A memorial to the patrons of the University on the present state of practical chemistry / by David Boswell Reid.

A

MEMORIAL

TO THE

PATRONS OF THE UNIVERSITY

ON THE

PRESENT STATE OF PRACTICAL CHEMISTRY

BY

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PRESENT STATE OF PRACTICAL CHEMISTRY.

Dr David Boswell Reid begs leave most respectfully to call the attention of the Right Honourable the Lord Provost and the Gentlemen of the Council, as Patrons of the University, to the present state of Practical Chemistry.

The importance of this branch of chemical education is now universally admitted. It is necessary for all who study Chemistry for any scientific or practical purpose. Its connexion with our arts and manufactures is becoming daily more intimate, and its rising importance in public estimation is proved by the circumstance, that upwards of 200 gentlemen have attended Dr Reid's Courses of Practical Chemistry during each of the last three years.

It is indeed obvious, that not only the wide and daily extending practice, but the future improvements of Chemistry, must, in a great measure, depend upon the exertions of those who are practically conversant with its operations. Hence a proper school of Practical Chemistry may be considered as multiplying the resources of the science, and the means of improvement, just in proportion to the number who are trained in it.

Since the connexion which subsists between Chemistry and the Arts and Sciences has been better understood, lectures alone have not been found sufficient to communicate that information which it is considered the student of Chemistry ought to acquire. The agriculturist, the manufacturer, the medical student, and every one who wishes to cultivate any branch of Natural Philosophy as a man of science, finds it necessary to make Practical Chemistry an object of his attention. No science is more eminently practical than Chemistry. It rests altogether upon experiments. What has enabled Chemistry to attain such a high rank among the Sciences, and to lead in her train so many dependent arts?—Nothing but well conducted experiments. To what is she to owe her future progress?—To experiment alone. What makes her at this moment the proudest triumph of the Inductive Philosophy, one of the greatest monuments of the school of Bacon? Her discarding all false analogies, loose abstractions and preconceived opinions; her strict adherence to Experiments, and her inductive methods. Hence the strict interpretation that she thus elicits of the great laws of nature, and the new powers which she is every day developing for the use of man. Why the teaching of the practice of this Science has hitherto been so little attended to, though so great an object of national importance, can only be accounted for from the progress of the Science itself, which has of late been so rapid and extraordinary, as scarcely to allow time to estimate the nature of her newly acquired capabilities, to adjust her methods of teaching to her daily extending relations, and the increasing variety and power of her instruments.

While the necessity of a course of Practical Chemistry to professional men, and all those who mean to apply it to practical purposes, is now admitted on all hands, its importance as a branch of general education has been strangely overlooked. All who take any interest in education, and consider that one of its leading objects is to cultivate a general activity of mind,

a power of fixing the attention, and a talent for observation with habits of action, will acknowledge that the establishment of a class at our Universities which embraces all these objects, is a great desideratum.

That Practical Chemistry, when properly taught, supplies this desideratum, and is of the utmost value as a process of mental training, may be easily shown. The student engaged in conducting chemical processes, from the striking nature of the phenomena they exhibit, and the interest he necessarily feels in the result, has his attention and powers of observation perpetually on the alert. He is forced to bring his knowledge to bear on the subject in a way that makes the impression almost indelible. Indeed, knowledge thus acquired from personal observation, and connected with habits of action, takes root; it has all the accuracy and precision of actual experience, and is admirably calculated to awaken and strengthen the best faculties of the mind.

It is here necessary to remark, that some of our Public Institutions which are most deeply interested in the progress of Chemistry, have already come forward and recommended Practical Chemistry as a branch of education. The Royal College of Surgeons, with that zeal for the advancement of professional education which so honourably distinguishes that learned body, have already rendered it imperative on those who are candidates for their diploma.

The Army and Navy Medical Boards, likewise, fully aware of the importance of this branch of education, exact attendance upon a separate course of Practical Chemistry.

The Royal Commissioners appointed to report on the present state of our Universities, have also, in the strongest terms, recommended its study as an essential branch of medical education. In their Report, p. 59, it will be seen included in the course of study which they recommend for a Medical Degree.

At p. 60, they remark, " It will be observed, that we have included in the Curriculum of Study some classes which are

not at present taught in the University of Edinburgh, or required by the statuta of that University.

" In particular, we are satisfied of the great importance, in the education of a medical practitioner, of requiring attendance on a course of Practical Chemistry and Practical Pharmacy."

The teaching of Practical Chemistry being of such undoubted importance, it is presumed that the Right Honourable the Lord Provost, and other Gentlemen of the Council, will not be unwilling to give their sanction to any arrangements that may be necessary for its permanent establishment. For, since the Royal College of Surgeons, and the Army and Navy Medical Boards, have rendered attendance on Practical Chemistry imperative, the Patrons of a great Medical School are evidently called upon to make a proper and permanent provision for the teaching of a class now rendered essential to medical students.

