



# THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### **Embedding the new science of research: the organised culture of Scottish educational research in the midtwentieth century**

**Citation for published version:**

Lawn, M, Deary, IJ, Bartholomew, DJ & Brett, C 2010, 'Embedding the new science of research: the organised culture of Scottish educational research in the midtwentieth century' *Paedagogica Historica*, vol. 46, no. 3, pp. 357-381. DOI: 10.1080/00309230903396480

**Digital Object Identifier (DOI):**

[10.1080/00309230903396480](https://doi.org/10.1080/00309230903396480)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Peer reviewed version

**Published In:**

*Paedagogica Historica*

**Publisher Rights Statement:**

© Lawn, M., Deary, I. J., Bartholomew, D. J., & Brett, C. (2010). Embedding the new science of research: the organised culture of Scottish educational research in the midtwentieth century. *Paedagogica Historica*, 46(3), 357-381. 10.1080/00309230903396480

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



# **Embedding the New Science of Research: the organized culture of Scottish educational research in the mid 20thC<sup>1</sup>**

Martin Lawn<sup>b</sup>, Ian J. Deary<sup>a</sup> and David J. Bartholomew<sup>c</sup>

<sup>b</sup>Centre for Educational Sociology, University of Edinburgh, Scotland, UK

<sup>a</sup>Medical Research Council Centre for Cognitive Ageing and Cognitive Epidemiology,

Department of Psychology, University of Edinburgh, Scotland, UK

<sup>c</sup>London School of Economics, UK

\*Corresponding author, Prof Martin Lawn, Centre for Educational Sociology, University of Edinburgh, St John's Land, Holyrood Road, Edinburgh EH8 8AQ Scotland, UK.

*Email address:* martin.lawn@ed.ac.uk

## Abstract

*Educational research was established in the early decades of the 20thC in many parts of Europe. The early years were the crucial years as they established dominant forms of inquiry, pioneer sites, and related artefacts, the tools and texts.*

*This paper focuses on the early growth of research culture in education in Scotland, its subjects of study, and its key workers, texts and innovations, to illuminate one site of research development and in doing so, to engage with a limited but developing field, the histories of educational research.*

*Scotland had an inventive and novel approach to research as well as an urgency to its tasks. It was shaped by close connections with the USA, but its style of work was its own, reflecting local cultures of cooperation and meritocracy. Its culture was organic and systematic, network based, non hierarchical, public and national. It was a leading site of empirical and*

---

<sup>1</sup>This paper is a product of 'A Scottish School of Educational Research 1925-1950' UK Economic and Social Research Council project grant No. RES-000-23-1246 [2006-9]. Scottish School of Education Research Website- [www.ces.ed.ac.uk/SSER/](http://www.ces.ed.ac.uk/SSER/)

*psychologically based large and small- scale research, outside North America. It was an exporter and importer of techniques, data and people, and was both national and international at the same time.*

*The Scottish case, and its North American scientific links, illuminates the ways in which the national and the international begin to be closely interwoven in the early 20thC.*

The early decades of the 20thC in education research are the decades in which the foundations of educational study were established across Europe. While few in number, key professors were appointed, texts and textbooks were produced, and certain sites of work grew in strength. In their inquiries into the “disciplinarization” of sciences of education in Europe, Hofstetter and Schneuwly ask:

What are the traces, in a given environment at a given period, that can be interpreted as indicators of the first forms of existence of a disciplinary field, taken for granted its uncertain and moving contours and its interweaving with the social world that itself produces professionals and specific knowledge? Why is this field progressively institutionalised: how far does the transformation of school systems and the social demands linked to it determine this process?<sup>2</sup>

This paper continues with the direction of these questions. The perspective of the paper is influenced by the sociology and geography of science, and it has to be, in our view, because it draws attention to the ways that research works across borders and the way that international influences [in texts, training and people] permeate the national.

---

<sup>2</sup> Rita Hofstetter and Bernard Schneuwly, “Introduction: Institutionalisation of Educational Sciences and the Dynamics of Their Development,” in “The Emergence and Development of Educational Research in Europe,” ed. Rita Hofstetter and Bernard Schneuwly, *European Educational Research Journal*, 1, No 1 (2002): 3-26. See also Rita Hofstetter and Bernard Schneuwly, “History of Educational Sciences,” *Paedagogica Historica* 40, Nos. 5&6 (2004): 569-784.

Historians of education, traditionally tied quite closely to the development of national systems of education, have had difficulty in advancing narratives which see the international as being present in the construction of the national system and its ideas and technologies or that local agents of education are carriers of cross border cosmopolitan or scientific ideas.<sup>3</sup>

This is still a new subject for historians of education and this paper depends on contemporary European work in this area.

In this case, we felt that the rise of intelligence testing in the early 20thC needs to be studied through the networks, texts, exchanges, visits etc of the people involved and so a thicker description of the rise of an education research culture in one European country, and how it became institutionalized over a period of decades would assist in this task. We take the view that while scientific research cultures are in some ways free from their national contexts, nevertheless they are produced in specific places.<sup>4</sup> Yet, at the same time, they are not bounded by those places, and in the case studied, it was influenced by American scientific thinking in education and central to a key international research project, working with colleagues across Europe<sup>5</sup>. In the case of this European country, Scotland, it had some particular features; although the study of textbooks and journal publications can reveal the progress of the institutionalization of a research culture, the culture itself [its existence and form] still need further explanation. These Scottish researchers were international from their first days; they read American texts, they used statistical methods and tested them with each other, over great distances and borders; they began to train and study in the USA and brought their knowledge back into training programmes. This is not a story about Scotland, it is a case in the 20thC rise

---

<sup>3</sup> Martin Lawn, "Introduction," in *An Atlantic Crossing? The work of the International Examination Inquiry, its Researchers, Methods and Influence* (Oxford: Symposium Books, 2008), 7-8.

<sup>4</sup> Marc Depaepe, "Experimental Research in Education, 1890-1940: Historical Processes Behind the Development of a Discipline in Western Europe and the United States". In *Education and Europe: Historical and Contemporary Perspectives*, ed. Maurice Whitehead (Hull, University of Hull, 1992), 67-93; David N. Livingstone, *Putting Science in its Place – Geographies of Scientific Knowledge* (Chicago: University of Chicago Press, 2003).

<sup>5</sup> Martin Lawn, *An Atlantic Crossing? The work of the International Examinations Inquiry, its Researchers, Methods and Influence* (Oxford: Symposium Books, 2008).

of educational research and it has similarities and differences from other European countries.<sup>6</sup> It is not about Scotland and the USA [in one sense], it is about how leading scientific work travels and becomes embedded [or not] in national cases.<sup>7</sup> It is not trying to build general laws about research internationalism but it is trying to illustrate the specific ways it worked; it was neither international nor national but both.

The first part of the 20<sup>th</sup> Century is a crucial foundational period in education research and yet it has attracted little sustained scholarly inquiry in the UK, with the notable exceptions in the interlinked field of psychology in England,<sup>8</sup> and there are no comprehensive accounts for the UK or Europe yet as there are in sociology for the USA.<sup>9</sup> The history of educational and psychological research has not featured substantively in accounts of distinctive practice about Scotland, except in passing in organizational histories,<sup>10</sup> or as part of specialist accounts,<sup>11</sup> with the exception of a thorough account of the failure of the Scots to use tests for school selection.<sup>12</sup> Yet, from the earliest days, there appear to be differing foundational histories. In the UK, from the 1920s and 1930s, and into the post war re-emergence of national educational research management, Scottish educational research appears to have had several specific features, distinctively different from the traditions and processes within

---

<sup>6</sup> See Lawn, *An Atlantic Crossing?*

<sup>7</sup> Peter Wagner and Björn Wittrock, "States, Institutions and Discourses : A Comparative Perspective on the Structuration of the Social Sciences," in *Discourses on Society: The Shaping of the Social Science Disciplines*, ed. Peter Wagner, Björn Wittrock and Richard Whitley (Dordrecht: Kluwer, 1993), 331-358.

<sup>8</sup> Adrian Wooldridge, *Measuring the Mind: Education and Psychology in England c.1860-c.1990* (Cambridge: Cambridge University Press, 1994).

<sup>9</sup> Jennifer Platt, *A History of Sociological Research Methods in America : 1920-1960* (Cambridge: Cambridge University Press, 1996); Dorothy Ross, *The Origins of American Social Science* (Cambridge: Cambridge University Press, 1991). Ellen C Lagemann, *An Elusive Science – the Troubling History of Education Research* (Chicago: University of Chicago Press, 2000).

<sup>10</sup> James Craigie, *The Scottish Council for Research in Education 1928-1972*. (Edinburgh: Scottish Council for Research in Education, 1972); John G. Morris, *The Scottish Council for Research in Education 1928–1993*. (PhD Thesis, University of Edinburgh, 1994).

<sup>11</sup> Gillian Sutherland, *Ability, Merit and Measurement–Mental Testing and English Education 1880-1940* (Oxford :Clarendon Press, 1984); John Nisbet, "How It All Began: Educational Research 1880-1930" *Scottish Educational Review*, XXXI, (1999): 3-9.

