metals Research Association).
Colonel E. L. Johnson, Cleveland Scientific and Technical Institution.
Colonel Sir Henry G. Lyons, D.Sc., F.R.S., The Science Museum.
Lieut.-Colonel J. M. Mitchell, O.B.E., M.C., M.A., Carnegie United Kingdom Trust.
Colonel Sir Frederic Nathan, K.B.E.
Lieut.-Colonel L. Newcombe, T.D., F.L.A., Central Library for Students.
Albert Parker, Management Research Groups.
J. G. Pearce, M.Sc., M.I.E.E., British Cast Iron Research Association.
A. F. Ridley, F.L.A., British Non-Ferrous Metals Research Association.
A. P. Thurston, M.B.E., D.Sc., F.R.Ae.S., M.I.A.E.
Major L. F. Urwick, O.B.E., M.C., M.A., Management Research Groups.
G. B. Willey, A.R.S.M., F.I.C., Hadfields, Ltd. (Research Department).
J. C. Withers, Ph.D., British Cotton Industry Research Association.

ITEM 5.

On the motion of BRIG.-GENERAL MAGNUS MOWAT, seconded by MR. P. K. TURNER, Sir J. J. Thomson was elected President of the Association.

ITEM 6.

On the motion of MISS MARKS, seconded by COLONEL E. L. JOHNSON, Miss Lawrence was elected Honorary Secretary of the Association.

ITEM 7.

On the motion of MR. B. M. HEADICAR, seconded by DR. R. S. HUTTON, Brig.-General Magnus Mowat was elected Honorary Treasurer of the Association.

ITEM 8.

A short discussion took place as to the location of next year's Conference, and a motion was carried instructing the Council to take Bristol into account as a possible place.

This concluded the business of the meeting.

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX

INCOME AND EXPENDITURE ACCOUNT for the YEAR ENDED 30th JUNE, 1929.

EXPENDITURE.

	£ s. d.	£ s. d.	£ s. d.
To General Expenditure—			
Salaries		879 10 3	
Rent, Light, and 'Phone ...	123 11 10		
Insurance	2 18 10		
Printing, Stationery, Postage, and Office Expenses ...	127 9 10		
Reference Books	8 10 3		
Travelling Expenses	21 14 4		
Subscriptions	1 11 6		
Press Cuttings	3 3 0		
Audit Fee	6 6 0		
Legal Expenses	17 0 6		
Income Tax	2 18 0		
Depreciation of Furniture and Fittings	5 14 3		
		320 18 4	
			1200 8 7
„ Cost of 1928 Conference—			
Conference Expenses		246 14 2	
Printing of Conference Report		148 14 8	
			395 8 10
			1595 17 5
„ Balance, being Excess of Income over Expenditure for the year, carried to Balance Sheet ...			14 13 4
			£1610 10 9

INCOME.

	£ s. d.	£ s. d.	£ s. d.
By General Receipts—			
Grant from Carnegie United Kingdom Trust	500 0 0		
Membership Subscriptions	682 11 0		
Donations	2 2 0		
Sundry Receipts	7 3		
Bank Interest	12 3 6		
		1197 3 9	
„ Conference Receipts—			
Fees and other Receipts	343 15 6		
Sale of Reports	26 12 0		
Advertisements in Report	42 19 6		
		413 7 0	
			£1610 10 9

BALANCE SHEET - 30th JUNE, 1929.

LIABILITIES.

	£ s. d.	£ s. d.
To Sundry Creditors		107 5 5
„ Subscriptions in Advance		16 19 0
„ DIRECTORY RESERVE—		
Sales to 30th June, 1928, transferred from Working Capital Account...	170 1 6	
Sales to 30th June, 1929	166 7 4	
		336 8 10
„ WORKING CAPITAL—		
As at 30th June, 1928	634 8 11	
Less Transferred to Directory Reserve Account	170 1 6	
	464 7 5	
Add Balance of Income and Expenditure Account	14 13 4	
		479 0 9
		£939 14 0

ASSETS.

	£ s. d.	£ s. d.
By Cash at Bank on Deposit Account	550 0 0	
„ Cash at Bank on Current Account	324 7 9	
„ Cash in Hand	10 3	
		874 18 0
„ Sundry Debtors for Directories and Reports sold		13 7 9
„ Furniture and Fittings, as at 30th June, 1928 ...	50 0 0	
Additions during year	7 2 6	
	57 2 6	
Less Depreciation at 10 per cent. p.a. ...	5 14 3	
		51 8 3
		£939 14 0

We have audited the above Balance Sheet and have obtained all the information and explanations we required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Association's affairs according to the best of our information and the explanations given to us and as shown by the books of the Association.

July 9th, 1929.

8, New Court, Lincoln's Inn, London, W.C.2,
and at 16, Market Place, Reading.

(Signed) WEST AND DRAKE, *Chartered Accountants.*

(Signed) MAGNUS MOWAT, *Chairman and Hon. Treasurer.*

Conference Exhibition.

In connection with the Conference an exhibition of systems and appliances, etc., used in special libraries and information bureaux was held in the Central Hall, Cambridge.

LIST OF EXHIBITORS.

Andrews and Company	No. 6 model rotary duplicator. Diaphragm duplicator.
Block and Anderson	"Ormig" rotary reproducer. "Brunsviga" calculating machine.
Ellams Duplicator Co.	Rotary and flat duplicating machines.
W. and G. Foyle, Ltd.	Bound sets of catalogues and separate catalogues.
J. P. Gray and Son, Ltd.	Bound books and book-binding materials.
Percy Lund Humphries and Co.	Books made by the "Replika" process.
Kaye's Rotaprint Agency	Small Rotaprint machine.
London Instrument Company	The Lico book crate. Gumming machine and coupon tearer for mounting index slip. Library shelf label holders. Loose-leaf binder. Model of combined bookcase and packing-case.
National Institute for the Blind	Apparatus, books, and methods of book production for the blind.
Royal Empire Society	Specimen pages of the Library Catalogue and specimens of other publications issued by the Library.
The Science Library	Selected sections from Subject-matter Index to illustrate the application of the Decimal Classification to co-operative bibliography.
R. I. Severs	Specimen catalogues.
Underwood Typewriters	Standard and portable typewriters Sunstrand adding machine.

Index.

NOTE.—This is not a complete subject index to the contents of the papers, but only to the names of speakers and the titles of papers, etc. Copies of the five previous Reports can be obtained from the offices of the Association.