In this country, encouragement has hitherto been given almost exclusively to lecturing, a department well calculated for those whose only object is a theoretical knowledge of Chemistry; and, of course, much more popular and more lucrative, though much less laborious, than the teaching of Practical Chemistry. But the practice of a Science which is now the foundation of so many useful arts, which is so broadly connected with Medicine, Agriculture, and Manufactures, has surely at least an equal claim to encouragement and protection; indeed, it is impossible, in the whole circle of the physical sciences, to illustrate more completely the value of reducing theory to practice, than in the business-like character which this class ought to assume.

There has been hitherto no regular provision in this University for teaching Practical Chemistry. None of the Professors have ever taught it. Some of Dr Hope's assistants have given courses in the University; but I am not aware that the Patrons have ever sanctioned it even in this very precarious way.

It is obvious that this class must have an independent existence, if it is meant to be encouraged at all, or any thing like justice done to it. Without this independent existence, a check is given to its capabilities; the class must always have a subordinate character; there is no security for its permanence; no status is given to the teacher; nor can it be an object for any professional man, properly qualified, to devote his time and attention to its laborious and anxious duties.

The Royal Commissioners, while they take every opportunity of inculcating the necessity of instruction in Practical Chemistry, never contemplate its being taught by the Professor of Chemistry. As a proof that the Commissioners considered that it was necessary to take some steps to give the public an adequate security for the proper conducting of a class, which they admitted to be of so much importance, they suggest that it should be taught by private teachers appointed by the Senatus, and altogether under their control and influence; the Senatus being vested with the sole power of regulating the discipline of the class, appointing the teachers, and disqualifying any of them whenever they might think it necessary. The following extract is from page 205 of their Report:—"That before the certificates of private teachers or lecturers shall be admitted in proof of the student having attended any of the above classes, which need not be attended in the University, such private teachers or lecturers must adapt their system of instruction, and the length of their course, to the regulations of the University; shall adopt a form of certificate to be prepared by the Senatus, and must report themselves to the Senatus as willing to comply with the above requisites; and, when irregularities may occur, it shall be in the power of the Medical Faculty to report the same to the Senatus as a ground on which the latter may hold the attendance on such private teachers or lecturers not to be adequate."

Instead of this circuitous, and indeed altogether impracti-

cable, mode, why they did not at once propose to establish a course in the University, is not easily understood. Thus, the Commissioners make no permanent provision for the teaching of this class, notwithstanding its importance. They leave it to the mere chance of there being private teachers who may take it up; and, what is altogether unaccountable, they actually propose that the Senatus shall have the patronage of teachers, in opposition to the fundamental rights of the Patrons, and to a principle which they themselves have, in another part of their Report, so formally insisted upon. And, after all, what is a private Teacher thus publicly appointed, but a Professor without the walls of the College, instead of being one within it? It must be borne in mind, however, that these arrangements of the Commissioners allude solely to the appointment of a teacher of Practical Chemistry, in connexion with the Course of Medical Study which they have pointed out. They make no provision whatever for the teaching of Practical Chemistry as a branch of science, not only highly interesting in itself, but also intimately connected with so many leading objects of national welfare. The evidence that will be laid before you, along with Dr Reid's testimonials, will prove to you the importance of the teaching of Practical Chemistry in connection with the agricultural and manufacturing interests of this country.

Dr Reid has no hesitation in affirming, that the Commissioners could not have been aware of the expense and labour attending a Practical Course of Chemistry, otherwise they would have seen the absolute necessity of providing some means for rendering it permanent in the University; nor was it to be expected that they should be acquainted with the minutiæ of a class so recently introduced, and not yet publicly sanctioned either by the Crown or Patrons of the University. Dr Reid has indeed to regret, that, though he was teaching Practical Chemistry in the University of Edinburgh at the time the Commission met there, he never had an opportunity of laying before

them an account of the Practical Course. In their report, p. 145, a short notice is given of the number of pupils who attended him, and the number of courses given in a single year.

There can be no reason assigned why the Practice of Chemistry should not be taught within the University as well as any other acknowledged branch of education which is now taught there. It will be admitted also, by every one who is practically acquainted with the nature of such a class, that, if no encouragement be held out to a qualified teacher to devote his whole time to this branch of education, it will almost invariably be taught in connection with lectures, or other pursuits, to which it is likely to become altogether subordinate.

Considering it probable that the Patrons of the University will institute a Professorship of Practical Chemistry, when they shall have had leisure to attend to the evidence contained in the testimonials which Dr Reid will soon be enabled to lay before them, from gentlemen who are professionally devoted to science, and also from many of those who are engaged in the great manufacturing establishments of this country, he begs leave to offer himself as a candidate for the situation, in the event of this plan being adopted. Dr Reid has now been chiefly engaged, for a number of years, as a teacher of Practical Chemistry; he has given several courses during each of these years; the total number he has given amounts to fifty-three courses of Practical Chemistry. He has also given six courses of lectures on Chemistry, which were delivered at the Edinburgh School of Arts, and the Leith Mechanics' Institution, and a number of private courses of Analytical Chemistry.

