INTERNATIONAL MEDICAL CONGRESS.

SEVENTH SESSION: LONDON, AUGUST 1881.

AN ADDRESS ON OUR MEDICAL LITERATURE.

By JOHN S. BILLINGS, M.D., Surgeon United States Army.

When I was surprised by the honour of an invitation to address this Congress, my first thought was that it must be declined, for the simple, but sufficient, reason that I had nothing to say that would be worth occupying the time of such an assemblage, as it was evident this would be. But while thinking over the matter, and looking absent-mindedly at a shelf of catalogues and a pile of new books and journals awaiting examination, it occurred to me that, perhaps, some facts connected with medical history, and the system of classification of medical literature, are necessary to the student and practitioner, rather than from that of the writer or practitioner, might be of sufficient interest to you to warrant an attempt to present them; and—the wish being probably father to the thought—I decided to make the trial.

When I say "our medical literature", it is not with reference to that of any particular country or nation, but to that which is the common property of the educated physicians of the world as represented here today—the literature which forms the intranational and international bond of the medical profession of all civilised countries; and by virtue of which we, who have come hither from the far west and the farther east, do not now meet, for the first time, as strangers, but as friends, having common interests, and, though of many nations, a common language, and whose thoughts are perhaps better known to each other than to some of our nearest neighbours.

It is usual to estimate that about one-thirtieth part of the whole mass of the world's literature belongs to medicine and its allied sciences. This corresponds very well with the results obtained from an examination of bibliographies, and catalogues of the principal medical libraries. It appears that this from our medical literature now forms a little over 120,000 volumes properly so called, and about twice that number of pamphlets, and that this accumulation is now increasing at the rate of about 1,500 volumes and 2,500 pamphlets yearly.

Let us consider the character of this annual growth somewhat in detail, first giving some figures as the number of those who are producing it. There are at the present time scattered over the earth about 180,000 medical men, who, by a liberal construction of the phrase, may be said to be educated; that is, who have some kind of a diploma, and for whose edification this current medical literature is produced. Of this number about 11,600 are producers of, or contributors to, this literature, being divided as follows:—United States, 2,800; France and her Colonies, 2,600; the German Empire and Austro-Hungary, 2,300; Great Britain and her Colonies, 4,000; Italy, 600; Spain, 300; all other countries, 10,000. These figures must be construed in connection with the number of physicians in each country; but this I can only give approximately as follows:—United States, 65,000; Great Britain and her Colonies, 35,000; Germany and Austro-Hungary, 32,000; France and her Colonies, 26,000; Italy, 16,000; Spain, 5,000; all others, 17,000.

It will be seen from these figures, that the number of physicians who are writers is proportionately greatest in France and least in the United States. As regards France, this is largely due to the requirement of a printed thesis for graduation, which of itself adds between six and seven hundred annually to the number of writers.

Excluding popular medicine, pathies, pharmacy, and dentistry, all of which were included in the figures for the annual product just given, we find that the contributions to medicine, properly so called, form a little over 1,000 volumes and 1,600 pamphlets yearly.

For 1879, Rappaport's Bibliotheca gives as the total number of new medical books, excluding pamphlets, periodicals, and transactions, 410, divided as follows, viz.:—France, 187; Germany, 110; England, 43; Italy, 32; United States, 21; all others, 26. These figures are, however, too small, and especially so as regards Great Britain and the United States. The Index Medicus for the same year shows by analysis that the total number of medical books and pamphlets, excluding periodicals and transactions, was 1,643; divided as follows:—France, 541; Germany, 364; United States, 310; Great Britain, 182; all others, 246. This does not include the inaugural theses, of which 693 were published in France alone.

The special characteristics of the literature of the present day are largely due to journals and transactions, and this is particularly true in medicine. Our periodicals contain the most recent observations, the most original matter, and are the truest representations of the living thought of the day and of the tastes and wants of the great mass of the medical profession, a large part of whom, in fact, read very little else. They form about one-half of the current medical literature, and in the year 1879 amounted to 655 volumes, of which the United States produced 156; Germany, 129; France, 122; Great Britain, 54; Italy, 65; and Spain, 24.

