Female students of geology in Victorian Dublin

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The science of geology began to thrive during the middle of the nineteenth century, with the expansion and consolidation of geological mapping of the Geological Survey of Great Britain and Ireland, and the foundation of geological societies across the islands of Britain and Ireland. As the desire for geological knowledge and understanding among the general public grew, so did the provision of lectures and courses open to the public. These public lecture series proved popular with a wide cross-section of men and women of Victorian Britain and Ireland.

This paper explores the provision of geological lectures by officers of the Geological Survey of Ireland through the Museum of Irish Industry in Dublin, and the women who took these courses during the 1850s and 60s and completed geological examinations for London's Science and Art Department in Dublin as a result of these lectures. It provides a glimpse into the scientific, and specifically geological interests and activities of these women at a time when it was not possible for them to become members of the geological societies in the cities in which they lived.

In the middle of the nineteenth century, the Museum of Irish Industry provided an opportunity for education in the physical sciences, including geology, to the general public in Dublin and in regional towns around the island of Ireland. All lecture series were open to both male and female students, and all students were permitted access to the examinations at the end of each of the lecture series, with the examinations of the highest scoring students being sent to London for consideration for a medal from the Science and Art Department, under which both the Museum of Irish Industry in Dublin, and the Museum of Economic Geology in London, sat. While the history of the Museum of Irish Industry has been documented elsewhere (Cullen 2009, 2011; Jarrell 1983), and Cullen (2011) has written about its role in educating women, the identities and motivations of the women who studied geology from 1854, when the lecture series began in Dublin, to its close in 1867 has not been sufficiently investigated. This chapter goes some way to filling this lacuna in the literature.

The difficulties in researching the lives of women in the nineteenth century are well acknowledged (Burek and Higgs 2007; Raftery et al. 2010 among others). These challenges pertain also to this present study. However, the existence of lists of prize winners for many of the years allows us to trace to some degree some of the females that studied geology in Victorian Dublin, and indeed excelled in this study, as well as allowing us to suggest reasons for their studying of the emerging science. This chapter will begin with an overview of the educational context in which the classes took place, including looking at the curriculum, before looking at some of the women who studied geology in Dublin in the 1850s and 1860s.

Background to lecture series

The Museum of Irish Industry (MII) was set up in 1845 as the Museum of Economic Geology, along with the Irish branch of the Geological Survey, with Dr Robert Kane at the helm of the former, and Captain Henry James of the latter. While the two institutions were separate, they were two elements of a common goal of the forwarding of geological knowledge in Ireland, and the wider mission of the development of geology within the Kingdom of Great

Britain and Ireland. The original goal of the Museum was to show 'the application of geology to the useful purposes of life', according to the model set up in London, on the opening of the School of Mines in Jermyn Street, London, in1851 (letter from Earl of Lincoln to Dr Robert Kane, March 29, 1845, GSI Archive). The various specimens collected by the Geological Survey, according to Lincoln, could, through the Museum of Economic Geology, be placed 'before the public in such an intelligible and popular form, as shall best accord with the objects of such an Institution. It is in fact this portion of [the museum's] labour that the public attention will be necessarily directed' (Lincoln to Kane, 29 March 1845, GSI Archive).

The Museum's role as a bridge between the Geological Survey and the public became even more concrete with the creation of the public lecture series and courses. These provided interested members of the public with a knowledge of geology, and 'would ultimately enable them to appreciate and utilise the results of the Survey' (J. Beete Jukes, 1867, 8). The Survey's building in Dublin, as in London, was designed with a lecture theatre seating approximately 500 to provide a space for the provision of classes (J. Beete Jukes, 1867, 7). The lecture series was also a means to illicit information from people who worked with the rocks the officers of the Survey were to map 'in terms which [would] be mutually intelligible' (J. Beete Jukes 1867, 25), while others saw the lecture series as a means to 'withdraw the Irish mind from political and polemical disputes' through acquiring accurate scientific information' (Haughton 1854, 4) – a view that was shared by Robert Kane (Kane 1845, 426).

