

Enclosure B. 2.

---

with Irish Educational Questions  
Paper B.

---

REPORT.

of the  
Dean & Faculty of Science  
of the  
Cath. University of Ireland

Secs: 1857. 58.

Houses of the Oireachtas

R E P O R T

OF THE

DEAN AND FACULTY OF SCIENCE

OF THE

CATHOLIC UNIVERSITY OF IRELAND.

SESSION 1857-1858.

DUBLIN:

PRINTED BY JOHN F. FOWLER,

3 CROW STREET, DAME STREET.

1858.



TO THE VERY REV. THE RECTOR.

---

UNIVERSITY HOUSE,  
Dublin,  
June 10, 1858.

VERY REV. SIR,

I am directed by the Faculty of Science to lay before you the accompanying Report, on the wants and requirements of the Faculty, with a request that you will submit it to their Graces and their Lordships the Archbishops and Bishops of Ireland, at their next meeting, with such recommendations as you shall deem fit.

I have the honour to be,

Very Reverend Sir,

Very faithfully, etc., etc.

ROBERT D. LYONS,  
Dean of Faculty.



THE VERY REV. THE RECTOR  
TO  
HIS GRACE THE ARCHBISHOP OF DUBLIN,  
PRESIDENT OF THE CŒTUS EPISCOPORUM, ETC., ETC.

---

THE ORATORY, BIRMINGHAM,  
June 17, 1858.

MY DEAR LORD ARCHBISHOP,

The Dean and Faculty of Science have sent me their Report on the wants and requirements of the Faculty, with a request that I would submit it to the Archbishops and Bishops of Ireland, with such recommendation as I might think fitting.

As they suggest that it should be laid before the next Episcopal meeting, I feel I am best giving expression to their wish by addressing myself, as I now do, to your Grace, as the formal President of the Cœtus Episcoporum.

No remarks which I could offer on their Report would be in themselves of any value, considering the matters of which it treats; but, since I am still Rector, there is both a fitness in the Professors addressing the Archbishops and Bishops through me, and a call on me to declare my full concurrence in the step they have taken, founded on my intimate sense of the claim which the Faculty has on the zealous and munificent patronage of those who, like the

Archbishops and Bishops of Ireland, have come forward in the sight of Europe as the founders of a great University.

I am encouraged in this strong expression of opinion, by the recollection that, when I was in Rome two years since, persons there of the highest consideration urged upon me the duty under which I lay as Rector, of furthering to the best of my power the interests of Physical Science.

I am, my dear Lord Archbishop,

With profound respect,

Your Grace's

Most faithful servant in Christ,

JOHN H. NEWMAN,

Of the Oratory.

His Grace

The Most Rev.

The Archbishop of Dublin,

etc., etc.

# REPORT,

ETC., ETC.

---

It is the opinion of this Faculty, an opinion which, it is respectfully submitted, has not been arrived at until after mature deliberation and the discussion of the various questions affecting it at intervals extending over a year, that the time has come when it is absolutely necessary to lay before the Most Reverend and the Right Reverend their Graces and their Lordships the Archbishops and Bishops of Ireland, a full exposition of the wants and requirements of the Faculty of Science. The views to be here set forth, it is but right to observe at the outset, in justice to the Professors of this Faculty, have been entertained and expressed individually by each member of the Faculty, and have likewise found unanimous expression on repeated occasions in the body of the Faculty specially assembled for their discussion; and if they have not been hitherto laid in an official manner before their Graces and their Lordships, it is only because a course of expediency and expectancy has been urged upon the members of this Faculty.

Necessity of representing the wants of the Faculty to Archbishops and Bishops of Ireland.

These wants long felt by the Faculty.

The Professors of the Faculty beg leave to repre-

Faculty  
founded  
for educa-  
tion of  
Catholic  
youth of  
Ireland in  
Mathema-  
tical, and  
Natural,  
and Ex-  
perimental  
Sciences.

Import-  
ance of  
these  
sciences.

sent to their Graces and their Lordships that the Faculty has been constituted with a view to furnishing to the Catholic youth of Ireland an extended course of instruction in those important branches of knowledge known as the Mathematical Sciences and the Natural and Experimental Sciences, or, as they are otherwise more correctly termed, the Sciences of Observation and Experiment. It is by the extended cultivation of these sciences, constituting as it does one of the most marked characteristics of the scientific research of this century, that we are enabled to investigate, comprehend, and advance the utilization by mankind of the still unexplored powers of inorganic nature, and the yet obscure phenomena of vital organisms.

And here a reflection of the highest moment is opened up. It is in the interior development called forth in youth by the study of the phenomena of the organic and the inorganic worlds, that the well-directed mind is led to the sublimest ideas of the Creator in the contemplation of His works. It is likewise in the prosecution of these studies that the path of error lies most open to youth, if not guided by the light of Catholic teachings. No doubt, therefore, can be entertained that it is amongst the first and most important of the duties imposed upon this University, in undertaking the education of the Ca-

Dangers to  
youth of  
these  
studies, if  
not guided  
by Ca-  
tholic  
teaching.