This is exclusive of journals of pharmacy, dentistry, &c., and of journals devoted to medical sets and usms. These are given in an appended table, from which it appears that the total number of volumes of medical journals and transactions of all kinds was, for the year 1879, 850; and for 1880, 864 (Table I). The figures for 1880 are too small, but the real increase is slight. During the year 1879 the total number of original articles in medical journals and transactions which were published was nearly 20,000. Taking this figure over 270 as average for an average year, we find that there were about 217,000 articles published yearly. Of these there appeared in American periodicals 4,781; in French, 4,068; in German, 4,027; in English, 3,592; in Italian, 1,210; in Spanish 703; in all others, 1,248. The figures for 1880 are about the same (Table II).

It will be seen that at present more of this class of literature appears in the French language than in any other, and that the number of journals in which contributions is greatest in the United States. The actual bulk of periodical literature is, however, greatest in Germany, owing to the greater average length of the articles. With regard to the mode of publication, I will only say that in all countries, except Spain, the greater number of medical periodicals are monthly, while in Spain they are semi-monthly. It is this periodical literature which, more than anything else, makes medicine cosmopolitan; and although, as regards new discoveries or methods of treatment, it is still somewhat farther from London or Berlin or Paris to New York, than it is from New York to either of these places, the discrepancy is gradually becoming less.

Many of the medical journals are very short lived, but the total number is increasing. In 1879, 23 such journals ceased, but 60 new ones appeared; and in 1880, there were 24 deaths and 78 births in this department of literature. Over one-third of this fluctuation occurs in the United States alone, France being next in the scale, Spain third, and Italy fourth, while Great Britain is the most stable of all.

This merely quantitative classification gives of course no idea as to the character, and very little as to the value of the product. Let us now consider it by subjects. During 1879 there were published 167 books and pamphlets, and 1,543 articles relating to anatomy, physiology, and surgical practice, which is the practical side of medicine. Dividing this again by nations, we find that Germany produced a majority of the whole, France being second. The proportionate production by nations of this class of literature is perhaps better shown by an analysis of the bibliography of physiological literature for the year 1879, as published by the Journal of Physiology. This shows 59 treatises and 500 articles in German, 17 treatises and 227 articles in French, 5 treatises and 77 articles from Great Britain, 8 treatises and 41 articles from Italy, and 2 treatises and 24 articles from the United States. The number of authors for this product was, German, 393; French, 119; English, 59; Italian, 39; United States, 19; all others, 41. If the remaining periodical literature of the same year, consisting of 452 articles, is divided by nations, we find that from Germany, 23 treatises and 216 articles from France, 12 treatises and 76 articles from Great Britain, 4 treatises and 51 articles from Italy, 6 treatises and 25 articles from the United States, and 10 treatises and 31 articles from all other countries.

When we turn to the literature of the art, or practical side of the profession, the figures are decidedly different. We find over 1200 treatises and 18,000 journal articles which come under this head, and the order of precedence of countries as to quantity is: France, United States, Germany, Great Britain, Italy and Spain. The appended table shows that of the 2,164 articles printed in English, the number of works and journal articles upon the practice of medicine, surgery, ob-

* The difference between these figures and those of the Index Medicus is due, on the one hand, to the fact that an article which includes articles which are placed under other headings in the Index Medicus, and, on the other hand, to the fact that the Journal has a different standard of excellence from that of the Index, rejecting many articles which the latter must accept as original.
TABLE I.—Number of Volumes of Medical Journals and Transactions published in the years 1879 and 1880.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Journals</th>
<th>Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>General and Miscellaneous, Practical Medicine</td>
<td>25</td>
<td>83</td>
</tr>
<tr>
<td>Anatomy, Physiology, Morphology, Biology</td>
<td>50</td>
<td>34</td>
</tr>
<tr>
<td>Diseases of the Nervous System, and Insanity</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Surgery</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Skin-Diseases</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Otology</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Gynecology and Obstetrics</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hygiene and Medical Jurisprudence</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td>Pharmacy and Medical Chemistry</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Dentistry</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td>Homeopathy</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Eclectic, Botanic, Physio-Medical, etc.</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Popular Advertising Mineral Waters, etc.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Veterinary</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td>Laryngology</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

