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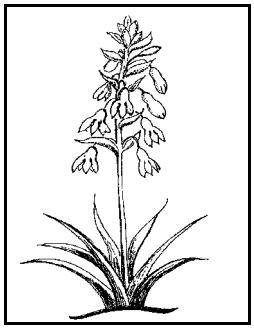

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The Galton Institute

NEWSLETTER

Issue Number 62

March 2007

Grants for Conferences and Workshops

The Institute has now made two grants for conferences and workshops.

The first is a conference on *European Behaviour and Evolution* to be held at the London School of Economics in March.

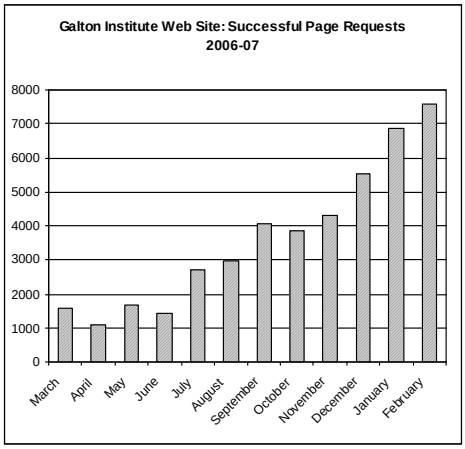
The other is a workshop on *Innovation and Evolution* to be held at the Centre for the Archaeology of Human Origins at the University of Southampton at the end of April.

We hope to include reports on both events in future issues of the Newsletter.

Council is keen to sponsor more conferences and workshops of this sort. Any assistance from members with publicity, especially placing posters which can be obtained from Betty Nixon, will be greatly appreciated.

The Galton Institute Website

As can be seen from the graph below, the popularity of the website continues to grow—and visitor figures for March are expected to break records again. But we are getting very little feedback from members. So, please have a look at the site and tell us what you think. You can email or write to Betty Nixon (betty.nixon.t21@btinternet.com).



The Birth Control Trust

The Institute acts as trustee of the Birth Control Trust. The object of the Trust is the alleviation of poverty by providing practical birth control advice. In recent years the Trust has fulfilled this object by providing financial support for projects run by other organisations, particularly Marie Stopes International.

As will be seen from the regular progress reports that have appeared in the Newsletter, the Trust has made grants totalling £240,000 to MSI over the last thirteen years to support projects in Indonesia, Vietnam, India and Ethiopia.

Our commitment to the project in Ethiopia ends this year and the Trust will be looking for proposals for projects that it might support in future years—we expect around £10,000 to be available each year.

We are looking in the first instance for expressions of interest from those who might be interested in our support. We would like to receive these, which should be no longer than 500 words, by 30 September 2007. The Trustees will then consider the expressions of interest and, depending on their number and quality, invite some or all of those submitting them to prepare more detailed applications for funding. This will avoid the risk of a large number of organisations putting costly effort into preparing detailed proposals for relatively modest levels of funding, only one of which will be successful.

Proposals can be for projects in the UK or abroad.

Potential applicants should check the Institute's web site regularly in case of changes to the application procedures or amounts available.

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The Plight of the Deaf in Britain, USA and Germany from 1880s to 1930s: a comparison of the social, educational and political links with the eugenic movements

Barrie H. Newton

1.0 Introduction

This paper presents a study into the social, political and educational attitudes towards deaf people during the period from the 1880s to the 1930s. This period is crucial because during the earlier years of the period attitudes to concepts of 'normality' and heredity were increasingly influenced by post-Darwinian ideas of reproductive selection; the handing down from generation to generation of 'good' and 'bad' human traits, and the fear of the degeneration of the qualities of the human race. At the forefront of the influence was the growing eugenics movement, originated by Francis Galton in London in 1883 and then more formally by the founding of the Eugenics Education Society in 1907. At the same time, theories of heredity were rapidly changing at the turn of the nineteenth century especially when Gregor Mendel's classic, but forgotten, paper of 1866, on the heredity of the pea, was rediscovered in 1900 and its significance promoted by Bateson. The ensuing conflict between traditional eugenicists (who followed a biometric approach to heredity) and the new 'Mendelism' affected social attitudes to deafness in an important way. The deaf were no longer automatically included with the mentally ill, although the situation took several years to clarify. This occured mainly through the intervention of key people such as James Kerr Love, Alexander Graham Bell and Edward Gallaudet .

Although they never consisted of many active members, eugenic movements were widespread in most Western European countries, most particularly in Britain, the USA and Northern Europe especially Germany. Thus we see a significant cross-fertilisation of eugenic ideas amongst these countries particularly during the early years of the twentieth century. As with many social movements of this kind, the impetus resided in just one or two 'driven' individuals who were invariably in positions of financial, academic or political power; these people will form the 'linchpin' of the arguments in this paper.