<sup>12</sup> John C. Stocks, "Objective bees in psychological bonnets: intelligence testing and selection for secondary education in Scotland between the wars", *History of Education* 29, No. 3 (2000): 225-238.

England.<sup>13</sup> Scottish educational research was even quite advanced within Europe and the Empire; particularly in its empirical traditions. Among its distinctive facets were highly educated and skilled teachers, expert research networking, and extensive experience in psychometric intelligence testing. Its organization (inside and outside universities) and relation to the teaching profession appears to make it distinct from European disciplinary traditions in educational research.<sup>14</sup>

‘A Scottish School of Educational Research 1925-1950’ is an in depth investigation of one territorial area, Scotland, and its production of education research. The methodological approach of the study is on the specific locations and cultural contexts of scientific research; the exchange in international networks of ideas, methods and results; the intellectual history of key individuals; the relation between statistics and text, and between scientific advance and the governing of education systems. The cluster of key researchers and publishers on intelligence testing, the heterogeneous network of ‘education modernizers’ in the Scottish Council for Research in Education, and the advanced work of the University departments of education drew attention to a vital culture of research in this period. The wide range of empirical research on intelligence, mental testing and educational progress; the close connections between education and psychological researchers; international networking on scientific research processes; the involvement of significant figures in Scottish teacher training and administration; all produced and were produced by a complex and interwoven set

---

<sup>13</sup> Willard Brehaut, “British Research in Education: Some Aspects of its Development,” in *Educational Research in Britain, Volume 3*, ed. Harold J. Butcher and H.B. Pont (London: University of London Press, 1973), 5; Martin Lawn, Ian Deary, and David Bartholomew, “Naïve, Expert and Willing Partners: the Scottish Council for Research in Education in the International Examinations Inquiry,” in *An Atlantic Crossing? The work of the International Examinations Inquiry, its Researchers, Methods and Influence*, ed. Martin Lawn (Oxford: Symposium Books, 2008), 119-136.

<sup>14</sup> Rita Hofstetter and Bernard Schneuwly, *Sciences de L’éducation 19e –20e Siècles. Entre Champs Disciplinaires et Champs Professionnels*. (Berne: Lang, 2002); Marc Depaepe, “Experimental Research in Education, 1890-1940: Historical Processes Behind the Development of a Discipline in Western Europe and the United States”. In *Education and Europe: Historical and Contemporary Perspectives*, ed. Maurice Whitehead (Hull, University of Hull, 1992), 67-93; Marc A. Depaepe, “Comparative History of Educational Sciences: the Comparability of the Incomparable?,” in “The Emergence and Development of Educational Research in Europe”, ed. Rita Hofstetter and Bernard Schneuwly, *European Educational Research Journal*, 1, No 1 (2002): 118-22.

of relations between people, ideas and methods.

An interesting aspect of this period is the development of this rooted, indigenous national research culture, inclusive of a wide range of people, which grew out of the linked activities and approaches in the 1930s.

### **A systematic research culture**

The early decades of the century in Scotland are delineated by the close intertwining of the disciplines and practices of education and psychology. The research culture of the place and time is progressive in its influences. It is a period that sees the discovery and uptake of experimental methods, a focus on tests and standards, in the study of education systems and efficiencies. A research culture was formed out of the common understandings, shared techniques, and familiar texts of this time.<sup>15</sup> Through its accumulation and consolidation, it developed a material reality and an organizational culture. How does a research culture – ideas, objects, texts and sites – actually come into being and work? The busyness and creativity of research in this period cannot hide the necessity to have agreement about the concepts and methods to be used. Overcoming the localness and diversity of local understandings, even across Scotland, never mind across Europe and into America, was essential to create comparability of results. This could happen through the standardization of terms and procedures and agreements about measurement and its tools. Apart from agreement on model texts, a useful process was to organize and associate with other researchers, nationally and internationally, and widen personal contacts.<sup>16</sup> Projects need standardized procedures, if they are to be replicated or if its members engage in further national or international projects. Data would be meaningless if it is unclear how they were produced or

---

<sup>15</sup> Charles Withers and Paul Wood, *Science and Medicine in the Scottish Enlightenment*. (East Lothian: Tuckwell Press, 2003).

<sup>16</sup> Elizabeth Crawford, Terry Shinn, and Sverker Sorlin, *Denationalizing Science – the Contexts of Scientific Practice* (Dordrecht: Kluwer, 1993): 18-9.

related experiments could be reproduced. Formal or informal training courses, occurring inside research projects, in teacher training programmes, or in advanced research programmes, were vital to the growth of the research culture, widening its ideas and processes out into a wider community in education.

Johnson, using Abbott, describes the three main sources of embodied expertness; expertness exists

in commodities, including self help manuals, training texts or expert systems; in organizations, with the detailed division of tasks and the ordering of their performance according to bureaucratic rules and procedures; in individuals, highly trained and socialized in accordance with an agreed ethical and disciplinary code.<sup>17</sup>

It is to be expected then that Scottish educational research expertise would be embodied in a formal way in agreed texts and training, and in the sharing of expertise.

Place and location make a difference to the way that the “science” is produced and reproduced, in this case its distinctive “Scottish” identity, and yet at the same time, it suggests that the scientific location is not just local but it is transcended to achieve a necessary credibility. Research is created locally in certain contexts but it exists within broader than local contexts as well. The relation between the particularity of production in place and its virtual or imagined universe of scientific inquiry is constant. For example, at the same time, the Scottish work on testing is both Scottish, and also closely and consciously linked to American and English work. The precise locations of research generate specific practices and insights, even theories; they do not determine these results but they provide a cultural milieu which supports their generation

social spaces facilitate and condition discursive space. They do not determine it. This is to say that ideas are produced in, and shaped by, settings.<sup>18</sup>

---

<sup>17</sup> Terry Johnson, "Expertise and the State", in *Foucault's New Domains*, ed. Mike Gane and Terry Johnson (London: Routledge, 1993), 144.

<sup>18</sup> Livingstone, *Putting Science in its Place*: 7.



The educational research activity in Scotland became “ubiquitous”:<sup>19</sup> exactly how did it achieve this? Between 1920 and 1950, in broad approximation, Scotland contained significant practitioners of the new science of educational research, in relative and in proportionate terms, within the UK, and for a small European country. Is this efflorescence of thoughtful and disciplined activity in Scotland a reflection of its small-scale capacities, its specific interests, its education workforce, its scientific skills, or even its international linkages? Scotland was both a place in space and time, and an imagined space of ideas and production, linked internally and externally into wider worlds:

The circulation of goods and commodities, information and data means that the local is persistently reshaped by distant influences and agents. Spaces are mobile and mutable.<sup>20</sup>

Scotland’s ability to be connected internationally, through effective transmission of published experiments, texts and people, even across the Atlantic—in the 1920s and 1930s—may be viewed as if contained within impermeable local borders, an insulated Scottishness, when it was a sign of the internationalism of its researchers, exporting and importing ideas.<sup>21</sup> Scotland was always local and international in its ideas and practices, in its consciousness of them and in its communications about them.

The embedding of a particular social research culture inside Scottish education, and the production and reproduction of this culture was shaped by a few significant academics, in their research projects, their college training and advanced research skills programmes. Robert Rusk, an experienced college and university lecturer and researcher saw particular advantages in Scottish research organization in the second quarter of the 20thC: it was founded on a culture of experimental method and skill in its departments and colleges of education.

---

<sup>19</sup> *ibid*: preface.

<sup>20</sup> *ibid*: 3.

<sup>21</sup> There is a history to the effects Scottish education had beyond its borders, and the influence of individuals in England and America in particular. This history has significance yet it is beyond the reach of this argument about research culture and its elements.

Scotland was favourably circumstanced to participate in educational research. Early in the century individual lecturers in universities and training colleges, qualified in experimental psychology, were undertaking investigations on their account. The first ordinance for degrees in education, which included courses in experimental education and required candidates to present theses testifying to their ability to undertake educational research, was brought into force in a Scottish university in 1916. From the first decade of the century training college students were familiarized with the procedures and made acquainted with the results of research and thus a supply of qualified workers in research was provided, and influx of teachers favourably disposed to research was annually entering schools.<sup>22</sup>

From the 1920s, Scotland began to consolidate the widespread interest in research and reform in education that existed in its cities and towns and began to establish and develop a sustainable research culture. In this process, the universities and colleges were crucial partners. Led by their professors of education and psychology, and senior university researchers and heads of departments, they produced good quality training courses, advanced research degrees, bibliographies, and national research guides. These were coordinated, in a form of intelligent bricolage, by a wider network, the Scottish Council for Research in Education. SCRE connected together the teachers [through the Educational Institute of Scotland], key Directors of Education, psychologists, head teachers and education researchers [including the Professors of Education].<sup>23</sup> At the same time as it created a research network,

---

<sup>22</sup> Robert R. Rusk, "National Research Centres 11 - Scottish Council for Research in Education", *British Journal of Educational Studies* 1, No 1 (1952): 39.