**Total**

**Journals** 136 | **Transactions** 74

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TABLE II.—The Medical Literature of 1879 and 1880.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Books 1879</td>
</tr>
<tr>
<td>Anatomy and Physiology</td>
<td>7</td>
</tr>
<tr>
<td>Pathology</td>
<td>109</td>
</tr>
<tr>
<td>Practice of Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Diseases of Nervous System</td>
<td>145</td>
</tr>
<tr>
<td>Surgery</td>
<td>12</td>
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<tr>
<td>Ophthalmology</td>
<td>89</td>
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<tr>
<td>Otology</td>
<td>187</td>
</tr>
<tr>
<td>Skin-Diseases</td>
<td>144</td>
</tr>
<tr>
<td>Veneral</td>
<td>107</td>
</tr>
<tr>
<td>Gynecology</td>
<td>114</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>38</td>
</tr>
<tr>
<td>Jurisprudence</td>
<td>127</td>
</tr>
<tr>
<td>General and Miscellaneous</td>
<td>39</td>
</tr>
</tbody>
</table>

**Total by Countries**

<table>
<thead>
<tr>
<th>Books 1879</th>
<th>Books 1880</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>399</td>
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<tr>
<td>136</td>
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<tr>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

**Total** 525 | **Total** 689
stetrics, hygiene, etc., for the years 1879 and 1880, and some of the
figures will be found interesting. A marked increase has occurred in the
literature of hygiene during the last two years, and this especially in
England, France, Germany and the United States. The literature of
diseases of the nervous system, ophthalmology, dermatology, and gynae-
cology, is also increasing more rapidly than that of the
more general branches.

It would of course be extremely unscientific to use these figures as if
they represented positively ascertained and comparable facts, the accu-
rates of which as well as of the definition, could be made. They
represent merely the opinions of an individual—first to see whether each
treatise or pamphlet included in these statistics was worth noting, and
second, as to how it should be classed. Had everything been indexed
the figures, for journal articles at least, might have been nearly doubled;
while the selection had been made by a more severe critic, they might
have been reduced one-half.

If I had to do the work again, I should not obtain the same results.
The prevailing error is that, as regards journal articles, the figures are too
large, for some of those included are of so little value or interest
that they are, I fear, never read by more than two persons.

But that as it may, I think we can think as indicating certain
differences in the direction of work of the medical authors of the great
civilised nations of the earth; but they must be considered as approxi-
mations only; and the statistical axiom must be remembered, that the
ten thousand errors from a large mass are more reliable than an
aggregate of similar facts but not to single cases. There will be a cer-
tain number of medical books and papers printed next year, just as
there will be a certain number of children born; and as we can within
certain limits predict the number of these births and the proportion of
the sexes, so we can within certain limits predict the style and character of the
literature that is, come, the ideas that are yet unborn. The differences are due to race, political
organisation, and density of population. As Dr. Chadwick has pointed
out, in speaking of the statistics of obstetric literature, one of the chief
causes of the multiplication of medical societies is geographical. "In
England, it is possible for those who are specially interested in gynae-
coology and obstetrics to attend the meetings of the Obstetrical Society of
London, whereas in America the distances are so great that this is im-
possible." Speaking broadly, we may say that at present Germany
leads in scientific medicine both in quantity and in quality of product,
and that the rising generation of physicians are learning German physi-
ology. But the seed has gone abroad, and scientific work is receiving
more and more appreciation everywhere.

Seven years ago, Professor Huxley declared that, if a student in his
own branch showed power and originality, he dared not advise him
to adopt a scientific career, for he could not give him the assurance that
any amount of proficiency in the biological sciences would be conver-
tible into the most modest bread and cheese. To-day I think he might
be bolder, for such a fear would hardly be justifiable—at all events, in
America—where such a man as is referred to could almost certainly
find a place, bearing in mind the professor's remark that it is no im-
pact that the most successful physicians are those who are able to dedica-
tion of his time to giving instruction either in the laboratory or in the
lecture-room.