The subject of the deaf in relation to post-Darwinian, main stream eugenics, is one that the author believes has not received satisfactory coverage in modern literature. For example, in the modern classical study on eugenics and society by Kevles, the deaf are mentioned only briefly and by Soloway, not at all (Kevles, p85 and p332). Yet there were many people who were devoting their lives during this crucial period to clarifying the nature of deafness and its many different origins. Most cases of deafness were not hereditary at all but a direct result of the many and often fatal, infectious diseases such as syphilis, meningitis and scarlet fever that were prevalent during this period due to poor hygienic living conditions. These diseases mainly affected infants of poorer families in the first weeks of life and were largely left untreated. Deafness was therefore the result of a confusing mix of non-hereditary illnesses with only a small percentage truly hereditary. Horst Biesold's book *Klagende Hände* published in 1988 was not widely available outside Germany but has recently been translated into an English edition. *Crying Hands* is an account of the treatment of the deaf before and after the 1933 National Socialist government came to power and of the relation with government-controlled eugenics. It remains the only widely available independent text of this period (see next section on methodology). A recent book edited by Ryan and Schuchman of Gallaudet University brings together additional material but also uses Biesold's work extensively.

I hope to show that whilst the deaf were eventually treated as separate from the 'social problem group', it was not always so. It took the influence of people like Alexander Graham Bell and Edward Gallaudet in the USA and James Kerr Love and Macleod Yearsley in the UK to understand the problem and, arguably, avoid the disastrous consequences that overtook the deaf in Germany later during the 1930s/40s. In no small part was political idealism in each country – laissez-faire in Britain, authoritarian in Germany – a significant influence in society's attitudes to the deaf. Whereas nowadays repressive measures like compulsory, or even voluntary, sterilisation of deaf people are considered abhorrent and would not be open to discussion, there remains a lively debate as to how the deaf should be educated and the best way to integrate them into society – the old arguments of 'oralism' versus 'signing' remain as strong as ever they were at the turn of the nineteenth century and are arguably, a legacy of earlier eugenic influences which are still at work.

1.1 A discussion of the Methodology used in the study

The major issues to be addressed, and which governed the methodology of the study, are:

A) how was deafness understood scientifically, and how strong was the hereditary factor believed to be and did this understanding change during the period,

B) to what extent were the deaf, in the three countries, believed to belong to the so called 'social problem group' and were the deaf treated any differently to others in this 'group', such as the blind, the 'feebleminded' or the 'epileptic', and

C) was there conflict or co-operation between the eugenics movements on the one hand, and social workers, the medical profession, teachers of the deaf and heads of deaf establishments on the other; were there differences during the period in the three countries, and to what extent was treatment of the deaf politically motivated?

This set of questions entailed an investigation of the archives of the Eugenics Education Society, their house journal the Eugenics Review, Marie Stopes's papers concerning requests on fitness for marriage, both official and private and the Archives of the Royal National Institute for Deaf People (see Note) which holds extensive copies of early work on the deaf, both official and unofficial in Britain and the USA. Of particular interest was the official position of influential members of these organisations and the identity of the key players on the above mentioned issues. Were they successful in promoting change in the attitudes of government, the medical profession and educators over the 60 or so years of the period of this study? It cannot be said that the survey of the archive material, discussed above, has been exhaustive or extensively corroborated but it is believed that there was sufficient material for initial answers to the main issues to be given. Furthermore, Biesold's classic work has been used for the story about

the situation in Germany. This work represents a graphic account of the plight of the deaf in that country during the 1930s and 1940s and it is based on many original documents and first hand interviews. However, it is a translation of an originally academic study and arguably gives the impression of 'naming–and-shaming' individuals within the German teaching and medical system rather than an unbiased analysis of the reasons behind the treatment of the deaf. To that extent Biesold needed to be treated with some care.

2.0 Alexander Graham Bell; inventor, educator and benefactor of the Deaf and eugenicist

As background to this section a brief history of Alexander Graham Bell's formative early years as a prolific inventor and educator of the deaf, is given in APPENDIX 1. Bell provided a significant contribution to our present discussion of the relation between eugenics and the deaf in the USA and Britain in the critical years before the First World War. Crucially, Bell began to publicly express his ideas about the social implications of deafness and how, in his opinion, it might possibly cause a new race of humans if not checked. These ideas were in sympathy with those of the new 'eugenics' of Francis Galton in Britain who, later, commented favourably on Bell's research methods into the deaf (Lane, p358). Bell was in no doubt that deafness was a dreadful affliction, and believed it to be invariably inherited from generation to generation in a way he was not entirely sure he could explain. It is believed by some writers that whilst Bell always showed consideration and kindness towards the deaf, he nevertheless gave the impression of being more concerned about the effect deafness had on society rather than the happiness and wellbeing of the deaf themselves and their positive value to society (Winefield, p139). In his view, if deafness could be eliminated completely, society would be a much better place and be subjected to much less of a financial burden in terms of taxes paid by the fit. This typically eugenic view towards the deaf was brought to a head when he published the results of his own studies and those of E A Fay (Fay, 1898), who had helped him earlier assemble his statistical analyses, on the pedigrees of families in the USA that had deafness from generation to generation. *Upon the formation of a deaf variety of the human race* was published in 1883 in the Memoirs of the American National Academy of Sciences. In it Bell attempted to demonstrate how, if the situation remained unchanged, the deaf would gradually, but surely, separate out into a new variety (in Darwinian terms) of human species. This was the work that Francis Galton had referred to by saying that Bell "had shown how easily a marked variety of mankind might be established by a system of selection extending throughout two or three generations" (Lane, p358). However, as may be expected, the paper caused a significant stir amongst the deaf both in the USA and in Europe, because Bell and his publishers had ensured its wide circulation by reprinting many extra copies and sending them to as many medical people, heads of deaf establishments and other influential people concerned with the deaf as they could (Lane, p357).

