

Review and Theoretical Articles

Intelligence, Education, and Society: Godfrey Thomson's Public and Professional Lectures

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Godfrey Thomson was an influential national (United Kingdom) and international researcher in intelligence theory and testing, education, and psychometric statistics during most of the first half of the 20th century. Until recently, there have been few archival resources for him. We discovered over 30 of his public and professional lectures, i.e., lectures delivered to audiences other than university students. We describe the physical appearance and the contents of the lectures. We describe the main themes covered in the lectures and how they give insights into Thomson's thinking, beyond what can be understood from his books and journal articles. We make transcriptions of many of the lectures available for researchers.

1. Introduction

Godfrey Thomson (1881–1955) was Professor of Education at Armstrong College, Newcastle, United Kingdom from 1920–1925, Visiting Professor of Education at Teachers College, Columbia University, New York from 1923–1924, and Professor of Education at the University of Edinburgh, United Kingdom, from 1925–1951 (Thomson & Duff, 1969). Today, he is largely forgotten; elsewhere, we have discussed why this is surprising (Bartholomew et al., 2009a, 2009b; Deary, 2013; Deary et al., 2010). He made substantial contributions to the development of statistics in psychology and the social sciences (Bartholomew et al., 2009c, 2009b). He was prominent in empirical and theoretical work on the nature of human intelligence differences (Thomson, 1939c), and had an argument about this with Charles Spearman that lasted more than 20 years (Thomson, 1916, 1919, 1935, 1939a, 1939b). He developed (dozens), distributed (millions), and discussed mental ability tests for educational selection in the United Kingdom from the 1920s to the 1950s (Sutherland & Sharp, 1984). He was the statistical lead in the Scottish Mental Survey of 1932 (Scottish Council for Research in Education, 1933), and Chairman of the Scottish Mental Survey of 1947 (Scottish Council for Research in Education, 1949), the only occasions world-wide in which almost-entire year-of-birth populations have been given intelligence tests (Deary, Whalley, et al., 2009). He was knighted for his contributions to education. He addressed still-important topics such as cognitive ability testing, educational selection, educational systems, and social mobility (Thomson, 1924b, 1929a); and he addressed an issue that was, in his time, called the 'differential birth rate' (Thomson, 1947).

His thinking about intelligence, character, and education and their relevance to society were displayed in his Mond Lecture—*Intelligence and Civilisation*—to the University of Manchester in the United Kingdom in 1936. It has been reprinted with a commentary (Deary, Lawn, et al., 2009). After that, one of us (IJD) discovered many more of his public lectures. We described their discovery, appearance, and contents briefly in an overview of archival sources for Godfrey Thomson (Deary et al., 2010). We gave examples of the lectures' contents in a general piece on Thomson and on our current studies which follow up some people who took part in the Scottish Mental Surveys of 1932 and 1947 (Deary, 2013). Thus, some of the quotations from the lectures have been published already.

Here, we deal exclusively with Thomson's public lectures that are now deposited in the Hector Thomson collection at the University of Edinburgh. There are four aims of this article. First, we describe this resource, its archiving, and its availability for researchers; this is an equivalent to a 'Method' section and readers can find it in the Appendix at the end of this article. Second, we summarise the themes dealt with in the lectures. Third, we provide quotations from the lectures organised by their main themes. Fourth, we discuss the relevance of the lectures' topics for psychology, education, and broader social science and public discussion today, and how they expand our knowledge about Thomson's attitudes and motivations, especially about intelligence (including its testing) and education.

2. General comments on Godfrey Thomson's Public and Professional Lectures

There are 37 lectures in the collection (Tables 1 and 2). There are five shorter sets of notes for what might have

become or been otherwise-uncollected or undelivered lectures (Table 3).

The first lecture occurred in 1924, when Thomson had recently returned from his year in the USA at Teachers College Columbia and was still at Armstrong College in Newcastle (Thomson, 1924a). The last dated lecture occurred in 1954, three years after Thomson retired from the University of Edinburgh and the year before he died (Thomson, 1954). The audiences addressed include school pupils, the public, student teachers, teachers, business people, other non-education-based professional groups, and academics. The content of the lectures is analysed below, but some general comments can be made. All are clear. None is technical. None appears to have required visual aids. Some are based on research findings, but few have numerical data. There is much stating of personal beliefs about intelligence, education, and society. There is humour. There is some repetition between lectures, including some stories and examples of humour, but each appears to have been written individually. Care is apparent in the construction of material for specific audiences, academic and non-academic. For example, there is local detail in the talks to schools, which is used to make larger, inspiring messages. There are references and quotations from classical literature and from, for example, Robert Burns, Samuel Johnson, Alexander Pope, Bertrand Russell, and Robert Louis Stevenson. Thomson often re-stated his mission: to educate people fairly and appropriately to their abilities, and to help people make a useful contribution to society. There is offensive language used to describe people in some of the lectures.

Within Thomson's lectures, education plays the most significant role, including the place of intelligence and its testing. The idea of educational equality is a prominent theme in Thomson's lectures. He argued that it is important to find those with academic abilities in less-advantaged circumstances, be it socially, economically, or geographically. To him, examinations were at the heart of education and a fairer way, compared to alternatives as he envisaged them, to assess a student's grasp of a topic and their cognitive capabilities. Few of these lectures deal with the nature of intelligence as opposed to its assessment. The nature of intelligence was the topic of many of his academic journal papers, but his extant public-facing talks appear mostly to be to do with improving the fairness and quality of educational selection and educational experience, and the assessment of intelligence.

3. The Contents of Thomson's Public and Professional Lectures

Some of Thomson's lectures could be the topic of more detailed research on their own (see section 4.2 for suggestions). However, it is also useful to consider the lectures as a whole, and to find out what such a comprehensive study can do to enlarge our understanding of Thomson and the topics he addressed in his research and professional work. From our readings of Thomson's lectures, the following topics emerged: Thomson's educational vision; fairness and equality in education; education and society; educational selection; tests for educational selection; intelli-

gence research; educational research; the distribution of intelligence differences; intelligence differences and their causes; intelligence and social class; intelligence and society; the "differential birth rate"; broader humane issues; humour. We now outline, exemplify and discuss these topics in turn. Example quotations are given from the lectures. The individual lectures are referred to, when the information is available, by their location or audience and the year. They are referenced, and are identifiable in Tables 1 and 2 where, in addition, the archival identifier number for each lecture is given in full; the accession number for the full collection of Thomson's lectures is Coll-1310/3/1. It was not possible to have all topics' full quotations and discussions in the main text. We retained these for what we considered to be the principal topics that Thomson addressed. For other topics, we supply the quotations and discussions as Supplementary Material, with brief overviews in the main text.

3.1. Topic 1: Thomson's Educational Vision

When annotating the lectures for topics, one that occurred frequently was Thomson's educational vision: the system of education he would like to have seen in place. This may be summed up by his wanting a system: that provided appropriate education for people of all levels of ability and of different types of talent; that had establishments that housed children of heterogeneous ability and interests; and that allowed transfer between types of education at any age. He repeatedly stressed the importance of vocational and social education. After retiring, when he was age 72, he stated, in his 1953 address to the National Foundation for Educational Research that one of the major passions of his life was (Thomson, 1953),

"the feeling that I had a moral duty to do everything possible to improve methods of discovering intelligent children who might be overlooked, and guiding them into forms of higher education likely both to make them happier in their lot, and useful to a society and civilisation which needs them."

The above vision is described in the earliest extant lecture, at Sheffield University in 1924 (Thomson, 1924a). Therefore, it was consistent for much of his career as a professor. A year later, in his Inaugural Lecture at the University of Edinburgh, he stated (Thomson, 1925a),

"I confess that I like the American comprehensive High School, containing within its walls children of average as well as of higher grade intelligence, better than the English Secondary School which caters for the abstract thinker only.... internal organisations could provide different tracks suitable for different interests: and I look with some distaste on the present tendency to segregate levels of intelligence in different schools."

His wish to have all children educated together is repeated in his lecture on Individual Differences (Thomson, n.d.-c). In that lecture he also described how this might happen,

Table 1. Main lectures by Godfrey Thomson discussed in the text

Identifier number ^a and reference	Title	Date	Audience	Content
Coll-1310/3/1/2/1 (Thomson, 1924a)	A Comparison of English and American Education	1 Oct 1924	Sheffield University	Explores the similarities and differences between the two systems, and what can be learned from each.
Coll-1310/3/1/2/2 (Thomson, 1925a)	Inaugural Lecture	1925	Edinburgh University	Investigates the distribution of intelligence between the various social or occupational levels of society.
Coll-1310/3/1/2/3 (Thomson, 1925b)	The Food of the Gods	27 Nov 1925	Darlington Grammar School	Explores the relationship between education and personal fulfilment.
Coll-1310/3/1/2/4 (Thomson, 1927a)	Address to the Edinburgh Ladies College	6 Jun 1927	Mary Erskine School, Edinburgh	Focusses on the school's history and its future.
Coll-1310/3/1/2/6 (Thomson, 1928)	Bede Collegiate School Prize Day	1928	Bede Collegiate School	Discusses both the history of the school and its namesake, St. Bede.
Coll-1310/3/1/2/8 (Thomson, 1929b)	Research in Education	19 Jan 1929	Educational Institute of Scotland, Falkirk	Discusses the problems and difficulties in Educational research, and how these can be resolved.
Coll-1310/3/1/2/9 (Thomson, 1929c)	Statistical Methods in Educational and Psychological Problems	1 Mar 1929	Institute of Public Administration, Northern Regional Group, Newcastle	Explores the uses and limitations of statistics in both education and psychology
Coll-1310/3/1/2/11 (Thomson, n.d.-b)	The Criterion of the Future Career	c1930s-1940s	Not known	Regards the problems of examinations at university level, particularly with regards to external and internal examiners, and how these can be resolved.
Coll-1310/3/1/2/12 (Thomson, n.d.-c)	The Extent and Significance of Individual Differences	c1930s-1940s	Not known	Discusses the extent of individual intelligence differences, and the wideness of the intellectual range within the population, with emphasis on the impossibility of fully differentiating human intelligence differences into classes.
Coll-1310/3/1/2/13 (Thomson, 1930f)	The School as a Social Influence: Two Practical Examples	1930	Summer School for Teachers, Moray House, Edinburgh	Explores how schools can benefit the whole community, using two diverse examples.
Coll-1310/3/1/2/14 (Thomson, 1930c)	Some National Problems of Today: Education	18 Jan 1930	Dundee University College	Outlines the problems facing education, and offers solutions to tackle them.
Coll-1310/3/1/2/15 (Thomson, 1930d)	The Function of Education in the Biological Record	16 Feb 1930	Rationalist Press Association (Glasgow)	Compares competition in the natural world and education, in the context of the differential birth rate.