Within the last ten years the literature of France, Germany, Great
Britain, and the United States has contained much with regard to
medical education and the means for its improvement. In all these
countries there is more or less dissatisfaction with the existing condition
of things, although there is no general agreement as to the remedy.
Solomon's question, "Wherefore is there a price in the hands of a fool
to get wisdom, seeing he hath no heart to it?" is now easily answered,
for even a fool knows that he must have the semblance of wisdom, and
a diploma to imply it, if he is to succeed in the practice of medicine;
but to ensure the value of a diploma as a proof of education is the
difficulty.

This evidence of discontent and tendency to change is a good sign.
In these matters stillness means slumber and death, and the fact that a
stream is continually changing its bed shows that its course lies through
fertile alluvium, and not through sterile lava or granite.

I have said that, as regards scientific medicine, we are at present
going to school to Germany. This, however, is not the case with regard
to the practitioners either of Europe or of America, who presume that the
physicians of each nation are satisfied as to their own
pre-eminence. At all events it is true that, for the treatment of the
common diseases, a physician can obtain his most valuable instruction
in his own country, among those whom he is to treat. Just as each individual
of the species has peculiar and unique, so that even the
arrangement of the minute ridges and furrows at the end of his fore-
finger differs from that of all other forefingers, and is sufficient to
identify him; and as the members of certain families require special
care to guard against hemmorhage, or insolency, or phthisis; so it is with
nations and races. The experienced military surgeon knows this well;
and has often been rewarded for his pains by the victories which the
great differences in the national character, which opinion as to the relative value of this increase, and as to its
future effect upon the profession; but there can be no doubt as to the fact.
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There must be specialists and specialists in medicine, and the results will be both good and evil; but the evils fall largely upon those specialists who have an insufficient general education,—who attempt to construct the pyramid without the knowledge of the ancient building. It has been said by Dr. Hodgen that "in medicine a specialist should be a skilled physician and something more, but that he is often something else—and something less." There is truth in this; truth which the young man will do well to consider with care before he begins to specialise in studies; for the hand of fate is true that the great majority of men must limit their field of work very much and very clearly if they hope to achieve success. The tool must have an edge if it is to cut. It is by the labour of specialists that many of the new channels for thought and research have been opened; and if the world has sometimes seemed to spread too far, and to grasp itself too shallow and easily places, it has nevertheless tended to fertilise them in the end.

The specialists are not only making the principal advances in science, but they are furnishing both strong incentives and valuable assistance towards the collection and preservation of medical literature and the formation of large public libraries.

Burton declares that a great library cannot be improvised, not even if one had the national debt to do it with; he thinks that 20,000 volumes is about the limit of what a miscellaneous collection can bring together, and refers especially to the difficulty in creating large public libraries in America. My remarks were intended that the principles which apply to medical books. Of these the folios and quartos of three and four hundred years ago seem to have had great capacity for resistance to ordinary destructive forces. Perhaps much of this is due to the fact that they are not usually injured by too much handling or perusal. True, they are generally bound in half-calf, and are kept in the public library; but this is only one of a hundred means of properly organised libraries, they are becoming more accessible to all who wish to really use them, and not merely to collect and hide them away. They drift about like the sea-weed, but the survivors are gradually finding secure and permanent resting places in the score of great collections of which the world now possesses.

At present, the currents of trade are carrying them in relatively large numbers to the United States, where medical collectors and specialists are among the best customers of the antiquarian booksellers of Europe. I could name a dozen American physicians who have given to European agents almost unlimited orders for books relating to their several specialties, and upon their shelves may be found books of the 15th and 16th centuries, which may be properly marked as "rarissimi." Not that the rarest books are by any means the oldest. The collector who seeks to ornament his shelves with the Rose of John of Gaddesden, or the Lily of Bernard de Gordon, the first folios of Avicenna or of Celsius, or almost any of the eight hundred medical incunabula described by Hain, will probably succeed in his quest quite as soon as the one who has set his heart on the first editions of Harvey or Jenner, the American tracts on inoculation for small-pox, or complete files of many of the journals and transactions of the present century.