Because of the stridency of the conclusions, Bell's paper struck at the very core of how the deaf thought of themselves and how they had lived and been taught for many years. In an ideal world, Bell argued in concluding the *Memoirs*, the deaf should avoid marrying the deaf. Indeed he even allowed himself to suggest that legislation forbidding marriage of the congenitally deaf "would go a long way towards checking the evil" (Bell, p45). If these measures were unacceptable to the deaf then less repressive measures, Bell claimed, or "preventative" measures may be more successful. These were: desegregate deaf teaching establishments from the environment and discourage the formation of deaf social clubs which only served to encourage the deaf to mix with their own kind and marry. Then he suggested the abolition of sign language since this was foreign to normal speaking people and tended to discourage the acquisition of normal speech intelligible to all. Finally, he wanted to discourage the training and employment of teachers who were deaf themselves since this also discourages "…articulation and speech-reading, and that sometimes causes the disuse of speech by speaking pupils who are only deaf" (Bell, p48). Bell was keen to stop what was occurring naturally and officially encouraged in schools by standard educational practice in the USA and in Britain at that time. Thus the old debate between oralism and signing, or 'total communication' as some teachers of the deaf called it, because it involved a certain amount of vocalisation, was resurrected again. The added vigour of eugenic pressures from Bell ensured the debate continued vigorously. The debate was joined in the USA by followers of Edward Miner Gallaudet. Gallaudet was a respected and influential educator of the deaf but no eugenicist. Bell and Gallaudet's argument became a 'cause célèbre' in 1891 when Gallaudet requested financial backing from the US Congress so that Gallaudet College could increase its training capabilities. Bell suspected, many believed quite incorrectly, this was intended to train deaf students to become teachers of speech to deaf pupils which Gallaudet strongly denied. Unfortunately for Gallaudet, Bell's intervention caused a considerable reduction in the Congress grant. After years of continuous argument Bell and Gallaudet finally agreed to a reconciliation and to "bury the hatchet", but Gallaudet said afterwards "but I know where the hatchet is buried!" (de Lorenzo, p443). Bell came under increasing pressure to explain his views to the deaf world. This he often did, but the damage had already been done and he only succeeded in reinforcing his eugenic stance. Even a special invited lecture to Gallaudet College students and lecturers failed to convince them that Bell would in any way change or modify his views. Searching through press cuttings during this period, especially the specialised newspapers like the British Deaf and Dumb Times, revealed that many people disputed Bell's claims that the deaf always beget the deaf. A typical example of the correspondence was the head of a Deaf and Dumb Mission in Wales who in 1889 reported that "During 20 years of my missionaryship I have never known a single case of a deaf and dumb couple having deaf and dumb offsprings, whereas I do know of hearing parents having four, three, two or one deaf and dumb children in their families" (Deaf and Dumb Times, 1889). Often these letters claimed that consanguineous marriages were the real culprits, without any substantial supporting evidence except personal impressions. Much later Bell, perhaps in recognising he was alienating the very people he claimed to support, began to say that it would be better if the deaf married the hearing from families with no evidence of deafness so that the hereditary nature would be "weeded out" (Kevles, p85). Before 1900 this would have seemed an appropriate suggestion, but fallacious if Mendel's theory of dominance/ recessiveness was correct.