<sup>23</sup> Key members of the network can be seen in the Scottish delegation to the International Examinations Inquiry viz

Godfrey Thomson	Bell Professor of Education, University of Edinburgh
Robert R Rusk	Director, SCRE, Edinburgh
James Drever	Professor of Psychology, University of Edinburgh
William Boyd	Lecturer in Education, University of Glasgow
David Kennedy-Fraser	Psychologist, Glasgow Education Committee
William McClelland	Bell Professor of Education, University of St Andrews
John Mackie	Headmaster, Leith Academy
Norman T Walker	Lecturer in Education, University of Aberdeen
WAF Hepburn	Director of Education, Ayrshire

as a Scottish national enterprise, simultaneously it became closely linked into international networks. Although it was a sign of a small nation's ability to organize itself, faced with the large scale and critical mass possibilities of larger countries, it also reflected rooted ideas about policy links, roles and institutions which were local and national. In the 19th and early 20thC, Scottish scientists established close links inside the nation as well as with others in different nations; indeed this was part of the same phenomenon, scientific communities formed identities across regional, local and national borders. At the same time as discussions about professional status (using comparisons with colleagues elsewhere) and arguments for better research institutions (with reference to trade rivals) occurred, local research schools [university departments and significant professors] began to create significant effects, rendered visible through their growing reputation, new journals and embryonic associations.<sup>24</sup>

The work of developing and organizing research activity in Scotland [from projects to research training] was aided by its growing international associations; within the New Education Fellowship and in its European, including Scottish, conferences, and through links with American reform thinking in education<sup>25</sup> from the 1920s to 1950s. Most of all, this was because the leading edge of education research in Scotland was closely connected to advances in the psychology of intelligence and of measurement. New work in educational measurement, especially through the mediating influence of Godfrey Thomson, was becoming easier to disseminate among the community of researchers, even though it was a

---

Dr JC Smith                      Senior Chief Inspector of Schools, Scottish Ed Dept

plus

Shepherd Dawson,              Lecturer in Psychology, Jordanhill College[deceased]

<sup>24</sup> Crawford, Shinn and Sorlin, *Denationalizing Science*, 13.

<sup>25</sup> This is particularly the case with Teachers College, Columbia University, NY. Prof. WH Kilpatrick, author of the Project Method, had toured Scotland in 1919, and Prof. Paul Monroe visited several times. Monroe had become an honorary research fellow of the EIS in 1920. Thomson, Boyd and Inglis, among others, had significant study leave periods at TC, between 1925-1935. Close links were made with Prof Edward Thorndike at TC, who became a close friend of Thomson's, and who received an honorary degree from the University of Edinburgh in 1936.

small community and it needed advanced research skills to manage this work.<sup>26</sup> The core members of the intelligence and measurement movement in Scotland constituted a powerful group. They met, collaborated and produced together [broadly speaking from the 1920s to the 1940s] and left a dominant theoretical and practical organization embedded in Scottish education, which lasted years. In the 17thC London scientists referred themselves as an “invisible college” due to their spatial and scientific proximity to each other. Their meetings were just one way in which they kept in touch, formally and informally.<sup>27</sup> In the same way, Scottish researchers in their meetings, trying to find funding, producing national reports and reporting on behalf of the country in international fora, acted collegially.<sup>28</sup> Often, they had shared histories; they followed each other into the same posts, and served on the same committees or research projects. At the time, in Scottish education, they may not have appeared “invisible” at all but public statements in the media, publications with their names on or positions of academic or policy authority, do not resolve this question. They shared the same purposes in the main, the same outlook, and the same intellectual interests. They either worked on abstract concepts of intelligence, kept in touch with this thinking through meetings and reports, or used related assumptions in practical contexts. They used a formal language of abstraction when dealing with testing or intelligence or systems. Their work was underpinned by the new, uncommon and quite rarified work of statistical analysis. While few may have been able to work in this way, its possibilities and logics were shared between them.

Certainly, it is possible to look closely at the work of its key proponents, like Thomson, or James Drever (senior) or William Boyd, and see private furrows that turn by accumulation into fields of consistent study. Published papers reveal the trails that they have followed. Yet

---

<sup>26</sup> Philip E. Vernon, "The contribution to education of Sir Godfrey Thomson", *British Journal of Educational Studies* 10, No. 2, (1962): 123-137.

<sup>27</sup> Derek J. de Solla Price, *Little Science, Big Science*. (New York: Columbia University Press, 1963).

<sup>28</sup> Martin Lawn, Ian Deary, and David Bartholomew, “Naïve, Expert and Willing Partners: the Scottish Council for Research in Education in the International Examinations Inquiry,” in *An Atlantic Crossing? The work of the International Examinations Inquiry, its Researchers, Methods and Influence*, ed. Martin Lawn (Oxford: Symposium Books, 2008), 119-136.

Scottish educational research in the 1920s to 1940s shows a considerable social activity in which different kinds of linked actors worked together: the operation of big, country wide investigations;<sup>29</sup> the accumulation of smaller, regional studies; group reporting and formal committees;<sup>30</sup> and the use by others of singularly produced techniques.<sup>31</sup> To a greater or lesser degree, at national or international level, they exhibited a consistent bond together, confirmed by shared purpose, networks and contribution. This does not mean that they were friends or even that they were friendly but they acted in consort, or with common purposes. They were “embedded in a social matrix”; that is,

the pattern of social relations among investigators and their subjects, the norms of appropriate practices in the relevant research community, the kinds of knowledge interests that prevail at different times and places, and the relations of the research community within the broader social context that sustains it.<sup>32</sup>

Their work, alone or jointly, was geographically distant from, but in close scientific collegiality with, American academics who had published about their research or whom they had met on tours or on scholarly leave. Their field of work might have been based in Scotland but it was a scientific field in which their leaders and mentors were based in the USA. It could be said though that their “invisible college” could also include these American scholars; in the flesh, or by public or private communication. Together they constituted a community of peers.<sup>33</sup>

---

<sup>29</sup> Scottish Council for Research in Education, *The Intelligence of Scottish Children* (London: University of London Press, 1933).

<sup>30</sup> Scottish Council for Research in Education, *Annual Reports 1932-1938* (Edinburgh: SCRE).

<sup>31</sup> Gregor MacGregor, *Achievement Tests in the Primary School: A Comparative Study with American Tests in Fife* (London: University of London Press, SCRE publication VI, 1934).

<sup>32</sup> Kurt Danziger, *Constructing the Subject – Historical Origins of Psychological Research* (Cambridge: Cambridge University Press, 1990): 5.

<sup>33</sup> Derek J. de Solla Price, *Little Science, Big Science ... and Beyond*. (New York: Columbia University Press, 1986).

Science organized across frontiers, then and now, in an effort to standardize its work<sup>34</sup> and it is clear that educational research in Scotland did this simultaneously with its own process of national organization. In other words, as it organized nationally into a recognisable research community, it standardized its work, engaged internationally with conceptual clarifications, related experimental and practical work together, and used the same key texts. This was crucial in the dominant field in education and psychology at the time. Methodological innovation on measurement, testing and on statistics had to be reconciled and analyzed during the course of Scottish work. And it is a key part of Scotland's leading edge at this time that there was an internationally-recognised high quality of methodological innovation, especially from Thomson and his research team at Moray House in Edinburgh. Analysis of data, which was soon to be exchanged and published, had to be based on newly accepted units and standards.

Cognitively, this concerned making experimental research more uniform by standardizing methods of observation, units of measurement and notation, taxonomies, equipment, and the like. Standardization, finally, directly entered scientists' relations to technology and industry through the development of new technological products which required the application of universally accepted technical standards to ensure their operation and commercialization.<sup>35</sup>

Without standardization, there could be no guarantee of comparability and homogeneity of research results. Overcoming local meanings and guaranteeing the provenance of shared data were essential to the growth and stability of science. At the same time, the critical mass necessary for development could not be achieved in single countries and scientists needed to travel to meet their peers and leading research centres. The texts produced by leading statisticians, measurement experts and intelligence researchers began to accumulate and were

---

<sup>34</sup> Crawford, Shinn & Sorlin, *Denationalizing Science*.

<sup>35</sup> Crawford, Shinn & Sorlin, *Denationalizing Science*, 15-6.

treated as the basis for shared scientific work. They constituted the research libraries of the newly trained researchers in projects or the elite B.Ed post graduate research degree.

A significant consequence of this social research enterprise was that the “psychological objects”<sup>36</sup> that they used and shared, the “explicit rational schemes” they agreed,<sup>37</sup> and the “cognitive frameworks for the *interpretations* of empirical data” and the “practical rules for [its] *production*”<sup>38</sup> had to be passed on within training programmes of different kinds. Texts, tests, reports and techniques had to be understood to be used. The use of high skill techniques and advanced scientific thinking in education and psychology permeated the field and did so because of the network steering and heterogeneous partnerships created by scientists, policy makers and practitioners working together in different arrangements but sharing a common body of knowledge.