Dr Reid has reason to believe that he has so far improved the method of teaching Practical Chemistry, as to give it a new character and interest, to render it more extensively useful, by enlarging its range of operations, improving their manipulations, and giving them more of system, and more precision in their various details, so as to render a complete course more accessible to the student, at a moderate price. By these

means, he was enabled to get over the principal difficulties in the way of its general adoption. The Royal College of Surgeons, who did him the honour to consult him on the study of Practical Chemistry a few years ago, adopted the arrangements which he introduced in his class-room in the High School Yards, which was frequently visited by a number of the members of the Royal College; and, as his tickets could not then be received by the College, as he was not at that time a member either of the College of Physicians or of Surgeons, they made a special enactment in his favour, which was unanimously agreed to.—(See the Report of the Committee, p. 19.)

As a proof of the advantages of his plan, and of his general success as a Teacher of Practical Chemistry, he may be allowed to state, that his class has been rapidly gaining ground every year since he commenced, and that he has had upwards of two hundred pupils annually during each of the last three years, partly, no doubt, from the growing interest of the subject, and partly, also, from the exertions he has made to render the Course worthy of public support. As this class exacts the most laborious and anxious exertion, requiring each day generally from three to five, and sometimes eight hours of actual teaching, besides the time necessary for preparing every day a new and extensive range of experiments, as the number attending at any single hour is always limited, and as the expense of assistance, materials, and apparatus, most seriously deducts from its profits, it must be obvious that there is no encouragement for any competent person to devote himself to its duties, without a proper security for the permanence of his situation. It is with the view of obtaining this security, that Dr Reid now submits his claims to the Patrons of the University. He looks neither for salary nor endowment, although the adjustment of the course and the apparatus in daily use has put him to a great expense; but trusts that the Patrons will give the class an independent footing, by the institution of a Professorship, and provide

such a Class-Room as will enable justice to be done to the Practical Course.

In the year 1825, Dr Reid published an "Introduction to the Study of Chemistry:" it is twice alluded to in the Testimonials from the late Sir John Leslie.

In 1826, he published a short account of the Atomic Theory, and an explanation of an Improved Scale of Chemical Equivalents.

In 1829, he wrote a work, entitled Elements of Practical Chemistry, intended as a text-book for the students of Practical Chemistry.

In 1830, a Second Edition of his Explanation of his Improved Scale, &c., was published, and a description added of a new Series of Diagrams, adapted so as to facilitate greatly the study of all the more complex cases of chemical action.

In 1831, a Second Edition of his Elements of Practical Chemistry was published.

He has also read, at different Societies, a number of Memoirs on several subjects connected with Chemistry. Some of these have already appeared in the scientific journals.

NATURE OF A PRACTICAL COURSE.

In the Practical Chemistry course, the students are engaged in experimenting one hour a-day, five times a-week, for three months; they have also an opportunity of practising some of the more difficult manipulations of the science, at an extra hour; and a series of examinations are given twice every year, to which they have free access, so that the time devoted to their instruction may be said to be equivalent to a four months' course.

Each student has an opportunity during the course of operating with every variety of apparatus, and the number operating at the same time has hitherto been limited to twenty-five. The number of experiments which each student sees

performed by his fellow-students, in addition to what he performs every day himself, is considered of much importance; it gives him an opportunity of seeing an extent of practice, which increases to a very great degree his resources as a practical chemist.

The number of experiments and processes performed in each Course of Practical Chemistry, when the class is full (twenty-five constitute a full class), now amounts to nearly 2000. This includes a number of duplicates given for the purpose of enabling every one to conduct personally all the most important experiments which this science embraces. The number of duplicates varies with the number of gentlemen attending each course. The number of experiments performed in each course, independent of duplicates, amounts to upwards of a thousand; the number of these also fluctuates a little, as there are now so many engaged in the pursuit of Chemistry, that new facts are continually discovered, and the course is always undergoing some change or modification, to keep pace with the progress of the science. The average number of experiments and processes performed each year in Dr Reid's Class Room, by beginners, now amounts to upwards of 15,000. During the whole of the time the students are operating, Dr Reid converses with them, and assists them in all experiments. They are invited to put questions to him, which they constantly do. The students have uniformly taken a very great interest in the business of the class; they enter upon the various experiments and processes committed to their care with great zeal and activity; they seem to have great pleasure in co-operating with one another, and in discussing with each other the particulars of their several experiments. In addition to those experiments that come more strictly within the usual range of chemical operations, the students are taught the method of using the Blowpipe, and of making and using Tube Apparatus; this enables them, at the very trifling expense of a few shillings, to purchase materials with

which they can carry on their researches in the most satisfactory manner, though on a small scale, after they leave the University, and to perform almost all the more important and interesting chemical experiments, in an apparatus so small and so portable, that a large proportion of the students of Practical Chemistry now provide themselves with it. The important consequences to which this must lead, from the powerful means which it presents of diffusing a knowledge of Chemistry even in the remote parts of our own country, and also abroad, will be readily appreciated.