3.0 Early Mendelism and

theories of hereditary deafness at the turn of the nineteenth century

The studies of Fay and Bell, discussed above, were carried out in a pre-Mendel era – at least Mendel's experiments of 1866 were unknown in Western European societies at that time. Theories of heredity up until 1900 were invariably based on the study of family pedigrees and the 'science' of biometrics: that traits, good or bad were a matter of a statistical analysis of how these traits had been handed down in the past and hence how they will be passed on to future generations. Galton's eugenics, and to a significant extent that also of Bell, was based on a white, intellectual middle class, arguably prejudiced, view of Darwin's theory of natural selection applied to humans in a Victorian culture, without a real understanding of the science involved. The most that could be said, scientifically, was that deafness like other traits, 'ran in families'. Bateson's 1900 discovery of the lost experimental study of the selective reproduction of peas by Gregor Mendel allowed a chance for heredity to begin to be discussed in the light of a more credible, albeit simplistic, theory (OU Study Guide, pp53-60). In the case of hereditary deafness this began to happen soon after Bateson's paper promoting Mendel's work. It had been noticed in the early pedigree studies of deaf families both in the USA and Britain, that in some cases deafness occurred as a result even of the union of hearing parents. Sometimes the deafness skipped generations. In other families the deafness appeared regularly generation after generation with some hearing offspring also appearing (Jones, p28 and 29 and Study Guide, p60 and 61). Hereditary deafness thus began to be interpreted in terms of Mendel's recessive/dominance theory that he had demonstrated for the pea. Some researchers thought they had noticed the ratio of about 3:1 in the deaf family pedigrees that Mendel had found for the phenotype pea skin texture. This ratio was Mendel's Law of Segregation for the occurrence of dominance over recessiveness in the second generation (F2) of pea reproduction (Study Guide, p62). NE Groce in her discussion of the *Genetics of Vineyard Deafness* claims, although somewhat speculatively, that an unpublished note had been found in Bell's papers recording his investigation of inherited deafness in the isolated community on the island of Martha's Vineyard in the USA during the 1870s and 80s. Bell had posed the question to himself as to why had he noticed a similar appearance of deafness in the offspring of some families where deafness was 'obviously' inherited (Groce, p48 and Jones, p32). Was Bell beginning to see a hitherto unrecognised scientific trend amongst his many hundreds of families? However, the significance of Mendel's work was that all the eugenic prominence that was given in some US states to sterilisation of the deaf (to which Bell was sympathetic for eugenic reasons) in order to stop deafness spreading following marriage, failed to take into account the strong possibility that the hearing could inadvertently carry the deaf 'recessive gene'. One would therefore have to sterilise all the hearing offspring in the family as well, just to make sure!

It is instructive at this stage to pause and reflect on how crude the science of hereditary deafness was at the turn of the nineteenth century. Twelve years ago a survey paper (1994) in *Trends in Genetics* showed that many different genes are involved in the development of the human ear from birth to adulthood and that for some types of deafness the relevant genes have yet to be identified and considerably more research work is still required (Steel and Brown, 1994). As recently as 2004, researchers at The Scripps Research Institute, San Diego and the Vollum Institute at the Oregon Health and Science University in the USA have discovered that mutation of a specific gene – cadherin 23 – could be a direct cause of certain types of deafness (Medical News Today, 2004).

4.0 James Kerr Love; aural surgeon and aurist

By the end of the nineteenth century Bell, Galton and others of similar eugenic beliefs in the USA and Britain alike were causing considerable concern amongst deaf people that they were beginning to be seen as part of the so-called 'social problem group' along side the mentally sick. The question was continually being asked by the eugenicists, why should the fit of society pay extra in taxes for this group of unfortunates? Although never a large group of people the eugenicists were very influential and from 1907 to 1910, when the Eugenics Education Society in Britain and the American Eugenics Record Office, respectively were founded they began to influence the medical profession and government. Arguably as a direct response to this perceived threat, in Britain at least, the National Bureau for promoting the General Welfare of the Deaf was founded in 1911 by a deaf merchant banker, Leo Bonn about whom very little is known (see Note). Amongst the objectives Bonn and the founders had for the Bureau none was more telling than the following: "… to benefit the sufferers, to render their lives happier and more endurable and to prevent them in any way becoming a hindrance to the progress of society" and to fund and encourage research into "… the bearings of heredity and consanguinity upon deafness…" (National Bureau, First Annual Report, 1912). Bonn, now President of the Bureau, undertook to finance the work of the Bureau for two years until it was able to begin funding itself, again an action he, arguably, found necessary to get started as quickly as possible. One year later the following ominous report was given; "… unfortunately there was a very real general opinion that the deaf were feebleminded, indeed just a peculiar type of imbecile…". In commenting on the progress of the Mental Health Act which had successfully passed into law that year, the second report goes on to say "… ignorance of the true condition of the deaf did however constitute a grave danger that a certain proportion might be wrongly certified as mentally defective under the Act unless special protection was afforded to them in the administration of the Act" (National Bureau, 2nd Annual Report, 1913).

