‘To the man who aspires to know, no man who has been the meanest student of knowledge should be unknown.’

ZANONI, Book III, Chapter iv.

# Introduction

DR. JAMES YOUNG,[1] under whose directions the present collection of books was made, was a native of Glasgow. In his youth he was set to learn a trade, but having entered Anderson's College when Thomas Graham, afterwards Master of the Mint, was professor there, and was commencing those researches which have put him in the first rank of experimental chemists, he studied chemistry under Graham, and by a succession of events came to be the originator of the paraffin oil industry in Scotland. In after years, when he had retired from active participation in business, not unmindful of his own early drawbacks and difficulties, he established a Chair of technical chemistry in Anderson's College, which has been incorporated with the recently created institution called the Glasgow and West of Scotland Technical College. Furthermore, he erected a statue in Glasgow to the memory of his teacher, Graham, and he gathered the present library, which he bequeathed to the Chair which he had endowed.

The collection was begun by himself about the middle of last century, and it is plain that he took much interest in the history of chemistry and must have discussed the study of it with his friend, the late Dr. Angus Smith of Manchester, who also was a collector and was desirous of seeing more attention devoted to it. Dr. Smith's idea of reprinting epoch-making books and papers was long after carried out in part by the Alembic Club in Edinburgh, and on a more general plan by Ostwald, in his series of chemical and physical classics.

1 Dr. Young was born on July 13, 1811, and died May 13, 1883. For details about his life and career there may be consulted the article by P. T. Hartog in the *Dictionary of National Biography,* 1900, Ixiii, p. 376, with the references there given, the obituary notices of him in the Proceedings of the Societies with which he was connected, and a brief estimate of him by myself, with a portrait, in *Memoirs and Portraits of One hundred Glasgow Men,* Glasgow, 1886, ii. p. 341, No. 100.

Of more living importance, however, is the recent movement, in Germany especially, which has led to the formation of the Society for the History of Medicine and the Natural Sciences, to the establishment of courses of lectures on that subject and to the recognition of it as an important branch of knowledge by both the International Historical and the Medical Congresses. As yet no action in this direction has been taken in Britain; the history and evolution of chemical, natural, and physical science are ignored by the British Association, of medicine by the Medical Association, and the Antiquarian Societies have their attention otherwise occupied. Still there is not wanting proof that even in this country there is interest in this section of history and that there are some who pursue it.' Perhaps if the few who do this could combine their efforts, a stimulus might be given to a systematic cultivation of the subject. Dr. Young's pre-science was exhibited in various ways, but in none was his breadth of view and foresight more conspicuously displayed than when, long before this movement had begun, he was making provision for the study and teaching of the history of the science, which he had cultivated practically and technically with such success. The founder of a great industry, which has added so much to the comfort, and even luxury of life, immersed as he was in the mechanical and chemical details of the process, engrossed in business transactions, distracted by the worries of competition, and by attempts to minimize the merit of his invention, was hardly the person whom one would have expected to undertake the formation of a library of old, neglected, and out of the way books on the practically extinct topic of alchemy; yet Dr. Young did this because he perceived that as alchemy happens to be one of the phases which chemistry formerly presented, a survey of it is indispensable for completing the history of the whole science. He did not collect for one of the bibliophile's reasons: because the books were rare and curious, but for the student's reason: because they were needed for research, and because no collection of them was accessible to the student here in connection with his Chair.

1 In England the only original contribution which has been made in recent years to the history of any part of physical science is the edition of Gilbert's bock on the Magnet, with the accompanying notes and various biographical papers and essays by Professor Sylvanus Thompson. This is as fine a piece of work as could be desired.



The collection thus made by him consists of about 1300 pamphlets and volumes, but, as a good many volumes contain several tracts bound together, the actual number of separate items may reach 1350 or 1400. This number, however, includes only the works printed separately and does not represent the whole contents of the library. There are, besides, writings which do not seem ever to have been printed by themselves, but only in the collected editions which form a characteristic feature of alchemical literature. If these be included the number of distinct and independent articles will be increased by a considerable amount.