Identifier number ^a and reference	Title	Date	Audience	Content
			District)	
Coll-1310/3/1/2/16 (Thomson, 1930e)	The Nature of Intelligence	10 Jul 1930	Cambridge	Explores intelligence and its relationship to instinct.
Coll-1310/3/1/2/17 (Thomson, 1930a)	Darlington	25 Nov 1930	Darlington	Discusses both the limitations and positive qualities of intelligence testing, citing its objectivity and scientific basis.
Coll-1310/3/1/2/18 (Thomson, 1931a)	Education as a National Problem of Today	10 Jan 1931	Educational Institute of Scotland	Essentially the same in content as 'Some National Problems of Today: Education'.
Coll-1310/3/1/2/22 (Thomson, 1933)	Schulaufbau und Lehrerbildung in England und Schottland	1933	Central Institute of Education and Teaching	Compares the English and Scottish education systems, both to each other and to the German system.
Coll-1310/3/1/2/23 (Thomson, 1942c)	Factorial Analysis of Human Ability	2 Feb 1942	Royal Society of Edinburgh	Explains factorial analysis in non-mathematical terms.
Coll-1310/3/1/2/24 (Thomson, n.d.-e)	The Need for Vocational Education	C1930s-1940s	Not known	Investigates the need for investment in Vocational Education, looking to America as an example.
Coll-1310/3/1/2/25 (Thomson, 1942d)	The Aim of Education - Happiness and Truth	7 Mar 1942	King's College Education Society, Newcastle	Outlines the moral and ethical case for the best education for the greatest number, and the importance of balancing this with the needs of the individual.
Coll-1310/3/1/2/26 (Thomson, 1942e)	The Means to the End:- Equal Opportunity and Hard Work	7 Mar 1942	King's College Education Society, Newcastle	Investigates the need for investment in Vocational Education, looking to America as an example.
Coll-1310/3/1/2/27 (Thomson, 1942b)	Education and Vocation	6 Oct 1942	Edinburgh City Business Club	Investigates the need to make provision for vocational training in Britain, citing Germany's extensive system of vocational training as an example.
Coll-1310/3/1/2/28 (Thomson, 1942a)	Armistice Day	11 Nov 1942	Not known	Lecture of remembrance paralleling the First World War to the Peloponnesian War.
Coll-1310/3/1/2/29 (Thomson, 1943)	In Praise of Examinations	22 Apr 1943	Wigan	Outlines the value of examinations, citing their impartiality, and fairness; while also acknowledging the problems they pose.
Coll-1310/3/1/2/30 (Thomson, 1949a)	Are we Becoming Less Intelligent	13 May 1949	Public broadcast on British Broadcasting Corporation Radio	Outlines the concept and possible explanations for a differential birth rate; the relationship between family size and intelligence; and the purpose and findings of the Scottish Mental Surveys.
Coll-1310/3/1/2/31	Lecture regarding examinations	23 Nov 1949	University and	Defends examinations while also identifies the problems associated with them, and how

Identifier number ^a and reference	Title	Date	Audience	Content
(Thomson, 1949b)			Schools Dining Club	these may be resolved.
Coll-1310/3/1/2/32 (Thomson, 1950b)	The Discovery of Talent	4 Sep 1950	Rotary Club, Birmingham	Investigates how talent can be discovered and encouraged, with particular reference to examinations and intelligence testing.
Coll-1310/3/1/2/33 (Thomson, 1952b)	Bingley Lecture	1952	Bingley Vacation Course	Outlines the purpose of intelligence testing; the benefits of standardisation of intelligence tests; and the problem of coaching.
Coll-1310/3/1/2/34 (Thomson, 1952a)	Alfred Gilchrist Lecture, 'The Progress and Present Aspects of Educational Science'.	29 Apr 1952	Aberdeen University	Defines educational science in terms of two facets: operational and fundamental.
Coll-1310/3/1/2/35 (Thomson, 1953)	Research Committees and Research Workers	14 Oct 1953	National Foundation of Educational Research	Outlines the ideals for educational research, while acknowledging that modern research is constrained by input from collaborators or funders, and discusses how research bodies can aid the researcher.
Coll-1310/3/1/2/36 (Thomson, 1954)	Address to the students of the Aberdeen Training Centre	24 Jun 1954	Aberdeen Training Centre	Advises graduates not to 'rest on their oars', but to keep learning throughout their life, to work hard, and to subsequently benefit from the satisfaction attained from hard work.

Note. ^aThe identifier number applies to the individual lecture under the collection number Coll-1310/3/1 in the Centre for Research Collections in the Main Library of the University of Edinburgh.

Table 2. Additional lectures by Godfrey Thomson

Identifier number ^a and reference	Title	Date	Audience	Content
Coll-1310/3/1/3/1 (Thomson, 1930b)	Scholarship, Culture, and vocation: educational Ideals at home and abroad	31 Jan 1930	Wigan Education Society (Presidential address)	Discusses the apparent schism between scholarship, culture, and vocation, and the need for all three in education.
Coll-1310/3/1/3/4 (Thomson, n.d.-a)	Propaganda	Not dated	Not known	Partly written, partly notes. Investigates the problem of propaganda in school and how it can be avoided.
Coll-1310/3/1/3/5 (Thomson, n.d.-f)	The Purpose of a Scientific Education	c1930s	Not known	Investigates how science can fulfil its main purpose – that of uniting society.
Coll-1310/3/1/3/7 (Thomson, 1950c)	Untitled lecture given to members of staff of Edinburgh University	1950	University of Edinburgh	Advises lecturers on how to gain and maintain the interest of their audience.
Coll-1310/3/1/3/8 (Thomson, 1951)	Selection for higher education	6 Nov 1951	University of Leeds Institute of Education	Discusses how selection for university entrance can be made more fair and equal.
Coll-1310/3/1/4 (Thomson, 1944)	Transfer of training at the university level	Mar 1944	Not known	Investigates how the university student's qualities and skills can be transferred to their working life as well as their roles as good citizens.
Coll-1310/3/1/5 (Thomson, 1950a)	Movement and Reciprocity in Geometric figures	c1950s	Not known	Regards Spearman's 'Theory of Two Factors' in relation to mathematical ability.

Note. ^aThe identifier number applies to the individual lecture under the collection number Coll-1310/3/1 in the Centre for Research Collections in the Main Library of the University of Edinburgh.

Table 3. Notes for lectures by Godfrey Thomson

Identifier number ^a and reference	Title	Date	Audience	Content
Coll-1310/3/1/2/7 (Thomson, 1927b)	Quiller Couch	24 Jun 1927	Morrisons Academy, Crieff	Rough notes, the content of which would suggest this lecture was very similar to 'The Food of the Gods'
Coll-1310/3/1/2/7 (Thomson, 1948)	The Nature and Measurement of Intelligence	30 Jun 1948	Not known	Rough notes with lists of topics and corresponding examples regarding different mental tests, genetic aspects of intelligence, social classes, and vocational selection.
Coll-1310/3/1/2/10 (Thomson, n.d.-d)	The Growth of Intelligence in Children	c1930s-1940s	Delivered to a parents' association, location unknown	Very brief notes regarding the development of babies; intelligence testing and IQ; variation; examinations; and teaching methods.
Coll-1310/3/1/2/19 (Thomson, 1931b)	Education for the base of the pyramid	20 Jan 1931	Craiglockhart Convent	Brief notes including a definition of the pyramid and its relation to society; the four new classes as identified by Wells; the differential birth rate; the Danish Folkhighschools; and social equality.
Coll-1310/3/1/2/21 (Thomson, 1931c)	Notes for lecture to the Newcastle school of cooking, and lecture to Stockton Grammar School	21 Nov 1931	Newcastle school of Cooking; Stockton Grammar School	Brief notes in English, German, and French. The notes for Thomson's address to the Newcastle School of Cookery are titled 'Stoic & Epicurean, contain references to science and art, and stress the importance of both. The lecture notes for Stockton Grammar school are untitled, referring to the German education system, print history, etymology, and the importance of books and language.

Note. ^aThe identifier number applies to the individual lecture under the collection number Coll-1310/3/1 in the Centre for Research Collections in the Main Library of the University of Edinburgh.

"I would have, as we are more and more having in Scotland, various sorts of advanced education, and I would see that (based on that well considered gauging of the pupil's powers which I spoke of above) advice and persuasion, based upon information, should be used to shepherd the advanced pupils, that is all the pupils over twelve, into the proper kind of course for their interests and their powers."

This is repeated in his 1930 lecture at Dundee (Thomson, 1930c), where he again rehearsed that this would allow for more flexibility because, "it makes transfer from the one course to another possible when a child has got on the wrong track unsuited for his talents."

In his Means to the End lecture in Newcastle in 1942 (Thomson, 1942e) he was arguably ahead of his time in stating that, "...the age of 16, it seems clear that compulsory full time education should continue at least up to that age." At that time, the earliest school leaving age in Scotland was 14. Later in that lecture he also showed his interest in early and higher education, and his lasting wish that vocational education be included in schools,

"The great educational events of the twentieth century will be seen by the historian of the future to have been connected at the one end with the care of babies and toddlers, and at the other with the education of young persons between 14 and 21: and of these educational events one of the greatest, which has not yet happened, will be the passing of apprenticeship into the schools."

From someone who could be seen as being especially interested in those children of high ability who were heading to a traditional academic education, Thomson's lectures might provide balance by showing how much he thought about the need for other types of good education, and of the problems of children taking the wrong type of educational route. In the 1942 Newcastle lecture, he stated (Thomson, 1942e),

"And who is the freeman? He who after an education suited to his abilities and his interests becomes a free and accepted member of his craft, or he who after being kept at books he did not want to read finds no job, and is free only to do as he pleases on the dole? I am no enemy of education for culture, of the education of an élite, or of education for the right use of leisure, but I plead first for an education for work and how to do it."

