

Marx Hardy Machiavelli Joyce Austen
Melville Montaigne Cooper Emerson Hugo
Defoe Abbot Stoker Wilde Carroll Christie Maupassant Byron Molière Grimm
Garnett Engels Schiller Hawthorne Smith Kafka
Goethe Dostoyevsky Kipling Doyle Hall
Baum Cotton Henry Flaubert Turgenev Balzac Willis
Leslie Dumas Stockton Vatsyayana Crane
Burroughs Verne
Curtis Tocqueville Gogol Busch
Homer Tolstoy Whitman Twain
Darwin Zola Lawrence Dickens Plato
Potter Freud Jowett Stevenson Andersen Burton Harte
Kant London Descartes Cervantes Voltaire Cooke
Poe Aristotle Wells Shakespeare Irving
Hale James Hastings Richter Chambers Alcott
Bunner Shakespeare Chambers Alcott
Doré Swift Dante Chekhov Shaw Wodehouse
Pushkin Newton



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**Noteworthy Families (Modern
Science) An Index to Kinships in
Near Degrees between Persons
Whose Achievements Are
Honourable, and Have Been
Publicly Recorded**

Francis, Sir Galton

Imprint

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INTRODUCTORY NOTE

The brief biographical notices of sixty-six noteworthy families printed in this book are compiled from replies to a circular issued by me in the spring of 1904 to all living Fellows of the Royal Society. Those that first arrived were discussed in "Nature," August 11, 1904.

On Mr. Schuster's appointment by the University of London, in October, 1904, to the Research Fellowship in National Eugenics, all my materials were placed in his hand. He was to select from them those families that contained at least three noteworthy kinsmen, to compile lists of their achievements on the model of the above-mentioned memoir, to verify statements as far as possible, and to send what he wrote for final approval by the authors of the several replies.

This was done by Mr. Schuster. The results were then submitted by him as an appendix to his Report to the Senate last summer.

After preliminary arrangements, it was determined by the Senate that the list of Noteworthy Families should be published according to the title-page of this book, I having agreed to contribute the preface, Mr. Schuster's time being fully occupied with work in another branch of Eugenics.

So the list of "Noteworthy Families" in this volume is entirely the work of Mr. Schuster, except in respect to some slight alterations and additions for which I am responsible, as well as for all the rest.

FRANCIS GALTON.

PREFACE

Chapter I. — General Remarks.

This volume is the first instalment of a work that admits of wide extension. Its object is to serve as an index to the achievements of those families which, having been exceptionally productive of noteworthy persons, seem especially suitable for biographical investigation.

The facts that are given here are avowedly bald and imperfect; nevertheless, they lead to certain important conclusions. They show, for example, that a considerable proportion of the noteworthy members in a population spring from comparatively few families.

The material upon which this book is based is mainly derived from the answers made to a circular sent to all the Fellows of the Royal Society whose names appear in its Year Book for 1904.

The questions were not unreasonably numerous, nor were they inquisitorial; nevertheless, it proved that not one-half of those who were addressed cared to answer them. It was, of course, desirable to know a great deal more than could have been asked for or published with propriety, such as the proneness of particular families to grave constitutional disease. Indeed, the secret history of a family is quite as important in its eugenic aspect as its public history; but one cannot expect persons to freely unlock their dark closets and drag forth family skeletons into the light of day. It was necessary in such a work as this to submit to considerable limitations, while turning to the fullest account whatever could be stated openly without giving the smallest offence to any of the persons concerned.

One limitation against which I still chafe in vain is the impracticability of ascertaining so apparently simple a matter as the number of kinsfolk of each person in each specific degree of near kinship, without troublesome solicitations. It was specially asked for in the circular, but by no means generally answered, even by those who replied freely to other questions. The reason must in some cases have been mere oversight or pure inertia, but to a large extent it was due to ignorance, for I was astonished to find many to whom the number of even their near kinsfolk was avowedly unknown. Emi-

gration, foreign service, feuds between near connections, differences of social position, faintness of family interest, each produced their several effects, with the result, as I have reason to believe, that hardly one-half of the persons addressed were able, without first making inquiry of others, to reckon the number of their uncles, adult nephews, and first cousins. The isolation of some few from even their nearest relatives was occasionally so complete that the number of their brothers was unknown. It will be seen that this deficiency of information admits of being supplied indirectly, to a considerable degree.

