Enlightenment thinkers generally worked on the assumption that the investigation of God, man and nature were all part of the same activity, and frequently attempted the simultaneous investigation of all three. During the nineteenth century, this unified approach to science split into the various 'disciplines' still recognisable today. The development of professions - oriented around specialized institutions and bodies of knowledge - during this period signalled the exploration of more focused avenues of research as well as an expansion in the numbers of people involved in it.

A number of institutions and groups have been identified as contributing to this splitting-off of different fields of knowledge during the period. Jack Morrell and Arnold Thackray have shown the ways in which the British Association for the Advancement of Science became a forum for the promotion of an elitist vision of scientific discipline. Other institutions such as museums and laboratories also provided important sites for the creation of specific 'sciences' by the end of the century.¹ Hospitals were also important sites for the establishment of medical specialisms. The development of a more unified system of medical government similarly assisted in the creation of a distinct professional identity for general practitioners.

This essay suggests that the University of London became a significant site for the establishment of disciplines during the period. Edinburgh-trained political economists were actively involved in the foundation of the university in 1828.² By following the development of political economic calls for educational reform this essay aims to provide an insight into the foundation of that institution. From around the turn of the nineteenth century, political economists began to apply the concept of the division of labour to the propagation of knowledge, thereby justifying the reform of English education. Criticising English schools and universities for their focus on classical languages, political economists emphasised their commitment to science at the same time as asserting the scientific status of their own activities. The University of London became a key location for the institutionalization of a wide range of intellectual fields in nineteenth-century Britain.


² The inspiration for the foundation of the University of London has been frequently attributed to Jeremy Bentham, although there is little evidence for this. See Harte, N. and North, J. The World of UCL 1828-2004 (3rd ed.) (London, UCL Press; 2004), pp. 26-27.
Dugald Stewart has been characterised as the last of the moral philosophers and political economists of the Scottish Enlightenment. He was a key figure in the transition of political economy from the science of man to the institutionalized, disciplined approach that it became in nineteenth-century Britain. His published lectures on the subject (given in Edinburgh between 1801 and 1810) provide an important insight into the views to which a large proportion of a new generation of political economists were exposed.

Mary Poovey has shown how Stewart's moral philosophy and political economy were closely connected by his belief in 'a grandiose design governed by a beneficent deity.' Due to the inherent morality of nature, moral philosophy was for Stewart the means by which humanity could become aware of providential design. Through moral philosophy, it was possible to identify those human actions which would contribute to the realization of divine providence. This meant that philosophers had an active role to play in improving the condition of mankind. Political economy was for Stewart the means by which this was to be achieved. From Stewart's perspective, political economy was a tool by which philosophers realized the moral rationality of human nature.

For Stewart, education was integral to political economy. In his lectures, Stewart argued that the education of labourers constituted an indispensable component of the economic, political and moral progress of manufacturing nations. Political economists who sought to improve economies also had to ensure that those who laboured for that improvement did so without threatening the moral order. For Stewart, the violence of the French revolution had demonstrated that the maintenance of ignorance amongst labourers did not guarantee their submissiveness. He argued that a lack of restraint and piety to be found in Europe was in fact a consequence of a lack of education, claiming 'we shall everywhere find bad morals and a spirit of insubordination accompanying general ignorance.' The maintenance of law and 'Science of Legislation' was important for the maintenance of order. But without education there could be no 'radical' (ie. long-term) response to the (assumed) criminality of the poor. It was 'on the character and habits of these inferior classes, that the stability of every government essentially depends; and it is on their account chiefly that regulations of police are necessary, as their condition exposes them

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peculiarly to the contagious influence of those vices which disturb the general tranquillity.' By educating labourers (as well as imprisoning those that committed crimes), government would ensure the maintenance of the ordered relations upon which the advancement of national economies depended.

Related was Stewart's suggestion that education was itself an important means of ensuring economic and moral progress. Not only would education prevent the poor from disturbing the 'general tranquillity', it would also make the population as a whole more civilized and industrious. The improvement of land through the introduction of more 'rational' practices had been one of the greatest preoccupations of Scottish landowners during the eighteenth century. Stewart argued that on a small scale, the husbandman's isolated existence 'naturally attach[es] to him the the practices with which he is familiar, and prevent[s], in this order of men, the possibility of mutual communication', which (he assumed) would assist improvement. It was therefore up to government to develop agriculture by 'promoting the circulation of knowledge'. Scotland provided an example of how intervention by government could successfully contribute towards the enlightenment of the population, as it had required the establishment of local schools since the sixteenth century.