How did “Scotland” learn to organize its educational research as a collective activity, and how did it train its researchers for its projects and future educational work? Three distinctive factors helped to provide a framework for the research network: the work of the Scottish Council for Research in Education; the distinctiveness of the Scottish research degree, the B.Ed; and the nationally agreed Aids to Research.<sup>39</sup>

### **Scottish Council for Research in Education: From the Outset**

The Educational Institute of Scotland, Scotland’s main association of teachers, had organized its own Research Committee in 1919. This Committee, enthusiastically directed by William Boyd in Glasgow, set in motion a series of research events, projects and partnerships, which resulted in a wave of activity in Scotland.

---

<sup>36</sup> Danziger, *Constructing the Subject*, 4.

<sup>37</sup> *Ibid.*, 3.

<sup>38</sup> *Ibid.*, 5.

<sup>39</sup> Scottish Council for Research in Education, *Aids to Educational Research Comprising Bibliographies and Topics for Research* (Edinburgh: London University Press, 1946).

The EIS Journal reported on the mobilization of teachers within large scale research projects, based upon pupil assessment, and the joint creation of agreed word lists [essential for testing and assessing progress]. Boyd invited teachers to communicate with the Committee if they were doing experimental work in their classrooms, even if it was simple or unsystematic. In 1920, thousands of the new arithmetic tests were sent out to the teachers who wanted to use them for their own pupil assessments. Through the EIS Journal, Boyd argued for a close connection between experimental educational research and teacher professional power.<sup>40</sup> By the late 1920s, Scotland developed close and productive working relations between some Directors of Education [who managed the education services in the counties and towns], the EIS and key educational researchers, working in its universities, as the idea of reform and research in education became defined as a practical task.

The creation of the Scottish Council for Research in Education was an ambitious event for a small country, and its foundation was stronger in intellectual and practical resources than it was in finance. SCRE was not a specialist site of work, nor a building nor an institution embedded in government. It was more like a set of heterogeneous relations between policy managers, teachers, researchers, key texts and modern practices, bordered by a Scottish culture and small nation know-how. Driving it all was the idea of an efficient education system, which was also a fair system, especially to those who were bright but poor. SCRE was not staffed by a team of professionals but it was a smartly organized set of interactions between a range of actors, spread across Scotland, but with a representative leading group, mandated to act or willing to work. It was tied into the teacher association, the local authorities, the large teachers colleges and the universities. Its investigations were only part of the work, and often the most visible part, but there was a strong steering function as well. SCRE aims included initiating and controlling inquiries, allocating problems to suitable

---

<sup>40</sup> Martin Lawn, "The Institute as Network: the Scottish Council for Research in Education as a local and international phenomenon in the 1930s," *Paedagogica Historica* 40, Nos. 5&6 (2004): 719-732.



researchers, finding and managing research finance and publishing reports. From its earliest days then, SCRE would steer the research community by managing its scientific direction, mobilizing researchers, support publications and finding research finance. In a sense, it would govern itself.

The spirit of the beehive was alive in this community from the start. Building on the work of individuals and the EIS Research Committee, it began an ambitious series of investigations, in which intelligence and assessment were heavily involved. For example, in its 2<sup>nd</sup> Annual Report, SCRE's inquiries produced, applied and analyzed thousands of tests; designed and piloted a new pupil progress card, and began a long term project on the effects of environment and mentality. In the same year, a huge Curriculum Inquiry was undertaken, involving 60 Subject Panel meetings, which delivered 90 draft reports in 1931.<sup>41</sup>

Its 1930 report, in the Activities section, emphasises the way research was organized in Scotland, its particular approach to research institute work:

...research work must be slow and to hasten it unduly is to court failure; but the results so far attained are highly satisfactory considering that the work has had to be carried out in the spare time of teachers, lecturers, directors etc at a time when their own commitments were exceptionally strenuous and serious. The outstanding feature displayed in the Council's efforts is the cooperation of all the interests participating, which even apart from the outcome of the work, must influence and increase the efficiency of Scottish education as a whole.<sup>42</sup>

In 1936, this was reinforced when reference was made to the fact that

without the technical assistance rendered voluntarily by members of the Council and others, and the facilities afforded by the directors of education, head masters, and teachers, the work of the Council could not be overcome on its present income.<sup>43</sup>

---

<sup>41</sup> SCRE, *3<sup>rd</sup> Annual Report, 1930-1931* (Edinburgh: SCRE, 1931): 12.

<sup>42</sup> SCRE, *2<sup>nd</sup> Annual Report, 1929-1930* (Edinburgh: SCRE, 1930): 7.

<sup>43</sup> SCRE, *8<sup>th</sup> Annual Report, 1935-1936* (Edinburgh: SCRE, 1936): 9.

Within its first year, SCRE had inquiries running on intelligence and environment, pupil progress cards and attainment tests. By 1931, SCRE needed to begin devising or finding tests to determine pupil ability and to begin the process of standardising tests.<sup>44</sup> The SCRE library reported that

A complete file of mental and scholastic tests is being assembled, and technical works, statistical tables etc, as required in the investigations undertaken by the Council, have been acquired.<sup>45</sup>

SCRE's rapid mobilization of researchers and collection of useful instruments of method soon extended into a search for necessary research tools – the elements of scientific work produced elsewhere. The library would be searching, with advice from SCRE's key professors, for the reports and tables produced elsewhere in the world which could help them. In reality this would be either from Germany or the United States, leaders in advanced mathematics or empirical work. Tests were used and linked together for specific purposes; for example, American tests, from California and Minnesota, were used with locally produced tests, to create a test for "mental defectives". Later, SCRE was asked to help standardize the major American test for use in Scotland: it

responded to an invitation to standardise the Terman-Merrill scale<sup>46</sup> for Scotland – 1300 record booklets for Form L were received from 'recognised testers' in Scotland. Copies made, booklets returned and data collation started.<sup>47</sup>

The advantage of this collegial and expert network approach to research development was that scientific knowledge could be shared without individuals being over-steered. It was a network-based pooling of resource rather than a hierarchical governing of researchers. The SCRE Annual Report of 1937-1938 stated that

...[a further advantage] is that it has enlisted the help of experts who voluntarily give their services and pool their resources to advance educational research... Nevertheless,

---

<sup>44</sup> SCRE, *3<sup>rd</sup> Annual Report, 1930-1931* (Edinburgh: SCRE, 1931): 12.

<sup>45</sup> *Ibid.*, 14.

<sup>46</sup> Lewis M. Terman and Maud A. Merrill, *Measuring Intelligence* (London: Geo Harrap & Co. Ltd, 1937).

<sup>47</sup> SCRE, *12<sup>th</sup> Annual Report, 1939-1940* (Edinburgh: SCRE, 1940): 7.

the Research Committee has not usurped the place of the individual investigator, but has increased his opportunities and facilitated his labours by affording him expert guidance, supplying him with literature and test material, subsidising his investigations and publishing his results.<sup>48</sup>

No doubt, this way of organizing had to be continually discussed. Other operational methods, based in growing departments of education or built around powerful professors, or even a small professional institute, would have been alternatives, At times, this shaping of a community, as it was growing, must have been a major diplomatic task; each of the partners, the officers, the teachers and the expert researchers, would have to feel that there was a use-value and a social value in being harnessed together. The synergy would need to be visible across the policy, practice and scientific fields

...they have also a cumulative value, for not only does one investigation give rise to other lines of research but these in turn also follow the methods or use the results of earlier inquiries.<sup>49</sup>

By 1947, SCRE was engaged in its second major funded study of nearly 80,000 pupils, and the extent of the linked networks of professionals, and the way in which the social, scientific and national aspects of the study were bound together, can be seen:

Only through the goodwill and the voluntary assistance of Education Authorities, Directors of Education, Teachers, Medical Officers, Health Visitors, Statisticians and Psychologists could a project of such magnitude be undertaken. The results, which will be of considerable national and social significance, are awaited with interest.<sup>50</sup>

Teachers were often active in relation to the research tasks, that is, they were not just administrating the tasks but they engaged with them as people with increasing expertise in research purposes and methods. Student teachers were organized as well; recognition that research “pooling” could be a new model for the Scottish professional.

---

<sup>48</sup> SCRE, *10<sup>th</sup> Annual Report, 1937-1938* (Edinburgh: SCRE, 1938): 9.

<sup>49</sup> *Ibid.*

<sup>50</sup> SCRE, *19<sup>th</sup> Annual Report, 1946-1947* (Edinburgh: SCRE, 1947).

The 1947 Survey was sanctioned on the understanding that teachers should not be expected to correct the scripts, the intention being to enlist teams of voluntary workers for the purpose. The task proved too formidable for this procedure, and resort had to be made to the Training Colleges, local committees of teachers and small teams of voluntary workers. The data obtained in the sociological schedules have been coded by students of Moray House Training College. The statistical calculations are being made by the aid of a Hollerith counter-sorter machine installed at Moray House.<sup>51</sup>

The Regulations governing the training of teachers were altered so that an understanding of the basic research tool, mental testing, and its Scottish development, could be spread more widely among the teachers, many of whom would need to become familiar with the work of SCRE on the school population and its value: teachers needed

a course in mental testing of young children, since the testing of each child on entering school and again at the date of transfer to the junior division would provide valuable insight into the child mind and would give an objective assessment of his capacity from the outset of his school career which would be of service not only in the organization of schools but also in their inspection.<sup>52</sup>

Data was not secured to one team or researcher but shared for further analysis and different purposes later.