The lecture describes how schools should keep records of pupils' strengths, and describes vocational advice centres that should exist in each town, with psychologists, medical specialists, and local vocational experts. He produced a defence against those who argued that a vocational education is a transitory thing, whereas a general education is more useful,

"...for the pupils for whom I am proposing a vocational education, the alternative is not a good general education. The alternative is either unemployment and idleness, or a blind alley occupation like vanboy or janitor's boy, or at best a haphazard apprenticeship or learnership in a trade. And if they were offered a good general education they wouldn't have it. As the American

slang phrase has it, they might be exposed to it but it wouldn't take."

For a researcher who was so associated with the transfer from primary to secondary school—via his Moray House Tests—he regretted the formal gap between these two stages. He discussed this in his Means to an End lecture at Newcastle in 1942 (Thomson, 1942e) and traced some of the problem to the Balfour Act of 1902. He thought that, without the formal, "transfer... the curriculum would not have lost touch with the vocations the pupils wished to enter." It is also in this lecture that he urged that specialist education should start much earlier,

"...so many years are taken up with laying this [general education] foundation that none are left for the specialization, and the pupils have been sickened by the absence of all signs of advance, wearied by working underground year after year. The image needs to be reversed, turned upside down. The special interests of a pupil are not to be left until a broad base has been laid. They are to be used as the thin end of the wedge, whose broad base will follow."

Later in the lectures, there appear, in addition to his thinking about how education should be done, thoughts about its wider purpose. In his Aim of Education lecture in Newcastle in 1942 he stated (Thomson, 1942d),

"our main aim in education should be to inculcate by precept and example, and especially by example, the habits of caring unselfishly for the happiness of others, and of reverencing the truth wherever it is found."

Thomson thought about the practicalities of getting the right education for each person. After his retirement, in his Aberdeen lecture of 1952, he still was open-minded about whether talents for different types of job were innate or educable (Thomson, 1952a),

"If these wide differences are inborn it is of the greatest importance to know this, and to train those of each level of intelligence for the kind of occupation for which they are suited and in which they will be happiest. If on the other hand the differences are due to the previous opportunities of the children, of whom some will have had cultured homes with many educational advantages, while others have been underprivileged in these respects of home, district and school, then clearly it is the duty of the teacher to endeavour to overcome these manmade differences, and he will have hopes of success with the dull and backward greater than would be the case were he convinced that the differences were those of nature and not of nurture."

3.2. Topic 2: Fairness and Equality in Education

Although it is part of his educational vision, it is important to separate, describe, and emphasise Thomson's declared wishes for a fair education system. He repeatedly stated in the lectures that a person's abilities should be the criterion for educational selection, and that no disadvantage should occur to those from poorer backgrounds. He also thought that a child's educational destiny should not

be determined by a single testing occasion. That is, he was for equality of opportunity. He was also for equality of investment; he wished there to be equal amounts spent on every child's education.

He stated, in his Sheffield lecture in 1924 (Thomson, 1924a),

"It is very desirable that free interchange of pupils should be possible at any age. And it is essential that no social distinctions should arise, and that neither school should open its doors to mere wealth, should the applicant be more suitable for the other form of education."

In his 1925 Inaugural lecture he stated (Thomson, 1925a),

"It is quite impossible therefore to make any useful prediction of a child's intelligence based upon the occupational or social status of the father. ...I am compelled to the decision that nothing short of absolute equality of educational opportunity can be justified by inquiries such as I am describing."

His idea of fairness extended to those at the upper ranges of intelligence as well as the lower, as he stated in his Individual Differences lecture (Thomson, n.d.-c),

"There is a saying in America, where a false democracy sometimes tries to keep back the gifted from rising above the average, that 'a boy is entitled to a fair chance, even if he is intelligent', and we must sometimes remind ourselves of this truth even here perhaps, that a clever boy or girl is entitled to a suitable education, even if that is an education not fitted for the great majority of the pupils."

Thomson held his views of fairness in education as firmly as he recognised that there were individual differences in children's cognitive abilities that mattered for their educability. In his 1930 Dundee lecture he stated (Thomson, 1930c),

"Nothing can shake my belief that every child ought to have an equal chance of education in open competition with other children, uninfluenced by the wealth or position of its parents and as far as we can manage it uninfluenced by the topographical position of its home; though it is difficult to give the equal chance to a child in a remote valley or distant island. On the other hand, it is quite certain, without the remotest shadow of doubt, that there are differences of ability among children not due to their education but inborn, and that some will be suitable for the one, some for the other kind of work."

In his 1942 Means to the End lecture he was explicit with respect to equality in the amount that is spent on each child's education. He stated (Thomson, 1942e),

"The essential thing which I require is that the same amount should be spent on each individual during his lifetime, disregarding entirely both his needs and abilities. The same total amount in every case.... I do not wish to spend a halfpenny less on the highly intelli-

gent. But nearly all the bitterness will go out of the action of our educational sieve if the different sorts of education cost an equal amount. There have been numerous attempts to give equal prestige to other forms of education than the academic grammar school type. Only one thing will give equal prestige, namely equal money spent on them. Nothing else will do so."

After retirement and at age 72 he rehearsed the desire for fairness in education in his 1953 lecture to the National Foundation for Educational Research (Thomson, 1953),

"Educational research has been one of the major passions of my life. Not I think the main passion—that has been the desire to know more and more about the world of mathematics, for which I have had alas but little time to spare. And next to that, the feeling that I had a moral duty to do everything possible to improve methods of discovering intelligent children who might be overlooked, and guiding them into forms of higher education likely both to make them happier in their lot, and useful to a society and civilisation which needs them."

Thomson occasionally mentioned the age to which he thought compulsory education should continue (see above). In his 1942 Education and Vocation lecture to Edinburgh City Business Club he stated that he should like education to continue to what it does in the UK today (Thomson, 1942b), "secondary education as at present practised is only for the few. It ought, with an enlarged meaning, to be available for all, and the compulsory school age ought to be raised to 16 at least."

One vehicle for delivery of Thomson's fairness in education was examinations, as he stated in his 1943 Wigan lecture (Thomson, 1943),

"The alternative [to examinations] was nepotism, favouritism, patronage, obtaining posts by family connections or by bribery (direct or indirect) by flattery and by self-advertisement.... In short, I want to point out that examinations appear to be an indispensable necessity for democracy, an indispensable necessity for equality of opportunity. The great and never to-be-overlooked quality of examinations is that they are fair, they give favour to no one, if they are properly conducted, as they usually are (in this respect) in this country. The syllabus is published beforehand. The questions are the same for all, and the conditions under which they are answered. Cheating is carefully and as a rule successfully guarded against. The examinees are usually unknown to their examiners, or at least to the external examiner in the case of university examinations and the latter have no incentive to favour one over another, except insofar as his answers justify such preference.... True, inequalities remain. The wealthy boy can afford better coaching, can buy suitable textbooks, can have a quiet room in which to study. But he cannot bribe the examiner or obtain his favour because of his noble name or his politics or his religion. True, it may happen that a boy or a girl may not be well enough on the day of examination to do himself, or herself, justice. But to rail against this is to rail against fate rather than against human injustice, and there are

precautions to be taken which can temper even these inequalities.”

Another vehicle for the delivery of fairness was intelligence tests, as we describe below in the topic of ‘tests for educational selection’. In retirement and late in his life he was reiterating this in public lectures, as he stated in his Bingley lecture of 1952 (Thomson, 1952b),

“And a large number of such schools in Northumberland had in 1919 entirely ceased to put any candidates forward at all [for a full secondary education that might lead to higher educational opportunities]. It was to correct this situation that intelligence tests were begun, in the hope (largely justified by the event) that they would discover intelligent pupils who would otherwise have been passed over. They may be said to have helped pupils who had not been coached for the 11+ examination to compete with those who had.... That was the incentive in those early days. We were not so much concerned about sending the wrong children to secondary schools as not missing the right ones. We were thinking about the individual clever boy and girl whom we wanted to have their chance even from poor homes or poor schools. Things have changed in many ways since then, but that desire is still nearest my heart.”

Later in the same 1952 lecture Thomson stated that his wish to achieve fairness should trump the occasional error of educational placement: it was better to be too liberal than too conservative,

“We want to help intelligent boys to enter a school suitable to their ability. It is a less serious error to let some misfits in (*face* the headmaster’s grumbles) than to keep any *good* candidates out. And calculations (based on the assumption that one child in five is being coached) show that even if coaching is as effective as is claimed by some, the number of ‘wrong’ admissions is not very large, only about five percent of all admissions, the *really* clever child will get in without any coaching. There will always be trouble near the borderline (even, were it not for the everlasting mercy, on the Judgement Day! [this could have been placed in the ‘Humour’ section below]) but if authorities will provide a generous supply of secondary school places, a few coached candidates won’t keep really clever boys out – not on our tests.”

Below, in the section on the controversial but what in his time was considered to be the important issue of the “differential birth rate”, emerges the comparative value that Thomson applied to fairness in education: in his 1930 Dundee lecture (Thomson, 1930c) and in his 1930 Glasgow lecture (Thomson, 1930d) he put fairness to all above the need to “save society” from the then-worried-about possibility of intellectual decline.

3.3. Topic 3: Education and Society

Thomson thought that education made an important contribution to society, and to what he called civilisation. We illustrated and discussed this in the republishing of his Mond Lecture (Deary, Lawn, et al., 2009), though that was

delivered in a university setting. In this lecture collection we can read his views of education’s importance for society being delivered to wider societal groups. In his Speech Day talk to Darlington Grammar School in 1925 (Thomson, 1925b) he stated,

“Next to the home, the school is the most powerful educative influence of these days: and I want to ask your assent to the proposition that education, carried on by its agency, is the most important element in the structure of society. I am going to urge that without education, in home and in school, the civilisation of today would speedily relapse into ruthless and ignorant savagery, and that man would descend to the level of the animals of the jungle. Whether Nature or Nurture be more important in the make-up of a man is a point of controversy hard to settle: but at least one can claim without fear of contradiction that the inherited factors of brain and body would be of little avail to a man without the care expended in the home and in the school on their development. And in our modern and complex civilisation we can assuredly add that, fundamental as home training is, yet a school education is needed to maintain the life of society and to advance its progress.... Is there a Food of the Gods? Is there anything which can help on [word not clear in typescript] towards such a new race. Yes, there is education, the work of schools such as this, and of masters such as yours.”

He talked in a similar way, though with much historical context surrounding Bede, in his 1928 speech at Bede Collegiate School prize day (Thomson, 1928). The educated person—often identified by Thomson’s tests—also had a duty to broader society, as he stated in his 1950 lecture in Birmingham (Thomson, 1950b),

“We wish harm to none, but not all are talented, and those who are, are needed, and deserve recognition untarnished by envy. In return, they should feel obliged to work not for personal advancement but for the good of their fellow men.”