N.B.

tholic youth of Ireland, to furnish them with the fullest opportunities of cultivating these branches of science in all their extent and in all their variety and detail. It must be remembered that, be it well disposed or otherwise, the preponderating tendency of the present educational movements is unmistakably in the direction of extending for all classes the cultivation of the Natural and Experimental Sciences. They constitute, so to speak, the objects in greatest demand in the educational market; and if our University does not supply them in all the abundance, extent, and variety required, our Catholic youth will and *must*, for they are forced so to do by the exigencies of the day, seek them elsewhere:—at what peril to faith is too well known to need comment here.

Necessity of these sciences being taught by the University.

These views have found practical expression in the formation, at a comparatively early period in the history of our University, of a Faculty of Science. They have likewise, on various occasions, found expression and approval with the most exalted personages connected with the University, and they have been repeatedly put into more tangible form by our Very Reverend Rector. It may be said, then, that a Faculty of Science constitutes, admittedly on all hands, a most important and, we would urge, a most essential and indispensable member, of the Catholic University body. Beyond, however, the bare exist-

This necessity already recognized by University authorities.

Faculty  
still im-  
perfectly  
developed.

tence in an imperfectly developed form of a Faculty of Science, numbering six Professors, almost nothing has been done to meet the great educational wants in respect to the Natural and Experimental Sciences which the Catholic youth of Ireland have laboured under hitherto.

Individual representations, Faculty meetings and deliberations, discussions extended over intervals occupying, as before stated, more than a year, have left the Faculty where it commenced—still an embryo undeveloped—still a projected and possible, but not an accomplished fact. It is therefore that the Faculty, now about to enter on the second year of their existence, deem it an imperative duty which they owe to the University, to science, and to themselves, to bring before their Graces a full statement of their wants and requirements, with such suggestions for placing the department on a proper basis as have been deemed most deserving their Graces' immediate consideration.

Circle of  
Sciences  
not fully  
repre-  
sented in  
Faculty.

The Faculty beg leave very respectfully to submit to their Graces, in the first instance, that the circle of the Natural and Experimental Sciences is as yet but very imperfectly represented in the existing staff of Professors which constitute the Faculty. It is the opinion of the Faculty that, before their staff can be regarded as at all complete, and before they can consider themselves qualified to offer to the Catholic youth of

Irleand an extended course of scientific education, such as that presented in the Universities of Continental Europe, it will be requisite to extend the number of Chairs in the Faculty by the addition of at least two Professorships, representing most important branches of science.

Two additional Chairs (at least) required to be created.

The Professorships here alluded to are:—

(a) A Professorship of Natural History, comprising Botany and Zoology.

Professorship of Natural History required.

(b) A Professorship of Geology and Mineralogy.

Professorship of Geology required.

The Faculty are well aware that, for a perfectly complete and thoroughly efficient system of education in the Natural and Experimental Sciences, courses of lectures are requisite (and are provided in other Universities of the Continent of Europe), which cannot be contemplated by the Faculty, even with the addition of the two Professorships specified. Such are the special courses on the natural history of cryptogamic plants and of zoophytes, applied Botany and its relations to agriculture, palæontology, ethnology, orology, special mineralogy, applied chemistry and its relations to agriculture, technology, etc., etc., etc., which give a world-wide reputation to many of the Universities of the Continent, and often raise obscure provincial towns to the rank of being recognized as centres of human thought and of the highest manifestations of human intellect,

causing their halls and schools to be thronged by the ardent students of nature who have exhausted the sciences as taught elsewhere.

But while this Faculty of our nascent University cannot as yet aspire to attract to these chairs professors who cultivate all the subdivisions of science just enumerated, it is confidently believed that for the present, at all events, an efficient representation of the most essential branches of science may be anticipated when they will have secured the services of Professors (*a*) of Natural History, comprising Botany and Zoology, and (*b*) of Geology and Mineralogy. It may be here observed that it is not alone in the Faculty of Science that the University feels the practical want of a Professor of Botany and Zoology. Courses of Botany constitute an element in the curriculum of the Medical Faculty, and in the absence of a professor of this department of Science on the University foundation, the Faculty of Medicine are annually obliged to permit their students to seek elsewhere that instruction in botanical science which they are themselves unable to afford them:—with what detriment to the interests of the University and its students needs not to be farther particularized.

With regard to the practical value to be derived to the University from the establishment of the chairs just specified, the Faculty think that it is unnecessary

With the two additional Chairs Faculty will represent only the more essential branches of science.

Chair of Botany required in Medical Faculty also.

to urge any special arguments at length upon their Graces. It may be briefly said, however, that, taking education at its lowest level as furnishing means to an end for individual advancement in life, the economic relations of the sciences which will be represented in the Faculty on the addition of the chairs in question, supply elements of knowledge which, when turned to account in the world at present, most readily furnish to persons in all grades of society a means of advancing their respective interests.

Economic arguments in favour of these sciences;

The interests of agriculture, and consequently of the great class of landholders themselves, those of all persons filling offices of trust in connection with agricultural pursuits, and of all from those classes down, it may be confidently asserted, have been enhanced in the most remarkable degree by the economic application of certain of the sciences which our Faculty will embrace.

interests of all classes advanced by their cultivation.