The collection of even the comparatively small amount of material now in hand proved much more troublesome than was anticipated, but as the object and limitations of inquiries like this become generally understood, and as experience accumulates, the difficulty of similar work in the future will presumably lessen.

Chapter II. — Noteworthiness.

The Fellowship of the Royal Society is a distinction highly appreciated by all members of the scientific world. Fifteen men are annually selected by its council out of some sixty candidates, each candidate being proposed by six, and usually by more, Fellows in a certificate containing his qualifications. The candidates themselves are representatives of a multitude of persons to whom the title would be not only an honour but a material advantage. The addition of the letters "F.R.S." to the names of applicants to any post, however remotely connected with science, is a valuable testimonial and a recognised aid towards success, so the number of those who desire it is very large. Experience shows that no special education, other than self-instruction, is really required to attain this honour. Access to laboratories, good tuition, and so forth, are doubtless helpful, so far that many have obtained the distinction through such aid who could not otherwise have done so, but they are far from being all-important factors of success. The facts that lie patent before the eyes of every medical man, engineer, and the members of most professions, afford ample material for researches that would command the attention of the scientific world if viewed with intelligence and combined by a capable mind.

It is so difficult to compare the number of those who might have succeeded with the number of those who do, that the following illustration may perhaps be useful: By adding to the 53 registration counties in England, the 12 in Wales, the 33 in Scotland and the 32 in Ireland, an aggregate of 130 is obtained. The English counties, and the others in a lesser degree, have to be ransacked in order to supply the fifteen annually-elected Fellows; so it requires more than eight of these counties to yield an annual supply of a single Fellow to the Royal Society.

It is therefore contended that the Fellows of the Royal Society have sufficient status to be reckoned "noteworthy," and, such being the case, they are a very convenient body for inquiries like these. They are trained to, and have sympathy with, scientific investigations; biographical notices are published of them during their lifetime, notably in the convenient compendium "Who's Who," to which there will be frequent occasion to refer; and they are more or less known to one another, either directly or through friends, making it comparatively easy to satisfy the occasional doubts which may arise from their communications. It was easier and statistically safer to limit the inquiry to those Fellows who were living when the circulars were issued—that is, to those whose names and addresses appear in the "Royal Society's Year Book" of 1904. Some of them have since died, full of honours, having done their duty to their generation; others have since been elected; so the restriction given here to the term "Modern Science" must be kept in mind.

Another and a strong motive for selecting the F.R.S. as subjects of inquiry was that so long ago as 1863-1864 I had investigated the antecedents of 180 of those who were then living, who were further distinguished by one or other of certain specified and recognised honours. My conclusions were briefly described in a Friday evening lecture, February 27, 1864, before the Royal Institution. These, together with the data on which they were founded, were published in the same year in my book "English Men of Science." Readers who desire fuller information as to the antecedents conducive to success that are too briefly described further on should refer to the above book.

The epithet "noteworthy" is applied to achievements in all branches of effort that rank among the members of any profession or calling as equal, at least, to that which an F.R.S. holds among scientific men. This affords a convenient and sufficiently definite standard of merit. I could think of none more appropriate when addressing scientific men, and it seems to have been generally understood in the desired sense. It includes more than a half of those whose names appear in the modern editions of "Who's Who," which are become less discriminate than the earlier ones. "Noteworthiness" is ascribed, without exception, to all whose names appear in the "Dictionary of National Biography," but all of these were dead before the date of the publication of that work and its supplement. Noteworthiness is also ascribed to those whose biographies appear in the "Encyclopædia Britannica" (which includes many who are now alive), and, in other works, of equivalent authority. As those persons were considered by editors of the last named publications to be worthy of note, I have accepted them, on their authority, as noteworthy.

Chapter III.—Highest Order of Ability.

No attempt is made in this book to deal with the transmission of ability of the very highest order, as the data in hand do not furnish the required material, nor will the conclusions be re-examined at length that I published many years ago in "Hereditary Genius." Still, some explanation is desirable to show the complexity of the conditions that are concerned with the hereditary transmission of the highest ability, which, for the moment, will be considered as the same thing as the highest fame.