One, indeed, could have wished that the lines upon which the library was begun, had not been departed from quite so much, and that the attention originally given to English works had been maintained. That desire is intensified by knowing that when the collection was making, these books could still be purchased, whereas now they have disappeared altogether; and it may be said, without much fear of contradiction, that they will hardly be seen again. An odd specimen may make its appearance from time to time, but the books as a class are no longer to be had. It is fortunate that some of these exceedingly rare treatises in English were secured before it was too late; they are so much gain to the library.

Considering what influence the great idea of supplying material for the study of the history of chemistry exercised upon Dr. Young, one can imagine how much more he would have done for his library had he lived longer. Having made so full a gathering of the alchemical writings, he might have got together even more of the works by the chemists in the latter half of the eighteenth century than has been done. They would have been invaluable to those interested in the origins of modern chemistry. This period has not been forgotten by any means, but it has not been so elaborately worked out as some of those before it.

It may afford a more exact view of the extent of the library, if the chief authors in the different periods, whose works have been here brought together, be enumerated. When one considers that speculations and operations relative to the chemical properties of matter have been in vogue certainly from the second or third century of our era, and that the alchemists and chemists were diligent composers of books, it

will be easily understood that the literature is extensive, as well as rare, and much beyond the power of anyone, however eager and persistent, to amass in his life-time. In fact even the largest libraries exhibit deficiencies. Now Dr. Young's collection is noteworthy in being so comprehensive as it is, and containing so many of the writings especially of the German alchemists of the seventeenth and eighteenth centuries. The student will not find everything, and still less every edition—for that he will get nowhere—but he will have ample material for acquiring a knowledge of the earlier phases of the science.

The history of chemistry presents various aspects for treatment, but, for our present purpose, it may be arranged broadly in three periods:

1. The period of belief in transmutation—the alchemical period—which begins at the earliest date of which there is a record and stretches down to the commencement of the nineteenth century, with sporadic survival to the present time.

Along with the notion of transmutation there existed the preparation and employment of various kinds of bodies in pharmacy and medicine, and practical applications of substances in the technical arts. These were empirical, but from both a considerable body of experimental facts of important practical use was brought together, though still without anything of a guiding principle.

2. The iatro-chemical period, which began in the sixteenth century, and died out about the close of the seventeenth century.

3. The period of scientific chemistry, which began in the seventeenth century shortly before or about Boyle’s time, and continues to the present moment.

These aims of chemistry, therefore, for a time ran parallel with each other and materially influenced each other. The iatro-chemists transplanted alchemical ideas into medicine and pharmacy, and on the other hand one of the most important of Boyle's labours was his criticism of the then current doctrines of elements and theory of composition.

It belongs to history to trace and explain the processes by which each period was modified, absorbed, and at last replaced by another, to allot to the various labourers their due praise for what they



accomplished, and to record the acquisitions of fact which remain established to this day.

As it is solely from the literature which has descended to us, that insight into the state of the science during these periods is obtained, an ideal historical library should represent all periods and all aspects, and should contain the works of all authors. I am not aware that such a library exists. It is only an approximation to this ideal that any collection can offer. We may now see what the present one embraces.

I. As the alchemical books in the library are much the most abundant, they may be taken first, and roughly in chronological order.

The earliest portion is that of the Greeks, beginning with Democritus in the second or third century *A.D.* Apart from the Greek MSS. themselves, which are attainable only in certain European libraries, the first access to their contents was through the translation of a portion of them by Pizimenti. There is a copy of the rare reprint of 1717 in the library, so that the student can thus start from the very oldest records. Next comes the Arabic epoch represented by the works of Geber, Kalid, Rhazes, Avicenna.

This is followed by the productions ascribed to Morienus, Hortulanus, Arisleus, Artephius, Ferrarius, Petrus v. Zalento, Haimo and the pseudo-Merlin.

Most of these personages are more or less shadowy, but writings in their names are extant, and it rests with the historian to appraise their claims to acceptance as genuine.

The authors of the thirteenth century are better known than the preceding, but there are doubts as to some of the alchemical writings which pass for their composition. Such as they are these are said to be by Albertus Magnus, Thomas Aquinas, Michael Scotus, Christophorus of Paris, Roger Bacon, Arnaldus de Villa Nova, Richardus Anglicus, Guido de Montanor.