With these real fears in mind it was no wonder that the National Bureau in 1912, invited a leading aural surgeon and aurist, Dr James Kerr Love of the Glasgow Royal Infirmary, to give a set of lectures at the National Bureau financed by Bonn before a largely invited audience including medical consultants and practitioners, deaf teachers, heads of deaf establishments and other influential men on the present state of medical knowledge on the causes of deafness and its prevention. Kerr Love was no eugenicist; during the first of four lectures he referred to the actions of the most vociferous eugenicists at that time as "closely allied to quackery" and their art as "pseudo-science". He continued, "… they are like doctors who prescribe before they have made any study of the case." (Kerr Love, p5). Kerr Love was, however, very complimentary to the pedigree statistics of Fay and Bell in the USA, though obviously not to Bell's eugenic interpretations, and he used some of their results as well as much of his own (APPENDIX 2 shows a copy of

the circular he sent to heads of deaf schools and teachers asking for information on a number of key issues, in Britain, USA, Holland and Denmark before he gave the lectures). Whether or not Kerr Love had endeared himself to the Eugenics Education Society as a body is nowhere recorded but soon after his lectures Dr Macleod Yearsley, another well known medical man who was sympathetic to eugenic ideas, wrote a summary of the situation of deafness and its prevention in the Eugenics Review. This generally praised Kerr Love's research work and conclusions on the causes and prevention of various forms of congenital and acquired deafness (Yearsley, pp120-121). With the knowledge that the articles published in the Review during this period were notable for being closely edited by the Society (especially the president – at this time Leonard Darwin who had taken over from Galton in 1911) it could be reasonably argued that Yearsley's paper was representative of the Society's philosophy on deafness. The only reservations the society seemed to have was to add an editorial footnote in which the editors appeared to clarify a point made by Yearsley concerning an interpretation of Mendelian recessiveness in hereditary deafness and marriage. Perhaps Kerr Love's arguments were instrumental in modifying most eugenicists' extreme views concerning the deaf (Yearsley, p129).

Kerr Love's lectures placed on record for the first time the complex nature of deafness and its many causes of which true hereditary deafness was only a small part and, significantly, that deafness no way equated to a mental illness *per se*. The key elements of his lectures are summarised in APPENDIX 3 for reference. They, arguably, pointed to the way that deafness was to be treated during the forthcoming years when the Eugenics Society and the medical profession became involved with proposals for setting up marriage health certification and proposals for voluntary sterilisation in the 1920s and 1930s of which deafness was a small, but significant part (see section 5). Two infectious diseases were particularly the target of Kerr Love's attack on the causes of deafness, syphilis and meningitis (see APPENDIX 3). One point of diagnosis which Kerr Love emphasised that was not being performed satisfactorily enough by general practitioners at that time was a thorough and routine investigation of any discharges from the ear which these diseases caused in their early stages.

For truly hereditary deafness, Kerr Love held opinions similar in practice to Bell and others, with the crucial exception that Kerr Love would have argued that he was advocating a much more thorough diagnosis as to what was hereditary and what was not, and that careful and serious consideration was required in marriage by those suspected of truly hereditary deafness. However, the main difference was that he argued very much from the Mendelian approach with a strong preference for individual counselling advice and persuasion rather than government edict. Indeed, this later became the kind of advice that Marie Stopes was to give to would-be-marrieds, that marriage was acceptable but if deafness was found to be in the family history then one child followed by a long period of watchfulness for any signs of deafness appearing was advisable before further children were conceived (Stopes, 1919).

5.0 The Deaf in relation to Pre-nuptial Health Schedules and Sterilisation in the 1920/30s

After the traumas of WW1 the eugenic arguments in most countries turned to what measures, in reality, could be used to address the situation of the perceived, uncontrolled, spread of illnesses that were thought to be hereditary. By 1914 sixteen states the USA had already passed laws for the sterilisation of the mentally ill, including deaf people, though often they were applied half-heartedly (Lane, p359). However, by the late 1920s and early 1930s many eugenicists in the USA and Britain began to doubt the value of any scheme of compulsory sterilisation especially as the science behind the hereditary nature of mental illnesses and defects such as deafness was not properly understood. The Brock report of 1934 and Myerson report of 1936 published respectively in Britain and the USA indeed both concluded, in Kevles' words; "there was no established case for compulsory sterilisation, eugenic or otherwise" but that "sterilisation might be warranted in a few disorders that were demonstrably genetic [here hereditary deafness and blindness was implicitly implied] in origin" (Kevles, p167). The two campaigns that the Eugenics Society, under the reforming influence of C P Blacker, championed in these years namely, the campaign for voluntary sterilisation and the Pre-Nuptial Health Schedule, largely failed to make headway in Britain. The former failed in 1938 as Church's abortive parliamentary Bill was denounced by MPs as being "anti-working class" (Kevles, p167), and the latter failed to receive the general support amongst the medical profession that was hoped for. In relevance to this study, the Schedule contained questions and medical examinations relating to the medical history of any family deafness and, arguably, reflected the earlier influence of Kerr Love's suggestions, for example, early reporting of the occurrence of ear discharges of any description. In fact the general response by GPs and the public (those about to embark on marriage) remained very patchy and few outside the eugenicists really believed in its value (Proposals For Pre-nuptial Health Certs.,1934-36). At the same time the political will of the British government was, significantly, rather more influenced by the public disquiet of the economic depression of the 1930s and therefore support was nowhere sufficient to carry through any measures, whether voluntary or not that could be construed as repressive and against the interests of the poorest members of the working classes. This was, indeed, the period of the significant growth of the British Labour Movement.