The creation of the lecture series was part of a wider environment of the availability of education for the Irish population. A system of national schools, providing free primary education for all, was established in Ireland in 1831 and began to roll out across the island during the following years (Coolahan 1981, Raftery et al. 2010). The increase in printed press at this time added to the rise in the level of general education of the Irish public (Kelly 2017). This, in turn, increased the level of literacy across the population – the level of female illiteracy reduced from 35.9% in 1871 to 26.5% in 1881 (Jordan 2000), and the preceding two decades saw the beginning of this trend. While primary education was accessible, it was more difficult for females to access education beyond the primary level until intermediate schools for girls opened in the 1860s, generally under the patronage of either a Catholic religious order or an Anglican society (Raftery et al. 2010).

Against this backdrop of an increased desire for education beyond the primary level for both males and females and the lack of provision within a state system, some of the knowledgeable societies in Irish cities began to run lecture series which were open to the public. Kane, who had a strong belief in popular education, had been instrumental in organising public lecture courses on scientific topics in the Royal Dublin Society (RDS) in the 1830s (Cullen 2009, 103) and was anxious that the staff of the Museum of Irish Industry would also be involved in education. In 1854, the opportunity arose. The Department of Art and Science, which had been set up the previous year, informed the RDS that the grant which paid the salaries of the lecturers was to be transferred to the MII as the main institution for industrial education. After some negotiations with London, a compromise was agreed between the RDS and the MII, whereby the two bodies shared resources, with each running a series of lectures organised through a Committee of Lectures which was centrally based (Cullen 2009, 106). In Kane's address before those attending the annual

prize-giving in 1859 he remarked that 'Before all, therefore, the object for which this institution is founded is educational, and not merely the education directly of the number necessarily limited, who receive instruction within its walls, but also that each individual here instructed may become in his own turn a centre of educational light and progress, so that the confines beyond which are the dark and dismal realms of ignorance, prejudice and error may yearly be further removed' (*Freeman's Journal*, 21 Oct. 1859).

The geology lecture series of the MII began in November 1854 with Professor Joseph Beete Jukes, local director of the Geological Survey of Ireland, delivering the first introductory lecture in geology to a full audience (*Freeman's Journal*, 17 Nov. 1854, 4). At the dawn of the new science, it was recognised that, even if large numbers of students attended the lecture series, there would not be a demand for the services of so many geologists (J. B. Jukes, 1867, 23). Nonetheless, the numbers of participants at these lectures was considerable, with the lecture theatre initially frequently being reported as full. From 1855, participants had to pay a small fee for attending the lectures, and numbers of attendees were recorded. In Dublin, the lectures ran both in the afternoons and in the evenings, to cater for the different audiences who wished to participate in the lectures. From the outset, females were admitted to the lecture series. From 1856, the students at the lecture series could present themselves at examinations, and the highest scoring candidates were forwarded to London for consideration for the prize from the Department of Art and Science. There was always a minority of students who registered for the examination. As their names were recorded in a number of places, we can get some type of insight into the audience through these prizes.

Lecture audience and examinations

The audience at the lecture series was made up of a cross-section of Dublin's population. Jukes had 'great reason to be satisfied with the general attention and assiduity displayed by the class, and with the amount of proficiency displayed by those who passed the examination', of whom there were six (out of 11 who presented themselves) in 1857 (Jukes to Kane, Dec. 14th 1857). Frederick Sidney of the RDS, and a member of Lecture committee, in his evidence before the parliamentary committee examining the scientific instruction in Dublin, mentioned that the audience at the lectures in general was 'pretty largely attended by females, by boys from the schools, and by the middle classes; scarcely at all by those who are able to procure instruction in these subjects in the other place where it is to be obtained – I mean the universities' (Sidney, Report on RDS, MII., 1863, 71). Kane's evidence to the same inquiry reported that 'the audience is a full representation of society in Dublin, the families of the members (of the RDS), governesses, clerks in offices, persons attending public schools, and in some case, students of college' (Kane, Report on RDS, MII., 1863, 97).

As mentioned previously, the class of persons who attend these lectures was different at the day and at the evening courses. The day-time lectures were not as well attended as the evening lectures. Kane reported that 'the attendance at the day courses consists, as might be expected, entirely of the upper and middle classes – members of the Royal Dublin Society, young ladies qualifying themselves to be governesses, school-boys &c. That at the evening courses consists of the middle classes – clerks, &c. who are occupied with their own business during the day – with a proportion of the artizan class' (Kane, Report on RDS, MII.., 1863, 97).