Indeed it may be argued with no less truth, that the economic administration of landed estate now demands on the part of proprietors themselves an acquaintance, and that to no limited extent, with the principles of certain of our circle of sciences. Again, it may be advanced that science has on the one hand converted offices formerly little better than those of agricultural herds into administrative posts of trust, consideration, and emolument; while on the other, it

has called into existence a number of offices of trust and liberal emolument hitherto quite unknown.

These economic arguments apply to all the sciences of the Faculty.

These, so to speak, economic arguments may perhaps be advanced with most striking proofs from the incidents of practical life, in relation to the studies connected with the sciences of physiology, botany and zoology, chemistry, geology, and mineralogy. But considerations of a similar kind and of equal force will be found to be justified in respect to the other branches of science, which the Faculty represent, in their relation to practical life.

Indeed, so far as this economic argument in favour of University studies admits of being used, it may be stated that in all those multifarious offices in life, so much augmented in number within late years, and so rapidly being multiplied every day, which recognize as their basis the application of science to agriculture, commerce, mining, and the arts and manufactures, and numerous other nondescript human avocations, a properly constituted Faculty of Science supplies the greatest number of elements of advancement in life to the most various and opposite grades of society, and to the greatest number of individuals engaged in the active conduct of the world's affairs in the present day.

The Faculty of Science of your University therefore most respectfully submit to your Graces, that,

putting aside for the present the higher relations of science to humanity, and for the moment pointing their conclusions to the ends indicated by the foregoing considerations, they have undertaken a mission of no secondary importance, but one which invests them with the highest duties and responsibilities. The aim and scope of the Faculty of Science of your University are no less than those of training a very large numerical proportion of the Catholic youth of Ireland in all ranks of society, including the highest, for the several offices of trust, consideration, and emolument they will be called to fill in life, and for which they can be adequately prepared solely by exact and extensive scientific studies within the walls of this University.

Mission of the Faculty one of national importance.

In this point of view—how much more so in another!—the Faculty of Science of your University, in their prospective development, may be regarded as an institution of national importance, and as one destined to exercise a great moral leverage in the elevation of the Catholic youth of the country. As such, therefore, they hope, and doubt not that their claims on the Catholic people of Ireland will be readily recognized and cheerfully responded to.

In respect to the means to be adopted for worthily filling the important chairs in question, it is not unimportant to be laid before their Graces that it is

Impedi-  
ments to  
cultivation  
of science  
by Ca-  
tholics.

the opinion of the Faculty that means must be taken to secure the services of gentlemen educated on the continent of Europe.

The impediments to Catholic education in this country which have existed hitherto, proved an effectual bar to the cultivation of the Natural Sciences by the Catholic youth of Ireland. The same causes operated to the exclusion of Catholics from other branches of science, except in the instance of a few individuals, who, with a devotion truly heroic, gave themselves to the pursuit of science against all difficulties, till they finally conquered for themselves an acknowledged place in its highest ranks.

In the dearth of persons devoting themselves to the natural sciences in Ireland from the foregoing causes, the Faculty submit to their Graces, that their ranks must be recruited by worthy *confrères* chosen in the schools of the great Catholic countries of Europe. They therefore respectfully recommend that advertisements be published at an early date in suitable quarters in France, Germany, Italy, and Spain, inviting the *concurrence* of gentlemen distinguished in these sciences, for the University Chairs in question.

Faculty  
recom-  
mend the  
chairs of  
Natural  
History,  
and Ge-  
ology and  
Mineral-  
ogy, to be  
filled by  
persons  
educated  
on the  
Continent.  
N.B. { Advertise-  
ments to  
be pub-  
lished in  
France,  
Germany,  
Italy, and  
Spain.

It is here respectfully submitted to their Graces, that, as the cultivators of the sciences of observation and experiment are, by the nature of their avoca-

tions, excluded from all extrinsic sources of emolument, it will be necessary to provide liberally for their remuneration in the salaries to be attached to their chairs. The Faculty could cite many instances to show that a large measure of University success has attended those schools in which the rewards and the emoluments of Professorial chairs were such as to attract to them men of the most eminent abilities. They content themselves by asking their Graces' consideration of the returns of the emoluments of the professors of the University of Edinburgh at a period of its highest distinction and most flourishing condition (*see* Appendix A for these and similar returns).

Emoluments of scientific chairs must be liberal.

It has now to be submitted to their Graces that the Faculty are not yet in possession of the material and physical appliances and appurtenances, in the absence of which instruction in the Natural and Experimental Sciences is simply a thing impossible.

Wants of Faculty as to physical appliances, etc.

It is to be observed here for their Graces' information at the outset of considering this most important branch of the subject, that, from the nature of things, the Professors of a Faculty of Science are placed in a position of dependence on material elements of study, having no analogy in any other Faculty except that of Medicine, and in this respect the position of a Faculty of Science is infinitely more difficult than that of a Faculty of Medicine.

Faculty absolutely dependent on material elements of study.