The next century furnishes a list of notable people: Pope John XXII., Jean de Meun, Raymund Lully, Cremer of Westminster, Pietro Bono, Antonio de Abbatia, Odomar, Rupescissa, Ortolanus, Flamel.

As time goes on more writers on the subject appear. In the first half of the fifteenth century there are the reputed Basilius Valentinus, Joannes of Tetzen, Isaac Hollandus, Lasnioro, Lambspringk, and, in

the second half, Bernard of Trevisan, Ficinus, Trithemius, Poyselius, Vincent Koffsky, George Ripley, Thomas Norton, Trissmosinus.

In the early part of the sixteenth century one meets with Augurello, Picus de Mirandula, Pantheus, Lacinius, Bracesco, Grewer, Paracelsus, Agricola, Denis Zachaire, Petrus Arlensis, Robertus Vallensis, Alexander von Suchten, Phaedro, Wenceslaus Lavinius.

In the latter part flourished Thurneysser, Nazari, Carerius, Quadrammi da Gubbio, Blaise de Vigenère, Penotus, Barnaud, Balbian, Edward Kelley, Dr. Dee, Francis Antony, Robert Fludd, Beuther, Sebald Schwertzer, Wittestein, and the two Khunraths.

The seventeenth century is perhaps the most prolific of all in alchemical writers, and richest in narratives of transmutations accomplished, in books written in explanation and defence of the art, as well as in those by others who doubted it. It opens with the adventures of Alexander Seton the Cosmopolite, followed by the romantic episode of the Rosicrucian Society, and among the crowd of alchemists and chemists may be mentioned Libavius, Figulus, Crollius, Pontanus, Grasshof, Schaubert, Rhenanus, Gerhard, Michael Maier, Birelli, Billich, Johannes de Padua, Angelo Sala, Guibertus, d'Espagnet, Nuysement, Potier, Castaigne, L'Agneau, Palmarius, Drebbel, Hoghelande, Samuel Northon; though some of these are also to be found among the iatro-chemists.

The second quarter of the century includes Sendivogius, Ambrosius Müller, Grosschedel ab Aicha, Batsdorf, Rist, Johannes Agricola, Kessler, Liberius Benedictus, Conringius, Peter Faber, Philaletha, Starkey, Zwelffer, Zwinger.

Between 1650 and 1675 fall the names of Richthausen, Monte Snyder, Glauber, Harprecht, Kircher, Blauenstein, Clauder, Otto Tachenius, Becher, Löwenheim, Drechssler, Albineus, Morhof, Borrichius, Helvetius, Kerkring, Vreeswyk, Johnson, Borel, Germain, Atremont, Du Clos, de Comitibus, Ashmole, Borri.

In the last quarter are W. v. Schröder, Seyler, Krohnemann, Cardilucius, Balduinus, Kunckel, Wedel, v. Helbig, Orschall, Weidenfeld, Grummet, Kirchmayer, Hannemann, Boyle, Dickinson, Mundanus, Colson, Headrich, Tollius, Salmon, Gualdo, Lancilotti.

The eighteenth century also furnishes an abundance of names, but there is a marked change in the character of the writings. There may



be enumerated the following: Bötticher, Caetano, Delisle, Paykul, Stahl, Dippel, Ettner von Eiteritz, Barchusen, Manget, Söldner, Kellner, Axtelmayer, Faustius, Muller, Horlacher, S. Richter, Klettenberg, Roth-Scholtz, Chymiphilus, Siebenstern, Hensing. There were also Plusius, Keil, Creiling, Fictuld, Richebourg, Lenglet Dufresnoy, Tharsander, Jugel, J. F. Meyer, Wenzel, Schröder; and from 1775 to 1800, Semler, Wiegleb, ab Indagine, Adamah Booz, Herverdi, Güldenfalk, Kortum, Henckel, von Murr.