A factorial analysis of the Performance test data secured by Dr Macmeeken in her Individual Testing of a representative Group of Scottish Children [survey of 1935-7] has been undertaken by Prof Godfrey Thomson and his staff and is now published under the title of An Analysis of the Performance Test Scores of a Representative Group of Scottish Children. The work throws some validity on the various performance tests individually and their inter-correlations. The relation of performance to Binet

---

<sup>51</sup> SCRE, 20<sup>th</sup> Annual Report, 1947-1948 (Edinburgh: SCRE, 1948).

<sup>52</sup> SCRE, 10<sup>th</sup> Annual Report, 1937-1938 (Edinburgh: SCRE, 1938): 14.

scores has also been considered... The data are recorded in such a form as to allow other statistical computations to be made by those interested.<sup>53</sup>

SCRE continued to mobilize research workers of different kinds to work on its projects. The 1947 Survey involving 70,805 pupils needed teams of voluntary workers to correct the test scripts etc. Especially within this Survey and its follow up, apart from many teachers, other professional workers were involved in educational research; for example, youth employment officers or the Ministry of Labour, Education Authority psychologists.<sup>54</sup> Local research committees were being formed across the country, according to the SCRE Report in 1949/50,<sup>55</sup> which then asked for advice and assistance; so, EIS and SCRE produced a list of principles which should “govern” their formation and a constitution. SCRE deliberately sought to

'enlist' teachers and student teachers as volunteers inside projects and local committees, partly as an economy measure but also because there was no real alternative given the ambition and scope of their programme of research.<sup>56</sup>

A distinctive feature of Scottish education research was that it harnessed energies and skills as if it was a big, organic machine. Using people and their skills and enthusiasm for the task, it was able to work with the flow of interest and mission to connect and gear together people of different function, aptitude and ability to create and establish large scale and accumulating research activity. This process was often, but not exclusively, consolidated under the SCRE banner. Its most public feature, to those not in the inner circles, was its publication activities, especially its monographs and reports, its publication of B.Ed theses [where advanced individual work was made public] and peer reviewed journal papers. All kinds of people were involved but the intensity of the work certainly depended on a core of

---

<sup>53</sup> SCRE, *12<sup>th</sup> Annual Report, 1939-1940* (Edinburgh: SCRE, 1940): 11.

<sup>54</sup> SCRE, *24<sup>th</sup> Annual Report, 1951-1952* (Edinburgh: SCRE, 1952).

<sup>55</sup> SCRE, *22<sup>nd</sup> Annual Report, 1949-1950* (Edinburgh: SCRE, 1950): 5.

<sup>56</sup> SCRE, *24<sup>th</sup> Annual Report, 1951-1952*, 5.

people who worked constantly; they commented on reports and on policy, negotiated with system actors in Scotland and took their turn at testing in the field, and wrote texts.<sup>57</sup> It was a hands-on process working in and around SCRE in the 1930s.

### **The Scottish B.Ed Degree**

A crucial part of this regime of research governance in Scotland, the heterogeneous research network, was its progress in producing advanced study in education, based upon the B.Ed, which took place mainly in two of the ancient universities – Glasgow and Edinburgh,<sup>58</sup> and was the responsibility of the Education and Psychology departments jointly.

The B.Ed degree demands a minimum of two years' postgraduate study with full time attendance for at least one year following graduation, and non graduates are non-admissible for admission. A pre-requisite for entry to the final course of one year is the Diploma in Education which is quite distinct from the normal teacher training qualification. Before being eligible for the Diploma the applicant must be a graduate and must either have had three years of professional training at a teacher training centre, or have had at least three years of 'successful' teacher experience.<sup>59</sup>

In Edinburgh, this was a full time course but in Glasgow and Aberdeen, part time attendance was permitted; classes operated after 4.30 on the weekday and on Saturday mornings. The Scottish universities and Belfast University used the B.Ed while the English universities used either the MA or the M.Ed. The B.Ed was a rigorous degree and could be up to nine times longer than its English counterpart, the M.Ed course.<sup>60</sup>

---

<sup>57</sup> XXIV SCRE. The Scottish Council for Research in Education: its Aims and Activities 1953  
Also: SCRE, Its Aims and Activities (Edinburgh: University of London Press, 1945).

<sup>58</sup> "Although all four universities had instituted a post-graduate degree (Bachelor of Education ) in education and psychology by Ordinances passed during the war, by 1920 the ordinance had been activated only in Edinburgh where a handful of candidates (including some from overseas) had begun to study for it." Robert E. Bell, "*Godfrey Thomson and Scottish Education*," (unpublished paper, 1974), 4.

<sup>59</sup> Stephen Wiseman, "Higher Degrees in Education in British Education", *British Journal of Educational Studies* 2, No. 1 (1953): 55.

<sup>60</sup> Wiseman, "Higher Degrees in Education in British Education", 59.

Using the *List of Theses* produced for the newly formed National Foundation for Educational Research [England and Wales] by AM Blackwell, of which there are four volumes - 1918-1948,<sup>61</sup> 1949-1951,<sup>62</sup> 1952-1953<sup>63</sup> and 1954-1955,<sup>64</sup> it is possible to provide an analysis about the scale and type of research work undertaken under Professor Godfrey Thomson's guidance at Edinburgh, compared to Glasgow and London. The Theses Lists covered the UK and the Irish Republic, and the first volume was partly based on material published in the *British Journal of Educational Psychology* in the war years. All theses are included – the B.Ed and Masters level and Doctoral level. Each Volume of the List is divided into two main parts, Educational Psychology and Education. Each part is then subdivided. The sections of Educational Psychology are Mental Development, Sense and Sense Perception, Executive Functions, Higher Mental Processes, Special Mental Conditions and Abnormal Psychology. The main section, Mental Development, [in the first volume this is 43 pages out of 60 page total] has three sections: Mental Characteristics, Psychology of Types [and Individuals] and Intelligence and Mental Tests. In the first volume, this last section on Intelligence Tests is 30 pages long. So, by far the largest section in the Educational Psychology part, over half the pages overall, is that on Intelligence and Tests. Its equivalent section, in the Education part, is that on Education; in the first volume this is 27 pages long. Other sections are on Teachers, Schools, Adult Education, Curriculum, Women, Colleges and Universities, and the State and Education.<sup>65</sup> As Wiseman shows,<sup>66</sup> for over thirty years,

---

<sup>61</sup> Annie M. Blackwell, *List of Researches in Education and Educational Psychology Presented for Higher Degrees in the Universities of the United Kingdom, Northern Ireland, and the Irish Republic from 1918 to 1948*. (London: Newnes Educational Publishing Co, Ltd, 1950).

<sup>62</sup> Annie M. Blackwell, *A Second List of Researches in Education and Educational Psychology Presented for Higher Degrees in the Universities of the United Kingdom and the Irish Republic in the Years 1949, 1950, and 1951*. (London: Newnes Educational Publishing Co, Ltd, 1951).

<sup>63</sup> Annie M. Blackwell, *Lists of Researches in Education and Educational Psychology. Supplement 1, Presented for Higher Degrees in the Universities of the United Kingdom and the Irish Republic in the Years 1952 and 1953*. (London: Newnes Educational Publishing Co, Ltd, 1954).

<sup>64</sup> Annie M. Blackwell, *Lists of Researches in Education and Educational Psychology. Supplement 2, Presented for Higher Degrees in the Universities of the United Kingdom and the Irish Republic in the Years 1954 and 1955*. (London: Newnes Educational Publishing Co, Ltd, 1956).

<sup>65</sup> Education [general].

<sup>66</sup> Wiseman, "Higher Degrees in Education in British Education", 62.

psychological and experimental research dominated thesis output, and increased proportionately over time.

Table 1 here

Throughout this period, the Glasgow and Edinburgh B.Ed were major providers of skilled educational researchers in Scotland and the UK.<sup>67</sup>

Table 2 here

The theses are sorted by surname, title, degree type, university and year. They may appear more than once, according to the sections they are pertinent to. Without further coding and analysis, it is not possible to say exactly how many theses have been produced by different universities. However, a rough coding of the section on Intelligence, and comparing Edinburgh and London Universities, suggests the following rough estimation of production for 1918-1948.

In this period, in the Intelligence and Tests area, in Educational Psychology, theses produced-

Table 3 here

in the equivalent section, [general] Education in Education, theses produced-

Table 4 here

London concentrates on extending its researchers into an advanced PhD level and does not confine them to Intelligence studies alone. Edinburgh, on the other hand, concentrates on its B.Ed and on studies in intelligence.<sup>68</sup>

The highly skilled researchers produced in Scotland began to be employed in a range of education and education-related posts:

---

<sup>67</sup> “When the present writer [Bell] carried out a questionnaire survey of all traceable holders of the Scottish education degree in 1968-69, Glasgow graduates (according to University records) numbered 409 compared with Edinburgh's 281.” Bell, “Godfrey Thomson and Scottish Education”, 4.