The same could not be said for the political will of the new German government of 1933 through which the deaf, amongst others, suffered in the most cruel way. Biesold shows that within two years of achieving power and as part of an integral, eugenically driven, policy of racial hygiene and Aryan superiority, the National Socialist government enacted two repressive laws that directly affected deaf people: the 1934 Act, *Law for Prevention of Offspring with Hereditary Diseases*, and the 1935 Act requiring compulsory marriage health certification from both partners. The former Act specifically named hereditary deafness as one of a large number of its proscribed hereditary diseases, which also applied in the later, strengthened law which forbade marriage if any partner had the "disease" or if it was suspected in other members of the family. Biesold describes in some detail how, from that date, general practitioners, teachers of the deaf and heads of deaf schools and institutions, began to denounce their patients/pupils to the authorities for subsequent compulsory sterilisation. This practice was energetically enforced by government pressure and did not cease until the end of WW2. Indeed Biesold provides some evidence that euthanasia was carried out on some

deaf patients (Biesold. pp160-170). Biesold also shows that little attention was paid by the authorities to whether the deafness was hereditary or not – any hint of even 'hard of hearing' within the family was denounced. In most cases the person was even sterilised against their will despite persistent protest. These eugenically and politically driven measures were what Huxley said privately to Blacker, were the result of "mere pseudo-science" and additionally warned him that the Eugenics Society must not become "tarred with the same brush" (Macnicol in Offprints 15, p179). An echo, perhaps, of Kerr Love's similar statement made over 20 years earlier.

6.0 Assessment and Conclusions.

In drawing conclusions as a result of the present study the three major issues discussed in Section 1.1 will now be taken and assessed sequentially. Then the limitations of the study will be highlighted as a result of the assessment with some suggestions given where the study might continue.

6.1 Assessment of the three main issues and the methodology.

A). Bell's understanding of deafness as exemplified by his *Memoirs* paper reflected Galtonian ideas of a biometric, statistical, analysis of pedigrees of generations of families where deafness was believed to be invariably handed down. Thus the interpretations were that what has happened in the past will happen in the future unless eugenic restrictions on, for example, marriage or a system of sterilisation were imposed. Bell feared a new race of deaf-mutes might prevail. After 1900, Mendel's model of recessive and dominant 'germ plasm' began to modify the biometric 'science'. This was seen by people like Kerr Love and Yearsley as relevant to hereditary deafness because many instances of 'generation jumping' and deaf offspring from unions of hearing parents had been seen in the studies of pedigrees. Crucially, however, Kerr Love pointed out quite clearly that hereditary deafness was only a small part of the problem; the untreated but eminently preventable infectious diseases that destroyed the middle and inner ear, which mainly affected the poor classes of society, deserved greater attention than a purely eugenic approach based, as Kerr Love and Huxley (much later) said, on "pseudo-science". Over the remaining years of the period of this study the science of deafness, arguably, remained little changed until post second world war genetics and the growth of biochemistry provided a much greater but still incomplete scientific understanding of the complexity of hereditary deafness.

B). In reality the deaf in Britain were never seriously considered to be part of the problem of the mentally ill except, perhaps, by extreme eugenicists, but some deaf had mental problems for other reasons (advanced meningitis, for example). The National Bureau in Britain, however, feared they were being classed, as a group, as being mentally deficient because deafness seriously effected educational progress (compared to the blind, for example) and they would be classed as 'backward' and be treated that way by the 1913 Mental Health Act. The newly founded National Bureau was sufficiently concerned to invite Kerr Love to attempt to redress the situation publicly, which he did very effectively in a set of four lectures and, arguably, succeeded in bringing the Eugenics Education Society to his point of view. He attacked the extreme eugenicists and made it clear that the major problem to be considered was early diagnosis of infectious diseases and considerable improvements in the education of the poor who were seen to be the most vulnerable in society.

In Germany, after 1933, the deaf and not just the hereditary deaf, became part of the politically 'unfit' and had to suffer denunciation from all quarters followed by compulsory state sterilisation as well as the burden of premarriage certification. In the USA, although some states around the turn of the nineteenth century quickly adopted a programme of sterilisation of some hereditary deaf, it was not widespread. In Britain, the deaf (as did the mentally ill) escaped these repressive measures due to a general acceptance that the science was inadequate to justify them plus political pressures driving the government more towards solving the economic problems of the 1930s depression and a fear that repression would penalise the poorer working classes. However, the institutionally mentally ill were kept strictly sexually separate.