Of more interest to those of Stewart's pupils planning to invest in the new means of manufacturing, education was also cited by him as the key to a productive work-force. Stewart claimed that

'the establishment of a small library in the neighbourhood of a manufactory, has been known to produce a sensible and rapid improvement in the morals of the work people. The cultivation of mind, too, which books communicate, naturally inspires that desire and hope of advancement, which, in all classes of society, is the most steady and powerful motive to economy and industry.'

Education was morally necessary, but also economically productive.

Reforming the education of the 'higher orders' comprised another important aspect of economic improvement in Stewart's lectures. Because the 'superintending care of government' was not necessary for elite education, there was even more need to seek to

7 Stewart, Lectures... Vol. I, p. 181.  
Stewart Lectures... Vol. II, p. 332.  
These arguments were later echoed by Brougham in his popular 1825 pamphlet Practical Observations upon the Education of the People: 'An artisan, a dyer, an engine-maker, will gain the more in money or money's worth for being an expert chemist or mathematician; and a farm-servant, or bailiff, for knowing the economy and diseases of cattle.' See Brougham, H. Practical Observations upon the Education Of The People, addressed to The Working Classes and Their Employers (17th ed.) (London, 1825), p. 12.  
On the improvement of land and its connection with enlightenment thought, see Lawrence, 'The Nervous System' pp. 20-23.  
8 Stewart, Lectures... Vol. II, pp. 346-347.
improve the ‘principles on which it is conducted.’ In particular, the rapid development of knowledge since the end of the sixteenth century required institutions in less enlightened places than Stewart’s Edinburgh to adapt to the times. Indeed, the ‘revolution which has taken place in science and philosophy since the time of Lord Bacon, seems obviously to recommend (in a greater degree than has hitherto been effected in most universities) a correspondent change in the plan of academical instruction.’ Elites had to reform their own practices if they were to be capable of instructing the rest of the population.

The very machinery that was integral to the development of political economy would assist in this reform. Taking his cue from Baconian natural philosophy, Stewart argued that the diffusion of knowledge enabled by the mechanized printing press would enable an intellectual division of labour. Through intellectual specialization, ‘all the varieties of intellect, natural and acquired, among men, aided by all the assistance they derive from the lights which they mutually impart, may be said to be combined together into one great machine, for advancing the means of human knowledge and happiness.’ Assisted by improvements in printing, intellectuals could specialize and recombine their efforts to manufacture rational knowledge more effectively.

The most influential of Stewart’s pupils who sought to bring these educational recommendations to fruition were those connected with the foundation of the Edinburgh Review. The connections between Stewart and the founders of the Review have been noted by a number of scholars. All four founding editors - Francis Horner, Henry Brougham, Sidney Smith and Francis Jeffrey - attended his lectures on political economy. Indeed, the following passage from those lectures may well have provided inspiration for those involved:

‘One circumstance [for the improvement of instruction] which, indeed, has been operating more or less ever since the period of the Protestant Reformation... [is] the wide circulation of occasional pamphlets, and of periodical journals, - those cheap and enticing vehicles of information, which adapt themselves to the rapid, and often capricious changes of general curiosity, and communicate, even to the indolent and dissipated, some imperfect knowledge of the course of political events, and of the progress of scientific improvement... What, then, may be supposed to be the influence of similar works conduced by men of superior genius and learning, and which address the public on subjects much more immediately concerned with the business of human life?’

9 Stewart, Lectures... Vol. I, pp. 54-55.
12 Stewart, Lectures... Vol. II, p. 343.
Jim Secord has noted how the introduction of steam printing machines during the early decades of the nineteenth century became a symbol for the advancement of 'useful knowledge' during the early nineteenth century. Whether or not the *Edinburgh Review* arose out of a desire by Stewart's pupils to take advantage of the opportunities provided by printing for the so-called 'advancement of learning', it is certain that the 'improvement' of education remained an important goal for those involved with editing it. Stewart's pupils proved highly receptive to his suggestion that the reform of education constituted an important aspect of the science of political economy.