Curriculum

While the curriculum of the geology lecture series has not been recovered, we can gain some idea of what the students were learning through the writings of J.B. Jukes, who was the main lecturer involved in delivering the lectures in Dublin, and also in some of the regional locations. Jukes was of the opinion that the most important question to be asked of the lecture series was that 'the instruction given [is] sound and real, and is it adapted to answer a worthy and legitimate end' (J. B. Jukes, 1867, 23). 'Past experience having shewn me that it was impossible to go completely over the subject of Geology, so long as the lectures were divided into separate and independent courses, I have adopted this session the plan of making all the lectures parts of one continuous course, divided as much as possible into three groups, but all equally necessary for those who may intend to come into the final special examination on geology in the general examination at the close of the session' (Jukes to Kane, 19 Nov. 1857, GSI Archive). Jukes also concluded regional lectures with a lecture on the geology of the area in which he was lecturing (*Carlow Post*, 24 October 1857, 3).

We can gain some idea of Jukes' curriculum from the textbooks which he wrote. His objective in writing these texts, and particularly his first *Student's manual of Geology* (1857, Figure 1) was to lead students up to the study of works such as Lyell's *Principles of Geology* (Jukes 1857, vi), and in the preface he mentioned the need he felt in his own lectures at the Museum of Irish Industry for a textbook on the subject 'that would treat the subject of Geology more systematically and more succinctly than any yet published' (Jukes 1857, v). For his first textbook on the subject, Jukes divided the subject into three sections he called: 'Geognosy' ('the study of the structure of rocks independently of their arrangement into a chronological series' – which he divided into lithology and petrology, Jukes 1857, 9); 'Palaeontology' and 'The History of the Formation of the Series of Stratified Rocks'. The examination questions, as reported in 1862, include questions such as 'What are the chief subdivisions of the Carboniferous rocks in Ireland; and how do they differ from the corresponding rocks in England and Wales?' and the examinations reflect the regional nature of the lectures: 'Give a generalized section from the River Lee to the sea, and point out the position and age of the rocks in the neighbourhood of Bandon' (Report on the RDS, MII… 1863). The lecture series also included classes in the field, with Jukes commenting to Kane in 1859 that 'I gave 54 lectures in the theatre and three or four in the field' (Jukes to Kane, 9 June 1859; GSI Archive).

