impressions on this point are almost valueless. Every observer is biased by the frequency or rarity of such marriages amongst his immediate surroundings.

My own opinion is that the evil has been often much exaggerated, but that there are nevertheless grounds for asserting that various maladies take an easy hold of the offspring of consanguineous marriages.

My paper is far from giving anything like a satisfactory solution of the question; but it does, I think, show that the assertion that it has already been set at rest, cannot be substantiated.

The subject still demands attention, and I hope that my endeavour may lead more competent investigators to take it up from some other side.


2 Compare this with 1.25 deduced from Pall Mall Gazette.

3 The circulars were ready stamped for return, which would induce many to return them by saving trouble.

4 I may mention that Mr. Clement Wedgwood made very careful inquiries for me concerning 149 marriages of skilled artisans in the Potteries, and did not find a single case of first-cousin marriages, and only three where there was any kind of relationship between the husband and wife. He was further assured, that such marriages never take place amongst them.

5 “Studj sui Matrimonj Consanguinei.” Milan 1868.


Commentary: A Darwin family concern

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‘I’m not quite sure that it’s a good thing for cousins to marry’, remarks Dr Crofts in Trollope’s The Small House of Allington, published in 1863. ‘They do, you know, very often, he is reminded, ‘and it suits some family arrangements’.

To be sure, the doctor had a personal interest in the matter. A young woman he hoped to marry had just become engaged to her cousin. However, Dr Crofts was talking as a responsible medical man. The British medical press was raising questions about the risks to offspring of cousin marriages, and a bright young doctor would have been familiar with the professional debates. (And in the end he gets his girl.)

Charles Darwin had picked up on these concerns very early. He was worried about heredity and also about the consequences of cousin marriage. Shortly before his own marriage to his first cousin, Emma Wedgwood, he had consulted a new book, Alexander Walker’s Intermarriage: Or the Mode in Which, and the Causes Why, Beauty, Health, and Intellect Result from Certain Unions, and Deformity, Disease and Insanity from Others (1838). It touched a sensitive nerve. His Darwin grandmother, the wife of Erasmus Darwin, was addicted to gin and suffered from bouts of madness. Charles Darwin’s own mother, unwell throughout his childhood, had died from an agonizing stomach ailment, probably peritonitis, at the age of 52 years. Charles was 8 years old when she died, and as an adult he was obsessively concerned with his own ill-health, particularly the recurrent stomach complaints that recalled his mother’s fatal illness. Both his mother and Emma were Wedgwoods, and the Wedgwoods were notorious for their ill-health.4 Whenever one of his children fell ill, Charles was inclined to see the same symptoms in himself, and to worry that it exposed a family propensity.

Or were the frequent illnesses of his children, and the health problems of the Wedgwoods, perhaps the consequence of cousin marriages?2 This was a growing concern in scientific circles in Britain in the 1860s.
‘In many families, marriages between cousins are discouraged and checked’, Francis Galton noted in 1865. Charles Darwin’s son George published an early paper recommending that cousin marriage should be avoided. The first thorough study of the subject in the UK was published in 1865, by Arthur Mitchell, Deputy Commissioner in Lunacy for Scotland. Scotland was an obvious choice. It was widely believed that marriage between close relatives was rampant in remote Scottish regions, particularly the Highlands and Islands. Mitchell noted that popular opinion in Scotland condemned ‘blood-alliances’ as ‘productive of evil’. And indeed national statistics showed that ~14% of ‘idiots’ in Scotland were children of kin. In 44% of families with more than one mentally handicapped child, the parents were blood relatives. Six per cent of the parents of deaf mutes were close relatives. Nonetheless, Mitchell was not convinced that this was the whole story. Fewer than 2% of marriages in Scotland were between first and second cousins. The rate was indeed higher in some isolated regions, but the evidence for bad effects was uncertain. In one small town on the north-east coast of Scotland, 9% of marriages were with first cousins and 13% with second cousins. Mitchell acknowledged that the children of these cousin marriages were often unprepossessing, but then many fishing families in the region were ‘below par in intellect’. A more telling case was Berneray–Lewis (now Great Bernera, off the Isle of Lewis). Here, 11% of marriages were with first and second cousins, yet Mitchell remarked that ‘instead of finding the island [Berneray-Lewis] peopled with idiots, madmen, cripples and mutes, not one such person is said to exist in it’. Perhaps environmental factors—occupation, social habits, etc.—influenced the outcome. One ‘shrewd old woman’ remarked to him—‘But I’ll tell ye what, Doctor, bairns that’s hungert i’ their youth aye gang wrang. That’s far waur nor sib marriages’. Mitchell concluded that close-kin marriage tended to reinforce ‘evil influences’.