The *Edinburgh Review* took a consistently critical stance on the state of education in England. Above all, the reviewers opposed what they believed to be an excessive emphasis on Latin and Greek at the expense of physical and political science in English schools. As early as 1809, articles in the *Review* complained that ancient languages were taught as a badge of gentlemanly education rather than as practical subjects. Citing Locke as the first to observe that Latin and Greek were overvalued, Sidney Smith stated his opinion that 'there never was a more complete instance in any country of such extravagant and overacted attachment to any branch of knowledge, as that which obtains in this country with regard to classical knowledge.' Although valuable, the ancient languages should be studied for their usefulness rather than as a way of distinguishing between those who could afford an expensive education and those who could not. Nor was it only schools that were to blame for English ignorance. The 'public feelings' heaped applause on those who could demonstrate a mastery of classical poetry rather than those practical subjects which - if cultivated - would improve the economy of the nation. As Smith scornfully proclaimed:

'A learned man! - a scholar! - a man of erudition! Upon whom are these epithets of approbation bestowed? Are they given to men acquainted with the science of government? thoroughly masters of the geographical and commercial relations of Europe? to men who know the properties of bodies, and their action upon each other? No; this is not learning; it is chemistry, or political economy - not learning.'

The emphasis on Greek and Latin meant that areas of knowledge that could be of use to those considering going into government or manufacturing remained neglected. Judged in terms of utility, chemistry, geography, and of course political economy were at least as

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15 Smith, 'Edgeworth's Professional Education', pp. 46-47.
valuable as classical studies, if not more so. For the reviewers - committed to their own vision of constant improvement through the expansion of manufacturing - attending to Greek myths and Roman poets to the exclusion of more practical studies was a barrier to the advancement of learning and civilization.

A lack of suitable education was portrayed as the principal cause of a perceived decline in the prestige and proficiency of English scientists, especially in mathematics. The *Review* expressed its concern that the apparently rapid advances that had been made by researchers in revolutionary Paris were not matched by those in Britain. Surveying the latest volume of Pierre-Simon Laplace’s *Celestial Mechanics*, John Playfair asked why it was that in ‘the list of the mathematicians and philosophers, to whom that science, for the last sixty or seventy years, has been indebted for its improvements, hardly a name from Great Britain falls to be mentioned.’ Commenting that there was no shortage of indigenous talent - as shown by the popularity of the complex puzzles contained in the periodical *Ladies’ Diary* (to which had Stewart also referred to in his lectures as important for the dissemination of mathematics)\(^{16}\) - Playfair looked elsewhere for the cause of the comparative inferiority of English mathematical learning. It was the way in which the subject was taught in the ancient universities that was primarily to blame. In Oxford the ‘mathematical sciences’ had ‘never flourished’, so little was to be expected. But even in Cambridge students had to read Newton and Locke ‘not to learn the spirit of geometry... but to know them as a child does his catechism, by heart, so as to answer readily to certain interrogations.’\(^{17}\)

The condition of English mathematics when compared to the flourishing work of Laplace and other continental mathematicians became a cause of concern for those claiming to speak for the interests of the nation. A vocal debate surrounding the so-called ‘decline of science’ contributed to the gradual reformulation of the mathematics curriculum at Cambridge from the 1820s.\(^{18}\) Those connected with the *Edinburgh Review* believed that their criticisms of England’s academic establishment were justified on the grounds that the ways in which sciences were taught (where they were taught at all) were not intended to furnish students with the ‘practical knowledge’ to which they themselves had been exposed in Edinburgh.

Contributors to the *Review* argued that the English universities were guilty of promoting outmoded and impractical attitudes and practices in a more general sense as well. As key institutions for the training of the Anglican clergy, Oxford and Cambridge maintained an emphasis on orthodox religious instruction. Smith’s 1809 article contended that an ‘infinite quantity of talent’ was destroyed every year by the ‘miserable jealousy and littleness of

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16 Stewart, Lectures... Vol. II, p. 343.