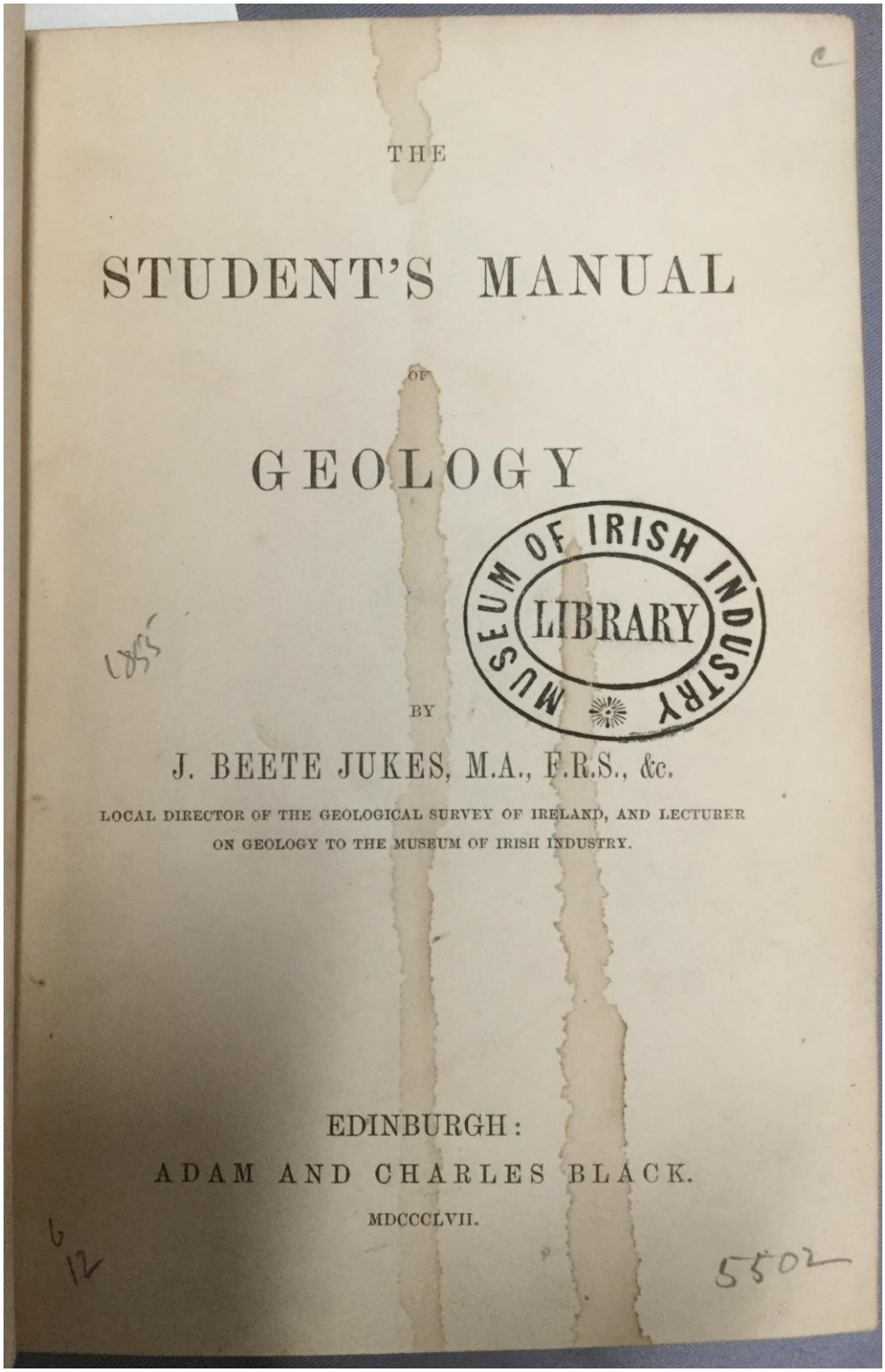

Fig. 1: Title page of Jukes' *Student's Manual of Geology* (1857), copy that was held in the library of the Museum of Irish Industry. Image from an original in UCD Special Collections.

While the curriculum initially depended on the lecturer, who also set the examinations and corrected them, there was an attempt in 1861 to standardise the examinations between all lecture series throughout the United Kingdom to ensure consistency, particularly when presenting prizes. This attempt was strongly resisted by the lecturers in Dublin, who wrote to the Lord Chancellor of Ireland that 'a class instructed in geology with special reference to

the local formations of the district so as to give a practical value to the course, would have to answer on a paper intended for all parts of the United Kingdom, and therefore without practical reference to any particular location' (Minute book of the MII lecture committee, 1860ff, 18 Feb 1861). The attempt at standardisation failed, as a compromise was reached between the Science and Art Department and the Lecture Committee, with the department saying that, if local examinations were to be conducted, they had to be supported locally as it felt that it 'would not be justified in continuing a separate system of examinations merely dependent upon short courses of accidental lectures which are applicable not even universally throughout Ireland, but only in those few places which may happen to have had provincial lectures' (Minute book of the MII lecture committee, 1860ff, reply from Department of Art and Science to letter of 18 Feb 1861).

Women students of geology

From the outset in 1854, women were welcomed at the geology lectures at the Museum of Irish Industry, and to the examinations in 1856, just as two years later, at the foundation of the Geological Association, female members were also welcomed (H. Davies 2007, 135). Indeed, Kane reported to the Commission of Inquiry in 1862, when asked what subjects were most suited to the female genius, that 'Their greater sensitiveness and power of appreciating differences secure to them a proficiency in zoology and botany; but their success is not confined to these sciences. In natural philosophy, chemistry, and geology, some of the highest prizes have been taken by ladies' (Kane, Report on RDS, MII., 1863, 97).