Whatever may be the chosen line of the book-collector, he is the special helper of the public library, and this whether he intends it or not. In most cases his treasures pass through the auction-room, and sooner or later the librarian, who can afford to wait, will secure them from further travel. Thanks to the labours of such collectors, I think it is safe to say,—what certainly would not have been true twenty years ago,—that if the entire medical literature of the world, with the exception of that which is collected in the United States, were to be now destroyed, nearly all of it that is valuable could be reproduced without difficulty.

What is to be the result of this steady increasing production of books? What will the libraries and catalogues and bibliographies of a thousand, or even of a hundred years hence, be like, if we are thus to go on in the ratio of geometric progression which has governed the press for the last few decades? The mathematical formula which would express this, based on the data of the past century, gives an absurd and impossible conclusion becoming rarer but, at the same time, by the student.

When a physician has observed (or he has observed) a fact, or has evolved a theory which he wishes to examine by the light of medical literature, he is often very much at a loss to know how to begin, even when he has a large library accessible for the purpose.

The information he desires may be in the volume next his hand, but how is he to know that? And even when the usual subject-catalogue is placed before him, he finds it very difficult to use it, especially when, as is often the case, he has by no means a well-defined idea as to what it is he wishes to look for. Upon the title-page of the Washington City Directory is printed the following aphorism, "To find a name, you must know how to spell it." This has a very extensive application in medical bibliography. To find accounts of cases similar to your own rare case, you must know what your own case is.

To return to the subject-catalogue, if it be a classed catalogue, a catalogue raisonné, it will often seem to be a very blind guide to one who is not familiar with the classification and nomenclature adopted by the compiler. In the same way, our titles of books and of the libraries are not very curious, reminding one of Heine's division of ideas into reasonable ideas, unreasonable ideas, and ideas covered with green leather. But if the inquirer have mastered the arrangement of the catalogue, it is two to one that it will not help him. It is a catalogue of the titles of books, and gives the title literary information as to its contents, if indeed it be not actually misleading. Now, suppose the particular case he has in hand is one of a new-born infant having...
one leg much larger and longer than the other. He will find no book-
title relating to this. There may be a book in the library on diseases
of the lymphatics, which contains just what he wants; but, unless he
knows that his case is one affecting the lymphatics, he will hardly get
the clue. This may also be the result of different volumes of journals and transactions, the titles of
which show that they probably relate to similar cases, but the titles of such papers do
not appear in the catalogue.

It should also be observed that subject-catalogues may easily be put
in the wrong order, or be thought to give more information than they rea-

They are not bibliographies, but mechanical aids in bibliographi-
cal work.

You will perhaps pardon me for taking as an illustration the Index
Catalogue of the library of the Surgeon-General's Office in Washington,
and being one of those, which I am not disposed to venture to com-
English mathematician have probably equalled in scope and excellence of original work in their several fields all the like labours of their countrymen put together."*

But cannot we do something to increase the number of observers by teaching them what to observe? It is probable that much may be accomplished in this direction provided that care be taken to limit the field. Manuals of "what to observe at the bed-side and in the post mortem room" are very well in their way, and can never be made to reach the great majority of the profession, nor would they be of much use if they did. If a few, very few, distinct specific questions, requiring the attention of the general practitioner, he will often be on the alert for their answer. And it should be remembered that chance may present to the most obscure practitioner an opportunity for observation which the greatest master may never meet.

The great difficulty is to get men and make questions prepared. They must relate to matters that are just in the nebulous region between the known and unknown—to points not yet clear, but of which we know enough to make it probable that by observing in a definite direction they can be made clear; and to prepare them requires not only knowledge but a certain reaching out beyond knowledge. It usually happens that the man who has this faculty strives to answer his questions himself, and no doubt he can usually do it better than another. But much can be done towards defining and marking out what we do not know, and this has been a powerful aid to the progress of physiology in recent years.

I have had occasion to refer to this in speaking of Dr. Michael Foster's work on phenomenon of warmth; the road to be made separate that which may be considered as proved from that which is merely probable; and thus almost every page becomes suggestive of work to be done.