ecclesiastical instructors' in these institutions. Political economy was ignored because 'to come so near to common life, would seem to be undignified and contemptible', even though there could be no measure of intellectual dignity but usefulness.\textsuperscript{19} By the mid-1820s these arguments had become well-worn. But rather than attack the Anglican church itself, reviewers now emphasized that economic principles lay behind their critique. Just as the church sought to maintain an illegitimate monopoly on worship, the universities benefited unfairly from their association with it: 'Our objections to Oxford and Cambridge may be summed up in two words, their Wealth and their Privileges... Their revenues are immense. Their degrees are, in some professions, indispensable. Like manufacturers who enjoy a monopoly, they work at such advantage that they can venture to work ill.'\textsuperscript{20} A university in London would break the stranglehold on higher education held by the Anglican church. By admitting all faiths (a commitment that resulted in the absence of formal religious education in the new establishment) education would no longer be the preserve of self-interested religious orthodoxy. If, as Stewart had argued, education was an important component of political economy, it was reasonable to insist on the same standards of open competition adhered to by the rapidly expanding manufacturing industries.

By highlighting the relative backwardness of English science, reviewers associated their calls for educational reform and critiques of higher education in England with the patriotic expectations of national ascendancy in science mentioned above. One reviewer - whilst insisting on his 'patriotic prejudices' - could not help suspecting that due to inadequate training, the young men of England 'are not equal as a body to those of France, Germany, or Russia. They reason less justly, and the subjects with which they are conversant are less manly.'\textsuperscript{21} By claiming to hold the interests of the country at heart, contributors to the \textit{Review} sought to establish a critical stance regarding English education (and especially the Anglican-dominated university system) without exposing themselves to accusations of unpatriotic (and by implication impious) sympathies from those speaking from positions of authority. By casting their calls for the improvement of education in terms of national competition, Stewart's pupils and their associates sought to establish the teaching of physical science (including political economy) as a standard activity in English schools and universities. Using the same rhetoric, they aimed to deflect attention away from those who characterized political economic discourse as dangerously speculative.

By the mid 1820s, Stewart's pupils felt they had achieved some success in their attempts to educate labouring people. The apparent success of Quaker educational reformer Joseph Lankaster's novel system - whereby pupils were required to instruct their peers

\textsuperscript{19} Smith, 'Edgeworth's Professional Education', pp. 50-51.
(thereby enabling a small number of teachers to supervise large classes) - seemed to promise a rapid extension of that 'cultivation of mind' advocated by Stewart. The formation of the Royal Lankastrian Society, along with the establishment of rival systems along similar lines, demonstrated the popularity of calls for educational reform. Prominent economist James Mill used his strict interpretation of Lankaster's techniques for the education of his own children, including John Stuart Mill. At the same time, the so-called 'march of mind' seemed to be furthered by the foundation of the 'Society for the Diffusion of Useful Knowledge' in 1826, the council of which included Stewart's former pupils Brougham, Mill and Lord John Russell, as well as many members of the first Council of the University of London. The SDUK primarily sought to propagate understanding of the physical sciences through cheap publications, lectures and the foundation of libraries. The spread of knowledge, feared by some as likely to encourage rather than prevent insubordination, was now portrayed as a reality that had to be accepted:

'From one end of the country to the other the artisans, the draymen, the very ploughboys, are learning to read and write. Thousands of them attend lectures. Hundreds of thousands read newspapers. Whether this be a blessing or a curse, we are not now enquiring. But such is the fact. Education is spreading amongst the working people, and cannot be prevented from spreading amongst them.'

Whether through the spread of literacy via the 'Lankastrian' system, or the propagation of physical science and other 'useful knowledge', labourers were seeking to avail themselves of knowledge that had previously been the preserve of a privileged few. By contributing to this process, the elite organizers of the SDUK - and later others such as the editors of the more conservative Bridgewater Treatises - sought to ensure that that knowledge did not result in the apparently irreligious speculation that conservatives associated with the perpetration of violence in France during the revolution.