<sup>68</sup> Wiseman's own figures suggest a more ambitious picture at Edinburgh overall—167 at B.Ed level and 56 PhDs [London is 339 and 223 respectively]. Wiseman, “Higher Degrees in Education in British Education”, 64.



a higher degree in education may serve as a qualification for, or a stepping stone towards, many different kinds of job. By means of it, the practising teacher may gain advancement within his profession to a more responsible post or to a headship; or he may enter educational administration, or become an inspector of schools. For many, it leads to posts in teacher training in two year training colleges and university departments of education. Others may use it as an initial qualification in psychology, and such a degree may be recognized by the British Psychological Society as qualifying for associate membership.<sup>69</sup>

An analysis of Edinburgh University B.Eds from 1918 suggests that 84% left teaching for other fields viz. educational administration [18%], teacher training [26%] and psychology [30%]

it is clear that that the Edinburgh BEd degree course is training teachers for higher posts in education; the cumulative effect of these graduates on educational thought and practice cannot be inconsiderable;<sup>70</sup>

The importance of this movement into fields of work is not about their personal influence or even whether Edinburgh or Glasgow, and their professors, had the most influence, but that the ideas and skills developed in the Scottish research community were extended into new corners and activities of education. In an analysis of the relative effects of the B.Ed training in Glasgow and Edinburgh, Bell says that

there seems to be even less substance in the belief that Thomson's students were more likely than Glasgow Students to become keen research workers after graduating. 56% of pre-1950 students at Edinburgh neither published whole or part of their thesis nor took part in subsequent research in the same field. At Glasgow the figure was 57%. Moreover, these figures differ little from those for the post-Boyd/ Thomson<sup>23</sup> era at either university. It is interesting to note also that, in raw figures, almost as many Glasgow graduates later took PhDs as did Edinburgh graduates. On the other hand, significantly, 73% of the pre-1950 Edinburgh group felt they

---

<sup>69</sup> Wiseman, "Higher Degrees in Education in British Education", 54.

<sup>70</sup> Ibid.

received a good research training whereas only 41% felt this in Glasgow, though many Edinburgh students felt that the year during which Thomson and Drever<sup>24</sup> attempted to train them was a derisively short period.<sup>71</sup>

According to Bell, Thomson's students were much more likely to be drawn from outside Scotland and to work beyond it:

A geographical analysis of his B.Ed. graduates is revealing. Whereas 97.2% of pre-1950 Glasgow Ed.B.'s had graduated first in Scottish universities (and only 1.8% outside the British Isles) only 66.4% of Thomson's graduates had earlier graduated in Scotland while 13.1% came from outside these islands. Similarly, while 77.9% of the years worked by pre-1950 Glasgow Ed.B's after their graduation have been worked in Scotland, only 52.3% of the Edinburgh work years have been spent there. 30% have been spent in other parts of the U.K. and 17.7% outside. (The comparable Glasgow figures are 15.1% and 7%.) Thus Thomson's pre-occupation, like that of Edinburgh university in general, tended to be as much with the world outside Scotland as with internal problems.<sup>72</sup>

From the perspective taken here, on the establishment of a research community in education and its scientific ideas, the question is raised again about the way in which the organization of the national alongside the international is highlighted.<sup>73</sup>

### **Institutionalizing scientific and applied research: Aids to research**

From its inception, SCRE had a concern to support the general culture of educational research in Scotland, following the work of the EIS Research Committee from the early 1920s. It wished to 'encourage and recognise Research Work'<sup>74</sup> [SCRE Constitution] and within this general aim, it aimed to act as a clearinghouse for special investigations, the

---

<sup>71</sup> Robert E. Bell, "*Godfrey Thomson and Scottish Education*," (unpublished paper, 1974): 6.

<sup>72</sup> *Ibid.*, 11.

<sup>73</sup> Within the small Edinburgh B.Ed cohort, there was a significant minority from the Indian sub-continent from the 1930s to 1940s.

<sup>74</sup> Needs a reference to SCRE's constitution, which I don't have

allocation of problems to investigators, to finance inquiries and to publish results. As its finances and early organization stabilized, the development of research capacity building could take place; its publications were distributed to educational authorities, a library of mental and scholastic tests was assembled and lectures on educational research were undertaken by the Director [Rusk]. Rusk also provided additional ideas about the subject

...lines of inquiry suitable for research and afforded guidance in regard to literature and technique to teachers and local research bodies.<sup>75</sup>

The SCRE Secretariat, the part time secretary, answered questions by teachers who were engaged in research and the secretary or the Director 'afforded guidance' to them, in Scotland, [and also the Irish Free State, New Zealand and the USSR].<sup>76</sup> In 1936, the Director "granted interviews" to teachers engaged in research<sup>77</sup> and offered "advice and technical assistance".<sup>78</sup>

In a review of its progress in 1938, SCRE's role in supporting and amplifying the work of individual researchers into a strong research network was clarified

It can develop research both intensively and extensively in a manner beyond the power of an individual and even secure that an investigation be national. The very nature of its membership, widely representative as it is, constitutes a valuable asset in securing these advantages.<sup>79</sup>

SCRE appeared to exist within a poor economic condition<sup>80</sup> and a rich educational culture, and was supported by a strong tradition of inquiry in Scotland and a highly skilled workforce in education, at all levels. Research capacity building worked within the flow of ideas and people in universities, colleges and schools. But its argument develops beyond

---

<sup>75</sup> SCRE, *3<sup>rd</sup> Annual Report, 1930-1931* (Edinburgh: SCRE, 1931): 10.

<sup>76</sup> SCRE, *7<sup>th</sup> Annual Report, 1934-1935* (Edinburgh: SCRE, 1935): 14.

<sup>77</sup> SCRE, *8<sup>th</sup> Annual Report, 1935-1936* (Edinburgh: SCRE, 1936): 12.

<sup>78</sup> SCRE, *9<sup>th</sup> Annual Report, 1936-1937* (Edinburgh: SCRE, 1937): 7.

<sup>79</sup> SCRE, *10<sup>th</sup> Annual Report, 1937-1938* (Edinburgh: SCRE, 1938): 9.

<sup>80</sup> SCRE was funded initially by grants from the EIS and the local authorities; in the 1930s, this supplemented by a significant grant from Carnegie, NY. In 1948/9, when the government department [the SED] was allowed to assist it financially, it gave £1000. By contrast, the Education Authorities produced approximately £1600.

support and expert support, into that of cumulative value; research is interlinked, built upon earlier inquiries and methods, and produces new lines of research. In this task, communicating and widely distributing research results, products and materials became a key task for SCRE; it needed to show how a woven network of experts and researchers could produce an impact, and a culture, greater than its individual parts. Research reports were published as supplements to the *Scottish Educational Journal*, the EIS paper. When large scale projects involved major calculations, teams of teachers and training college students undertook the “laborious clerical and statistical work”<sup>81</sup> needed.<sup>82</sup> The impression given is of an organic machine, made up of heterogeneous elements, a biotechnological solution, incorporating incipient research networks, teacher activism, and local authority associationism, as an integrated model of research.

The mobilizing acts of SCRE soon accumulated a parallel series of administrative soft commands, presumably agreed within the alliance between experts and educationalists in its Council. In 1943, additional efforts were made to compile a list of all theses, which had been submitted as part of the B.Ed and Ed.B degrees in education at Scottish Universities, and to collect copies of them. The project was welcomed by the professors or lecturers concerned, and with their assistance the file was almost complete.<sup>83</sup>

The following year, the SCRE Executive

[suggested] that after completing particular studies educational research workers in Scotland might deposit with the Council the references assembled for their work for the benefit of later workers in the same field; a list of titles might thereby be collected and collated which would assist the compilation of a bibliography of research if this were contemplated.<sup>84</sup>

---

<sup>81</sup> SCRE, *10<sup>th</sup> Annual Report, 1937-1938* (Edinburgh: SCRE, 1938): 21.

<sup>82</sup> When the Follow Up of the 1947 Survey was undertaken with a sample — the 6 day sample — comprising 1215 pupils, schedules dealing with home/family background, were undertaken by ‘volunteer home visitors’. SCRE Minute Nov 1945 p2 [SCRE Archive, University of Glasgow].

<sup>83</sup> SCRE, *15<sup>th</sup> Annual Report, 1942-1943* (Edinburgh: SCRE, 1943): 4.

<sup>84</sup> SCRE, *16<sup>th</sup> Annual Report, 1943-1944* (Edinburgh: SCRE, 1944): 4.

Again, this ambitious soft administration continued, building material effects by “persuasive order”, and in the final war years, the Council proposed the following two extensions of its work

In order to acquire a complete collection of theses submitted for higher degrees in Scottish universities on educational subjects, it was decided during the year that the Council should undertake to pay half the cost of typing such theses on condition that a copy was deposited with the Council. It has also been decided to keep a register of candidates for higher degrees in education, with an indication of their special lines of study and their willingness to help in suitable investigations, that the Heads of the University departments concerned should be asked to assist in the compilation of this list, and that persons whose names are entered should be asked to keep in touch with the Council when changing their address.<sup>85</sup>

In the Education [Scotland] Act of 1945, educational research was included [Sections 56a and 78] and research expenditure was able to attract additional grant from the SED [within the Educational Development, Research and Services Scotland Grant Regulations 1946]. The effect of this new source of income was to allow the Council to extend the range of its activities.