All these and many more less prominent are in the library, and it may be said with some confidence that little of importance relating to alchemy, in the seventeenth century especially, is wanting. Not only so, but certain books which are very scarce indeed, and are not alluded to in some of the fullest lists, are here present.

The best running commentary on this division of the library is Kopp's last work, *Die Alchemie*, and one might almost imagine that in writing the bibliographical appendix he had had access, if not to this collection, to one similarly furnished. But here again there are items which have escaped Kopp's observation.

The only other books to be considered are the collected editions of alchemical tracts, which, as I have already said, are characteristic of the literature, even from the earliest times. The Greek MSS. always contain treatises by different writers, ranging from four to as many as fifty-three; and in Pizimenti's translation, the tracts of Democritus, Synesius, Pelagius, Stephanus and Psellus are printed together. Later MSS. in Latin, of which various specimens have passed through my hands, are similarly made up, and when they were printed, what they contained was simply reproduced. So it must have been in the Vatican MS. of Geber; for, not only his works, but tracts by Kalid, Avicenna, and others are included in Silber's edition, printed at Rome before 1520, and in several of those which followed. But from the sixteenth to the end of the eighteenth century the practice of printing collected editions became common, and quite a number appeared. The most comprehensive in the library may be mentioned: *De Alchemia Volumen*, Petreius, 1541; Lacinius' *Pretiosa Margarita Novella*, 1546; *De Alchimia Opuscula*, 1550 ; Gratarolo's *Verae Alchemiae Doctrina*, 1561; *Eröffnete Geheimnisse des Steins der Weisen; Vellus Aureum; Ars Aurifera; Theatrum Chemicum;* Manget's *Bibliotheca; Museum Hermeticum; Ginaeceum Chemicum,*

1673; Albineus' *Bibliotheca Chemica Contracta*, and a swarm of others under fanciful titles, which have been amusingly classified by Kopp.

Some of the smaller ones may contain three or four tracts only, while the *Theatrum Chemicum*, and Manget's *Bibliotheca*, which are the largest, contain about two hundred and a hundred and forty respectively, some of considerable length.

In French there is the *Bibliotheque Chimique* of 'le Sieur S.' enlarged by Richebourg.

In German there is the *Vellus Aureum*, Tancke's *Promptuarium*, the translation of the *Pretiosa Margarita* of Lacinius, Morgenstern's translation of the *Ars Aurifera*, Roth-Scholtz's *Deutsches Theatrum Chemicum* the body of extracts called *Hermetisches A. B. C.*, and Schröder's *Alchymistische Bibliothek.*

In English there are Salmon's translation of Hermes, Geber, Kalid, Bacon, and Flamel, appended to his *Medicina Practica*, the *Collectanea Chymica*, and the *Aurifontina Chymica.*

These collected editions have impressed a distinctive feature on the catalogue, for, in drawing it up, the contents have been duly recorded under their respective titles, while each item has been entered under its author's name, or its own title, or, maybe, under both. This was a necessity, in order that no document bearing on the subject should be by any chance overlooked.

2. But besides these authors who were concerned solely or mainly with alchemy, there were others who, without questioning the reality of it, employed its principles merely as a guide, and instead of attempting to effect practically the change of metals into gold and silver, used, partly for medicine, partly for the practical arts, the knowledge of substances accumulated by the alchemists an d others.

This epoch was inaugurated by Paracelsus in the sixteenth century by his asserting that alchemy was one of the pillars of medicine, and that alchemy was not confined to transmutation of metals, but was the art of preparing substances for medical use; that, in fact, it was the art of the transmutation of every kind of matter. Paracelsus started the iatro-chemical school, and he had many followers, as well as many opponents. His theories belong to the history of medicine rather than of chemistry; still, his adherents were chemists, and wrote books on chemistry for physicians, while his opponents, in order to



controvert his doctrines, had themselves to acquire some familiarity with the new science.