In most other Faculties, the acquirements of the most accomplished professors can be made available for the instruction of the Student by the aid of a few text books within the reach of all. The chalk and black board supply to the mathematician and geometer the means for the most lucid development of the highest combinations of mathematical genius. It is far otherwise with the majority of professors in the Faculty of Science. To the physiologist, the chemist, the physicién, the botanist, and the geologist, it is impossible to convey instruction in the simplest elements of his course, without large museum resources to be drawn upon at will.

Instruction in Physiology, Botany, Geology, Chemistry, Physics, impossible without Museum collections and Cabinets of apparatus, etc.

The Faculty beg leave to remind their Graces that these departments of Science in all the well-organized Universities of the Continent before alluded to, are munificently supplied with observatories and museum collections of the richest description; and it is well known that the Universities in this and the neighbouring country are devoting their resources with even profuse liberality to supply this great desideratum of the day. Indeed, it may be said that the very impersonation and embodiment of the University idea best find expression, in the present day, in the museum collections, galleries, laboratories, observatories, and other material appurtenances, without which no University is now considered complete, and

Continental Universities richly supplied in these respects.

Museum, galleries, laboratories, Observatories, etc. embody University idea.

which, by their extent and richness, confer a justly-earned and increased celebrity upon many cities otherwise not unknown.

The Faculty would urge it upon their Graces, that, if in any one particular more than another certain views of the shortcomings of the University have reached them, it has been in connection with the continued deficiencies in respect to the museum collections, galleries, theatres, and other appliances now inseparably associated in the public mind with the ideas of stability, permanency, and efficiency of University bodies. The Faculty reminds their Graces, by the following extracts, that the idea of Museums and collections of the kind specified is not new to the Professors or the University authorities:—

“V. It is also proposed to establish an observatory, for the twofold object of advancing science by systematic researches, and of affording to the senior students in the faculty of science ample opportunities for becoming acquainted with the methods generally practised in the sciences of exact observation.

“VI. It is also proposed to form a University Museum, comprising: i. A collection illustrative of general natural history. ii. A mineralogical collection, consisting of: 1. Series of known mineral species; 2. Illustrative of form, including pseudomorphs, etc.; 3. Series illustrative of structure.

Shortcomings of University in this respect much complained of.

Idea of Museums, Observatories, etc., not new to the University authorities;

referred to in University Prospectus.

Extracts  
from Uni-  
versity  
Prospectus  
referring  
to Mu-  
seums, etc.

iii. A geological collection, consisting of: 1. A series illustrative of the nature and structure of rocks; 2. A palæontological collection, or series of fossil organic remains. iv. Collection of models and materials in connection with civil engineering and architecture. v. An art collection, which will include statuary, painting, engravings, carvings in wood, ivory, etc., cameos, seals, niello, enamels, fictile manufactures, mediæval church and other artistically wrought textile fabrics. vi. An ethnological collection, consisting of the weapons, implements of chase, domestic utensils, dress, etc., of the various barbaric or semi-civilized nations, especially those connected with Irish missionary enterprise.

“No suitable building has yet been provided for such collections, but a nucleus has already been formed, which it is hoped will be rapidly enlarged”.—*Prospectus of Catholic University of Ireland*, p. 5.

The Faculty feel that they would not be doing their duty to the University and their Graces, if they did not lay before them their mature opinion that the time has now come when the expectations held out to the Catholic public in the foregoing passages must be realized.

Faculty  
not yet in  
a position  
to inaugu-  
rate its  
courses.

The Faculty have been now more than a year in existence; but they are not yet in a position to offer to the Catholic youth an education such as that laid down in the syllabuses published in the past year,

and circulated throughout Ireland. In the syllabuses here alluded to, of which copies are enclosed for their Graces' consideration, the educational scheme of the Faculty was necessarily much crippled by the deficiencies in the professorial staff; but efforts were made to anticipate the chief difficulties by certain of the professors consenting for a time to take upon themselves extra duties, and to give to their courses such a comprehensive character as to supplement, as far as possible under the circumstances, the deficient representation of the circle of the sciences in the Faculty as at present organized. It is therefore that it has been determined to bring a full statement of the position and requirements of the Faculty before their Graces.

The following are the chief of these requirements:—

- |   |  |
|---|--|
| I. An extension of the present Physical Cabinet, and the addition of the elements at least of an Observatory.   | Observatory.   |
| II. A Laboratory and Museum of Apparatus suitable for researches and instruction in Physical and Experimental Chemistry.  | Museum of Apparatus for Physical and Experimental Chemistry.   |
| III. A Museum of Natural History Specimens, comprising and illustrating, by sufficiently extensive collections, Botany, Zoology and Comparative Anatomy, Palæontology, etc., etc. | Museum of Natural History, Botany, Zoology, Palæontology, etc. |

Courses laid down in Syllabuses of Faculty.

Museum  
of Geology  
and Mi-  
neralogy,  
especially  
of Ireland.

IV. A Museum of Geology and Mineralogy, with special collections to illustrate the Geology and Mineralogy of Ireland.

Techno-  
logical  
Museum.