As the records for students are not available, the most accurate way of identifying how many women were attending the geology lectures is by examining the lists of students who took part in the examination that Jukes reported to Kane on an annual basis. The number of students presenting at the examinations was always smaller than those attending the lectures, but as all students were eligible to take the examination, we can assume that the percentages of females there are representative of the overall numbers. Figure 2 shows the figures of males and females receiving prizes (certificates or book prizes) in the geology examination in years 1860-66. While females were never in the majority, they were visibly present, and often scored among the highest points.

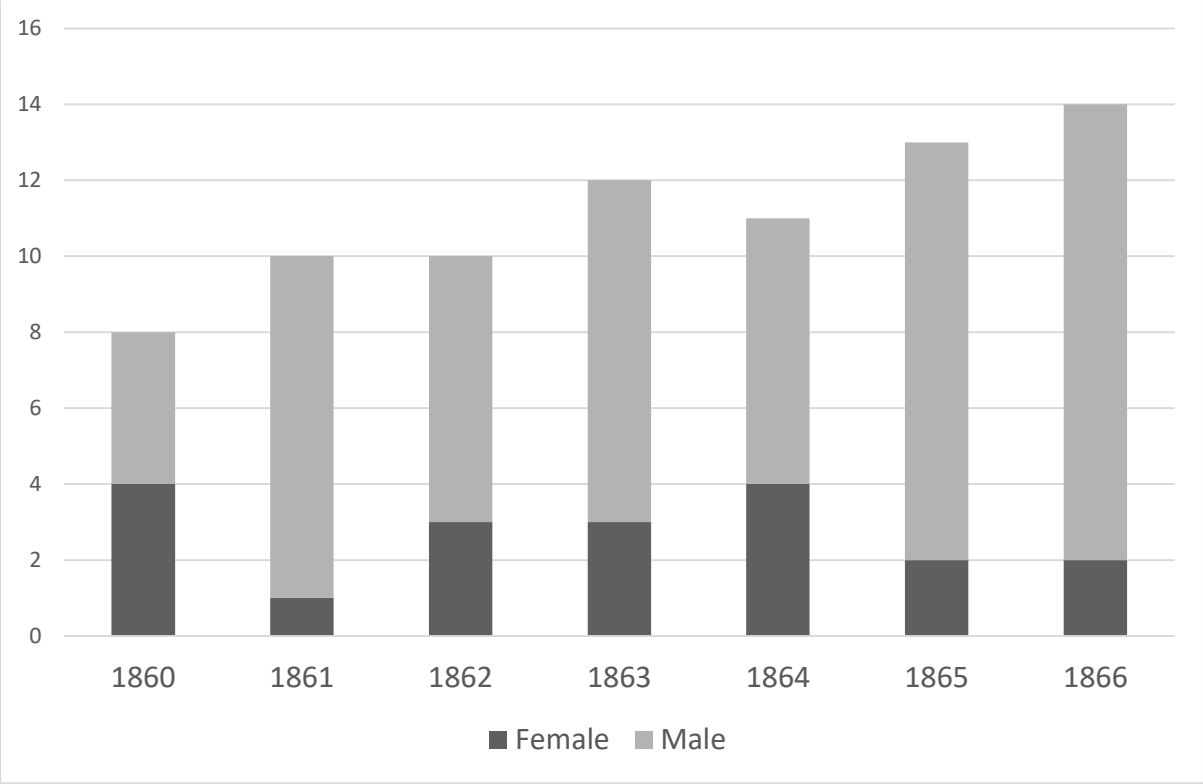

Fig. 2: *Numbers of female and male prize winners at the examinations between 1860 and 1866. Source: Letters from Jukes to Kane, GSI Archives.*

The newspaper reports of the prize-giving in 1856 already mentioned the participation and achievements of women at the examinations linked to the MII lecture series. At his speech on that occasion, Kane said:

> 'Hitherto it had been the practice not to include the female portion of the community in their educational arrangements, and, generally speaking, the whole scheme of the educational system had been to supply scientific education to gentlemen only; but in the formation of the classes of the present institution they recognised no distinction of sex. Consequently, several ladies had been students, and in the competition for prizes distinguished themselves in a very high degree. It was a fact worthy of attention that precisely those qualities of the female mind which it might be expected would be most characteristically developed, manifested their influence in the examination. The lady students, though they filled high positions and merited the reward which they would receive, did not occupy the first place; but in the natural sciences, which required accuracy and observation, clearness of perception, great power of comparison, and delicacy of touch, he should, perhaps feel somewhat humiliated in saying the gentleman were very deficient. The commencement which had been made that session in developing female talent in the pursuits of industry could not but be productive of the most beneficial results'.
> (*Freeman's Journal*, 29 May 1856, 3)

From the outset, the vision of Kane of education for all was realised. In 1856, Miss Frances Elizabeth Armstrong, daughter of a builder, with an address at 55 Baggot St, to the south of Dublin city centre, received the first certificate in geology, and was loudly applauded as she received her award at the prize-giving ceremony. She also received the second prize for Natural History at the same ceremony (*Freeman's Journal*, 29 May 1856, 3). Some students attended the lecture series and sat the examination more than once. Miss K.H. Egan, of 11 Pembroke Quay in Dublin city, received the second certificate in geology, with a score of 560, in 1857 and the following year received the third certificate in geology, and first certificate in zoology (*Saunders's News-Letter*, 15 June 1858, 2). She had previously received a certificate in Natural History in 1856 (*Freeman's Journal*, 29 May 1856, 3). Indeed, the Lord Lieutenant of Ireland, the Earl of Carlisle, who frequently presented the prizes to the award winners at the annual ceremonies, commented in 1861 that:

> 'It is always a pleasing feature in the proceedings here, that whereas in almost every other quarter where we hear of classes and lectures and competitive examinations, the actors in those operations are exclusively of the rougher sex; in this institution, without any departure from the rigid rule of impartiality, the lists are entered, and the palm, as we have seen frequently, carried off by the gentler aspirants (applause). And, indeed, it seems only right and becoming in a country where an Illustrious Lady fills the very highest place in the realm, that all classes of our women should have the opportunity of showing that they can excel in the accomplishments and attainments which are consistent with the grace and modesty of the female character (applause)' (*Saunders News-letter*, October 4, 1861, 3).

It is noteworthy that both Kane and Jukes believed in the equal opportunities that were afforded by the lecture series and the examinations. In 1862, Jukes comments in his letter to Kane that 10 presented themselves for examination, 'three ladies and seven gentlemen […] of whom two gentlemen only did not answer a sufficient number of questions to entitle them to a certificate of competency' (Jukes to Kane 18 Feb 1862, GSI Archives). In 1862, the first prize was taken by W.E. Dudley (who scored 688 marks out of 1000), with second prize achieved by Miss S.G. Keough (665 marks). While generally Jukes sent the top paper to the Science and Arts Department in London if he deemed it to be of sufficient quality, where the paper would then be examined with a view to awarding a Medal, this year Jukes begged 'leave to send in the papers of the two first candidates for examination at the Department of Science and Art, and to recommend that a medal should be given to whichever may appear to their examiner the most deserving', thus including Miss Keogh's paper and allowing her the possibility of achieving the medal from London (Jukes to Kane 18 Feb 1862, GSI Archive).

The achievements of the female students continued to be a source of pride for the Museum of Irish Industry throughout the 1860s. At the 1866 prize giving, Kane, in his introductory speech, mentioned that the lectures were attended by 'a number of ladies, many of whom were qualifying themselves most usefully and effectively for the position of governesses and teachers of a superior class; many others who attended the lectures were animated by a love of science; and some of the highest honours were taken by ladies, whose proficiency was chiefly in the natural sciences' (*Dublin Evening Mail*, 22 December 1866, 4). Such a statement was met by applause from the audience. In response, the Lord Lieutenant commented again on his satisfaction at seeing the numbers of females present, adding that

'the fairer sex is vindicating its rights – not perhaps in the same way that our American female friends might do the absolute mastery over man, but yet to compete with him in science and intellect' (*Dublin Evening Mail*, 22 December 1866, 4). This was at a time when, in the United States, figures such as Lucretia Mott and Elizabeth Cady Stanton were forming the American Equal Rights Association, and Stanton penned the 'Petition for Universal Suffrage', both with a view to securing voting rights for all women. Evidently, from the perception of the authorities, the women in Dublin were acting within the safe area of education.