Of the iatro-chemical school, some supporting Paracelsus' views, others accepting them with reservation and criticism, and still others breaking away from them, may be mentioned Quercetanus, Thurneysser, Dorn, Rhenanus, Libavius, Beguinus, Crollius, Sala, Polemann, Potier, Joannes Agricola, Pierre Faber, v. Helmont, Glauber, Lefevre, Glaser, Lemery, Rolfinck, Tachenius, Barchusen, Guibertus, Ludolf, Morley, Sennertus, Rivinus, Bolnest, Brendelius, Charas, Elsholtz, Jungken, Poppius, Hoffmann, Wedel, Mynsicht.

3. The epoch of scientific chemistry began with two controversies. The first was that between Conring and Borrichius as to the antiquity of Hermes, the reality of the Hermetic medicine and the soundness of Paracelsus' innovations; the second was the discussion by Boyle of the elements or principles of the chemists and of the Aristotelians. This was the first systematic criticism of chemical theory from a purely scientific or philosophical standpoint, and it gradually led to an observation of phenomena apart from applications to medicine, or arts, or alchemy. Those who pursued this course and, so to speak inaugurated scientific chemistry, were Becher and Stahl, Lemery, Boerhaave, Weigel, Rothe, Marggraf, Priestley, Lavoisier, Scheele, Sage, Baumé, Bergman, Scopoli, Achard, Crell, Dandolo, d'Arcet, Demachy, Trommsdorff, Spielmann, Teichmayer, Wiegleb, Jacquin, Scherer, Fourcroy, Macquer, Claude de la Metherie, Morveau.

Without belonging to any of these periods, as has been said above, there are works in the library which, while involving a certain amount of chemistry, are concerned not with transmutation, or medicine, or theories and speculations, but with the needs of ordinary life, or with the positive and technical side of the science.

Among these are the miners and metallurgists; Ercker, Entzel or Encelius, George Agricola, Alonso Barba, Sir John Pettus, Webster, Gabriel Plattes, Löhnayss; assayers: as Schreitmann, Zimmermam, and the anonymous author of the *Probier Büchlein*; the mineralogists: Marbodæus, Nicols, Henckel; technologists: as Neri, Merrett and Haudicquer de Blancourt, who all wrote about glass; Axt, who published a little treatise on the making of rosin, wood tar and charcoal; Caneparius, the author of the treatise *de Atramentis*; the compilers of

books of practical receipts and secrets, as they were called, such as the author of the *Rechter Gebrauch d'Alchimei,* Andriessen, Fioravanti, Alessio, Lemnius, Wecker, Hugh Plat, Kertzenmacher, Cortese, Schmuck. In some respects, as in giving insight into everyday practical working, these books are as interesting and important as any.

The books on pharmacy also constitute a series by themselves, but as they are,—with one or two exceptions, such as the *Dispensarium* of Præpositus, *Luminare Majus* of Manlius de Boscho, *Lumen Apothecariorum* of Quiricus, *Thesaurus* of Gesner,—comparatively recent, they do not require special notice.

It is an illustration of the persistence of an idea that all through the eighteenth century to its very close, when most important discoveries were making and entirely new theories were advanced, the controversy as to the reality of transmutation—as a fact and as a theory—was still sustained. At the opening of it, in T 70z, came the attack by Söldner—as it is said—in the *Teutsches Fegfeuer der Scheide-Kunst,* replied to in the *Erlösung der Philosophen aus dem Fegfeuer der Chymisten;* Creiling's vindication of alchemy in *Die Edelgeborne Jungfer Alchimia,* 1730, Lenglet Dufresnoy's *Histoire,* 1742, which must be regarded as unfavourable; Fictuld's *Probier-Stein,* 1753, a sort of biographical dictionary of genuine and false alchemists, more remarkable for the author's judgments than for the information supplied; the curious dictionary of Pernety, 1753, in which as in his other work he strives to interpret the myths of antiquity as Hermetic; Wiegleb's onslaught on the truth of alchemy, 1777, with Kortum's learned and rather dexterous reply, 1789, and the collection of narratives about transmutation by Güldenfalk, 1784. Then at the close of the century, 1797 to 1799, appeared Gmelin's *Geschichte,* in which for the first time the subject was treated as a whole, and as an independent branch of history, without bias, and apart from controversy as to the truth or reality of any section of it, but merely as a record of events, persons and books. All these, with others of less note, are in the library.