Darwin was fascinated. Between 1868 and 1877, he published three monographs on cross-fertilization in animals and plants. In the first of these books, The Variation of Animals and Plants under Domestication, he proposed that ‘the existence of a great law of nature is almost proved; namely, that the crossing of animals and plants which are not closely related to each other is highly beneficial or even necessary, and that interbreeding [i.e., inbreeding] prolonged during many generations is highly injurious’. Darwin thought this was probably true of human beings, although he was reluctant at first to press the issue. (‘Before turning on to Birds, I ought to refer to man, though I am unwilling to enter on this subject, as it is surrounded by natural prejudices.’) However, he was bound to consider the implications for his own family. His scientific project and his personal concerns could hardly be separated. The philosophical difficulties and practical consequences of cousin marriages troubled him for years afterwards, Janet Browne observes. There was no other theme in Darwin’s science that more clearly reflected the personal origins of his intellectual achievement. He could scarcely have arrived at pan-genesis without this attention to his marriage, his children’s ill health, and his own sickness.

He began to canvass his correspondents. William Farr—the senior statistician in the Registrar General’s office—suggested to him that the 1871 census should include a question on cousin marriage. Darwin began to lobby for it. His neighbour and ally, John Lubbock, had just been elected to parliament. In the summer of 1870, Darwin asked him to put Farr’s proposal to the House. He even drafted arguments for Lubbock to use.

In England and many parts of Europe the marriages of cousins are objected to from their supposed injurious consequences; but this belief rests on no direct evidence. It is therefore manifestly desirable that the belief should either be proved false, or should be confirmed, so that in this latter case the marriages of cousins might be discouraged. If the census recorded cousin marriages it could be established whether they were less fertile than the average. Later it might also be possible to find out whether or not consanguineous marriages lead to deafness, and dumbness, blindness, &c.

Lubbock put it to the House that ‘consanguineous marriages were injurious throughout the whole vegetable and animal kingdoms’. It was obviously ‘desirable to ascertain whether that was ... the case with the whole human race’. The response was unenthusiastic. One member remarked that Parliament was already busy every year debating the legality of marriage with the deceased wife’s sister: ‘if there were to be legislation about the marriage of first cousins also, the whole time of the House would be taken up in deciding who was to be allowed to marry anybody else’. According to George Darwin, the proposition was rejected, ‘amidst the scornful laughter of the House, on the ground that the idle curiosity of philosophers was not to be satisfied’. Yet 45 members voted for Lubbock’s motion in committee. Ninety-two voted against, but Lubbock remarked in his summing up that virtually everyone who spoke shared his concern.

Farr now proposed to Darwin that an ‘inquiry might be undertaken through private channels’. Darwin agreed. He entrusted the study to his eldest son, George. George Darwin was not only an amateur genealogist but was also an accomplished mathematician. And influenced by the eugenic theories of his cousin Francis Galton, he had advocated controls...
on marriage between unsuitable partners. He recommended that the mentally ill should be kept from marrying, and suggested that there might be good scientific reasons to prevent the marriage of first cousins. Clearly, he was primed for his father’s commission.

Charles Darwin laid out the research design. George was to compare the incidence of close-kin marriage in the general population with that among the parents of patients in asylums. If it turned out that marriages between close relatives produced a disproportionate number of ‘diseased’ children, this would ‘settle the question as to the injuriousness of such marriages’.

The first step was to find out how common it was in England for first cousins to marry. Apparently nobody knew the answer. George Darwin was given estimates that ranged from 10 to 1% in a 1000. ‘Every observer’, he concluded, ‘is biased by the frequency or rarity of such marriages amongst his immediate surroundings’. He would have to discover the facts for himself. Expert in the new statistical techniques that were being developed by Farr and Francis Galton, George decided to attempt a scientific survey—one of the very first statistical studies of a social problem in the UK. After making ingenious use of public records and mail questionnaires, he concluded that ~4.5% of marriages in the aristocracy were with first cousins; 3.5% in the landed gentry and the upper middle classes; ~2.25% in the rural population; and among all classes in London, ~1.15%.