Many of the female students took other courses as well as geology at the MII – an indication that the women wanted a broad scientific education which was only being provided at the time through the Lecture Series of the MII and the RDS. Table 1 shows the names of the female students who gained prizes in geology and another science at the MII. It is noteworthy that many of the women also studied botany and zoology with geology.

The women competed equally with the men, and often outshone them in their achievements. Margaret Swan, who received the top prize in geology in 1861, achieved a remarkable score of 956/1000 – the highest grade recorded by any student in any year (Jukes to Kane, 18 Feb 1862, GSI Archive).

Name	**Year of geology prize**	**Other MII prizes**	**Other prize**
Miss Frances Elizabeth Armstrong	1856	Natural history ('56)	
Miss K.H. Egan	1857 & '58	Zoology ('58)	
Miss Hester Harman	1860	Botany ('60), Zoology ('60)	RDS Drawing '56-7; '61-2; '63-4
Mrs J.F. Murray	1860	Physical Science ('60)	
Miss Eleanor Cope	1861	Zoology ('61)	RDS Drawing, '72
Miss M.E. Quinlan	1864	unidentified subject ('65)	
Miss Jane Ann Leeper	1863 & '64	Botany ('64), unidentified subject ('65)	
Miss M.A. Smyth	1865	Botany ('65)	
Miss Marian Searight	1866	Botany ('65 & '66)	

Table 1: *Women who studied geology and another science at the Museum of Irish Industry, 1856 – 66. Source: Letters from Jukes to Kane and newspaper reports*.

Name	Year of geology prize	Other prizes
Miss Jane Underwood	1860	RDS Drawing ’60-1; ‘61-2; ‘63-4
Miss Hare	1860	
Miss S.G. Keogh	1862	
Miss A. Clarke	1862	
Miss M. Sibthorpe	1862	
Miss Dunlop	1863	
Miss R.K. McKay	1863 & ‘64	
Miss A.M. Smyth	1864	
Miss Margaret Swan	1865	
Miss Rowena Hutchinson	1866	

Table 2*: Women who studied geology only at the Museum of Irish Industry, 1856 – 1866, with other prizes won by the students outside of science. Source: Letters from Jukes to Kane and newspaper reports*.

Reasons for studying geology

From tables 1 and 2, it can be seen that the focus of the female prize-winners was varied, with some women focusing solely on geology ‘for the love of the science’, as Kane had commented, while others combined the study of geology with other disciplines. One of the principal reasons highlighted both in the reports of Kane and in the contemporary newspapers as to why women took the classes in geology was their desire to become teachers, in an environment where education beyond primary level was out of bounds for most women. The lecture series of the MII enabled women to achieve an education in the natural sciences, equipping women with skills which made them more employable as governesses or in the national school system. Kane highlighted this fact to the Lord Chancellor at the annual prize-giving in 1859:

> ‘Your Excellency will find among our successful students and in the highest rank several young ladies. I need not dilate in your Excellency’s presence upon the important evidence thereby afforded of the improvement, by the agency of this institution, of female education. I believe that many of the young ladies who will on this occasion receive from your Excellency’s hands the rewards of their sedulous studies are themselves more or less connected with education, and will go forth to diffuse through society, by the most powerful and favourable influence, sound scientific truth’ (*Freeman’s Journal*, 21 Oct 1859, 3.)

Kane reported to the Commission of Inquiry that ‘one portion of this audience is a number of young ladies intended to be governesses, and who by attendance at these lectures acquire a taste for and a knowledge of the sciences, which they are afterwards able to impart to their pupils, instead of confining their teaching to the limits of Music and French’ (Kane, Report on RDS, MII.., 1863, 97). While some of the women went on to become

governesses in families, which was more usual for females in the nineteenth century, a small number of them went on to become teachers in more formal school settings. Among the women who took the geology classes as a means to become educators was Margaret Swan, the woman who received the highest points recorded in 1866, was at the time training at the Kildare Place schools, and was appointed later that year to Swords School, with one of her attributes mentioned on this appointment being her achievements in geology, which made her stand out above the field of 87 candidates for the post (*Saunders's News-Letter*, 11 May 1866). She passed away at the age of 33 in 1875 (*Irish Times*, 6 Mar. 1875, 1). Eleanor Cope (prizes in geology and zoology in 1861) also went on to become a teacher, recording herself in the Irish 1901 census as a 'teacher of English, French, drawing and painting' (NAI Census 1901).