It has often been remarked that the men who have attained pinnacles of celebrity failed to leave worthy successors, if any. Many concurrent causes aid in producing this result. An obvious one is that such persons are apt to be so immersed in their pursuit, and so wedded to it, that they do not care to be distracted by a wife. Another is the probable connection between severe mental strain and fertility. Women who study hard have, as a class—at least, according to observant caricaturists—fewer of the more obvious feminine characteristics; but whether this should be considered a cause or a consequence, or both, it is difficult to say. A third, and I think the

most important, reason why the children of very distinguished persons fall sometimes lamentably short of their parents in ability is that the highest order of mind results from a fortunate mixture of incongruous constituents, and not of such as naturally harmonize. Those constituents are *negatively* correlated, and therefore the compound is unstable in heredity. This is eminently the case in the typical artistic temperament, which certainly harmonizes with Bohemianism and passion, and is opposed to the useful qualities of regularity, foresight, and level common sense. Where these and certain other incongruous faculties go together in well-adjusted proportions, they are capable of achieving the highest success; but their heritage is most unlikely to be transmitted in its entirety, and ill-balanced compounds of the same constituents are usually of little avail, and sometimes extraordinarily bad. A fourth reason is that the highest imaginative power is dangerously near lunacy. If one of the sanest of poets, Wordsworth, had, as he said, not unfrequently to exert strength, as by shaking a gate-post, to gain assurance that the world around him was a reality, his mind could not at those times have been wholly sane. Sanity is difficult to define, except negatively; but, even though we may be convinced of the truths of the mystic, that nothing is what it seems to be, the above-mentioned conduct suggests temporary insanity. It is sufficient to conclude, as any Philistine would, that whoever has to shake a gate-post to convince himself that it is not a vision is dangerously near madness. Mad people do such things; those who carry on the work of the world as useful and law-abiding citizens do not. I may add that I myself had the privilege of hearing at first hand the narrator's own account of this incident, which was much emphasized by his gestures and tones. Wordsworth's unexpected sally was in reply to a timid question by the late Professor Bonamy Price, then a young man, concerning the exact meaning of the lines in his famous "Ode to Immortality," "not for these I raise the song of praise; but for those obstinate *questionings of sense and outward things,*" etc.

I cannot speak from the present returns, but only from my own private knowledge of the somewhat abnormal frequency with which eccentricity, or other mental unsoundness, occurs in the families of very able scientific men. Lombroso, as is well known, strong-

ly asserted the truth of this fact, but more strongly, as it seems to myself, than the evidence warrants.

It is, therefore, not in the highest examples of human genius that heredity can be most profitably studied, men of high, but not of the highest, ability being more suitable. The only objection to their use is that their names are, for the most part, unfamiliar to the public.

The vastness of the social world is very imperfectly grasped by its several members, the large majority of the numerous persons who have been eminent above their far more numerous fellows, each in his own special department, being unknown to the generality. The merits of such men can be justly appreciated only by reference to records of their achievements. Let no reader be so conceited as to believe his present ignorance of a particular person to be a proof that the person in question does not merit the title of noteworthy.

I said what I have to say about the modern use of the word "genius" in the preface to the second edition of my "Hereditary Genius." It has only latterly lost its old and usual meaning, which is preserved in the term of an "ingenious" artisan, and has come to be applied to something akin to inspiration. This simply means, as I suppose, though some may think differently, that the powers of unconscious work possessed by the brain are abnormally developed in them. The heredity of these powers has not, I believe, been as yet especially studied. It is strange that more attention has not been given until recently to unconscious brain-work, because it is by far the most potent factor in mental operations. Few people, when in rapid conversation, have the slightest idea of the particular form which a sentence will assume into which they have hurriedly plunged, yet through the guidance of unconscious cerebration it develops itself grammatically and harmoniously. I write on good authority in asserting that the best speaking and writing is that which seems to flow automatically shaped out of a full mind.

Chapter IV.—Proportion of Noteworthies to the Generality.