In endeavouring to construct the catalogue of such a library as this, which labour I undertook at Dr. Young's request, I considered who were likely to consult it and how best it could be made serviceable for the study of the history of chemistry. The persons who may



possibly refer to it—besides those who actually use the library itself— are, in the first place, librarians, bibliographers, booksellers, and collectors of this branch of literature, if there be any such, and, in the second, students.

For the convenience of the first group, the catalogue has been constructed on a more liberal and elaborate scale than would have been necessary, had the object been merely to make a list of short titles sufficient to serve as a register for the library. Instead of that the titles are reproduced in full, the particular copy is described, and any peculiarities it may possess are noted, other editions are enumerated, and, when practicable, an account of them, too, is added, which in many cases has been possible by inspection of the books themselves. To the different classes of bookmen these details may be convenient for reference, and for comparison with other copies. The literature is scarce, obscure and almost unknown, and, so far as my experience goes, while there are lists and enumerations of alchemical books, there is no bibliography of any part of it.

More particularly intended for the student, who is concerned with the contents rather than with the externals of the books, are the notes which contain biographical and descriptive details and discuss doubtful or disputed points of chronology, authorship, and other matters. The authors of most of these books are strangers in this country and are but little remembered, or thought of, in their own. Some of them, however, were amongst the foremost men of their day, conspicuous by their lives, learning, discoveries and writings. It seemed desirable therefore, in carrying out the plan I had drawn up, to give the student some notion of the position and authority of the different writers so far as lay in my power, to refer to the questions which have arisen about them or their writings, and to the criticisms and judgments which have been passed upon them.

As it was impossible to accomplish this in full within the limits of a catalogue, I have endeavoured by lists of authorities, whom I have been able to consult, to assist the student further in surveying the field for himself. In the authorities quoted others will be found, and in these again others, and so the student can continue his research till he has exhausted the literature, and possessed himself of all available information at first hand.

The authorities are not all of equal value; for while some supply much sound information, others furnish an irreducible minimum. Nor do they always agree as to dates and other matters of fact, which is a defect, and their criticisms and decisions also are sometimes at variance, which is of very little importance; but this uncertainty adds to the liveliness and zest of the inquiry, and stimulates originality and independence of judgment on the student's part, for he must lay his account for long and sometimes baffling investigation if he want to arrive at the truth.

I have also endeavoured to give him some hold upon the authorities by arranging them as far as may be chronologically. An advantage is that if they be examined in this sequence, the statements made, whether accurate or inaccurate, can be traced to their sources, and thus by careful examination and comparison it can be decided who are original authorities and who are compilers and copyists. Another advantage of the lists is that from their extent and the status of the persons composing them, an inference can be drawn as to the importance and interest surrounding any particular writer, from his own time to the present.

All the rest is for the student of history himself to do; it is his affair to examine the facts, the doubts, the difficulties, the errors; to confirm what is correct, to correct what is faulty and wrong, to throw light if possible on confused and debateable problems, and to confess his inability to reconcile contradictory averments and opinions, when the means for doing so have failed him. In the present work he will find plenty of opportunities for expending labour and exercising his critical faculties.

Nor do I presume to think that what I have said is in every case correct and final. There is too great a want of agreement amongst the authorities for any one, at this time of day, to do more than get as near the truth as possible through the mists of defective records and discordant results. The brief abstracts and accounts which I have given are therefore liable to such modification, or correction, as further examination of the existing authorities, or new discoveries, may necessitate. There is no weed which spreads so quickly as error; I can only hope that I have introduced as little as may be in my statements. One, however, cannot escape the common lot, but one can



perhaps plead, with Lactantius, the common imperfection: " est enim aliquid medium quod sit hominis, scilicet scientia cum ignorantia conjuncta et temperata." What success this work may achieve will depend on the proportion of those constituents, and how they are combined.