In November 1945, SCRE “sponsored” a meeting of Heads of University Departments concerned with the supervision of studies for Degrees of Education “at which the position with regard to research work for such degrees in the different Universities” was clarified.<sup>86</sup> Although coordination was the key word, in fact they were establishing a national agreement between the main providers about the nature and content of research training in education. The Research Council would list research topics, topics

---

<sup>85</sup> SCRE, *17<sup>th</sup> Annual Report, 1944-1945* (Edinburgh: SCRE, 1945): 5.

<sup>86</sup> SCRE, *18<sup>th</sup> Annual Report, 1945-1946* (Edinburgh: SCRE, 1946): 5.

deemed by them to be 'suitable'.<sup>87</sup> [p2 SCRE 1946] Again a coordinating and networked solution was developed in which, in return for subsidy from SCRE, the theses were available for access. 'The rights of publication' were crucial and this applied to private and research students, and in this way, the Council established a vetting system for educational research in Scotland, in partnership with the Professors of Education. In this way, in a guided manner, guaranteed research results on required topics were to be delivered through the Departments by their students. The thesis, attached to the new Degree, was to be treated as an application of research techniques, rather than a finished piece of work. The Council prepared a 'list of works', a bibliography and sourcebook, in which support for these planned researches could be found.

SCRE prepared a research handbook, approved by the Heads of Departments, for the use of their research students:

it indicates the sources of material with which students should be acquainted and supplies a list of works which candidates for Degrees of Education will find useful in planning their researches and in preparing them for presentation... A register of topics on which research might profitably be undertaken is also available to Supervisors of Studies.<sup>88</sup>

This was both a sensible collation of the different expertise and resources around the universities, which subtly metamorphoses into a set of Scottish requirements, even a Scottish model, with its own set of standards. The "list of works" or aids to research, were provided within this system. They were more than suggestions; they had become the recommended tools for a supported and managed networked Scottish research system. They were a key element in a process of approval and licence, which ranged from agreed topics for study, Head of Department consent, and Committee endorsement. The research reading list had the

---

<sup>87</sup> This needs a reference. Is it the Aims and Activities? (SCRE, *Its Aims and Activities* (Edinburgh: University of London Press, 1945).)

<sup>88</sup> SCRE, *18<sup>th</sup> Annual Report, 1945-1946* (Edinburgh: SCRE, 1946): 5.

power of an official [and Scottish] permit to research, a relational permit, in which the researcher entered into a set of work transactions. In January 1946, a second meeting of this group recommended that the duplicated version of *Aids to Research for Scottish Students of Education* should be revised and published by the Council.<sup>89</sup> This meeting also recommended that to ease the efforts of research workers “efforts should be made ...to standardise techniques in regard to such items as economic status, type of employment, classification of child-guidance symptoms etc”.<sup>90</sup> In 1947/8, the work of completing the assembly and classification, “according to importance and urgency” of topics for research began,<sup>91</sup> to be published with the *Aids*. *Aids to Research* was revised again for publication in 1954.<sup>92</sup> Annual meetings with this group, expanded to include Supervisors of Degrees in Education, and heads of departments of Education and Psychology of the Training centres and Colleges,<sup>93</sup> were described as “mutually beneficial” and for the purpose of “coordinating investigations on educational research”.

On Saturday, November 3<sup>rd</sup>, 1945, the first meeting of the Heads of Departments took place. Present were William Boyd [Glasgow, Education], WB Inglis [Moray House], Rex Knight [Aberdeen University and College of Education, Psychology], William McClelland [now representing the National Committee for the Training of Teachers, Edinburgh], AF Skinner [St Andrews], Godfrey Thomson [Edinburgh], PE Vernon [Glasgow, Psychology] and Norman Walker [Aberdeen]. James Drever [Emeritus, Edinburgh, Psychology] chaired the meeting and Robert Rusk, SCRE, was “in attendance”. The account of the meeting details the agreement reached between the participants about the organization of educational research through the universities and colleges in Scotland. The purpose of the meeting was to coordinate

---

<sup>89</sup> SCRE, *Aids to Educational Research Comprising Bibliographies and Topics for Research (Revised edition)* (Edinburgh: University of London Press, 1946).

<sup>90</sup> SCRE, *19<sup>th</sup> Annual Report, 1946-1947* (Edinburgh: SCRE, 1947): 5.

<sup>91</sup> SCRE, *20<sup>th</sup> Annual Report, 1947-1948* (Edinburgh: SCRE, 1948): 5.

<sup>92</sup> SCRE, *24<sup>th</sup> Annual Report, 1953-1954* (Edinburgh: SCRE, 1954): 4; SCRE, *Aids to Educational Research Comprising Bibliographies and Topics for Research (Revised edition)* (Edinburgh: University of London Press, 1954).

<sup>93</sup> SCRE, *30<sup>th</sup> Annual Report, 1957-1958* (Edinburgh: SCRE, 1958): 4.

the research undertaken by students [in their Education degrees, such as the Ed.B and B.Ed], their departments and SCRE. The expertise of the group was mainly psychological, either in their own research identity or directly in their representation.

The meeting created some general rules and shared understandings about educational research training; for example, about the purpose of the thesis, its singularity and cross-departmental collaborations. SCRE agreed to offer guidance to researchers on the selection of research topics “only on the recommendation of the Heads of Departments”. A formal list of research topics “suitable” for the researchers would be provided by SCRE to the HoDs, and in turn the latter would forward to SCRE suggested new titles. SCRE would then provide the following services; it would provide these researchers with a research bibliography, a location list of educational research journals in Scotland, and it would provide half the cost of typing theses, recommended for open access [that is, deposited with SCRE] by their HoDs. The list itself was a mixture of American, Scottish and English sources, with a strong domination from an experimental, statistical and measurement perspective, mainly drawn from the still new educational psychology. It reflects the interests of the Scottish network in the International Inquiry, which in turn followed the emerging and distinctive way that the subject, the network and the science had developed in Scotland from the late 1920s.

The 1946 editions of the “Assistance to Students in Education and Bibliographies in Educational Research” [*Aids to Research for Scottish Students of Education*] may be viewed as a snapshot of good research practice, agreed by its leading practitioners, and as a tool for governing the growth and organization of educational research in Scotland. It harmonized, represented and guarded the new field of educational research.

Table 5 here

At the same time, it can be seen that the sources and techniques that it was felt necessary for the Scottish research students to engage with depended on American research resources. This



was not just a shift into a new form of organization and governing but also a continuation of the major turn towards American psychology of education and its research methods, which were seen as advanced.

Table 6 here

In most of the sections of the Guide, American sources dominated. The Guide consolidated the American turn and the shift away from the German and other European influences, even the earlier ‘English’ influences, which had been present in their own training and thinking, and earlier publishing, of the 1946 group. Although the IEI published transcripts show no unilateral shift into intelligence measurement and a new science of research,<sup>94</sup> the dominant move was in that direction. The Guide shows the influence of the American empirical and measurement-based research, which had gradually established itself as a support for the early move into intelligence testing in Scotland in the 1920s, and then gradually consolidated within the work of the SCRE and the International Examinations Inquiry. The consolidation of a strongly American influenced educational research area in Scotland, at the same time as it was formally organized across its universities, seems clear:

Table 7 here

The ratio between American and UK Origin sources has altered slightly in favour of UK sources but only by a few percentage points.

Using the Guide to Research, and comparing it with references in the major SCRE studies, which IEI influenced, and with the University of Edinburgh/ Moray House Library catalogue, it is possible to see some evidence of the growth and influence of experimental research, as the dominant paradigm, in Scottish research and training. In the Sections “Introductory”; “Sources”; “Experimental Techniques”;

---

<sup>94</sup> Lawn, *An Atlantic Crossing?*

“Tests”; and “Statistical Aids”, out of 36 suggested books, the present-day Library contains [often multiple] copies of sixteen, with four authors represented by other [updated] works. A number of these books were referred to in the Survey reports as well. Overlap with the University Library in Glasgow is not as pronounced but it is still significant, especially on statistical methods [now held by the Statistics department] and psychological measurements. For example, Lindquist’s book *Statistical Analysis in Educational Research* [published in Boston in 1940] had been used in the Hebridean study in the early 1940s<sup>95</sup> and was referred to by McClelland in his early 1940s Dundee study.<sup>96</sup> and was probably adopted as the general guide for the student in training. Multiple copies of the books on statistical analysis and experimental design by RA Fisher, used across practical areas of work from the 1930s on, and published in the UK, are referenced in the Library. The section on Tests includes copies of Cattell’s guides, a regular Yearbook on tests [by Buros] and 1930s American publications on measurement.

The standards that SCRE, as a nodal point in the network of research leaders in Scotland, generated included those derived from its own projects. So, the 1947 Mental Survey, involving 70,805 pupils, and which was sampled and followed up for the next 16 years, produced a series of definitions or formulas which were to become the new standard for researchers viz. the average size of a class was number of pupils divided by number of full time teachers; the socio-economic status was number of people in the home divided by number of apartments [rooms]; the occupation of parents was determined by a multi-point classification system.