The materials on which the subject of this chapter depends are too various to lead to a single definite and trustworthy answer. Men who have won their way to the front out of uncongenial environ-

ments owe their success principally, I believe, to their untiring energy, and to an exceptionally strong inclination in youth towards the pursuits in which they afterwards distinguished themselves. They do not seem often to be characterized by an ability that continues pre-eminent on a wider stage, because after they have fully won a position for themselves, and become engaged in work along with others who had no early difficulties to contend with, they do not, as a rule, show greatly higher natural ability than their colleagues. This is noticeable in committees and in other assemblies or societies where intellects are pitted against one another. The bulk of existing noteworthies seem to have had but little more than a fair education as small boys, during which their eagerness and aptitude for study led to their receiving favour and facilities. If, in such cases, the aptitudes are scholastic, a moderate sum suffices to give the boy a better education, enabling him to win scholarships and to enter a University. If they lie in other directions, the boy attracts notice from some more congenial source, and is helped onwards in life by other means. The demand for exceptional ability, when combined with energy and good character, is so great that a lad who is gifted with them is hardly more likely to remain overlooked than a bird's nest in the playground of a school. But, by whatever means noteworthiness is achieved, it is usually after a course of repeated and half-unconscious testings of intelligence, energy, and character, which build up repute brick by brick.

If we compare the number of those who achieved noteworthiness through their own exertions with the numbers of the greatly more numerous persons whose names are registered in legal, clerical, medical, official, military, and naval directories, or in those of the titled classes[A] and landed gentry, or lastly, of those of the immense commercial world, the proportion of one noteworthy person to one hundred of the generality who were equally well circumstanced as himself does not seem to be an over-estimate.

[A] By a rough count of the entries in Burke's "Peerage, Baronetage and Knighthage," I find that upwards of 24,000 ladies are of sufficient rank to be included by name in his Table of Precedence.

Chapter V.—Noteworthiness as a Measure of Ability.

Success is the joint result of the natural powers of mind and body, and of favourable circumstances. Those of the latter which fall into definite groups will be distinguished as “environment,” while the others, which evade classification, will be called “accidental.”

The superstitions of old times cling so tenaciously to modern thought that the words “accident” and “chance” commonly connote some mysterious agency. Nothing of the kind is implied here. The word “accident” and the like is used in these pages simply to express the effect of unknown or unnoted causes, without the slightest implication that they are unknowable. In most cases their neglect has been partly due to their individual insignificance, though their combined effect may be very powerful when a multitude work in the same direction. Moreover, a trifling pressure at the right spot suffices to release a hair-trigger and thereby to cause an explosion; similarly, with personal and social events, a trifling accident will sometimes determine a career.

Noteworthiness and success may be regarded statistically as the outcome of ability and environment and of nothing else, because the effects of chance tend to be eliminated by statistical treatment. The question then becomes, How far may noteworthiness be accepted as a statistical measure of ability?

Ability and environment are each composed of many elements that differ greatly in character. Ability may be especially strong in particular directions as in administration, art, scholarship, or science; it is, nevertheless, so adaptive that an able man has often found his way to the front under more than one great change of circumstance. The force that impels towards noteworthy deeds is an innate disposition in some men, depending less on circumstances than in others. They are like ships that carry an auxiliary steam-power, capable of moving in a dead calm and against adverse winds. Others are like the ordinary sailing ships of the present day—they are stationary in a calm, but can make some way towards their destination under almost any wind. Without a stimulus of some kind these men are idle, but almost any kind of stimulus suffices to set them in action. Others, again, are like Arab dhows, that

do little more than drift before the monsoon or other wind; but then they go fast.

Environment is a more difficult topic to deal with, because conditions that are helpful to success in one pursuit may be detrimental in another. High social rank and wealth conduce to success in political life, but their distractions and claims clash with quiet investigation. Successes are of the most varied descriptions, but those registered in this book are confined to such as are reputed honourable, and are not obviously due to favour.

In attacking the problem it therefore becomes necessary to fix the attention, in the first instance, upon the members of some one large, special profession, as upon artists, leaders in commerce, investigators, scholars, warriors, and so forth, then to divide these into subclasses, until more appears to be lost through paucity of material than is gained through its increasing homogeneity.

Whatever group be selected, both ability and environment must be rated according to the requirements of that group. It then becomes possible, and it is not difficult, to roughly array individuals under each of these two heads successively, and to label every person with letters signifying his place in either class. For purposes of the following explanation, each quality will be distributed into three grades, determined not by value, but by class place—namely, the highest third, the medium third, and the lowest third. In respect to ability, these classes will be called A, B, and C. In respect to environment, the grades will refer to its helpfulness towards the particular success achieved, and the classes will be called E, F, G. It must be clearly understood that the differences between the grades do not profess to be equal, merely that A is higher than B, and B than C; similarly as to E, F, and G. The A, B, C may be quite independent of E, F, G, or they may be correlated. Both cases will be considered.