The details of the arrangements by which Dr Reid is enabled to effect these different objects, he shall have great pleasure in submitting to any gentlemen whom the Council may choose to appoint, should they wish any report in regard to them.—Dr Reid may perhaps be allowed to observe, that they are the result of many years' experience, during which he has been engaged, on an average, from ten to sixteen hours a-day, in bringing them to maturity. Dr Reid has hitherto obtained only the most trifling and inadequate remuneration for the time, the labour, and the money, that has been expended on the Practical Course; for, independent of the current expenses of each session, he has incurred very great expense in introducing all the peculiarities which his system of teaching embraces, and in providing a most extensive range of apparatus, which is now so ample, that with it 200 students might be engaged in chemical operations every day.

Dr Reid has farther to remark here, that a great proportion of those gentlemen who have attended the Practical Class, have done so with the view of deriving some practical advantage from it in their various pursuits; and, from some arrangements which he has lately made, every student will not only have a sufficient range of experiments and processes to perform, so as to enable him to have a practical knowledge of the resources of the Science, but also an opportunity of per-

forming a Series of Experiments more immediately adapted to his own professional pursuits.

The following List comprises the principal Classes of Students who now attend the Practical Course :—

1. Medical Students.
2. Gentlemen connected with the arts and manufactures of this country.
3. Students of Agriculture.
4. Civil Engineers ; more particularly those engaged as Mining Engineers.
5. Students of Literature and Science.
6. Gentlemen who are going abroad, and who expect to turn their knowledge of Practical Chemistry to advantage, either as manufacturers, or as giving them a superior claim to many appointments, where they may have to report more especially upon the value of any mineral productions, in any country which they may have officially to inspect.
7. Military Engineers, and Officers of the Army and Navy. *

Dr Reid trusts the circumstances he has now mentioned, will have proved to the Patrons, that the teaching of Practical Chemistry is an object of national importance ; and that the establishment of this class on an independent footing is absolutely necessary to do it any thing like justice.

* The number of Military and Naval Officers who have attended Dr Reid's Classes has not hitherto been great, though there have always been some in the course of every year, The first of these, who attended his Course in the High School Yards, was formerly aide-de-camp to Marshal Ney. He attended at the same time with George Sinclair, Esq. M. P. A testimonial from him, and also from some other gentlemen engaged in the same profession, would have been laid before the Patrons, had they not gone abroad some time ago.

DR HOPE'S CONNECTION WITH THE PRACTICAL COURSE.

Dr Reid has now to explain the circumstances that led to Dr Hope having any connection with the Practical Course. This detail would have been altogether unnecessary, had Dr Reid not been compelled by Dr Hope informing him that he is to oppose the institution of a Professorship of Practical Chemistry. Dr Reid will confine himself solely to the leading facts connected with this part of the subject. It may be necessary for Dr Reid to premise, that he commenced the study of Chemistry at an early age, about fifteen years ago, with the late Joseph Astley, Esq. who had very extensive chemical works at Portobello and Bo'ness. Mr Astley's attainments as a man of science, and also as one of the first manufacturing chemists in this country, are well known. His works displayed an extensive series of original applications; nor was there any manufacture, that he devoted his attention to, which he did not contribute to improve.

After receiving a private course of instructions with Mr Astley, Dr Reid had every advantage for the study of Chemistry, both theoretically and practically. He was engaged in superintending the chemical departments of his works, and was constantly occupied in experiments connected with it, either on the large scale, or in his experimental laboratory.

In the year 1820, Dr Reid attended the valuable lectures given by the late Dr Murray; and some years afterwards, while engaged with his medical studies at the University, had an opportunity of attending Dr Hope's course of Chemistry, and gladly avails himself of this opportunity of publicly acknowledging the benefit which he derived from Dr Hope's instructions. Dr Reid also attended Dr Anderson's interesting courses of Practical Chemistry. Dr Anderson was

then Assistant to Dr HOPE. Dr REID was, on many occasions, indebted to Dr ANDERSON for the permission he gave him to make use of his laboratory, in following out some experiments in which Dr REID was much interested at that time. He annexes a copy of a certificate which he received from Dr ANDERSON very nearly eight years ago:

"I hereby certify, That I have known Mr DAVID BOSWELL REID intimately for two years, and that, during that time, I have had many opportunities of satisfying myself that he is intimately acquainted with the principles and practice of Chemistry.

"He attended my course of Practical Chemistry and Pharmacy delivered in the Laboratory of the University of Edinburgh during two sessions, where he was accustomed to make experiments: In doing which, his manner of operating evidently showed that he must have been long accustomed to such pursuits.

"The work which he has just published, and which I have read with pleasure and instruction, displays not only a general but intimate knowledge of chemical principles, and of the facts by which they are supported."

After spending some time abroad, and publishing an Introduction to the Study of Chemistry, Dr REID resolved to devote himself to the teaching of Chemistry, and gave a Course of Lectures and of Practical Chemistry in the year 1826. In the following year, having considered that the teaching of Practical Chemistry might be very much improved, and more broadly adapted to the wants of every class of Students, and that it would become an object of great national importance if he could succeed in introducing a more effective system of tuition than had been generally adopted, at such a moderate price as would render it accessible to all classes of students, he determined to devote his attention prin-

cipally to this department; and he may be allowed to appeal to his success as a Teacher of Practical Chemistry during the succeeding year, as affording the most unequivocal evidence of the improvements he had then introduced; and he begs also to refer to his Testimonials from gentlemen who were acquainted with his plans, and the progress of his Classes in the High School Yards.