Having apparently begun to reduce the ignorance of the 'lower orders', educational reformers began to take establishment figures' arguments that such activities would undermine established social hierarchies more seriously. On the one hand, reformers sought to reassure their readers that the power that it was assumed knowledge would bring would not threaten the status quo. Henry Brougham, in his highly popular Practical Observations upon the Education Of The People (1825), insisted that 'the worst consequence that can follow to their superiors will be, that to deserve being called their betters, they too must

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devote themselves more to the pursuit of solid and refined learning." But at the same time, contributors to the *Edinburgh Review* portrayed the 'march of mind' as a threat that necessitated further institutional reform and development. As one reviewer put it, 'if ever the diffusion of knowledge can be attended with the danger of which we hear so much, it is in England at the present moment. And this danger can be obviated in two ways only. Un-teach the poor, - or teach those who may, by comparison, be called the rich.' The comparatively rich this writer had in mind was not the established elite, who could afford to send their sons to Oxford or Cambridge, but an emergent middling group, which 'though naturally hostile to oppression and profusion, is not likely to carry its zeal for reform to lengths inconsistent with the security of property and the maintenance of social order.' For Scottish poet Thomas Campbell, writing to the *Times* with a suggestion for a new university, the necessity of gaining knowledge was more pressing for these classes than for the poor, as the 'evil temptations of wealth are really stronger than those of poverty.' As an increase in knowledge amongst the poor was now unavoidable, so the knowledge held by the comparatively rich had to increase in proportion.

As well as helping ensure the maintenance of social order, the projected university was justified as fulfilling a need for professional training for doctors and lawyers. For example, medical education was largely based in hospitals located in rapidly expanding urban centres, especially London. Nevertheless, the surgical and physiological elite were primarily drawn from graduates of Oxford and Cambridge. From the perspective of those seeking to challenge the educational monopoly of the universities, this was yet another sign of unwarranted privilege accorded to families who could afford to send their offspring to them. Reformers argued that medicine could not be usefully taught by lecturers removed from the centres of medical activity.

At the same time, the concentration in London of scientists, artists and writers meant that it would also be more convenient to teach other subjects in the metropolis. Nor did the *Reviewers* portray such arguments as unequivocally opposed by members of the ancient universities. An article attributed to Brougham - signed 'An Oxonian' - suggested that 'medicine in its principal branches, Nosology and Anatomy, can only be taught where there are large hospitals - best where the largest of these are established; and the fine arts can nowhere be taught except in the grand resort of artists, the great mart for their productions.' A new centre for professional education would not make Oxford and Cambridge redundant - they remained the unchallenged centres of religious education for the Anglican clergy.

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26 'Proposal Of A Metropolitain University, In A Letter To Henry Brougham, Esq.' *The Times*, 9th Feb 1825.

Rather, it would provide training for new members of the 'professions', to be drawn from the newly self-aware 'middling ranks' of the country.

The projected new university was conceived in accordance with principles of political economy. It was felt that increasing expansion and specialization meant that it was becoming more and more difficult to obtain the general mastery of knowledge that had typified a 'liberal education' during the eighteenth century. One reviewer suggested that as well as understanding the ancient languages, the term included a knowledge of French, Italian, German, Spanish, mathematics, experimental sciences and moral philosophy. Such wide-ranging learning was simply impractical for participants in the new economy: 'Few of those who are intended for professional and commercial life can find time for all these studies. It necessarily follows, that some portion of them must be given up'.

The constantly changing and advancing state of knowledge meant that there could be no 'immutable principles' on which a curriculum could be based. No single subject could be singled out as either worthy or unworthy of study. Rather, since it was 'desirable that education should, by a gradual and constant change, adopt itself to the circumstances of every generation, how is this object to be secured? We answer - only by perfect freedom of competition.' Competition would ensure that the relative value of ancient languages and exact sciences would be judged according to utilitarian principles: 'We only say, that if they are useful they are not need particular encouragement, and that, if they are useless, they ought not to receive it.' Above all, the reviewer maintained, 'principles of liberty, as in government and trade, so also in education, are all-important to the happiness of mankind.' By refraining from interfering in the production and propagation of knowledge, the university would ensure that its development accorded with the laws of political economy. In this sense, the foundation of the University of London signified the consummation of Stewart's call for education to be included within that science.