Another example of what I mean will be found in a paper on the collection of data at necroses by Professor H. P. Bowditch, of Boston (Trans. Am. Med. Legal Soc. 1, 1880, p. 139). Taking the results of an investigation into the absolute and relative size of organs at different periods of life, and in connection with different morbid tendencies, recently published by Professor Beneke, of Warburg, Dr. Bowditch has the security of having taken as large a number as possible of such data, and selects certain of Professor Beneke's results for special inquiry; for instance, that the "cancerous diathesis is associated with a large and powerful heart, capacious arteries, but a relatively small pulmonary artery, small lungs, well developed bones and muscles, and tolerably abundant adipose tissue." It can hardly be doubted that those who read the pages of Professor's Bowditch and Beneke would be induced to examine things which before would have had for them no interest, and therefore to make and record observations in pathological anatomy which otherwise would have been lost.

The second difficulty referred to—the want of means for making accurate and clear records which necessarily follow attempts to compare the memory of sensations perceived last week with the sensations of to-day; and the balance and the burette enable us to estimate with some approach to precision the tissue-changes of our patients by the records of change in the excretions which they furnish; but we must still trust to the faculty of the trained eye and the dash record of the telegraph code, which could then be given to the press, and so compared with each other by readers at the antipodes.

We are beginning to count the blood-corpuscles, and to use photomicrography, but we do not yet apply the latter process to the former so as to enable every reader to count for himself.

The connections of medicine with the physical sciences are yearly becoming closer, and the methods by which these sciences have been brought to their present condition are those by which progress has been, is, or will be, made in therapeutic, physiologic, and in physiologic research. These methods turn mainly upon increasing the delicacy and accuracy of measurements; of expressing manifestations of force in terms of another force, or of dimension in space or time. The balance and the galvanometer, the microscope and the pendulum, the camera, the phlygograph, and the thermograph, are instruments of the means of obtaining records which shall be independent of their own sensations or personal equations; which shall be taken and used as expressing, not opinions, but facts; and with every addition to, or improvement in, these means of measurement and recording, the field of observation widening and more reliable materials are furnished for the application of logical and mathematical methods.

Upon the third difficulty which has been referred to—viz.: our confused and defective terminology—I need not dwell. "Science", said Condillac, "is a language well made!" and though this is far from being the whole truth, it is an important part of it. In examining medical reports and statistics, it is necessary to bear constantly in mind that, to understand many terms, you must know what the individual writer means by them. When, for example, we find in such statistics a certain number of deaths attributed to gastro-enteritis, or cancer, or some similar disease, we have to take into account the period, the author, and the individual author, in order to get even a fair presumption as to what is meant.

The three difficulties which have been referred to, although the most important, are by no means the only causes of the confusion and imperfection of our records.

Prominent among the minor troubles of the investigator are defective or misleading titles; and, in behalf of the readers and bibliographers of the future, I would appeal to authors, and more especially to editors, to pay more attention than many of them do to the matter of titles and indexes. The men to whom your papers are most important, and who will make the best use of them, provided they know of their existence, are for the most part hard workers, busy men, who have a right to demand that their library shall be provided with properly prepared materials, and with shapeless lamps.

The editors of transactions of societies, whether these are sent to journals or published in separate form, often omit numerous sins of omission in the matter of titles. The rule should be: that every article which is worth printing is worth a distinct title, which should be concise as a telegram, and be printed in a special type. If the author do not furnish such a title, it is the editor's business to make it; and he should be satisfied with such headings as "Clinical Cases", "Difficult Labour", "A Remarkable Tumour", "Case of Wound, with Remarks". The four rules for the preparation of an article for a journal will then be: 1. Have something to say; 2. Say it; 3. Stop as soon as you have said it; 4. Give the paper a proper title.

Some societies and editors do not seem to appreciate fully their responsibility in respect to the unification of science—this responsibility which cannot be altogether avoided by any formal declaration disclaiming it. This is due to the fact that, while the merits of a paper can usually be determined by examination, this is by no means always the case. In every country, there are writers and speakers who are received with very great distrust by those best acquainted with them. Supposing these statements to be true, the papers would be of much interest and importance; but the editor should remember that a certain number of readers, and especially those in foreign countries, have no clue to the character of the author, beyond the title of the work, and are apt to be led by the looks of material. For instance, as in other departments, we find books and papers from men who are neither constitutionally incapable of telling the simple literal truth as to their observations and experiments, although they may not write with fixed intention to deceive, or from men who seek to advertise their opinions by means of their practice. Such men are usually appreciated at their true value in their immediate neighbourhood, and find it necessary to send their communications to distant journals and societies in order to secure publication.