V. A Technological Museum, as eminently calculated to be of use in the present direction of educational movements in Ireland. In the department under the Professor of Engineering, there will be required Models of Bridges, Docks, Steam Engines, etc., etc.

Cabinets  
of Micro-  
scopes, etc.

VI. A Cabinet of Instruments of Physical Research required in Engineering, in the Natural History Sciences, and in Mineralogy, including Microscopes, Polariscopes, Goniometers, Levels, Theodolites, etc., etc.

Herba-  
rium and  
Botanic  
Garden.

VII. A Herbarium and Botanic Garden, illustrating Economic and Medical Botany.

Galleries,  
Labora-  
tories, and  
Theatres.

VIII. Suitable Galleries, Laboratories, and Theatres, for the efficient use of the foregoing collections for educational purposes.

Observa-  
tory con-  
templated  
at an early  
period.

The Faculty beg leave to observe that the establishment of an Observatory was contemplated at a very early period, and it is thus alluded to in the Rector's Report for the year 1854-1855, wherein he refers to the department about to be placed under the management of the Professor of Natural Philosophy:—

“ When this gentleman, if definitely nominated by

your Lordships, shall be suitably placed, with his due apparatus and instruments about him, I have good reason for anticipating that an institution in Physical Science will have been created, which has no parallel at present in the United Kingdom"—*Rector's Report, 1854-55, p. 20.*

The only step which the Professor could take in order to realize this anticipation has been the accumulation of facts relating to Observatories, which the Professor has either personally visited, or from the directors of which he has obtained information as to their expenses and general administration. As it was proposed that the University Observatory should embrace objects nearly similar to those of the great central Physical Observatory of Russia, special attention was directed to the arrangements of that establishment. The Roman Observatory, under the direction of the eminent Astronomer, the Père Secchi, also furnishes a model worthy of imitation.

Facts accumulated with respect to Observatories by Professor.

The present Physical Cabinet comprises a small, but very select, assortment of instruments for illustrations in Physical Science. It will, however, be requisite to give to this Cabinet a very large extension before it can be considered to fulfil the objects of the Faculty in this department of science. Similar observations apply to the present state of the department of Physical and Experimental Chemistry.

Extension of present Physical Cabinet.

Without  
Museum  
impossible  
to inaugu-  
rate  
courses in  
Physio-  
logy, Zo-  
ology,  
Botany,  
Geology,  
and Mi-  
neralogy.

In respect to the requirements specified in sections III., IV., and V., it has to be observed that the University has as yet made no provision whatever for supplying the wants of the Faculty. In the absence of Museum collections of the kind specified, it becomes simply impossible to inaugurate courses of instruction in Animal and Vegetable Physiology, Zoology, Botany, and allied branches of science, while the subjects of Geology and Mineralogy labour under the same disadvantages. Their Graces must therefore be prepared for the statement that, until the requirements now specified are wholly or in great part supplied, and until collections of considerable extent and variety, illustrative of at least the most essential elementary branches of the Natural Sciences, are procured and put into a certain state of forwardness as to arrangement and classification in suitable museum galleries, it will not be possible for the Faculty to take action upon that sphere of duties entrusted to its Professors, which relate to instruction in the Sciences of Physiology, Botany, Zoology, Geology, and Mineralogy.

Herba-  
rium and  
Botanic  
Garden  
required  
for use of  
Medical  
Faculty  
likewise.

Observations of equal force apply with respect to the requirements specified in sections VI. and VII. The want of a Herbarium and Botanic Garden is equally felt by the Medical Faculty.

The Faculty will now, with their Graces' permis-

sion, proceed to address itself to the requirements specified in section VIII. And here at the outset their Graces are respectfully reminded, that, with the exception of mathematics, the sciences contemplated in the labours of this Faculty are essentially sciences of physical demonstration and experiment; sciences in the acquisition of which by youth, all the senses are brought into play. These sciences deal essentially with the subjective phenomena and physical qualities of the objects existing in nature. Instruction in their most elementary branches not only often loses more than half its efficiency if oral description be not accompanied by the exhibition and demonstration of numerous specimens of the objects described, but in the great majority of instances, false ideas and erroneous conceptions of the properties of natural objects are the result.

The sciences of the Faculty are sciences of physical demonstration and experiment.

Museum galleries become therefore in themselves a necessary means of instruction in the sciences dealing with natural objects, whether drawn from the organic or the inorganic world.

Again, for the efficient teaching of these subjects to classes of more than the most limited number, specially constructed theatres, which admit of the exhibition and demonstration of natural objects to large numbers of persons simultaneously, are indispensable.

Lecture rooms constructed on the amphitheatre

Lecture  
Theatre  
indispens-  
able.

principle are therefore essentially necessary for the delivery of the contemplated courses of this Faculty, for which the rooms of an ordinary house, however spacious, are totally unfitted.

Advance-  
ment of  
science a  
duty of  
the Pro-  
fessors.

Another consideration which it is important should be urged upon their Graces, is, that the cultivation and advancement of science are duties imposed on the Professors in their respective departments. This has been expressly provided in the following clauses extracted from the Rules and Regulations, p. iii.