C). In the USA and to a large extent in Britain (where Bell often appeared as expert witness on UK government committees), Bell's 1883 *Memoirs* fuelled a long-standing conflict within deaf education, that is between 'oralism' and 'total communication (signing plus minimal vocalisation)'. We have discussed how Bell's continued insistence on a eugenic approach to the problem of deaf education showed an interest in the needs of society at the expense of individual needs. This division in educational philosophy remains today partly as a legacy to nineteenth century eugenic ideals. One could argue however that, after 1914, the more reform minded eugenicists in Britain began to agree with Kerr Love and Yearsley as to the true nature of deafness. A less repressive approach to the prevention of deafness, particularly true hereditary deafness, turned people away from measures like sterilisation and marriage certification. Although popular in other countries of Europe and the USA, in Britain they failed, not only due to the lack of political will of the government who believed, amongst other reasons, that repressive measures were against the interests of the working class but also because influential people began to recognise that the science of heredity was inadequately understood. In Germany there was always sympathy with the sterilisation measures adopted in some states of the USA at the turn of the nineteenth century (Biesold, p15). After 1933, however, there was a new culture of 'race purity' and a vigorous political will to take an extreme eugenic view of the 'unfit'. The deaf were in the unfortunate position of being at the mercy of over-zealous teachers and doctors who were ready to denounce them to the state-run sterilisation programme.

6.2 Limitations of the Study and suggestions for further work.

Several questions still remain unanswered.

1. Were Bell, Gallaudet, Kerr Love, Leo Bonn and Yearsley the only major players in the fight for the interests of the deaf at the turn of the nineteenth century?

2. For the situation in post 1933 Germany, were there other primary sources that could corroborate Biesold's analysis? The archives of people such as, Eugene Fischer and Alfred Ploetz, both well known German eugenicists, needed to be investigated (Study Guide, pp84-85 and Biesold, pp3-4). However, as Biesold found when he began his study, many

of the main people involved had destroyed evidence when they realised his study was serious and could gain wide circulation and he had to rely upon evidence from victims and their families for a large part of his work (Biesold, for example Preface and p36)

3. What was the nature of the sterilisation programme in the USA and how strong was the link between the deaf and the local eugenicists in each State? The intriguing question here is; why did some States opt for sterilisation programmes whilst others did not and how wide was Bell's actual influence?

4. In the methodology adopted for this study, a more thorough investigation arguably could have been made of publications in the national press and the in-house deaf publications in the three countries. What, indeed, was the medical press (The Lancet in Britain, for example) saying about the deaf and heredity during this period?

7.0 Acknowledgements

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NOTE

The National Bureau for Promoting the General Welfare of the Deaf was founded in London in 1911 by Leo Bonn and became the National Institute for the Deaf (NID) in 1924. In 1958 the Duke of Edinburgh became its patron, in 1961 it became the Royal National Institute for the Deaf (RNID) and in 1992 was renamed the Royal National Institute for Deaf people.

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APPENDIX 1: A Brief Biography of Alexander Graham Bell as it affects this study

(Winefield, pp135-141 and Lane, pp352-363).

Bell's life was shaped very much by his immediate family. He was born in Edinburgh into a family of elocutionists; both his grandfather and father Melville Bell, were pioneers in the early nineteenth century of a system which eventually became used for teaching the deaf to vocalise. This was a system in which speech is represented as symbols. The younger Bell became proficient in this system at an early age and used to help his father at public demonstrations. His mother, and much later, his wife both became deaf following each contracting scarlet fever as infants but after acquiring early speech. Bell was somewhat precocious as a child and very creative. He was a prolific inventor from the age of 13 and remained so for most of his

life. He eventually became a teacher of the deaf in Scotland using the Visible Speech system and then accepted an invitation (offered earlier to his father who, however, turned it down) to teach the Visible Speech system at a school for the deaf in Boston, USA in 1870 when only in his early twenties. At about this time he began experiments in his spare time with electrical devices and in 1872 he obtained the patent for a Multiple Telegraph invention, followed soon afterwards in 1876 by the well known invention of the Telephone following experiments with the action of sound vibrations on the ear drum he obtained from a cadaver (Lane, p352). By virtue of the initial successes of the Bell Company which was set up to exploit the Telephone commercially, Bell himself became a very rich man. He left the running of the Bell Company to others and was able to devote a large part of his time to educating the deaf and setting up and funding organisations like the Volta Bureau (an American organisation with some similar objectives to the National Bureau in Britain) to carry out research into deafness and education of the deaf and publicising his eugenic views.