Ability and Environment being mutually helpful towards success, the successes statistically associated with AE will be reckoned higher than those associated with AF. Again, for simplicity of explanation only, it will here be assumed that Ability and Environment are equally potent in securing success. Any other reasonable relation between their influences may be substituted for the purpose of experiment, but the ultimate conclusion will be much the same.

Table I. — Combinations of Ability and Environment.

AE. I.	AF. I.	AG. II.
BE. I.	BF. II.	BG. III.
CE. II.	CF. III.	CG. III.

First, suppose Ability and Environment to be entirely independent, A being as frequently associated with E as it is with F or with G; similarly as regards B and C, then the nine combinations shown in Table I. will be equally frequent. These tabular entries fall into three equal groups. The three that lie in and about the upper left-hand corner contain the highest constituents—namely, either *high* combined with *high*, or one *high* with one *medium*. They produce Successes of Grade I. The three in the middle diagonal band running between the lower left and the upper right corners are either one *high* and one *low*, or both are *medium*; they will produce Successes of Grade II. The three in and about the right-hand corner are either one *medium* with one *low*, or both are *low*; they will produce Successes of Grade III. This is still more clearly seen by sorting the results into Table II., from which it is clear that a high grade of Success is statistically associated with a high, but less, grade of Ability, a medium with a medium, and a low grade of Success with a low, but less low, grade of Ability.

Table II. — Ability Independent of Environment.

Grades of Success.	Contributory Combinations.			Corresponding Abilities.		
I.	AE	AF	BE	2 of A	1 of B	—
II.	AG	BF	CE	1 of A	1 of B	1 of C
III.	CG	BG	CF	—	1 of	2 of

Secondly, suppose A, B, C to be correlated with E, F, G, so that A is more likely to be associated with E than it is with F, and much more likely than with G. Similarly, C is most likely to be associated with G, less likely with F, and least likely with E. The general effect of these preferences will be well represented by divorcing the couples which differ by two grades—namely, AG and CE, by re-mating their constituents as AE and CG, and by re-sorting them, as in Table III. The couples that differ by no more than one grade are left undisturbed. The results now fall into five grades of Success, in four of which each grade contains two-ninths of the whole number, and one, the medium Grade 3, contains only one-ninth.

As remarked previously, the grades are not supposed to be separated by equal steps. They are numbered in ordinary numerals to distinguish them from those in Table II.

Table III. — Ability Correlated With Environment.

Grades of Success.	Contributory Combinations.		Corresponding Abilities.		
1	AE	AE	2 of A	—	—
2	AF	BE	1 of A	1 of B	—
3	BF	—	—	1 of B	—
4	BG	CF	—	1 of B	1 of C
5	CG	CG	—	—	2 of C

It clearly appears from this table that the effect of correlation between Ability and Environment is to increase, and not to diminish, the closeness of association between Success and Ability. Indeed, if the correlation were perfect, Success would become an equal measure *both* of Ability and of Favourableness of Environment.

These arguments are true for each and every branch of Success, and are therefore true for all: Ability being construed as Appropriate Ability, and Environment as Appropriate Environment.

The general conclusion is that Success is, statistically speaking, a magnified, but otherwise trustworthy, sign of Ability, high Success being associated with high, but not an equally high, grade of Ability, and low with low, but not an equally low. A few instances to the contrary no more contradict this important general conclusion than a few cases of death at very early or at very late ages contradict the tables of expectation of life of a newly-born infant.

Chapter VI.—Nomenclature of Kinship.

Specific kinships are such as “paternal uncle” or “maternal uncle,” as distinguished from the general term “uncle.” The phrase “first cousin” covers no less than eight specific kinships (four male and four female), not taking the issue of mixed marriages into account. Specific kinships are briefly expressed by a nomenclature in which *fa*, *me*, *bro*, *si*, *son*, *da*, *Hu*, *Wi*, stand respectively for *father*, *mother*, *brother*, *sister*, *son*, *daughter*, *Husband*, *Wife*. Each of these syllables is supposed to have the possessive 's added to it whenever it is followed by another syllable of the set, or by the word *is* when it is not. *Example*: Let the person from whom the kinships are reckoned be called *P*, and let *Q* and *R* be two of *P*'s kinsfolk, described respectively as *fa bro* and *me si son*. That means that *P*'s *father's brother* is *Q*, and that *P*'s *mother's sister's son* is *R*. It is a simple and easily intelligible nomenclature, and replaces intolerable verbiage in the description of distant kinships. My correspondents used it freely, and none of them spoke of any difficulty in understanding it. Its somewhat babyish sound is soon disregarded.