“The Professors are put in trust of the particular science or department of learning which they undertake. They are bound to give themselves to the study of it, to extend the cultivation of it to the best of their power, to be alive to its interests, and to deliver in their lectures or by means of the press, clear and adequate expositions of its principles and subject-matter”. The advancement of science, and the extension by original researches of its domain, are here put prominently forward as essential duties of the professors.

Original  
research  
impossible  
without  
the ma-  
terial ap-  
pliances  
specified.

But without the means of research, illustration, and experiment, furnished alone by museum collections, laboratories, and the other appliances specified, this part of the professors' duties, in respect to the sciences of observation and experiment, must be regarded as all but absolutely impracticable.

It must be further borne in mind, that now and henceforward there will be a constant call upon the professors in the Natural and Experimental Sciences for papers of a high order, and the exclusive result of original research, to supply the pages of the *Atlantis*, the character of which will stand or fall with the character of the contributions to science furnished to it by the Professors in the Faculty of Science.

Demand  
for original  
researches  
to supply  
the pages  
of the  
*Atlantis*.

While the Faculty will be prepared, if called on, to report to their Graces in more specific detail upon the requirements just alluded to, they deem it sufficient to lay before them at present a general outline of those material wants which are most pressingly felt by the Professors of the Faculty, and which, if not supplied, must leave the Faculty an existence only in name. For without the material elements of instruction specified, the Faculty will, in certain most essential departments, be compelled to remain a dead letter in the University: its forces remaining latent and in abeyance.

The Faculty feel that they are undertaking a great responsibility in laying before their Graces and their Lordships what will perhaps seem such an extended programme of their wants and requirements. But the Faculty respectfully submit that they would be wanting in a due recognition of the dignity and national impor-

tance of their mission, if they did not thus fairly and fully lay their claims before the University authorities.

The economic arguments in favour of the studies contemplated in the Faculty, and their bearing on the material interests of a very large proportion of the Catholic youth of Ireland, have already been sufficiently dwelt on.

From these and other considerations, the Faculty feel that their claims upon the country will receive no unwilling response, and that the designs now projected for raising the Faculty to a position worthy the University and the nation will receive a gracious attention from their Lordships.

Not less than £20,000 will be required for execution of these designs.

The Faculty are aware that the execution of the designs which they submit to their Graces' and their Lordships' consideration and approval, will involve an outlay of not less than £20,000, before the courses of instruction in the Natural and Experimental and other Sciences, projected in the published syllabuses of the Professors, can be commenced with credit and carried out with success. Of this sum not less than £5,000 will be required to commence an Observatory. And guided by the experience of other similar institutions, which have risen into existence within comparatively recent times, the Faculty respectfully inform their Graces that even further expenditure will be required before the University, in the teachings of this depart-

£5,000 required to commence an Observatory.

ment, can reach that condition of efficiency which it is confidently anticipated a career of ten years will command for it, if the exertions of the Faculty be seconded by the liberal support of the University Patrons. But the Faculty here respectfully submit that the worst economy and most suicidal policy are those which curtail the scope and aims of a body of scientific men, united for the advancement of national education, like the Professors in the several Faculties of the Catholic University. For, to achieve a position of national importance and a national success, the University has but to launch itself boldly in the career opened before it, and to follow without hesitation the impulses and the instincts of the scientific men whom it has summoned around it.

Great  
career  
open to  
the Uni-  
versity.

In approaching the consideration of an expenditure such as that above specified, the Faculty respectfully submit that various plans for supplying and controlling the outlay demanded present themselves.

In the first place, the expenditure in question should, in the nature of things, extend itself over some four or five years; in which view a grant of £5,000 per annum, for a limited number of years, would probably be an adequate provision. It cannot be doubted that an authorized appeal to the country on the specific grounds alleged in this Report, at the period of the Annual Collection, would

Annual  
grant of  
£5,000.

meet with a sufficient response from the liberality of the country.

Special fund with grant of £10,000 from the University.

By another plan a Special Fund might be created, by a donation from the University Funds, in the first instance, of a sum of £10,000, with authority to make a special annual appeal for the purposes of the required expenditure, under the sanction and with the concurrence of their Graces and their Lordships.

Faculty recommend Buildings on special designs by Professor of Architecture.

With regard to the best method of meeting the requirements of the Faculty specified in section VIII., relating to Museum Galleries and Lecture Theatres, the Faculty are unanimously of opinion that it would be most desirable that buildings should be erected after designs by the Professor of Architecture, specially adapted to the ends in view, on a site selected for the purpose. The Faculty are of opinion, that in buildings erected on limited spaces of ground partially occupied by preëxisting edifices of what kind soever, views of mere temporary expediency and convenience, and promising an economy which experience shows is ultimately very dearly bought, are too often acted upon, to the exclusion of larger and ultimately more economical designs, by which the buildings should be erected with especial regard to the purposes for which they are designed. The Faculty are, however, unwilling to altogether overlook the circumstance

that a piece of ground is now in the possession of the University, to the rere of the present University House, the dimensions of which, it is stated, are such that they would admit of buildings being erected on judicious designs, which would probably answer the purposes of the Faculty for some time to come; more especially if their ultimate extension in a direction towards the waste ground known as the Coburg Gardens could be contemplated with certainty. The dimensions of the piece of ground in question are in or about 130 feet by 52 feet. This space would only give accommodation for the erection of small Museum Galleries of 100 feet by 20 on either side, and of one small Theatre on its southern mearings.