In the year 1828, having heard that the situation of Assistant to the Professor of Chemistry in the University was vacant; and being aware that some former Assistants had the use of a room in the University, in which they had occasionally given courses of Practical Chemistry, it occurred to Dr Reid, that, if he obtained that situation on the usual terms, any disadvantages that he might labour under, from the time which he would necessarily have to give up to the Professor, would be compensated for by the use of a room in a situation where he would have an opportunity of making his plans for teaching Practical Chemistry better known.

With this view, Dr Reid applied to Dr Hope for the situation; and among other objections, Dr Hope particularly mentioned at that time, that he would be extremely unwilling to enter into an engagement with any one who would not be likely to remain with him for several years at least, and that he did not consider that the situation of Assistant held out such advantages as would be likely to induce Dr Reid to remain with him for any length of time. Dr Reid then stated fully to Dr Hope his views of the nature and importance of the Practical Chemistry Class, to which Dr Hope replied that Dr Reid was far too sanguine in his expectations as to Practical Chemistry, and that none of his previous Assistants had considered it of such value as even to induce them to continue teaching it. To this Dr Reid answered, that he knew that those of Dr Hope's Assistants who had given Courses of Practical Chemistry, were much engaged in other pursuits, in which some of them had embarked a very considera-

able capital, and that they had never, accordingly, at least during the later period of their engagement with Dr Hope, considered the Practical Course as an object of much importance to them, in comparison with their other avocations; nor did these other engagements permit them to devote that time and attention to it which Dr Reid had given it.

Under these circumstances, Dr Reid stated that from the new plans which he had adopted, and the success that had attended them, he had every reason to expect that the Practical Course would become more and more important every year, and farther, that he would willingly take all the risk of the result, and engage with Dr Hope for any number of years, provided Dr Hope would secure to him the use of a Class Room within the University, in which he should have full liberty to carry on his Practical Classes, as a private and independent Lecturer.

This arrangement having been afterwards agreed to, Dr Reid became Dr Hope's Assistant in November 1828, ten years after he had been first engaged in chemical pursuits, and after he had succeeded in instituting a number of improvements in his Classes, which had given him a foreground as a teacher of Practical Chemistry, and after having given Ten Public Courses of Practical Chemistry, besides private Lectures, &c. He then gave up his Class Room in the High School Yards, on which he had expended a very considerable sum in erecting Furnaces, Forges, and all the necessary accompaniments of a Practical Class, according to his plans. A large portion of these (all the fixtures) were now of no use to him; he had also to pay a rent for this Class Room for some time after he was at the College. Dr Reid was to give up some of the best hours of each day during the Session, while engaged with Dr Hope, and in return for this he was to have the use of a Class Room within the College, and the usual allowance given to the Professor's Assistant. The following is an extract from a paper drawn up by Dr Hope, according to this arrangement, before

Dr Reid entered on his situation in the University: "Dr Hope will be glad that Mr Reid shall deliver Practical Courses of Chemistry and Chemical Pharmacy, at such hours as shall not interfere with the business of the Professor's Lectures. Mr Reid shall have the full use of the lower Laboratory, and of the fixed furnaces there; he shall also have fuel furnished to him, but none of the preparations, specimens, or apparatus belonging to Dr Hope, are to be exhibited or used during these private Courses. Mr Reid will have to provide any attendance he may require for these Courses, of which he will draw the whole emoluments."

The Courses of Practical Chemistry had scarcely been carried on for a year according to these arrangements, when the College of Surgeons rendered attendance upon a class of Practical Chemistry and Pharmacy imperative upon all students who should in future present themselves for a Surgical Diploma. The number of Dr Reid's pupils who attended the year before these regulations came into force, amounted to 120. These gentlemen attended solely from the benefit they derived from his course of instructions in Practical Chemistry; and he had now the prospect of an annual addition of about 100 pupils to his classes, from the great number of Surgical Students at this School.

This regulation of the College of Surgeons, however, placed him in a most peculiarly difficult situation. Neither being a professor nor a member of the College of Surgeons, it was doubted whether his ticket would be received as qualifying for a Surgical Diploma, now that attendance on this class had become imperative. Uncertain, therefore, what plan to adopt, and unable to return to his former class-room, all the furnaces, &c. which he had put up there having been pulled down, the following arrangement was made with Dr Hope, under the impression that he could enable the course to qualify, by bringing it before the Senatus, and associating his name with it.

It was then understood,

1. That Dr Hope's name should be put upon the ticket along with Dr Reid's.

2. That Dr Reid should have the use of a better class-room, in addition to what he was entitled to by his first arrangement.