Although the constitution of the University of London was informed by the ideals outlined above, the process of establishing the institution was also one of compromise and negotiation. The first Council of the university included many luminaries committed to the principles of free trade and competition. As well those directly taught or influenced by Stewart such as Sir James Mackintosh, George Birkbeck, Brougham and Mill, members included other writers on political economy such as George Grote and Joseph Hume. Their interests ensured that the university adopted a number of policies intended to turn principle into practice. Most importantly, lecturers were to rely on students' fees for their income, and thereby be 'permanently regulated by the demand for different sorts of instruction' (as an 1826 prospectus would have it). The university was also set up as a joint-stock company

funded by private investors. Nevertheless, it would be inaccurate to characterise the university as completely under the control of political economists. In addition, politicians, intellectuals and businessmen such as mathematician (and editor of the *Ladies Diary*) Olinthus Gregory, evangelical abolitionist Zachary Macaulay, prominent lawyer William Tooke and financier and Jewish community leader Isaac Goldsmid took an active part in the formation of the faculty. Despite the *Review's* claim that competition between subjects would be 'perfect', the number of subjects that could be included on the syllabus remained limited. The Council therefore played an important role in deciding which subjects were to be offered for study, and by whom they were to be taught.

The appointment of J.R. McCulloch to the chair of political economy at the university contributed to the nascent discipline's gradual separation from moral philosophy during the first half of the nineteenth century. Poovey argues that McCulloch's Ricardo Lectures (1824) show that in his view political economy was not a means by which moral philosophers might inculcate a virtuous society, as in Stewart's philosophy. Rather, the subject was for McCulloch a virtuous activity in itself. McCulloch replaced Stewart's 'divine providence' with the creative power of 'commerce'. Similarly, McCulloch's conceptualization of educational reform did not encompass the whole of knowledge. Educating the masses in political economy alone would be enough to ensure that the public acted according to the 'laws of commerce', which in turn represented the design that Stewart believed was only accessible through moral philosophy. Finally, McCulloch developed a taxonomy of political knowledge that split the collection of statistics (to be undertaken by government), political science (to be concerned with the best form of government) and political economy (which aimed to discover the laws by which society was regulated). Poovey suggests that by doing so, McCulloch sought to institutionalize and professionalize political economy, and thereby offered an alternative to David Ricardo's insistence on the 'mathematical' - and therefore independent - status of the field. In this respect, McCulloch's appointment to the chair of political economy signifies the decline of the connection between political economy and broad-ranging educational reform. Political economy at the University of London was to become profession just like law and medicine.

The foundation of the University of London also constituted a significant location for the establishment of independent specialisms in other fields. In addition to relatively established subjects such as medicine and law, the inclusion in the syllabus of fields of knowledge not conventionally taught at universities such as Sanskrit, Spanish, and English Language and English Literature signified a broadening of the marketplace of knowledge. At the same time, teachers of subjects such as zoology insisted on the independence of their

own areas of expertise from other areas of investigation.\textsuperscript{32} Competition between the numerous subjects to be taught at the new institution meant that lecturers had to set out their stalls, contrasting their own courses with their rivals. Of course, this is not to suggest that professors were constantly at each others throats (although this did happen to some extent).\textsuperscript{33} Nevertheless, the economic realities of lecturing at the University of London meant that teaching there could be rather less economically rewarding than at other educational institutions. The political economic rationale for the system of education at the university created a very different environment to that of Oxford or Cambridge.

This short essay has argued that Dugald Stewart's 'moral' political economy played a formative role in the campaign for educational reform and the foundation of the University of London. Stewart included the reform of education within a vision of political economy as the tool for the realization of divine philosophic truth. Although his pupils did not necessarily share this vision, they nevertheless took on many of his suggestions. Their \textit{Edinburgh Review} became a key journal for the discourse on educational reform, stressing the need for a utilitarian approach to the organization of subjects through freedom of competition. Although political economists did not control all aspects of the foundation of the university, it did embody many of their ideological commitments. Lectures and courses were subject to competition, and professors were paid according to the numbers of pupils they could attract.

As an important site for the organization of knowledge, the University of London warrants greater attention from historians interested in the 'disciplining' of knowledge during the nineteenth century. The literature on professionalization has focused on institutions devoted to specific areas of knowledge such as physical science or medicine. Paying attention to the more general process of disciplinary formation that occurred in nineteenth-century institutions of higher education would contribute to a more comprehensive understanding of the specialization of knowledge. At the same time, it would imply according a greater role for political economic discourse in disciplinary formation than is presently recognised.

\textsuperscript{32} See for example Grant, R.E. \textit{On the Study of Medicine: Being an introductory address delivered at the opening of the Medical School of the University of London, October 1st, 1833} (London, 1833), p. 10.