But the Faculty are unanimously of opinion that it would be far more desirable to secure a site on completely unoccupied ground, which would admit of the University Buildings assuming that character and those dimensions which would be strictly in accordance with the purposes in view.

Faculty strongly recommend a new site to be chosen.

In conclusion, the Faculty have to observe that if the expenditure they propose and recommend to their Graces seem large, it is to be remembered that they contemplate the erection of those material structures which essentially constitute the public idea of "University Buildings", and that

The designs of this Report contemplate "University Buildings".

Conclu-  
sion.

in the erection of such buildings and the arrangement within their walls of suitable Museum collections, the popular conception of a University idea would find permanent expression, and the University would give to the public the best visible proofs of its permanency and stability, and its claims upon national support.

Signed on behalf of the Faculty of Science,

ROBERT D. LYONS,

Dean of the Faculty of Science, C.U.I.

## APPENDIX A.

*Extracts from Returns, showing the emoluments of Professors in various Universities at various times.*

### UNIVERSITY OF EDINBURGH:

Professor of Humanity, . . .	£1,407	1	4	℥ annum.
„ Greek, . . .	1,259	0	4	„
„ Scots' Law, . . .	1,053	0	8	„
„ Anatomy and Surgery, . . .	1,019	3	0	„
„ Chemistry, . . .	2,213	8	0	„
„ Botany, . . .	1,026	11	6	„
„ Materia Medica, . . .	1,281	0	0	„
„ Practice of Physic, . . .	1,008	0	0	„

Six Senior Examining Professors of Medical Faculty have, from Medical Degrees, £200 more, and those who deliver Clinical Lectures the same.—*See Report (Blue Book) of Commissioners on Scotch Universities, 1831, p. 161.*

### TRINITY COLLEGE, DUBLIN:

*Astronomer Royal and Professor of Astronomy, T.C.D.*—“The salary of the Astronomer Royal amounts to £700 a year. A large dwelling-house is assigned to his use, which forms part of the Observatory building, together with a garden and some fields”.—*Report (Blue Book) of Dublin University Commissioners, p. 83.*

*Professorship of Mathematics, T.C.D.*—“The Professorship continued on this footing down to the year 1835, when its salary was raised by the Board to £700 a year”.—*Ib., p. 48.*

*Professorship of Natural Philosophy, T.C.D.*—“The income of my Professorship is £700 per annum”. The Professor is paid by salary, not fees.—*Ib., p. 94.*

*Archbishop King's Lecturer in Divinity, T.C.D.*—"The emoluments of my Professorship are £700 per annum". The Professor is paid by salary, not fees.—*Ib.*, p. 29.

*Regius Professorship of English and Feudal Law, T.C.D.*—"£700 a year". The Professor is paid by salary, not fees.—*Ib.*, p. 46.

*Professor of Engineering, T.C.D.*—This Professor is paid £200 a year, and £5 for each Pupil in the Middle and Senior Classes (forty or fifty pupils).

*Professor of Applied Chemistry, T.C.D.*—The Professor is paid £250 per annum, besides £5 for each pupil in the Junior Classes. The Professor holds other offices of emolument in the University, viz., Professorship of Chemistry in School of Physic, with salary of £250 and Pupils' fees £2 2s. from each (£3 3s. in some instances).—*Ib.*

*Professor of Geology, T.C.D.*—The Professor is paid £200 per annum. He is, besides, a Fellow of the College, and as such, has a residence, and holds other offices of large emolument. His emoluments as Tutor amounted (in 1851) to £359 7s. 2d., with a prospect of increase to over £700.—*Ib.*

Assistants are allowed to several of the Professors, T.C.D., with salaries to £50 a year and upwards—*Ib.*

*St. Patrick's College, Maynooth.*—Exclusive of the President, Vice-President, and Dunboyne Prefect, eight Professors receive each a salary of £264 12s. 8d., and nine others a salary of £241 12s. 8d., with Commons and Rooms.

*Italian Universities—University of Pavia.*—As an instance of the honourable consideration attached to the office of University Professor, it may be mentioned that in this time-honoured University the Professors enjoy the rank and privileges of personal nobility.

## APPENDIX B.

*Extracts from Returns, showing Expenditure for University Buildings, Observatories, Museum-Collections, Laboratories, etc., in various localities.*

The following account of the foundation of the University of Alcalá by the illustrious Cardinal Ximenes, will be read with interest:—

“As far back as 1497, Ximenes had conceived the idea of establishing a university in the ancient town of Alcalá, where the salubrity of the air, and the sober, tranquil complexion of the scenery, on the beautiful borders of the Henares, seemed well suited to academic study and meditation. He even went so far as to obtain plans at this time for his buildings from a celebrated architect. Other engagements, however, postponed the commencement of the work till 1500, when the Cardinal himself laid the corner-stone of the principal college, with a solemn ceremonial, and invocation of the blessing of Heaven on his designs. From that hour, amidst all the engrossing cares of church and state, he never lost sight of this great object. When at Alcalá, he might be frequently seen on the ground, with the rule in his hand, taking the admeasurements of the buildings, and stimulating the industry of the workmen by seasonable rewards.