In his 1942 Happiness and Truth lecture in Newcastle he thought through the school’s broader responsibility and contribution to society (Thomson, 1942d). He stated,

“...the school has to carry on its more specific duties, of which that which is its peculiar function, cared for reliably by no other agency, is to teach the child to read, for reading is essential in modern life, and to speak its mother tongue clearly and correctly. Then the child must later be prepared to take his or her place in the adult team of workers for the community, whether at home, or outside on the farm, in the factory, in a trade or in a profession as befits his talents and his interests. And all this in an atmosphere of present happiness, and in material surroundings as beautiful as possible and in good taste. Culture is not an aim: it will come of itself, if we do our duty in these other ways. If we seek it otherwise, we are doing not good but harm.”

In the 1942 lecture to the Edinburgh City Business Club he stated something similar; he combined his enthusiasm for vocational education with his thinking about how ed-

education contributed to broader culture and society (Thomson, 1942b),

"...we in this country of Great Britain have neglected vocational education too much and have allowed one good thing, namely cultural education, to become the enemy of another good thing, namely a vocational education which helps a man to earn his livelihood, to care for and support his parents and his children, and to become therefore a self-respecting as well as a useful member of the community, none of which things are in any way antagonistic to cultural education but rather a necessary preliminary. On the way to the cultured man stands the useful, self-supporting, and self-respecting man."

He thought that examinations contributed to societal good. In his 1943 lecture in Wigan, he stated (Thomson, 1943),

"I would like to conclude by returning to my opening theme, the importance of examinations for democracy, as the only safeguard against favouritism and influence, sectarianism or party bias, the only way to give a fair and equal chance to all. Not only book learning should be tested; but the principles of the good examination should be adhered to whatever its form and object, the principles of fairness and impartiality."

In his Individual Differences lecture, Thomson thought out the implications of intelligence differences and education together with respect to the good of the individual and society (Thomson, n.d.-c),

"It is perhaps also desirable to explain that in discussing individual differences and their treatment we are not subscribing to say doctrine of, say, individualism as against, say, socialism. We are not intending or desiring to set up the selfish interests of the individual as the aim of education and of life, as against the good of society and the community. Nor on the other hand are we proposing to preach that, to me, repulsive doctrine, that pupils are to be compulsorily fitted to some place in society for the sake of society, in total disregard of anything except their physical, intellectual and other qualities fitting them for that particular kind of job. 'Man is too noble an animal', said Rousseau, 'to serve as a mere instrument of others, and should not be employed at what he is fit for without also taking into account what is fit for him'."

Thomson consistently stated that all should be educated according to their abilities. However, he was working at a time when societies did not have a large proportion of higher-level-educated individuals. He raised this in his Dundee lecture in 1930 in which he stated (Thomson, 1930c),

"That everybody is to be educated gives us our problems of the education of the mentally deficient, of the classification of schools, our financial problem, and the problem already in sight in this country and acute in some others, of an oversupply of the academically educated, with the danger of discontent and lack of economic balance."

In his 1930 Dundee lecture (Thomson, 1930c) he rehearsed the theme of education's contribution to character training and thereby to societal good that he also discussed in his Mond lecture (Deary, Lawn, et al., 2009). He stated,

"One of the most important duties of education is to train character, and one of the most important points in character-training is to give an understanding of the need of co-operation in the community, of the way in which each man's work fits in with that of others to make a whole, a happier society than it would be if this work were not performed... The school must in short be a community, with a community's problems, albeit the wind is tempered to the lambs; and that a school should be this, and should undertake this function in character training, is clearly incompatible with iron discipline and immovable furniture and rigid teacher-made rules and the like. It can only be in a school in which a good deal of freedom is allowed that children can be taught by gradual trial and error to get on with one another as co-operators in a society, to prepare them for their larger co-operation in the world of adults. In such a school it is possible that there may be fewer individual examination successes, for it will be a school in which the individual is taught to play for his side rather than for himself, not only in games but in the whole of life. But it will be a school in which, to use the slogan of a modern association, service not self will be the goal."

In his 1942 Happiness and Truth lecture in Newcastle, he thought he could identify how differences between Scottish and English education could affect individual character and thereby contributions to society (Thomson, 1942d). He stated,

"Scottish schools give, I fancy, a more solid training than the English, and help on his way the talented youngster, who will become in his turn a very well-grounded but rather humdrum teacher, or will become the reliable Civil Servant: but they are rather suffocating for genius. The English schools give more freedom and produce, I think, more creative power, though fewer 'heeds o' depairtments'."

In his 1930 Dundee lecture (Thomson, 1930c), he foresaw the issue of 'intellectual apartheid' that was discussed more recently in *Head, Hand, Heart* (Goodhart, 2020). Thomson stated,

"In our own nation, and in almost all nations of today, an important group of educational problems may be introduced by the question, 'Shall we have a common school for all?' Ought children of every social class to go to the one school, in the interests of equality and the solidarity of the nation? Ought children of different religions to go to the one common school in the interests of mutual tolerance and forbearance? Ought children of different degrees of intellectual power to attend nevertheless the same school, lest castes of the intellect arise, or lest social snobbishness camouflage itself behind the shelter of intellectual differences?"

In summarising Thomson's lectures' topics it is necessary to indicate that some of what he stated would be of-

fensive today; his language (e.g. the use of “unfit”) and arguments on some such topics could be a topic of another study. In his Glasgow lecture of 1930 he brought together the issues of education and the so-called “differential birth rate” (which is presented below) and how they jointly affect society (Thomson, 1930d). He stated,

“it [parents’ unselfishness in caring for infants] leads, in times as it were of peace, to a multiplication of the unfit, since indeed the very purpose of infancy and education is to fit the unfit for life. The more successful education is therefore, the more of the unfit it will cause to survive and become fit. And also, by reason of the altruistic feelings born of the family life, there will be a tendency to keep alive even those who are not made fit by education, but remain unfit.”

He resolved this, again, in favour of educating all, later in the lecture, when he stated,

“the unintelligent, though incapable of scholarship, are not incapable of culture in the sense of folk-culture, and will respond to an artistic if not to an abstract education. More education for them, then, and a resultant raising of the standard of living till it is equal, or more equal, in all classes; not equal in the demand for luxuries, but in the demand for cleanliness, for artistic homes, for good schools, and for an educating [sic] infancy and youth.”

In his 1942 ‘Happiness and Truth’ lecture in Newcastle, he returned to the question of whether all should be educated (Thomson, 1942d). He stated,

“On the principle that where ignorance is bliss ‘tis folly to be wise, some might even justify the entire denial of education to what they call the lower classes, lest they be made discontented with their lot by schooling. And if I really believed ignorance to be bliss, I would agree. But I do not identify contentment with happiness, though I think it one ingredient of one kind of happiness, and necessary to perfect happiness; and I hold the happiness of the educated man to be greater than that of the unlettered, for the democratic reason that a majority of those who have experienced both, agree with me.”

As was evident in Thomson’s Mond lecture (Deary, Lawn, et al., 2009)—though it is more difficult to appreciate elsewhere in his academic writings—Thomson tried to articulate, into a coherent whole, his work as an educationist, a psychologist, and as a citizen. In these lectures, his broader attitudes, beliefs, and his attempt at a ‘system’ are more evident.

3.4. Topic 4: Educational Selection

Need there be educational selection at all? In some of the lectures, Thomson gave his view on this question. We allow him a large single quotation here, because this answers some of the IQ-test critics who, when summarising the history of educational selection, opt for a less nuanced account of the intentions of people such as Thomson. These lectures provide otherwise-unavailable ripostes. In

his c1930s Individual Differences lecture he stated the following (Thomson, n.d.-c),

“At about the age of eleven or twelve, these individual differences [in intelligence] become embarrassingly large, just as the space between the runners in a race increases and becomes enormous after eleven or twelve laps have been run. That is one of the reasons for making a dividing line at about this age between primary and secondary education, and taking the opportunity of reclassifying the pupils. This stage in education is the first clearly marked point at which the selective function of any educational system becomes more noticeable; for the fate which befalls a pupil at this age has a great deal to do with his or her chances of attaining to certain occupations in after life.... The points which appear to me most important in the sifting out are these. In the first place, so important is the decision, and so difficult, that it should not be left to depend upon any one examination or test. In Scotland, the deciding factor is the Qualifying Examination, and there is the safeguard that this examination is administered in the pupil’s own school, and with due consultation with the teachers who have known the pupil for years. Yet even then it seems too much to make the effort of one week be the chief element in the decision, a week when the pupil might not be at her best, or when chance circumstances might influence the marks obtained. In England matters are even worse, or were so until lately, for it could easily happen that on the result of an examination held one Saturday morning depended all the after career at school, and therefore perhaps in life, of a child. In my opinion it is much better for the whole primary school life to be a gradual, slow, honest, unstraining assessment of the pupil, on which assessment the career after eleven would be based. The teachers in making such assessments would need guidance in the proportions of each mark they might justly expect to give, guidance in using standardised tests to gauge their pupils not only against their own experience but against national norms of performance, and the assistance of external examiners as at present in the Qualifying Examination to assure the parents and the public of fair-play and steadiness of standard. In short, I would urge a time-exposure rather than a snap-shot examination for this important sifting of the children into their post-primary classes.... I prefer myself the method becoming more and more actual in England, of making a clean cut at the age of eleven plus, as they call it, and turning all children at that age over to ‘secondary’ education, though I do not mean by that secondary education in the sense in which say my friend the Rector of the Royal High School would use that phrase.”

Thomson’s lectures were the places where he stated his visions. He was practical too. His work faced the problem that visions might be unfulfillable wishes, so he worked hard to do the best he could, given constraints. He knew that mental tests and examinations were not perfect, and he also thought that alternatives might be worse. In his 1930 lecture in Dundee he engaged in some counterfactual arguing, and asked his audience to think about a world without selection (Thomson, 1930c),

"...picture to yourself a world without examinations. No testing of any applicant for a post allowed in any form, no records of any previous tests or examinations. Sheer trial and error until we happened to fall in with someone with the powers we wanted. To be consistent, we would hardly have to look at people, lest we should judge them. Impostors would abound, and the truly capable would go under except in the few cases where a happy concatenation of circumstances chanced to put them into the right spot for their powers. No doubt in time the world would revert to a caste system, for in default of any other guarantee of ability, it would cling to the knowledge that so and so was at least the son of a plumber or of a solicitor, and might be expected to make something of that occupation which had nourished his infant years.... Joking apart, it is abundantly clear that there must be, in a world grown complex and mobile, some system of labelling people in as harmless a manner as possible with the record of what they have proved capable of doing."