The need for competent illustrators grew in proportion to the popularity and the professionalisation of the disciplines of geology and botany in the middle of the nineteenth century. Women were well positioned to fulfil the role of illustrator, and many took up this position, although their work was often not accredited (Burek and Higgs 2007). In 1859 alone, 541 pages about geology were published in learned journals, accompanied by 41 lithographic plates (*Saunders's News-Letter* - 09 February 1860, 2). Similar numbers of illustrations would have been required in books on botany. With this source of employment open to females, many women strived to gain the necessary skills to enable them to excel in this field. The numbers of female students of geology and botany who also studied, and received prizes, in the Royal Dublin Society (RDS) School of Art, as seen in Tables 1 and 2, would indicate that some of the women were studying geology to get a better understanding of the discipline in order to be better able to portray it visually.

The Harman sisters, Harriett and Hester, are a case in point. Hester received prizes in drawing from the RDS in 1856-7, 1861-2 and 1863-4. In 1858, Harriett achieved the second prize in zoology (*Saunders's News-Letter*, 15 June 1858, 2). In 1859, both Hester and Harriett had received a medal at the examinations. The following year, in 1860, Hester A. Harman received the 1st prize for botany, 2nd prize for practical zoology and 2nd geology certificate. In the prize-giving ceremony that year, the Lord Lieutenant of Ireland singled Hester Harman out, saying that she 'has received the highest number of marks at the examination in two such arduous and interesting branches of study as botany and practical zoology; and she is surrounded by those who do not grudge, but who emulate her success' (*Freeman's Journal*, 26 June 1860, 3). Harriett had received the National Medallion for Art in 1862 (*Irish Times*, 28 January 1862, 3). The sisters then moved to England, where they were recorded in the 1871 census as having a residence at Kilburn, Middlesex, recording their profession as artists. In the 1911 census, they remain in the same location, and again record their profession as artists and painters.

Conclusion

After struggling with costs for some years, the Museum of Irish Industry was closed in 1867, and its educational functions were transferred to the Royal College of Science in Ireland, which provided a university-level education for those interested. This new system of lectures suited those who wanted to specialise in the sciences, but the public element of the lecture series was lost. It was 1901 before the first female associate student was registered on the books of the new institution. Thus, the possibility of women exploring geology in

Dublin was halted. Although Kane did open the lecture halls to women in the Royal College of Science (Cullen 2009), there is no evidence that this was taken up as much as the MII lectures had been. Much like with the MII, lists of occasional attendees at the lectures of the Royal College of Science of Ireland were not retained. Grenville J.A. Cole (1859 – 1924), professor of Geology at the Royal College of Science who had been appointed in 1890, married one of his students in 1895 (Jackson 2007, 137) – thus indicating that females were present at the lectures. Cole had arrived in Dublin in 1890 after a time as Head of Geology at Bedford College for Ladies, and would have welcomed female students at his lectures in Dublin. The first female associate student (students who enrolled at the college to pursue a course of study for three years, and received diploma on successful completion of this) was Aileen Georgina Frazer, who began in the Royal College of Science in Ireland in 1901 and received a diploma in Natural Science in 1905 (UCDA, RCSI/63), and later went on to become a teacher of Natural Sciences (NAI, Census 1911).

The engagement of women with the subject of geology in Victorian Dublin during the years 1856 – 1866 was one of equal opportunities for education, although the women subsequently entered the professions that were more traditional for females at the time – teaching, governesses and illustrators. Many, on getting married and changing their name, are lost to our best attempts to discover their stories. The problem of reconstructing the history of females studying geology in the nineteenth century shares the difficulties of researching any aspect of women's history of that century., but what has been uncovered shines some light on who these women were, what it was they were learning, and how some were using their knowledge. At a time of the development of the disciple of geology, and of the admittance of women into science classes, these women were pioneers.

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