---

<sup>95</sup> Christina A Smith, *Mental Testing of Hebridean Children in Gaelic and English* (London: University of London Press, SCRE publication XXVII, 1948).

<sup>96</sup> William McClelland, *Selection for Secondary Education* (London: University of London Press, SCRE publication XIX, 1942).

Using sixteen Scottish libraries, including public and national libraries as well as university libraries, SCRE was able to indicate where its range of suggested journals was kept. The most widely available were the *British Journal of Psychology*, the *British Journal of Educational Psychology*, the *Quarterly Journal of Experimental Psychology*, the *Journal of Educational Psychology* and other psychological Bulletins and Reviews. The established US journals of general or social educational research, like the *Teachers College Record* or *School and Society*, were much less widespread, and sometimes available only within the SCRE office itself. Templates, as always “recommended”, were produced for book and periodical references.

The 1956 edition of *Aids* extended the range of research topics which should be undertaken, and even distributed them to different groups of partners.<sup>97</sup> First, it listed the Advisory Council's proposals for research, published by it in various reports between 1944 and 1952. It then divided them according to the system level and agency; for example, aspects of educational opportunity could be undertaken by a local research group, and educational method by university departments. Although devised and sorted rationally according to the AC lists, the distribution of tasks and their rationale shifts the Council from its earlier encouragement of research and into hierarchical and ordered sets of authorized work. The known universe of Scottish educational research strains when shifting from network mobilization into bureaucratic lists of agencies and tasks. The earlier endeavour to record Scottish research projects seems to turn into a field of business, finding tasks for people.

---

<sup>97</sup> SCRE, *Aids to Educational Research Comprising Bibliographies and Topics for Research (Revised edition)* (Edinburgh: University of London Press, 1954).

## Conclusion

In one of the few reviews of educational research in the UK, Brehaut, an American scholar, suggested that the UK was behind the US in the organization of its research production in education, its mass production.

Although Monroe et al [1928] in a survey study entitled *Ten Years of Educational Research*, were able to report that the United States had passed through the pioneer period of educational research of educational research and had entered the period of 'quantity production', it is only within the last decade that 'quantity production' may be said to have been reached in Britain. The pioneers of British educational research were at work in the same period as the American pioneers but were slow in developing the numerous research bureaux and graduate chairs of educational research needed to provide for training programmes and career structures in this field.<sup>98</sup>

Brehaut applied the model of US production to the UK and found the latter wanting. However a closer analysis and focus on Scotland would have revealed an alternative method of research production to the US version. A simple but effective network operation, founded upon a significant educational and scientific movement, drew together colleagues and allies in a formal partnership, threaded through with personal and professional friendships [and sometimes something rather less than that!]. SCRE was a virtual laboratory through whose activities, Scotland was mapped and represented; it significantly aided a sense of nationhood, formed through the prism of its work on the testing of Scottish children, and the intelligence of the nation.

Within that network, and closely interwoven with it, the universities, especially Edinburgh and Glasgow, used their advanced research degrees, the B.Ed, to consolidate and extend the scientific and scholarly work needed to research and analyze the data on Scottish schooling, and especially upon intelligence and its testing. To do this work effectively, they

---

<sup>98</sup> Willard Brehaut, "British Research in Education: Some Aspects of its Development," in *Educational Research in Britain, Volume 3*, ed. Harold J. Butcher and H.B. Pont (London: University of London Press, 1973), 5.

used their reading, meetings and communications with American researchers in this field, especially in New York. At the same time as Scotland consolidated its leading edge in educational research in Europe, and did so in a distinctive research culture with its own network organization, it internationalized. The relation between Scotland and the USA, particularly in advanced statistical and intelligence based work, [and particularly with Teachers College, Columbia] was highly significant. It is as if they could not be separated by text, technique or communication even though Scotland then produced a distinctive, different, local version and did not simply borrow it from the USA.

### **BioNotes**

Martin Lawn is a Professorial Research Fellow at the Centre for Educational Sociology, University of Edinburgh. He is a member of the Academy of Social Sciences and the Editor of the European Educational Research Journal, academic journal of the European Educational Research Association. Recent books include: Materiality of Schooling [with Ian Grosvenor] [Eds] Symposium Books [2005] and An Atlantic Crossing? The Work of the International Examination Inquiry, its Researchers, Methods and Influence [2008]

Ian Deary is Professor of Differential Psychology at the University of Edinburgh. His principal research interest is human mental abilities and since 1997 he has been working with his team on follow-up studies of the Scottish Mental Surveys of 1932 and 1947. He is a Fellow of the British Academy, the Royal Society of Edinburgh, and the Royal College of Physicians of Edinburgh. He is a past President of the International Society for the Study of Individual Differences.

David Bartholomew is Professor Emeritus of Statistics at the London School of Economics. He is a Fellow of the British Academy, a Member of the International Statistical Institute, a Fellow of the Institute of Mathematical Statistics and has served as Honorary Secretary, Treasurer and President of the Royal Statistical Society. He has acted as a consultant on a wide range of statistical matters to many governmental and other organizations.

Tables

Table 1

	1918-27		1928-37		1938-47		1948-51	
	N	%	N	%	N	%	N	%
Psychology and Experimental Education ..	88	37.5	325	48.5	354	55.3	373	68.5
Historical and Comparative .. .. .	74	31.5	199	29.7	156	24.4	82	15.0
Method .. .. .	27	11.5	71	10.6	53	8.3	58	10.6
Philosophy and Principles .. .. .	46	19.5	75	11.2	77	12.0	32	5.9
Total .. .. .	235	100.0	670	100.0	640	100.0	545	100.0
Average No. per year ..	23.5		67.0		64.0		136.3	

Table 2

*Numbers of theses tabulated by University of origin  
(Blackwell 1950 and 1952)*

London .. .. .	629	} 78%
Glasgow .. .. .	280	
Edinburgh .. .. .	227	
Leeds .. .. .	216	
Manchester .. .. .	141	
Birmingham .. .. .	101	
Liverpool .. .. .	93	
Oxford .. .. .	74	
Durham .. .. .	70	
Wales .. .. .	49	
Bristol .. .. .	45	
Cambridge .. .. .	21	
Reading .. .. .	20	
Sheffield .. .. .	18	
St. Andrews .. .. .	18	
Dublin .. .. .	17	
Aberdeen .. .. .	16	
Belfast .. .. .	6	
Cork .. .. .	5	
<b>Total .. .. .</b>	<b>2046</b>	

Table 3

	Edinburgh	London
B. Ed [Ed.] MA [Lond]	102	83
PhD	10	57

Table 4

	Edinburgh	London
MA [Lond]		136
PhDs	5	32

Table 5

<i>1946 Guide</i>	Entries	<b>US Origin</b>	UK Origin
Introduction	5	<b>4</b>	1
Sources	11	<b>9</b>	2
Experimental	5	<b>3</b>	2
Statistical Methods	2	<b>1</b>	1
Educational	9	<b>4</b>	1
Tests	10	<b>7</b>	3
Periodicals,	6	<b>4</b>	1
Library Journals	39	<b>32</b>	6

Table 6

Subject	Entries	<b>US Origin</b>	UK Origin
Aesthetics	4	<b>4</b>	
Child Development	1		1
Modern Languages	3	<b>3</b>	
Reading	1	<b>1</b>	
Teaching	2	<b>2</b>	
Statistical Aids	5	<b>2</b>	3
Literary Forms –	5	<b>2</b>	3



Table 7

Total Sources	108	<b>78</b>	25
<i>1946 Guide</i>		<b>72%</b>	23%

<i>1956 Guide</i>	Entries	<b>US Origin</b>	UK Origin
Introduction	30	<b>20</b>	7
Sources	9	<b>2</b>	7
Experimental	10	<b>8</b>	2
Statistical Methods	13	<b>8</b>	5
Educational	12	<b>7</b>	1
Tests	16	<b>12</b>	4
Periodicals, Journals,	9	<b>5</b>	2
Library Journals	45	<b>33</b>	7

Subject	Entries	<b>US Origin</b>	UK Origin
<i>General</i>	2	<b>2</b>	
<i>Aesthetics</i>	4	<b>4</b>	
<i>Child Development</i>	-		
<i>Modern Languages</i>	3	<b>3</b>	
<i>Reading</i>	-		
<i>Teaching</i>	2	<b>2</b>	
<i>Statistical Aids</i>	-		
<i>Literary Forms –</i>	-		
<i>AV</i>	<i>1</i>	<b>1</b>	
<i>Music</i>	1	<b>1</b>	
<i>Social Sciences</i>	3	<b>2</b>	1
<i>English</i>	3	<b>2</b>	1
<i>Encyclopaedias</i>	10	<b>4</b>	4
<i>Presentation</i>	19	<b>9</b>	10
<i>Monographs</i>	4	<b>3</b>	1

[Additional categories for 1956 – in *italics*]

Total Sources 1956	196	<b>128</b>	52
		<b>65%</b>	26%