“The plans were too extensive, however, to admit of being speedily accomplished. Besides the principal college of San Ildefonso, named in honour of the patron saint of Toledo, there were nine others, together with an hospital for the reception of invalids

at the university. These edifices were built in the most substantial manner; and such parts as admitted of it, as the libraries, refectories, and chapels, were finished with elegance and even splendour. The city of Alcalá underwent many important and expensive alterations, in order to render it more worthy of being the seat of a great and flourishing university. The stagnant waters were carried off by drains, the streets were paved, old buildings removed, and new and spacious avenues were thrown open.

“At the expiration of eight years, the Cardinal had the satisfaction of seeing the whole of his vast design completed, and every apartment of the spacious pile carefully furnished with all that was requisite for the comfort and accommodation of the students. It was indeed a noble enterprise, more particularly when viewed as the work of a private individual. As such it raised the deepest admiration in Francis the First, when he visited the spot a few years after the cardinal's death. ‘Your Ximenes’, said he, ‘has executed more than I should have dared to conceive; he has done with his single hand, what in France it has cost a line of kings to accomplish’.

“Liberal foundations were made for indigent students, especially in divinity.

“Having completed his arrangements, the Cardinal sought the most competent agents for carrying his plans into execution; and this indifferently from abroad and at home. His mind was too lofty for narrow local prejudices; and the tree of knowledge, he knew, bore fruit in every clime. He took especial care that the emolument should be sufficient to tempt talent from obscurity, and from quarters, however remote, where it was to be found. In this he was perfectly successful, and we find the university catalogue at this time inscribed with the names of the most distinguished scholars in their various departments, many of whom we are enabled to appre-

ciate by the enduring memorials of erudition which they have bequeathed to us.

“ In July, 1508, the Cardinal received the welcome intelligence that his academy was opened for the admission of pupils ; and in the following month the first lecture, being on Aristotle’s Ethics, was publicly delivered. Students soon flocked to the new university, attracted by the reputation of its professors, its ample apparatus, its thorough system of instruction, and, above all, its splendid patronage, and the high character of its founder. We have no information of their number in Ximenes’ lifetime ; but it must have been very considerable, since no less than seven thousand came out to receive Francis the First, on his visit to the university, within twenty years after it was opened”.

In the execution of this great project expenditure seems to have had no limit till the ends in view were accomplished.

UNIVERSITY COLLEGE, LONDON.—The sum applied in the purchase of land, in building and furniture, and in supplying the museums and laboratories, up to 1834, was about £141,770. The foundation was laid in 1827.

*Observatory, T.C.D.* (at Dunsink).—£3,000 bequeathed by Dr. F. Andrews, and “several thousand” pounds voted by the College, were expended in founding this Observatory.

*A Magnetic Observatory* was founded in 1838 at an expense of about £2,000.—*Report of Commissioners, p. 152.*

*University Museum, T.C.D.*—There appears to have been expended in about eight years previous to 1852 a sum of nearly £4,000, in adding to an already existing collection.—*Ib. p. 154 et seq.*

N.B.—This sum does not include the expenditure on the Anato-

mical Museum, nor that on the Herbarium, the latter estimated at £50 annually.

*Library of T.C.D.*—“The Library was founded in the year 1602 with the aid of a sum of money amounting to £1,800, which was bestowed on the College by the officers and soldiers of her Majesty’s army, as a thanksgiving for the defeat of the Spaniards in the battle of Kinsale at the close of the year 1601”.

The next addition was the library of Archbishop Ussher, 10,000 vols. with many M.S.S. Various bequests made subsequently.

In 1802 the Fagel collection was purchased for £10,000.

Total number of books in Library T.C.D., September, 1851, 107,650 vols.—*Report of Commissioners*, p. 171.

*New Museum and Lecture Hall, T.C.D.*—A sum of not less than £25,000 (otherwise estimated at £30,000) has been recently expended in raising this very beautiful structure.

*St. Patrick’s College, Maynooth.*—£30,000 (Parliamentary grant), with the addition of £5,097 16s. 2d. from the College funds, have been expended on the new buildings, as yet incomplete in many essential respects.

*Queen’s Colleges.*—Sums of £3,000 (and £4,000 in case of Cork College) were allocated to these Colleges in 1849 for the outfit and maintenance of Libraries, Museums, etc., not including cost of buildings. Subsequently annual grants of £1,600 per annum were made, and are still continued, for similar purposes, to each College.

*Royal Dublin Society.*—A sum of £11,000 has been recently expended in the erection of a Museum Building. Annual grants have been made for several years past for the purchase of Museum Specimens.