3. That Dr Hope should give an Introductory Lecture to the Practical Courses.

4. That Dr Hope should have one-third of the profits of the class, the current expenses alone being deducted from the income in estimating them, and that nothing should be taken from his share of these profits, in providing apparatus or specimens for the class, these having always been Dr Reid's private property; excepting, however, some fixtures to be put up in the new class-room, which were to be paid by Dr Hope out of his first profits from the Practical Class, and to become his private property, as, had they been furnished by Dr Reid, he could not have taken them away with him, in the event of his leaving the College. Dr Reid considers it necessary to add, that, before Dr Hope had any connection with his course, and since he came to share in the profits, Dr Reid sacrificed every year a very large share of his profits in introducing those new arrangements in his class, which have contributed most materially to place it on its present footing; so that, strictly speaking, he has hitherto had but a very trifling remuneration for his labour, as any one who examines his new arrangements will at once perceive must have been the case.

5. That, with the exception of these fixtures, all the apparatus, specimens, diagrams, &c. used in that class, should remain as before, Dr Reid's private property.

6. That Dr Reid should have the sole management and arrangement of the Practical Chemistry Class.

7. That any additional apparatus required for the courses should be provided solely at Dr Reid's expense, and also be considered as his property.

8. That the words "University of Edinburgh" were now to be put on Dr REID's ticket, and that he was to be allowed, under the sanction of the Senatus, to designate himself as Conductor of the Classes of Chemistry in the University.

It may be here necessary for Dr REID to remark, that Dr HOPE said that he considered himself entitled to a share in the profits of the Practical Class, independent of any advantages it might derive from these arrangements, from his being of opinion that the regulations of the Royal College of Surgeons would prevent medical students from taking his course a second time, who might otherwise do so. Though Dr REID agreed to these arrangements, from the very peculiar circumstances in which he was placed, he considers that, as he took all the risk connected with the Practical Class, when it was considered of no value, he was entitled to any advantages that might arise during its natural progress. It is also a question how far the Practical Course is not rather advantageous than injurious to Dr HOPE's class, from the great additional interest which it necessarily gives to the study of Chemistry. And even if Dr HOPE's Class sustains a loss by the rising interest of a new branch of education, it has gained as much by the general progress of the science; nor can Dr REID perceive why such a loss should be made up from the Practical Chemistry Class, which has already had so many difficulties to contend with, and to which it might prove so heavy a tax.

The following Report of a Committee of the Royal College of Surgeons, will shew that these arrangements failed in securing to Dr REID the object contemplated. He accordingly wrote to the College, as he had originally intended, at the request of the President, reminding the members that their Education Committee had consulted him as to the introduction of this branch of study in their Curriculum, and that they eventually adopted his views. Their answer is also included in this Report.

REPORT of COMMITTEE *of the* ROYAL COLLEGE *of* SURGEONS *appointed to consider the Course of Practical Chemistry conducted in Edinburgh University.*

"ACCORDING to the instructions of the ROYAL COLLEGE, the Committee applied to Professor HOPE to know the nature and extent of the superintendence intended to be given by him in the course of Practical Chemistry advertised to be carried on in the University under the direction of Mr REID, Experimental Assistant to the Professor.

"Having maturely considered the letter of Dr HOPE, the Committee have to report it to be their unanimous opinion, that the College should not recognise the course as a University course conducted by a Professor. They have farther to report, that they do not think that the College should recognise the course as conducted by Mr REID, in virtue of his connexion with the University, as the status he holds there depends upon the appointment only of the Professor of Chemistry. But, under the very peculiar circumstances in which Mr REID, who has been for some time past a most industrious and successful teacher of Practical Chemistry, would be placed in consequence of the late Regulations of the Royal College, were his courses not held to qualify his Students for examination, the Committee unanimously and earnestly recommend to the College to receive certificates of attendance upon Mr REID'S course for two years; this time being given to him to afford him an opportunity of qualifying himself as a Lecturer under the present Regulations of the Royal College."

The letter from Professor HOPE, and one from Mr REID, are appended to this Report.

(Signed) WILLIAM WOOD.

[A copy of the above Report was sent to Dr REID by the Royal College, accompanied by a Letter from the Secretary, stating that it had been unanimously adopted.]

Thus, then, the Patrons will observe, that Dr HOPE's name was connected with Dr REID's Course solely from a circumstance which was in itself purely accidental; and that, after all, it did not secure the object intended. If Dr REID had been a member of the College of Surgeons at the time their regulations were enforced, it would never have appeared there at all.

He may be allowed to add, that, after the very special privilege which the Royal College of Surgeons had the goodness to give him expired, the Courses which he has since given in the University have still qualified in his right alone, having then become a member of the Royal College of Physicians.

Three years' trial of the plan agreed to, after the Royal College rendered Practical Chemistry imperative, proved to Dr REID, that, while it had nearly doubled his labour, it had scarcely added any thing to his income. Being convinced, moreover, from the heavy expenses connected with the Practical Class, and the assiduous labour necessary to its successful teaching, that it cannot afford to be burdened with any allowance to the Professor,—that its progress is necessarily checked by being in any way under the control of another, who considers its rising importance injurious to the interests of his class,—and that there is no security for the permanence of his situation in the University, Dr REID has given in his resignation.