In his Means to the End lecture in Newcastle in 1942 one can see that he was an advocate of evolving the system toward his vision rather than throwing it away (Thomson, 1942e),

"For all this there will be needed some machinery of selection and guidance, educational and vocational. We have at present a certain amount of such machinery in action (of some parts of which I have a considerable experience) operating mainly at the ages of eleven and sixteen years. Whether these are the right ages or not I am not sure, but I rather hope that with the proper reforms in our system the necessity for such abrupt tests and examinations at fixed ages may diminish, and the single snapshot be replaced by the time exposure of the cinematograph record: and I hope too that more scope can be given to the child's own wishes and interests. But because some educational and vocational avenues will tend to be overcrowded, there will remain nevertheless the need for objective controls."

The themes of there being a longer assessment than the sudden-death single exam, and the theme of education's being something that should be personally fulfilling occur repeatedly in his lectures. In his 1950 lecture in Birmingham he stated (Thomson, 1950b),

"...our whole educational system is or ought to be, a sieve to sort out different forms of talent, and to direct—not by compulsion but by advice and incentive—each into the kind of training and vocation that will both conduce most to his own happiness, and also enable him to be of most use to the community. Such a selective influence should go on all the time, and not merely at a certain age."

3.5. Topic 5: Tests for Educational Selection

This is the area that was the focus of Thomson's research team at the University of Edinburgh, and was so before that at Newcastle's Armstrong College. He produced many tests for educational selection—especially the Moray House Tests—and they sold in millions, the money being channelled back into paying staff to improve the tests and de-

velop new ones (Sutherland & Sharp, 1984). One might argue that the Moray House Tests—some of which were IQ-type tests—were the nodal point of his interests. They were the object of his research, they were informed by his thinking about the structure of intelligence, they were a tool in his realising a fair educational selection system, and they were the main focus for his statistical interests. His educational/societal vision largely depended on these tests [though he wished that that were not so] and he applied his skills and time to producing and improving them. What did he say about them in public?

In his public lectures, Thomson discussed the tests used for educational selection, especially those used by his own research team. In his 1925 Inaugural lecture at the University of Edinburgh he stated (Thomson, 1925a),

"In more than one English County I have been concerned with attempts to improve the examinations and tests used for this purpose [educational selection]: especially to improve them in such a way that the handicaps of a poor home, rural isolation, or bad teaching, under which some children suffer, might be as far as possible minimized."

In his 1930 lecture in Darlington, in just under 2000 words, he gave a rare and useful account of how the Moray House Tests are devised and validated (Thomson, 1930a). This is an accessible and fact-packed account. Making the selections from the lecture that appeared to contain only the essential information still ran to a greater length than was possible to reprint here. Our selection from it is available in the Supplementary Material. The extracts show a conscientious psychometrician, a sometime teacher who knew the realities of the classroom, a user of mental tests who also saw the problems with them, and a public servant aiming to provide all pupils with the situation and incentive to do their best. A shorter account of the method of preparing mental tests for educational selection appeared in his 1943 lecture in Wigan (Thomson, 1943), and a selection from this appears in the Supplementary Material.

One can see two themes in Thomson's lectures pertaining to his defence of mental tests for educational selection. First, in several lectures, he recounted the reasons for first devising them and continuing to do so: to supply a less social class-based form of assessment and afford the opportunity for the underprivileged to be recognised as bright and thereby gain access to more and higher-level education. Second, he described the care with which the tests were devised under his direction, and his attempts to address their problems, which he did not ignore. He brought these together in public lectures quite late in his career and even after he had retired. It is likely that he was arguing against the by-then increasing criticism of IQ-type tests, i.e., that they had inherent psychometric problems and that they might be perpetuating class differences. The latter charge, we think, would have surprised Thomson, given his reason for devising them. An example of defence against these two criticisms is given in his 1950 lecture in Birmingham (Thomson, 1950b) and in his 1952 Bingley lecture (Thomson, 1952b) (see the selections in Supplementary Material).

3.6. Topic 6: Intelligence Research

In some lectures Thomson described his broader research on intelligence. This is not a major topic in these lectures. The extracts for this topic are given in the Supplementary Material. In his 1931 manuscript prepared for the German magazine *International Educational Review* he described how the work on the Moray House Tests could be used for wider research by asking the education authorities using the tests for extra information (Thomson, 1931d). This was used to investigate such topics as intelligence and size of family, geographical distribution, and occupation of the pupil's father.

In his 1949 BBC lecture to schools Thomson described how the Scottish Mental Survey of 1947 was, in fact, about far more than the "differential birth rate" (Thomson, 1949a). Many sociological data were taken from those born on the first day of the even-numbered months. This representative sample was called 'A Scotland in miniature'. There were 1208 people in the sample. Thomson stated that,

"Our hope is that from this work we, or rather our successors, may learn how to smooth the path of the able, to help along the less well endowed, to give guidance about schooling and careers, to advise those in authority who make regulations and control finance, and generally to help Scotland and Scots yet unborn to a life of greater happiness, of less hardship and less frustration."

He discussed the same sample again in his 1952 lecture in Aberdeen (Thomson, 1952a). The Scottish Council for Research in Education (SCRE) followed them up until 1963, when funding ceased. We contacted and obtained some data from them in a more recent follow-up (Deary et al., 2008; Deary & Brett, 2015; Harris et al., 2016).

In a rarity in his lectures, Thomson mentioned factor analysis in his 1952 Aberdeen lecture (Thomson, 1952a). It is odd that it is rare, because his major book was on the topic and appeared in five editions from 1939 to 1953 (Thomson, 1939c). He stated (Thomson, 1952a),

"Nevertheless, factor analysis has not yet achieved any great practical use in educational science. There has been too much controversy about the different forms which an analysis can take to allow confident use to be made of the findings. In particular there is a great gulf between the results of the brilliant work of the Thurstone school in America, and the more pedestrian but perhaps therefore more sure work of the English school—and when I say English I mean English. I myself am at heart sceptical about both, but with a leaning to a combination of their best points."

As we shall see again with theories of intelligence, Thomson was willing to see both sides of the argument. In his 1952 Bingley lecture he discussed age-based standardisation of the Moray House Tests (Thomson, 1952b). This was another topic that took up much of people's time within his research group, but rarely appears in his lectures.

3.7. Topic 7: Educational Research

Thomson was engaged in educational research during most of his career. Several of his public lectures address this topic in general terms, beyond his own research topics. Because it is less central to his work on intelligence, educational selection, and educational systems, we have provided most of the selections from the lectures in the Supplementary Material. In his 1929 lecture in Falkirk he described and praised the newly-created Scottish Council for Research in Education (SCRE), of which he was a member (Thomson, 1929b). He described it as providing a research "clearing house". In the same lecture he showed awareness of the still-concerning 'selection problem' in educational and other research that involved samples of human participants. It was for the avoiding of the selection problem that the SCRE decided to test an entire year-of-birth population rather than a sample in the Scottish Mental Surveys of 1932 and 1947. Beyond SCRE, he had a vision for educational research that would be more widely-based, beyond the school, to make sure that testing was better organized (in his Means to the End lecture in Newcastle (Thomson, 1942e)) and predictive of later success in further education and occupations (in his lecture in Wigan (Thomson, 1943)) (see Supplementary Material).

In his Aberdeen lecture in 1952 he made interesting statements about the what and the why of educational research (Thomson, 1952a).

"...an educational scientist, as scientist, is concerned only with how and how far children and men can be influenced and changed in their mental attitudes, in their beliefs, in their habits and customs. He is concerned with aims only in as much as his conscience may forbid him to assist, by his experiments, in finding how to attain aims of which he disapproves.... But why, you may ask, if practitioners are so good, is there any need for the scientist? Well, in the first place, not all practitioners are good, and as soon as we begin to ask why, we are embarked on a scientific enquiry."

Thomson's longest section on the topic of educational research was in his NFER lecture in 1953, after his retiring (see Supplementary Material) (Thomson, 1953). It is comparable with the 1930 Darlington lecture's (Thomson, 1930a) contribution to his thinking in test construction, in being a comprehensive summary of his views on educational research. It is notable for its emphasis on the motivation and freedom of the individual, even in the setting of large-scale, committee-driven research.

3.8. Topic 8: Intelligence Differences and Their Causes

Thomson wrote about the nature, causes and consequences of intelligence differences in his empirical papers. The testing of intelligence, and thinking about the nature of individual differences, and the statistical apparatus that founded those two topics were a large part of his professional research career. However, the intelligence differences and their causes are not major, recurring themes in

the lectures—those are dominated by educational matters and the place of intelligence tests and testing in educational settings—but the topic does arise from time to time. He thought there was some genetic contribution to intelligence differences. In his Inaugural Lecture in 1925 he stated (Thomson, 1925a),

“My object in this lecture is to state a problem or group of problems which has interested me very greatly during several years, arising out of the fact that men, women, and children are not equally endowed with intelligence; and that although good teaching can do a great deal towards permitting the maximum development of the inborn powers of any intellect, and an unfavourable environment may prevent its growth, yet inheritance sets an upper limit and, where there is reasonable equality of opportunity, is the main deciding factor.”

In his lecture on Individual Differences he offered a long description of the distribution of intelligence (Thomson, n.d.-c). In this, he was attempting to describe the normal distribution to a non-specialist audience. He stated (the reader will note language that is offensive today),

“Even on the more conservative number of eight per thousand of the whole population, this means that for every battalion of soldiers that you may picture in the mind's eye, you must recall half a dozen pitiful creatures unable to take that care of themselves which is needed to fit into however small a niche of our present day civilisation. A not uncommon football crowd is one of fifty thousand. Somewhere corresponding to each such crowd there are some four hundred feeble-minded!! Moray House turns out some four or five hundred teachers per annum. They are not an average sample of the populace in regard to intelligence, for from the manner of their selection—they have all had a secondary education, all have obtained the ‘leaving certificate’, four fifths of them have taken university degrees, and about seventy of them honours degrees—they represent let us say about the upper quarter of intelligence. They represent that is to say about 2000 of the population, and this is certainly a very conservative estimate, probably the number is far larger. Even at that, however, we must picture, corresponding to the outgoing students of Moray House, some sixteen members of the community who are socially feeble-minded, and a far larger number who are close on the border line and only escape being called feeble-minded because by good fortune they have happened upon some occupation which chances to fit their lowly intelligence.”