The inducement which I have had to go into the matter in detail, is simply the want of a book of any kind whatever on the subject in English, while those which exist in other languages, in German for instance, do not cover this ground. With the exception of Ladrague, whose work, printed at Moscow in 75 copies, is about as rare as a manuscript, no one supplies even the pagination, and no one at all reproduces the titles in full. The compilation of the present work, therefore, afforded an opportunity, which it behaved me not to neglect, not merely of making a catalogue, but of attempting to begin a bibliography, at all events within the limits which the collection allowed, and of thus filling a gap in the literature of the history of chemistry, while the addition of the biographical notes and the references to the authorities constituted a guide to the relative literature. In no better way, it seemed to me, could the purpose of the founder be attained.

If, for such flaws in the plan and its execution as use may reveal, an apology be necessary, I can use the words of Pliny, without, I hope, being charged with presumption: " nec dubitamus, multa esse, quæ et nos præterierint. Homines enim sumus, et occupati officiis: subcisivisque temporibus ista curamus, id est, nocturnis, ne quis vestrum putet his cessatum horis."

At the conclusion of a work like the present, one can hardly refrain from contemplating the theme of it. It deals with phases of a science which is of active interest and influence just now certainly, but is as different from its former condition as to views, aims, methods, and results, as if there never had been any connection between them. Yet the chemistry of the moment is also merely a phase, and by its more rapid development is so much less stable than that of three hundred years ago, when discovery made slower advance. Still the books enumerated here, unattractive as they are—even unintelligible, maybe— record the thought and experience of many men, some of them among the most skilful and far-seeing of their time. But their labours have disappeared as if they had never been, their controversies are forgotten, their discoveries have long ago been assimilated into common

knowledge; what was right in their work has, as far as they are concerned, shared the fate of what was wrong: it is not even known that it was theirs. " The chiefs of other times are departed; they have gone without their fame. The sons of future years shall pass away; and another race arise."

Let not the modern student of science imagine that he and his work will escape the universal doom. His discoveries, his theories, the most recent, the most comprehensive and progressive, sooner or later will become mere archæological data, to be included, or, just as likely, omitted, in a historical review of this time. Such, at least, has been the rule in chemistry for the last eighteen hundred years, and there is no sign of its being suspended in favour of any chemist of to-day.

" Thus times do shift; each thing his turne do's hold; New things
succeed as former things grow old."

It is this phenomenon which stimulates to the writing of history and to the antiquarian research on which it rests, the passing, namely, of the generations with their ideas and pursuits. But change itself is inevitable, and as the past conditions cannot be recalled or reproduced, either in the individual or the race, the most that can be done is to record something of them.

The history of chemistry, as indeed of all science, is but a succession of epitaphs upon forgotten men and forgotten discovery. What then do these men not owe to him who gathers up their works, and In so doing recalls their achievements, and thus labours to lift that icy pall of oblivion which descends on everything human, just because it is human, imperfect, temporary, and has to be forgotten to make way for something else? It was to mitigate that fate as far as human effort can, when it has to strive with the eternal law and necessity of change, that this gathering of the writings of bye-gone thinkers and workers was made. That they were struggling with error-obscured vision towards the light of reality should cause not neglect of them and contempt for their shortcomings and failures, but should arouse the fellow-feeling and interest of those who at the present moment are engaged in the same struggle, and whose turn for neglect and contempt is coming. Dr. Young realized this, and the library is his effort to awaken and foster such sympathy and remembrance.



Whether or not I have succeeded by the present catalogue in carrying out his wish to make it as instructive for the purpose he contemplated as may be, it is impossible for me to say. The decision of Dr. Young himself is what 1 should have pre-eminently desired; and I should have prized the judgment of one other, whose interest in the catalogue was to me its inspiration, and whose verdict at its close would have been my reward. But these voices are now still.

To friends who have assisted me in various ways, by loans of books, by references to authorities to which access for me was difficult, by revision with me of certain portions of the work, I desire to tender my warmest thanks.

First and last I have read the proofs, and am alone responsible for whatever errors and misprints exist. May I ask those who may have to consult this book not to overlook the additions and corrections at the end of the second volume ?

So, in the old-fashioned words of old Jean Rey: " Le trauail a esté mien, le profit en soit au lecteur, et à Dieu seul la gloire."

JOHN FERGUSON.

GLASGOW, 13 NEWTON PLACE,
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