The next step was to gather statistics from mental asylums. Charles Darwin wrote on George’s behalf to the heads of the leading institutions. Several provided detailed responses. These indicated that only 3–4% of patients were the offspring of marriages between first cousins. ‘For Heavens sake’, Charles urged his son, ‘put a sentence in some conspicuous place that your results seem to indicate that consanguineous marriage, as far as insanity is concerned, cannot be injurious in any very high degree’. George complied. ‘It will be seen [he concluded] that the percentage of offspring of first-cousin marriages [in mental asylums] is so nearly that of such marriages in the general population, that one can only draw the negative conclusion that, as far as insanity and idiocy go, no evil has been shown to accrue from consanguineous marriages’.

Other studies suggested that the offspring of cousin marriages were more likely to suffer from blindness, deafness or infertility. George accepted that these conditions were highly hereditary, but saw no convincing evidence that they were caused by cousin marriage. In fact, first-cousin marriages were, if anything, more fertile than others. Presumably a man was more likely to marry a cousin if he had many to choose from. First-cousin marriage would therefore be more common among people who came from large—and so presumably fertile—families.

Only one small piece of evidence gave George pause. Among men who had rowed for Oxford or Cambridge, men who were obviously the fittest of the fit, sons of first cousin parents appeared slightly less frequently than might have been expected (2.4% as opposed to 3–3.5% among their peers). George Darwin was well aware that his conclusions flew in the face of a common and ancient prejudice. He conceded that marriages between cousins might be quite all right for the rich but bad for the poor.

I may mention that Dr Arthur Mitchell, of Edinburgh, conducted an extensive inquiry, and came to the conclusion that, under favourable conditions of life, the apparent ill-effects were frequently almost nil, whilst if the children were ill fed, badly housed and clothed, the evil might become very marked. This is in striking accordance with some unpublished experiments of my father, Mr Charles Darwin, on the in-and inbreeding of plants; for he has found that in-bred plants, when allowed enough space and good soil, frequently show little or no deterioration, whilst when placed in competition with another plant, they frequently perish or are much stunted.

In short, cousin marriage caused no harm in the best families. Charles Darwin endorsed these conclusions. In later editions of Variation, he modified his original rule, weakening the claim: ‘it is a great law of nature, that all organic beings profit from an occasional cross with individuals not closely related to them in blood’ (emphasis added). On the other hand, the experience of animal breeders indicated that ‘the advantage of close interbreeding [i.e., inbreeding], as far as the retention of character is concerned, is indisputable, and often outweighs the evil of a slight loss of constitutional vigour’.

Francis Galton wrote enthusiastically to George Darwin that he had ‘exploded most effectually a popular scare’. He added that his cousin could make a fortune from his discovery.

Thus: there are, say, 200,000 annual marriages in the kingdom, of which 2,000 and more are between first cousins. You have only to print in proportion, and in various appropriate scales of cheapness or luxury: WORDS of Scientific COMFORT and ENCOURAGEMENT To COUSINS who are LOVERS then each lover and each of the two sets of parents would be sure to buy a copy; i.e. an annual sale of 8,000 copies!! (Cousins who fall in love and don’t marry would also buy copies, as well as those who think that they might fall in love.)

Galton’s protégé, Karl Pearson, made a follow-up study in 1908. He was less systematic than George Darwin, relying on correspondence from readers of
the British Medical Journal. These selected respondents reported a very high incidence of first-cousin marriages in their families. A smaller proportion of marriages were with more distant cousins, but Pearson remarked that second and third cousins in these families were also often related in more than one line. He lumped them all together and concluded that ‘consanguineous marriages in the professional classes probably occur in less than 8% and more than 5% of cases’. Yet, only 1.3% of patients in the Great Ormond Street Hospital for Children were the children of cousins. Pearson concluded that ‘the diseases of children are not largely due to any consanguinity between their parents’.21

Endorsed by the Darwinian establishment, George Darwin’s conclusions reassured many people whose family trees featured marriages between cousins. Englishmen could also rest more easy when they considered that Queen Victoria was married to a first cousin, and that several of her descendants had also married cousins. And Darwin’s conclusions seemed only common sense to landowners in the House of Lords, who knew that the inbreeding of good stock was sound policy.

Conflict of interest: None declared.

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Commentary: Of the same blood

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All human beings are related, and some are more closely related than others. In medical and
demographic literature, consanguineous marriage is usually defined as marriage between a man and a woman who are related as second cousins or closer.1 First-cousin marriage is supposed to be the most prevalent form globally. Effects on disease and death have been demonstrated primarily among children of