In the same lecture he speculated on environmental selection pressures (Thomson, n.d.-c) using, again language of that time which is now offensive,

“Perhaps there always will be this range, though I hope it may be reduced by social measures. Perhaps there always has been, though in more savage times there must have been a sterner selection by the death rate, even allowing for the reverence which protected the feeble-minded in barbaric communities.”

In the same lecture he discussed the possible effects of societies’ providing greater environmental equality (Thomson, n.d.-c),

“...were educational opportunity to be made absolutely equal for all, regardless of the social or occupational status of their parents, regardless of their homes being in town or in country, regardless of their race, colour, or religion, there would remain intellectual differences perhaps somewhat less extreme, but only very little less extreme, than those at present found. The present differences are a compound of heredity and environment, in my opinion due somewhat more to the former than the latter. But were environment to be equalised, there would remain almost equally startling differences. Some of those at present fairly high in the scale of intelligence might sink relatively, a good number of those at present fairly low might be expected to rise with better opportunities, but most of those at the extreme ends, both of high and low intelligence, would remain there.”

Later in the same lecture he discussed the possible form of the genetic contributions and the physiological contribution to intelligence differences. In his speculations he predicted what would now be called the polygenic nature of the heritable portion of intelligence differences, and he predicted the now-known correlations found between general health and intelligence (Thomson, n.d.-c).

“The continuity actually found [in the distribution of intelligence] is probably due to the large number of factors concerned in producing high intelligence. Where only one Mendelian factor is concerned, as in the case of the dwarf and the tall peas, there will be discontinuity. But where several are needed, or perhaps hundreds, then we obtain the same fine grading that is possible when we have small units to weigh or measure with. The chance of one person receiving all the favourable factors is about the same as the chance of getting one hundred heads on throwing one hundred coins. The usual result will be to get approximately fifty heads and fifty tails, and in the same way the usual person is average. But when we throw a number of coins, we sometimes, though rarely, get a large majority of heads, just as sometimes, though rarely, a genius is born.... These numerous factors concerned in deciding the intelligence of an individual need not all be factors influencing the nervous system, the brain and the spinal cord, directly. You know the old pun in answer to the question, ‘Is life worth living?’ ‘That depends upon the liver’. Whether a man's brain is worth anything may very well depend not only on the brain itself, but upon the liver, and indeed upon all the endocrine glands as well, which pour into the blood stream those products upon which our mood and temperament so much depend.”

The lectures discussed here have few mentions of the causes of intelligence between the 1930s and 1950, when he stated in his lecture in Birmingham (Thomson, 1950b),

“I do think, however, that talent is partly inborn. True, it needs training and encouragement: and good training and strong incentives may lift a man to a higher

level than a more gifted contemporary. But just as the poet is born, not made, so it is with the scientist, the technician, the business man. If he has the right kind of brains he can succeed, though he won't unless he also can work hard and persevere, and has good health, and opportunity."

In his Aberdeen lecture in 1952, after retiring, he was still providing a balance in his discussion of the causes of intelligence differences. He talked about (Thomson, 1952a),

"...the still unanswered question whether the scatter of intelligence found among human beings is mainly due to differences in inborn brainpower, or mainly to the educational and environmental advantages and handicaps enjoyed or suffered by individuals."

In the same lecture there is a rare mention on the political aspect of this topic. He stated (Thomson, 1952a),

"Unfortunately this question has in late years taken on a political aspect, partisans of the left tending to deny heredity and attribute all differences to social advantages and disadvantages, while partisans of the right tend to take the opposite view. I hope I may give an objective account of the researches and conclusions without arousing the antagonism of either extreme party. As a matter of fact, the enquiries leave no doubt whatever that both nature and nurture are concerned in producing the existing differences of intelligence found in the population and interact on each other. There remains however the dispute as to the relative importance of each in our civilisation."

He also discussed the interplay between environment and genetics, before gene-environment correlation and indirect genetic effects were widely recognised. He stated (Thomson, 1952a),

"...the extent of the environmental factor will be influenced by heredity, for it will depend on the degree of heterogeneity of cultural opportunity in the homes and schools of a country (the intelligent parents make for themselves a better environment)."

In his 1930 Cambridge lecture there was a rare mention of his thoughts on the mechanisms of intelligence differences and a discussion of how these differ from those of other major researchers in the field (Thomson, 1930e),

"For me, intelligence is not a kind of spiritual energy, of which one man has a quart while another has a pint. That is a useful way of speaking with some people, as the 'juice' theory of electricity is useful in talking to the plumber, but it is no more. For me, neither the mind nor even the brain is analysable in any so simple manner into parts. The mind is one complexity, and in the main it is complexity which distinguishes the more able mind from the less able. The more able mind has inherited more, and has acquired more, reactions to situations and to shades of relationships in situations, and these innumerable reactions, most of which are performed out of sight in terms of conceptual symbols such as words or fragments of words, are festooned together in a manner which defies analysis into any so simple a set of elements as either Spearman or Kel-

ley put forward. It is a remarkable mathematical property of complexity that random samples of any extreme complexity show those relationships which Spearman has seized upon to prove, in his opinion, his theory. But though remarkable this phenomenon is nevertheless true; complexity apes simplicity in this matter, and the presence of the relationships in question is delusive."

Perhaps this selection provides a clue to Thomson's being relatively forgotten today. He devised the then-well-known bonds theory of intelligence differences, yet never mentioned this in his lectures. He was a far more prominent deviser of tests than Burt or Spearman, but his name is rarely associated with them. Though intelligence is not a prominent topic among his public lectures, these samples show that he thought it was partly heritable-partly environmental (and he hinted at their interplay), highly polygenic, and associated with general health and the brain's complexity (supported by recent research (Deary et al., 2021, 2022)). He was aware that intelligence is a politically-charged topic. He strove for balance in his opinions and, though he proposed one theory of intelligence differences, he did not push it because he thought it was one possibility among others. Thomson did not provide the simple, strongly-held idea that is helpful for its being remembered.

3.9. Topic 9: Intelligence, Social Class, and Society

At various points in his lectures Thomson discussed intelligence differences among social classes and the implications of intelligence differences for the division of labour. In his 1925 inaugural lecture he reported on (the modest) social class differences in mean intelligence and also emphasised the large overlap in intelligence distributions between the social classes (Thomson, 1925a). He discussed the importance of the continuum of intelligence for society in his Individual Differences lecture (Thomson, n.d.-c). In his 1950 lecture in Birmingham he argued for the importance of intelligences other than the verbal and linguistic for society (Thomson, 1950b). These selections are given in Supplementary Material.

3.10. Topic 10: The "differential birth rate"

One of the most controversial topics with which Thomson was involved was the so-called "differential birth rate", i.e., what was then thought to be a tendency of the professional classes to produce fewer children than the working classes. It was thought at that time that this might lead to a lower mean average intelligence score in the population (though it is now known that the opposite was the case (Pietschnig & Voracek, 2015)). This concern was the motivation for the Scottish Mental Survey of 1947 (of which Thomson was the chairman), which was conducted at the wish of the UK's Population Investigation Committee (Ramsden, 2007; Scottish Council for Research in Education, 1949). The Survey found no trend toward a lowering of the (Scottish) population's cognitive ability when it compared the 1932 and 1947 Mental Survey results; the oppo-

site was the case—the 1947 mean was slightly higher than the 1932 mean (congruent with the later-discovered Flynn effect). The “differential birth rate” appears as a topic in his public lectures from the 1920s to the 1950s. Therefore, any comprehensive study of Thomson's ideas and involvements should address this aspect of Thomson's concerns.

Thomson (Thomson, 1925a) introduced the topic in his 1925 Inaugural lecture at the University of Edinburgh. He stated,

“These children thus selected [using intelligence tests and thereby into more advanced education] will in many instances rise into a higher social class than that of their parents, and are almost certain to marry later and to have smaller families than would have been the case had they remained in their original environment. Yet they are the very people who will be likely to have, if not among their immediate children, yet among their descendants, offspring of high intelligence: and it would seem that our selection and higher education of these children were merely a gigantic apparatus for weeding out and consuming the intellect of the nation, and causing its slow but inevitable decline.”

It was not just the various academics at the University of Edinburgh to whom Thomson addressed these thoughts, they were also explained to schoolchildren and their teachers. In his 1925 Darlington Grammar School lecture he stated (Thomson, 1925b),

“Not only has the ruthless survival of the fittest, which once cared for the progress of the species, become highly modified by this fact of infancy and adaptation, but there is some reason to fear that in our times the process has been reversed, and that it is the less desirable members of the generation who marry earliest and have the largest families, and who therefore are the progenitors of a majority of the next generation. This phenomenon is indeed perhaps the most important social problem of today.”

In his Individual Differences lecture he discussed the topic again (Thomson, n.d.-c),

“Many of us it is true are despondent about the process of selection going on at the moment, and fear that the inefficient are breeding faster than the efficient, but we hope that this may turn out to be a temporary phenomenon. And certainly, were we all alike now, there could be no advance, there would be no best to select, no best to show the way to the others, there could be no progress until some accidental Mendelian mutation had again introduced differences. Without intellectual differences there can be no progress, so we must not lament them.”

We note the offensive language that Thomson uses about people in the two previous quotations and in this topic more generally. This was a topic on which Thomson spoke to other public audiences around this time. Two long extracts from lectures given in 1930 (in Dundee and Glasgow) are in the Supplementary Material (Thomson, 1930d, 1930c). He wondered whether his own advocating of fair testing for educational selection might be contributing to

this speculated outcome. In his 1930 Dundee lecture he concluded that, “Education is a factor encouraging the breeding out of intelligence” (Thomson, 1930c). Similarly, in his 1930 Glasgow lecture he discussed the process of the “differential birth rate” at length, and its possibly being due to heredity or environment. He concluded that, “this can be cured, not by denying education and advancement to the intelligent found in our school system, but by giving more education to the remainder who are less intelligent” (Thomson, 1930d).

Thomson's speculations on this topic were refuted by data. The comparison of the 1932 and 1947 Scottish Mental Surveys found no decline in the Scottish population's intelligence; rather, there was a slight increase in IQ scores over the 15 years that separated the two almost-whole-population surveys of intelligence. In his 1949 BBC lecture for schools Thomson stated (Thomson, 1949a),

“The average of these individual tests did not indicate any change from the previous time, either up or down. So it would seem that there has been no fall in intelligence, and this strengthens the view that the lower scores of large families are due to their environment and not to their heredity.”