APPENDIX 3: A brief summary of key elements from Kerr Love's four lectures to the National Bureau on the causes and prevention of deafness

(Kerr Love, 1912/1913)

Kerr Love claimed that the accepted division of deafness into only two major classes, congenital and acquired had largely presented a confused situation to past researchers, including by implication, Bell himself. Acquired deafness was caused, usually accidentally, due to working conditions or by other, non-hereditary effects such as the onset of bone diseases, sometimes caused by environmental effects. For example, the lack of iodine in the diet which was not generally appreciated at that time caused the tiny tympanic bones to deteriorate (Jones, p31). Acquired deafness could occur at any time in later life. Congenital deafness, on the other hand, was subdivided by Kerr Love into sporadic deafness where no hereditary nature could be detected and which mainly occurred at birth or in early infancy, and truly hereditary deafness which, it was believed, was handed down by a recessive mechanism similar to that described by Mendel. Kerr Love stressed that sporadic deafness was, in his experience as a surgeon, the largest class by far and, what was crucial, was eminently preventable. Sporadic deafness was usually caused by contracting one or more of the infectious diseases, syphilis, meningitis, scarlet fever, mumps and measles which can attack the sensitive membranes of the inner and/or middle ear if left untreated. It was this point that Kerr Love stressed; the problem was that invariably these highly infectious diseases remained untreated for far too long, and especially amongst the poorer classes of people. To dramatically reduce deafness, the task therefore was to eliminate these diseases by their early diagnosis and treatment and above all to improve education to improve the living conditions of the poor and their attitudes to infectious diseases – a challenge to the medical profession and social workers. At the beginning of the twentieth century the major worry was the increasing occurrence of syphilis and it was this sexually transmitted disease that Kerr Love wanted above all to eliminate. If left untreated, syphilis was eventually fatal, but well before that it attacked particularly sensitive organs especially the inner ear and the brain. Furthermore it was invariably transmitted via sexual intercourse and therefore passed on to any offspring. The confusion, therefore, with truly hereditary deafness via 'genes' (Kerr Love called them 'germ plasm' – the usual term at the time) in the early studies of pedigrees can be appreciated. The transmission of syphilis was via "…a micro-organism called the spirochaete pallida…" which attaches itself to cells in the blood, which Kerr Love described in his lectures and which had already been identified under the microscope by medical researchers by that time (Kerr Love, p36 and Jones, p26). Another particular important disease causing deafness in the middle and inner ear was meningitis which was often a consequence of syphilis.

APPENDIX 2: Copy of Kerr Love's circular sent to heads of deaf schools etc (Kerr Love, p25, with kind permission of the RNID)

650 SHIELDS ROAD,
GLASGOW.

February, 1912.

Circular to Head Masters of Institutions, and to Teachers of Day Schools for the Deaf.

DEAR SIR,

By a curious coincidence the writer has been asked by the two great Bureaux which exist for promoting the Welfare of the Deaf: the American Volta Bureau and the English National Bureau, to take up the question of the Prevention of Deafness. The requests came within a few weeks of each other, and were entirely unconnected. Only one conclusion can be drawn from this coincidence, i.e. that the time is ripe for the consideration of this large and important subject. Whether public opinion is ripe or not, the minds of those who are thinking most deeply about the deaf and who are most anxious to help them, are turning in the direction of prevention.

As a worker for the deaf, your help may be asked by the writer from time to time. He has always found teachers of the deaf not only the most willing, but the most capable students of the deaf child, and he is sure that teachers will be amongst the first to take an active share in devising wise measures for prevention. The subject is so large and so involved that much preliminary study and inquiry must precede practical measures. For the purpose of this inquiry the deaf should be divided into three classes :—

1 Those whose deafness is undoubtedly acquired after birth.

2 Cases of sporadic congenital deafness. These may not all be congenital, some may have occurred during the first year or even as late as the second year of life. For both teaching purposes and for this present purpose, these have to be classed as congenitally deaf. The feature of these cases which is of importance here, is that there is no marked history of deafness either in the direct line or in the collateral branches of the family.

3 True hereditary deafness. Amongst children this is always congenital, but its distiuctive feature is that the family history always shows the deafness in the direct line, parents or grandparents, or in the collateral branches of the family, brothers or sisters, uncles or aunts, or cousins.

Keeping this classification in view, will you be so kind as to say :—

1 In which of the above class or classes do you find most mentally defcotive or very backward children?

2 In what class or classes do you find most children in poor physical condition?

3 In what class or classes do you find that the highest family death rate has occurred, i.e. amongst the brothers and sisters of the deaf child?

4 If there is a medical officer attached to your school, please ask him to say how many children have keratitis or Hutchinson's teeth? (In answering this query the total number of children in the school should be given, as well as the number of children affected.)

The writer will value your general impressions or opinions on these subjects, but in order to give uniformity to the information desired, the greatest value will, of course, attach to a statement of the conditions existing among the children at present in attendance in your school. The writer would be greatly obliged by your sending your replies to the questions before April 1st, 1912.

Yours ever,

Barrie H Newton obtained an honours degree and doctorate in Electrical Engineering from the University of Sheffield and spent 35 years in the defence industry in research and development. Following his retirement he obtained an honours BA degree (2004) in Humanities specialising in the history of science, technology and medicine from the Open University. His interests now are in the social implications of genetics, especially as it effects the physically and mentally disabled. He is a Chartered Engineer and member of the Institution of Engineering Technology and the Galton Institute. This paper is a modified version of a study assignment presented for the module, "Good Breeding : Science and Society in a Darwinian Age", as part fulfilment of the BA degree.