I presume that you are all familiar with the peculiar feeling of distrust which attaches to these accidents. The report of a case in which every symptom observed, and the effect of every remedy given, is fully accounted for, and in which no residual unexplained phenomena appear, is usually suspicious, for it implies either superficial observation, or suppression or distortion of some of the facts. A diagrammatic representation is usually much pleasanter than a good photograph, but also of much less value as a basis for farther work.

No fact is more familiar to this audience than that the vast extent of the
field of the science of to-day—so vast that few may hope to master
more than a small part of it, and yet so closely connected that even
the small part cannot be fully grasped without some acquaintance with a
much wider field.

But little over a hundred years ago, Haller in Göttingen was pro-
fessor of anatomy, botany, physiology, surgery, and obstetrics, and
lector on medical jurisprudence. At the same time he was writing
one review a week, and summing up existing medical science in his
Bibliotheca. To-day, any one of these branches requires all the time
of the most energetic and learned of our contemporaries; but, on
the other hand, the well-educated medical graduate of to-day, who
gives Haller valuable instruction in each of the branches of which he was
professor. It is also true, as I have pointed out, that our actual
progress is by no means in proportion to the work done, nor as
great as these merely quantitative statements would seem to make it.

Science has been described as the typography of ignorance. From
a few elevated points we triangulate vast spaces, enclosing infinite un-
known details. We cast the lead and draw up a little sand from
abysses we shall never reach with our dredges. If it is true that we
understand ourselves but imperfectly in health, it is more signal-
ly manifest in disease, where natural actions, imperfectly understood,
disturbed in an obscure way by half-seen causes, are creeping and wind-
ing along in the dark toward their destined issue, sometimes using our
remedies as safe stepping-stones, occasionally, it may be, stumbling
over them as obstacles."

In days of old, when the profession of medicine, or of a single
medical specialty, was an inheritance in certain families, a large part
of their knowledge, and the efficiency of their remedies, was thought
to depend upon these being kept a profound mystery. Among the
precepts of magic there was no more significant one than that which de-
clared that the communication of the formula destroyed its power, and
that hence attempts to reveal the secret must always fail. We have
changed all that. Every physician hastens to publish his discoveries
and special knowledge, and a good many do so by the same that is
not special, or which is not knowledge. For the individual, in a
degree—for the nation or the race in a much greater degree—the
literature produced is the most significant memorial. The whole result
of civilisation has been cynically defined by one of my con-
temporaries, "of the three hundred million Chinese, two hundred
million natives of India, two hundred million Europeans and North
Americans, and a miscellaneous hundred million or two of Central Asians, Malays, South Sea Islanders,
etc., and over above all the rest the library of the British Museum.
This is the net result of an indefinitely long struggle between the forces
of men and the weights of various kinds in the attempt to move which
these forces display themselves."

And thus, in our great medical libraries, each of the folios or quain-
t little black-letter pamphlets which mark the first two centuries of
printing, or the cheap and dirty volumes of modern days, with their
scrutinise paper and abominable typography, represents to a great
extent the life of our profession and the fruit of his labours, and
it is by the fruit that we know him.

After stating that modern physiologists have concluded that the sun
is going out, that the earth is falling into the sun, and therefore that it
and all things in it will be either of fire or frozen, Professor Clifford con-
cludes that "Our interest lies so much with the past as may serve to
guide our actions in the present, and with so much of the future as we
may hope will be affected by our actions now. Beyond that we do
not know and ought not to care. Does this seem to say let us eat
and drink, for to-morrow we die? Not so, but rather let us take hands
and help, for this day we are alive together." To this I join a verse from
the Talmud which will remind you of the first aphorism of Hippocrates,
and is none the worse for that. "The day is short, and work is great
—the reward is also great, and the master presses. It is not incum-
 bent on thee to complete the work, but thou must not therefore cease from it."