However, he had doubts over the meaning of the 1932-1947 Survey comparison (see also (Ramsden, 2007)). In his 1952 Aberdeen lecture Thomson appeared still to worry that the “differential birth rate” was lowering IQ and that other factors might have obscured this in the Survey's results (Thomson, 1952a).

“This question of nature versus nurture crops up in a very acute way in connection with the differential birth-rate. For the past half century the socially more highly privileged classes have had a much smaller birth-rate than the socially less privileged. The slums produce more children per marriage than the suburbs, and the generations are nearer together in the slums.... the second Scottish Mental Survey was carried out in 1947, fifteen years after the first one. If the hereditary explanation be the main one, there would be a fall in average intelligence to be feared over the fifteen years among the children, for the new generation of pupils are mainly descended, in that case, from the less intelligent parents. No such fall however was found, which at first sight suggests a purely environmental explanation. But doubts have been expressed and the suggestion put forward that in those fifteen years, schools and schoolchildren had become much more familiar with intelligence tests, so that this advantage might balance an actual loss of true intelligence. I do not venture to decide, even in my own mind.”

Given Thomson's close association with the Population Investigation Committee-motivated, Eugenics Society-part-funded Mental Survey of 1947, and his long-standing (see above) pessimistic speculations about the “differential birth rate” (Ramsden, 2007), and his being a member of the Eugenics Society, a relevant aspect of his public lectures is what he thought were the policy implications should his concerns be correct. In the two lectures where he discussed this, the answer appeared to be: nothing, because

educational fairness (see above) trumped the concerns of any differences in birth rates among social classes. In his 1930 Dundee lecture Thomson thought through the consequences of bringing together his views on fairness with his worry about the "differential birth rate" (which is dealt with below) (Thomson, 1930c),

"There is deeply embedded in our hearts, and in the spirit of the times, the feeling that society owes to every individual child the right to his or her fair chance to rise to that level in society to which talent entitles. For no reason at all except humanity, we must come to the help of the child. Those of us who believe that our present methods of doing this are the very contrary of eugenic nevertheless are equally prepared to go on with the present methods unless and until some better way of doing it can be found. I for one would even be prepared to go on with our work even if it were certain that civilisation would go down under the gradual accumulation of the unfit. And this must only be because, although my intellect makes me a pessimist, I have within me the seeds of an incurable optimism, which believes that, if there is any purpose in this universe, the help of the individual cannot ultimately be the harm of the state, but that some way out will become clear if we go on doing our duty to the children, some changes in the social structure of our civilisation which cannot as yet be foreseen, which will resolve this difficulty, a difficulty which I for my part envisage as the greatest problem of education of our times, though it is one which occupies no place in the press and forms no part of any political programme."

He repeated this choice of individual fairness over societal concerns in his 1930 Glasgow lecture (Thomson, 1930d),

"We cannot use the arguments I have put forward for the purpose of denying the opportunity of education to any individual.... The medical man has an oath that he will always and everywhere try to save life, whatever the circumstances, even though he save life to allow the law to send it to the scaffold. The educator takes, implicitly, the same oath. He must give the best education they are capable of enjoying to everyone, even if the consequence should be, that the highest intelligence should be slowly bred out of the race."

3.11. Broader Humane Issues in the Lectures

From interviewing those who knew Thomson, he was a commanding and listened-to person. In some of his lectures this is apparent, in areas of human life that are beyond his fields of research. There are parts of the lectures that appear to be there to inspire and motivate, and to offer his considerations of the human condition.

In his 1927 lecture to an Edinburgh Ladies' College he stated (Thomson, 1927a),

"Hard work at the University is good, but overwork, especially if it means a student life devoted entirely to the prescribed texts and the ordained syllabus, is bad. For all I hope that if they 'find no very remarkable truths', they may 'identify themselves with no very

burning falsehoods', and ever remember, with R.L.S., that 'there is no duty we so much underrate as the duty of being happy.'"

Some of Thomson's 'inspirational' talks occur during the years of the second world war. In his 1942 Newcastle "Happiness and Truth" lecture he stated (Thomson, 1942d),

"I am going to confess my own creed, or rather, to build it up, thinking aloud as I go on... But though I find it difficult to express exactly, I have never seen any reason to waver in my belief in its validity, and in its power to do good in the world. It has no connection with any religion, Presbyterian, Episcopalian, Roman Catholic, Mohammedan, Buddhist, Agnostic, or Atheistic, but is a creed for Mr Everyman, everywhere.... any action whose ultimate intention and result is not to increase the sum total of human happiness is a wrong, or a mistaken, or at best a useless action."

In the same lecture he expressed things personally, and quoted the Scottish poet Robert Burns (Thomson, 1942d),

"I do not think, with Philebus, that 'happiness' is synonymous with 'pleasure'. I propose in the next place to exclude one person from 'the greatest number', and that is myself: for although I think my own happiness, that one drop in the ocean of the world's happiness, is of the same importance as another drop, yet I do not trust myself to let it guide my actions. 'If self the wavering balance shake, 'Tis rarely right adjusted', says Burns. So, if you like, my criterion becomes 'the greatest happiness of the greatest number of other people', the criterion by which I am going to regulate my vote and my voice, my actions and my thoughts; or if not, then I know that I am falling short of my ideal, and I feel conscience-stricken and remorseful.... The greatest happiness of the greatest number (of other people), but not at the cost of intolerable misery in any. This principle provides some guidance I think towards a decision between children's present and future happiness. At the price of no amount of future happiness would one inflict intolerable unhappiness now, though what is intolerable is still left to intuition. When to this is added the uncertainty of the future, the 'bird in the hand' argument, it will be seen that I am inclined to give the child's present happiness at least the casting vote."

Then he moved on to his other main topic, and stated (Thomson, 1942d),

"I have become increasingly aware that there is another principle, apparently unconnected with the happiness of mankind, which I feel also bound to follow, a principle which sometimes indeed sharply conflicts or at least seems to conflict with the former. That principle is reverence for truth.... Mine [i.e., his definition] is a very simple one, the definition of the plain man. Truth means the agreement of a statement with the facts.... In a lecture at Oxford, in 1938 if I remember rightly, Bertrand Russell said, on truth and falsehood: 'If Tom comes in sight, and I say 'There's Tom', my statement is true. I'm sorry it's no more complicated than that.' "

He gave an Armistice Day address in 1942 (Thomson, 1942a). He gave an introduction and then read, from Jowett's translation of Thucydides, the funeral oration of Pericles. It included a section on meritocracy that was close to Thomson's educational vision,

"...when a citizen is in any way distinguished, he is preferred to the public service, not as a matter of privilege, but as the reward of merit. Neither is poverty a bar, but a man may benefit his country whatever be the obscurity of his condition."

In his 1943 lecture in Wigan on examinations he discussed human motivation and how it benefited from examinations (Thomson, 1943),

"Then there is the psychological effect of examinations. We hear a great deal about their bad psychological effects. But there are the good also. It is good to have something to strive for, some goal to aim at, some hilltop to climb to. There is not one of us who can trust himself to work, or for that matter to play, unless now and then we are tested in some way, that is are examined. A football team which never played a match would go very stale. Accounts which are never audited are an invitation to carelessness, if not to worse. How many railway tickets would we buy if there were no ticket collectors? How clean would the dark corners of the playground remain if no eye of authority ever examined them?"

In the last lecture in this series—in Aberdeen to teachers in training in 1954—his tone and content were set to encourage. He stated at the start (Thomson, 1954),

"Good advice, you know, has a strong tendency to be boring, nor does youth particularly relish being advised. But I hope you will bear patiently with me, as I intone to you those trite platitudes which crabbled age thinks (quite rightly) ought to be impressed on the youthful mind.... *remain students. Study.* Choose some branch of knowledge in which you can become, if not a master, at least a well-informed disciple. Choose a subject you like. 'No profit grows where is no pleasure ta'en'. And if you possibly can, do something creative in it."

He had a long section where he encouraged all the teachers in different areas to develop an original area of study, or even do some research. He ended the latest-dated lecture we have from him with this advice for a working life (Thomson, 1954),

"...do not rest on your oars. It is never time to rest on your oars, but least of all in these years just ahead of you. There are of course vacations legitimately to be enjoyed. Life would be a sad journey without its inns at which to recuperate. But to spend the whole of life at the inn makes a sadder story. You may think – you probably do think – that my message is rather a grim one. Go on studying, I have said. Never rest on your oars, I have said. But the fact is there is no greater pleasure than comes from work. The skilful craftsman has a pleasure denied to the labourer. The master of a subject, or one who at least can un-

derstand and be understood by the masters, has a like pleasure. And with mastery, won in most cases before thirty, comes leisure which can be truly enjoyed, not leisure stolen from duty."

3.12. Humour in the Lectures

In the 1950 lecture we republished—in which Thomson was addressing academics at the University of Edinburgh—the audio illustrates Thomson's comic timing and use of humour (Lawn et al., 2009). There is humour in this lecture collection too. In his 1925 inaugural lecture he was talking about his work in Northumberland that related intelligence to school pupils' father's jobs and he stated (Thomson, 1925a),

"Why there should be a gold-miner in a small fishing village we never discovered: presumably the gold-miner himself was in some distant goldfield though his family remained in the homeland. But none of the answers came up to one given by a boy in Madison, Wisconsin, who in reply to a similar question said, 'My father used to be a University Professor, but now he is working.'"

Another example of his using humour as it arises from his own research was in his 1930 lecture in Darlington, where he stated (Thomson, 1930a),

"I perhaps ought also to add that I have considerable suspicion that ages are not always what they are said to be. Recent year groups of children at the eleven plus level have been of very irregular distribution, owing to the rapid changes in birth rate in the war years and the two years after."

He could work his arguments to a humorous punchline. In his 1943 lecture in Wigan he defended examinations and stated (Thomson, 1943),

"it is the examination that has given the poor boy his chance... I am afraid of those who call for "character" and "personality" and "savoir faire" and who speak as though these qualities must necessarily be absent from the makeup of anyone who has passed an examination. I am afraid that they want jobs for people who haven't many brains, but have plenty of assurance, or plenty of money, or plenty of blue blood, or plenty of ruthlessness. I think a boy is entitled to a fair chance, even if he is clever."