TO THE RIGHT HONOURABLE

THE LORD PROVOST, MAGISTRATES,

AND

OTHER MEMBERS OF THE TOWN-COUNCIL OF EDINBURGH.

My Lord and Gentlemen,

As Dr Fyfe has addressed to you a letter, in which, instead of confining himself to his own claims, he has thought proper to step out of his way, and misrepresent, in a most extraordinary manner, my statements, I trust I may be allowed to state briefly what I consider necessary to the vindication of my character, from an attack altogether unprovoked on my part.

Dr Fyfe says, that I assume that I had succeeded in establishing Practical Chemistry as a distinct branch of education, and affirms that he taught it before me; thus insinuating that I had claimed being the first to teach it in this place, in direct opposition to the statement I had made, of having, during my medical studies, attended the valuable course then given by Dr Anderson—a statement which is made, in the most explicit terms, in my Memorial, which Dr Fyfe says he has read.

It is quite evident that Dr Fyfe, from the general tenor of his letter, means it to be inferred that he was the earliest teacher of Practical Chemistry in Edinburgh. He says he

would not have offered himself at present as a candidate for the Chair, " had not Dr REID," to use Dr FYFE's words, " in his Memorial, assumed to himself what I humbly con- " ceive is due to me, and thus may have given rise to the " impression, that, from his having succeeded in establishing " Practical Chemistry as a distinct branch of education in " Edinburgh, he is justly entitled to the appointment in the " University." And again, he remarks, " for several years " I laboured alone in the field; and it was not till after I " had brought it into notice, that others came forward to " share the benefit."

Whatever merit there may be in his priority to me, I leave him in the undisturbed enjoyment of it; but he has thought proper to inform us, that it was merely " at the request of several scientific gentlemen" that he was induced to give a class of Practical Chemistry, and therefore that he neither foresaw nor acted upon views of his own of the rising importance of Practical Chemistry. It was, by his own confession, a branch of education altogether forced upon him. His own statements show the extent of his claims on this ground.

But what must we think when it is known that Dr FYFE was not the first who either taught Practical Chemistry, or brought it into notice in this place? It is not only notorious, but I have the authority of Dr THOMSON himself, the Professor of Chemistry in the University of Glasgow, when I state, that he was the first, so far as he knew, who gave a public course of Practical Chemistry in this place, and thus brought it into notice; and I may add, that Dr THOMSON gave several courses before Dr FYFE appeared in the field, either as a lecturer or teacher of Practical Chemistry.

It is also equally notorious, as it was published at the time in the Edinburgh Newspapers, that Dr ANDERSON, the proprietor of the Bonnington Chemical Works, was presented with a piece of plate for his successful exertions as a Teacher of Practical Chemistry, in the year 1823, one or two years

only, at the utmost, after Dr FYFE, to use his own words, had been "almost induced to abandon the plan."—Dr FYFE's Letter, page 2.

It ought also to be noticed, that those who have paid any attention to the progress of Practical Chemistry on the Continent, are well aware, that instructions in this branch of education have been given there for upwards of fifty years; and the great difficulty has always been, not merely to teach Practical Chemistry, but to give an effective course of instructions at such a moderate price, as would enable all classes of students to take advantage of it. To this I have devoted much attention; it forms one of the most prominent features of my course, and cost me, at one time, more labour and expense than any other part of my arrangements.

Upon what grounds, then, does Dr FYFE presume to assert that I have assumed to myself what he conceives belongs to him? In my Memorial, in bringing forward my claims, I have only stated what I had actually done, and why could not Dr FYFE have done the same?

He does not, indeed, venture to affirm that I have adopted any one of his methods, or that I ever was in his class-room, either to hear his lecture or witness any of his manipulations. My arrangements for the teaching of Practical Chemistry were instituted in my first class-room, and also in that which I had subsequently in the High School Yards, at a time when I had no connection with any teacher, and when my previous connection with some of the chemical manufactures in this country, and also with a number of medical students, whose difficulties in pursuing their chemical studies I had many opportunities of witnessing, led me to adopt those arrangements for carrying on an extensive system of instructions in Practical Chemistry, which have been adapted to every class of students.

Why Dr FYFE, with his professed zeal for Practical Chemistry, and the success which, he says, attended his labours,

has not announced any classes for Practical Chemistry, though he has been repeatedly announcing lectures, and states, as appears from his letter, that he is both able and willing to do so now, provided he should be appointed to a Chair for that purpose, he can best explain.

Dr FYFE states, that several members of the Royal College of Surgeons had acknowledged to him the value of his Course of Practical Chemistry; it would indeed have been strange had gentlemen acquainted with the science done otherwise. He tells us that his pupils were uniformly distinguished above all others; this I am quite willing to take upon his word, for, if he was, at the time he alludes to, the only teacher of Practical Chemistry, they could scarcely fail to be otherwise, whatever plan might be adopted, from the superior advantages which Practical Chemistry has in exciting the student's attention, in forcing him to grapple intimately with his subject, to survey it in all its bearings, and thus to give all his knowledge the precision and accuracy of actual experience.