Table IV.—Abbreviations.

Males.		Females.	
Grandfather, paternal	<i>fa fa</i>	Grandmother, paternal	<i>fa me</i>
" maternal	<i>me fa</i>	" maternal	<i>me me</i>
Father	<i>fa</i>	Mother	<i>me</i>
Uncle, paternal	<i>fa bro</i>	Aunt, paternal	<i>fa si</i>

" maternal	<i>me bro</i>	" maternal	<i>me si</i>
Brother	<i>bro</i>	Sister	<i>si</i>
Son	<i>son</i>	Daughter	<i>da</i>
Nephew, brother's son	<i>bro son</i>	Niece, brother's daughter	<i>bro da</i>
Nephew, sister's son	<i>si son</i>	Niece, sister's daughter	<i>si da</i>
Male first cousins:		Female first cousins:	
1. Son of paternal uncle	<i>fa bro son</i>	1. Dau. of paternal uncle	<i>fa bro da</i>
2. Son of maternal uncle	<i>me bro son</i>	2. Dau. of maternal uncle	<i>me bro da</i>
3. Son of paternal aunt	<i>fa si son</i>	3. Dau. of paternal aunt	<i>fa si da</i>
4. Son of maternal aunt	<i>me si son</i>	4. Dau. of maternal aunt	<i>me si da</i>

Those relationships that are expressed by different combinations of these letters differ *specifically*; therefore, in saying, in the next chapter, that each person has "roughly, on the average, one fertile relative in each and every form of specific kinship," it means in each and every combination of the above syllables that is practically possible.

Relationship may also be expressed conveniently for some purposes in Degrees of remoteness, the number of the Degree being that of the number of syllables used to express the specific kinship.

Chapter VII. — Number of Kinsfolk in each Degree

The population may be likened to counters spread upon a table, each corresponding to a different individual. The counters are linked together by bands of various widths, down to mere threads, the widths being proportional to the closeness of the several kinships. Those in the first degree (*father, mother, brother, sister, son, daughter*) are comparatively broad; those in the second degree

(*grandparent, uncle, aunt, nephew, niece, grandchild*) are considerably narrower; those in the third degree are very narrow indeed. Proceeding outwards, the connections soon become thinner than gossamer. The person represented by any one of these counters may be taken as the subject of a pedigree, and all the counters connected with it may be noted up to any specified width of band. In this book one of the counters is supposed to represent a Fellow of the Royal Society, whose name appears in the "Year-Book" of that Society for 1904, and the linkage proceeds outwards from him to the third degree inclusive. Usually it stops there, but a few distant kinships have been occasionally inserted chiefly to testify to a prolonged heritage of family traits.

The intensity with which any specified quality occurs in each or any degree of kinship is measured by the proportion between the numbers of those who possess the quality in question and the total number of persons in that same degree. Particular inquiries were made on the latter point, but, as already stated, the answers were incomplete. There is, however, enough information to justify three conclusions of primary importance to the present inquiry — namely, the *average* number (1) of brothers of the subject, (2) of brothers of his father, and (3) of brothers of his mother.

The number of Fellows to whom circulars were addressed was 467. The number of those who gave useful replies was 207, a little more than one-half of whom sent complete returns of the numbers of their brothers and uncles; some few of these had, however, placed a query here or there, or other sign of hesitation. As the number of completely available returns scarcely exceeded 100, I have confined the following tables to that number exactly, taking the best of the slightly doubtful cases. It would have been possible, by utilizing partial returns and making due allowances, to have obtained nearly half as many again, but the gain in numbers did not seem likely to be compensated by the somewhat inferior quality of the additional data.

Table V. — Number Of Kinsfolk In One Hundred Families Who Survived Childhood.

Generic	Specific	Number of	Specific	Number of
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