This is a quip that he heard in America, as he told the audience in his Individual Differences lecture (Thomson, n.d.-c). In the 1943 lecture he gave his audience a break from his arguments about examinations with the following story (Thomson, 1943),

"A story which is almost certainly untrue is told of a distinguished philosopher who is alleged to have disregarded some of society's conventions, that one summer he had been labouring for many days marking examination papers, but spent a weekend at a country gentleman's house, who took him to church on Sunday. Turning eastward with the others when the Creed was being recited, he found himself gazing at the Ten Com-

mandments carved on a wall tablet. He regarded them with interest: but on turning round again he remarked in a side whisper to his host, "There ought to be a rubric—no candidate is required to attempt more than seven".

He could identify an apt humorous comment in others' words. In his (Thomson, n.d.-c) lecture on individual differences he stated,

"At some stage or other it seems preferable to give such tests and such advice to young people that they will know what kind of occupations will actually suit them. No doubt many will nevertheless choose unwisely. No doubt ambition will continue to make many attempt what is beyond their powers. As Pope says:-
"Each might his several province well command,
Would all but stoop to what they understand."
Many will decline to stoop until they have tried and failed. But at least to give proper advice and opportunity is a duty of the educational system"

In defending the non-perfect prediction of educational success by intelligence tests he stated, in his Birmingham lecture of 1950, "Even the Almighty, said Dr Johnson, does not propose to judge us until the end of our careers. The intelligence tester is asked to do it before the child's career has begun and of course he makes mistakes" (Thomson, 1950b). In the same Birmingham lecture, he relied on his audience's knowing great names in the history of science,

"The genius usually discovers himself, and it is only necessary to refrain from mocking him, as the Edinburgh schoolboys mocked the young genius among them who they called 'dafty Maxwell' [i.e., James Clerk Maxwell]."

4. Discussion

There are other topics that were addressed in Thomson's lectures, some of which are only partially addressed in the above-mentioned topics. These include: equality in education; vocational education and its necessity; the use of selection examinations for at-age-about-11-years examinations and their merits and demerits; comparative educational systems; the nurture of intelligence in all and its social aspects; problems in the current education system (in Scotland and the rest of the UK); variety in educational curricula and testing; and educational science. There were one-off (or less frequently addressed) topics, including: propaganda; the art of lecturing; advice to young teachers; Remembrance Day and the social comparisons of ancient and modern warfare on the human condition; and praise and motivation/encouragement (and a little history) of and for individual schools (their pupils and teachers, e.g., Mary Erskine School, Bede Collegiate School).

4.1. The Impact on Previous Resources

It is our judgement that these documented lectures add significantly to other resources. Thomson's papers on intelligence were and are often dry and difficult, based on abstruse statistics and the minutiae of his arguments with

Spearman (too many papers to cite here; see Thomson's papers on, for example, Google Scholar). Thomson's work on the Scottish Mental Surveys often appeared in large numbers of descriptive tables. His work on mental tests for educational selection was and is (if any survive; (Sutherland & Sharp, 1984)) typically buried in local education authority reports. His work as the Principal of a teacher training college in Edinburgh (concurrent with his Professorship of Education) is mostly lost in his largely-unrecorded lectures to in-training teachers and Bachelor of Education students, and in the committees on which he sat and chaired. These public lectures provide what is rare for Thomson—and for many academics—that is, an opportunity to hear/read, many decades—indeed, up to a century—later, his passions and vision and worries and some jokes, and how these drove the academic work and how he wanted to communicate to different non-scientific audiences. The present article is offered as a 'shop window' for the lectures as a resource for more work on Godfrey Thomson. We hope others will use them in order to understand better this nowadays largely unknown figure who was once a prominent academic, educator, and public speaker.

4.2. Future Work on Godfrey Thomson's Lectures

Before we discovered the currently-discussed collection of Thomson's lectures, we had reprinted and commented upon two single lectures by Thomson: his Mond lecture on intelligence and society given at the University of Manchester in 1936 (Deary, Lawn, et al., 2009), and his lecture on lecturing given at the University of Edinburgh in 1950 (Lawn et al., 2009). Both are summaries of topics that interested Thomson. In the present collection of many more lectures, there are individual lectures that arguably merit a similar treatment, because they are summaries of topics with which Thomson dealt. Those that are especially rich with respect to his thoughts on intelligence, education, and society are: the 1925 inaugural lecture (Thomson, 1925a); the lecture of uncertain date (marked c1930s-1940s in [Table 1](#)) on 'the extent and significance of individual differences' (which was part of a course, and probably one of the few here that was not a public or professional lecture) (Thomson, n.d.-c); the 1930 lecture on 'some national problems of today: education' (Thomson, 1930c); the 1930 lecture on 'the function of education in the biological record' (Thomson, 1930d); the 1950 lecture on 'the discovery of talent' (Thomson, 1950b); the 1952 Alfred Gilchrist Lecture on 'the progress and present aspects of educational science' (Thomson, 1952a); and the 1952 Bingley vacation course lecture (Thomson, 1952b). The 1930 lecture to an audience in Darlington is a relatively detailed account of the processes involved in producing psychometric tests of cognitive ability and achievement (Thomson, 1930a). The 1942 lecture on 'the means to the end—educational opportunity and hard work' is a rounded account of his educational vision (Thomson, 1942e). His 1943 lecture 'in praise of examinations' is highly informative about his views on that topic (Thomson, 1943); in trying to select parts of it for further comment it was among the most difficult from which to omit any portion. The 1949 BBC Home Service

(Schools) lecture on 'are we becoming less intelligent' is an accessible account of the reasons for and the conducting of the Scottish Mental Survey 1947 (Thomson, 1949a). The 1953 address at the annual meeting of the National foundation for Educational Research is a rarity, in its being devoted to the general topic of educational research (Thomson, 1953). The last dated lecture in the collection—to the Aberdeen (teacher) Training Centre in 1954—is different, too, in being a speech to encourage new teachers that has a special emphasis on the now-popular practice of continuing personal and professional development (Thomson, 1954).

4.3. Availability of the Godfrey Thomson Lectures

The lectures are in the Centre for Research Collections of the Main Library of the University of Edinburgh. They were deposited there by Deed of Gift by Annabella Senior, Godfrey Thomson's great-niece. The lectures have been transcribed and are available as Microsoft Word files from IJD. The transcribing is not guaranteed for accuracy and does not preserve the annotations made on most lectures; we recommend that they should be used alongside the archived documents.

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Author contributions

Conceptualisation, I.J.D.; checking lectures' transcripts, C.E.B.; assembling lectures' topics and extracting lectures' selections, I.J.D.; drafting lectures' brief descriptions, E.A., C.E.B.; writing-original draft, I.J.D., E.A.; writing-review and editing, all authors; supervision, I.J.D., M.L.; project administration, I.J.D.; funding acquisition, I.J.D., M.L.

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Data Availability Statement

The Godfrey Thomson lectures are available from the University of Edinburgh's Main Library's Centre for Research Collections under the accession number E.2022.28. Transcripts of most of the lectures are available from the first author.

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Conflicts of interest

The authors have confirmed that no conflict of interest exists.

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Appendix. Physical Appearance of Godfrey Thomson's Lectures and Their Archiving

Two challenges arose when cataloguing the lecture series of Thomson's papers: utilising the knowledge of those familiar with the lectures from their research, while still ensuring descriptions of the lectures' content were as neutral as possible; and preserving the context of the records while conserving and cataloguing them. In addressing these challenges, our aim has been to provide a resource that enables the user to navigate the papers, while also allowing for their own unique interpretation and response.

In undertaking this project, the archivist (EA) had the help of researchers already familiar with Thomson and his work. This was used to create brief descriptions of the lectures. Although the lectures are primarily addressed to public and professional audiences, and therefore could be interpreted by those unfamiliar with Thomson's work, the researchers were able to put them in the wider context of Thomson's sometimes-complex scientific research.

However, it was important that the final brief descriptions of the lectures were as neutral as possible—both in the sense that they provided key information for those familiar with Thomson's work but were still interpretable by those who were unfamiliar; and that they display as little bias as possible, both from the researcher as well as the archivist, not least because Thomson worked in contentious topics. To ensure this, the archivist created the first draft of the brief descriptions, which were then redrafted by the research assistant (CEB), and redrafted additionally by the archivist. Insofar as the context of the lectures are concerned, their custodial history, physical condition, and their order are important factors for consideration throughout and following the cataloguing process.

The lectures' custodians were Thomson himself then, perhaps, his wife Lady Thomson (who died after him), and then his son, Hector Thomson who was survived briefly by his wife Andromache. Hector possibly had some role in ordering the lectures, which were kept in two groups. One group was unlabelled, in a green binder. One group was titled, "Some non-mathematical papers of my Father's, including some of his Bingley lectures, KEEP, H.T 1963". It

is important in conserving and cataloguing the lectures that any such grouping and titling remains intellectually, now that the original physical folders, binding, and housing have been removed for preservation purposes. The logic behind the cataloguing arrangement, i.e., this was the arrangement the material came in, and was likely created by Hector, is indicated, ensuring the user is aware the papers have been potentially re-ordered, and that it is possible that there has been some selection. Doing so allows the material to be kept in a way which will ensure its long-term physical survival while retaining as much of its provenance as possible.

Thomson's care in creating and curating his lectures has also helped in retaining the provenance and in describing the lectures. They are in good condition, mostly type-scripts, and those which are handwritten are neat and legible, and easy to read. The majority of the lectures are headed, dated, and include the place and/or audience to which they were to be delivered. Some include additional material, such as his BBC lecture, 'Are we becoming less intelligent?', which retains an invitation to speak, and a copy of the agreement. This provides the archivist with some context to describe the lectures, enabling them to index place, subject, and in some instances the organisation to which they were delivered. Doing so retains the association with the organisation, and means that any search for that organisation in the general University of Edinburgh archive catalogue will display the lecture description, thus opening Thomson's lectures to new and as-yet unanticipated audiences.

Other features throughout the manuscripts which are indicated in the catalogue include circled words; underlined words or phrases; cover sheets which state Thomson's main points in bullet form; highlighted pauses; and approximate delivery times. Thomson's lectures also include marginal notes. That these features are indicated in the catalogue is important. Only one lecture, an untitled lecture regarding the art of lecturing given to staff at the University of Edinburgh in 1950, exists as a sound recording, so such features potentially give the user an idea of Thomson's delivery (Lawn et al., 2009).

Supplementary Materials

Supplementary material

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