This statement of Dr FYFE's as to the good opinion which some members of the College of Surgeons had expressed as to his Course, is meant to stand against what I had simply stated as a fact, that I had been formally consulted by the Education Committee of the Royal College of Surgeons on this business; that, while others gave it as their opinion that each Class of Practical Chemistry should be confined to six or eight at the utmost, I satisfied them, that, according to my plan of teaching, the number could be extended to twenty-five, not only without inconvenience, but with great positive advantage, each student operating much oftener than before, and seeing an extent of practice which could not otherwise be brought before his notice. This plan they adopted; and had they done otherwise, Practical Chemistry, as a branch of education, would have received a severe check; as, in that case, the students would have been obliged to have paid a very

heavy fee, or the Lecturer could not have afforded to have given them that range of practice, which alone can enable them to become practically acquainted with manipulation. I may also be allowed to refer to the Report of the Committee of the Royal College of Surgeons, printed in my Memorial, from which it will be seen, that the Royal College, at that time, did me the honour of granting me a special licence for teaching Practical Chemistry, in consequence of my exertions connected with it, as I was not then a member of either of the Colleges, which is, otherwise, required for that purpose.

Here I cannot help, my Lord and Gentlemen, drawing your attention to another feature of Dr FYFE's letter, as it throws some light on the spirit with which it is written.

Throughout the whole of his letter he cautiously avoids saying one word in favour of the establishing of a Professorship of Practical Chemistry, and this he does, although the subject is repeatedly forced upon him. Thus he says, *When I heard, some time ago, that a proposal was about to be submitted to you, with the view of getting established a Chair for Practical Chemistry, I resolved to wait for your decision; and in the event of your agreeing to establish it, then to offer myself as a candidate*, &c. &c. Again he remarks, *I trust that, should you accede to the proposal of erecting a separate chair*, &c. He states further, *in the event of your establishing the chair*, &c. And he concludes with observing, *If necessary, I will in due time lay before you the requisite testimonials*, &c. &c.

Now, I would beg leave to ask, if this is the language of a person who would wish to see justice done to Practical Chemistry as an independent branch of education? He leaves it to me to prove the importance of this; but if the documents which I have laid before you, and those which I have still to present, shall lead to the institution of a New Professorship, then Dr FYFE tells us he is to step in. Let this lukewarmness as to the claims of Practical Chemistry be taken in connection

with this uncalled-for attack on me, and then I think the drift of this letter is pretty clear. It seems to have been brought out rather with the intention of injuring me than of advancing any serious claims of his own. In this point of view, Dr Fyfe's silence as to the propriety of making Practical Chemistry an independent Course, is prudent and intelligible, and must be highly acceptable to those whose object is to keep this branch of education in the back ground.

Dr Fyfe tells us that you will not listen to those interested, at the very time he is calling upon you to listen to him, and this too, though he has as yet brought forward no evidence but his own bare assertion. He has likewise thought it necessary to say, that he trusts there will be no appointment without an open competition, as if you would have permitted this, or I had ever contemplated taking any unfair advantage; at a time too, when I have stated most explicitly in my Memorial, that *I beg leave to offer myself as a Candidate for the situation of* Practical Chemistry, should it be made an independent branch of education within the University.

I may be here permitted again to state, that I have rested my claims solely on my success as a Teacher, on my plan and arrangements, and the general completeness and efficiency of my Course; and, in doing so, I have endeavoured to avoid all invidious comparisons, leaving every one to bring forward his own evidence as to his own claims.

I have published a Class Book on Practical Chemistry, from which I find my pupils derive great advantage, as, by consulting it at home, they are much better prepared for operating in the Class Room; their attention is thus more excited, their facts better arranged, and a great deal of time saved, for the extension of our practical operations. For, with it, they have now at their command, and in a regular form, what they used formerly to endeavour in some degree to make up for themselves, by taking notes during class hours, which made them lose much time while experimenting.

A series of Practical Exercises have also been instituted, and the arrangements connected with these, as well as with the peculiarities of my system, I shall gladly submit, either to the Patrons individually, or to any Committee whom they may choose to appoint.

In extending my plans, I have bestowed much care in guarding against every source of accident to the Students while conducting their different experiments; and though I have been frequently severely injured in adjusting new processes before I allowed them to form part of the Practical Course, I may be allowed to appeal to the circumstance, as a proof of the time I have spent in this part of my arrangements, that, though very nearly a thousand students have now attended my classes, each having operated during a Three Months' Course, no accident has hitherto taken place.

In completing my plans, I visited the great manufacturing towns both here and in England; and, at the present moment, a great range of new apparatus is in use in my Class-room, which has been made expressly for my Course at these different places, and especially adapted for Students of Practical Chemistry.

Under these circumstances, I certainly cannot be accused of presumption in putting forth some claim to a department which has been generally made subordinate to Lectures, or taught at a leisure hour by those engaged in other avocations, but which has been the main business of my life, to which I have made numerous sacrifices, and devoted a great number of years of the most laborious and anxious attention.

I have the honour to be,

My Lord and Gentlemen,

Most respectfully,

Your very obedient servant,

D. B. REID.

Edinburgh, *February* 19. 833.