The Faculty of Medicine
of the University of Edinburgh

Gentlemen,

As a candidate for the degree of Doctor of Medicine I have the honor to submit to you the accompanying thesis entitled "The Hereditary Factor in the Causation of various Transformations and Diseases."

The thesis has been composed by myself.

I have the honor to be

Gentlemen,

your obedient servant,

George Smith Morrison
The Hereditary Factor
in the
Causation of
Various Malformations
and Diseases—
by George Street Morrison—
M.B., C.M. Edin. 1887—

209 Pages—
in 3 Parts.
Thesis of
George Smith Morrison
34 Burton Crescent
London W.C.

S. B.

209 pages

Together with letter enclosed
for the Dean of the Faculty
of Medicine University of
Edinburgh
London 34 Burton Crescent
Tavistock Sqr. W.C.

April 29th 1875

The Dean of the Faculty of Medicine of the University of Edinburgh

Sirs,

This afternoon I a candidate for the degree of Doctor of Medicine forwarded to you at the same address that I forward this letter a large illustrated parcel containing

1. A letter addressed to you giving particulars of my medical reference since graduating M.B. Chir. in Edinburgh Aug 1st 1887

2. By various extracts “The hereditary factor in the causation of various transformations”

and diseases.

These fullfilled all the required University Regulations.

The date 26th of the month

Have the honor to be

Your obedient servant

[Signature]
34 Burton Crescent

Tavistock Sq. W.C.

London —

April 29 1887

My dear Sir,

Please find here crossed cheque order payable to you for £6.6.0 towards matriculation fees and admission fee for the D. diploma, for a candidate for the M.D. and have put in his thesis and taken to the Faculty of Medicine.

Yours truly,

Geo. Smith Morrison —

M.B., c.m. Edinburgh

1887 —

Mr. F. Gilbert

Varnish —

Edinburgh —
Part

Albinism

to

Retinitis Pigmentosa

Before Page 1.
I a subject so much as that of the hereditary influence in the transmission of abnormalities whether of function or structure it is obviously impossible to make an examination that shall be completely exhaustive.

Accordingly I have confined myself to a study of those abnormalities and diseases which are either more patent or more instructive as illustrating the different forms of hereditary transmission of direct and cross heredity of the various mutations, malformations, of heredity of albinism and of heredity of sexual transmission and I have devoted special attention to those diseases where transmission by heredity is of the highest importance by reason of the influence for evil which they have upon the family and upon the race.

The fact that many abnormalities and diseases are hereditary does not admit of dispute; the question may be, to what degree are they transmissible.

The first section of my thesis I give to the heredity of malformations beginning with albinism and then I pass to the subject of supernumerary.
digits, and deficiency of fusion, and the webbing of fingers, which is believed the first stage in the reduction of number. With regard to other rudiments of the digits, I cite the case published by Dr. Leeuwen. Then I refer to the curious features of Polydactylia and $\ldots$ I bring forward many cases illustrative of these curious abnormalities of development such as Urethral fistula, subcutaneous urachus, and various malformations. In this connection also a curious case of hairy lips and cleft palate in this dog. Bones also show rudimentary peculiarities as do occasionally the vertebrae in their distribution. I mention a case of rudimentary peculiarity noted by Dr. Selkirk and then pass to embryos, failure of closure of the branchial gills, blindness, cleft lip, cleft palate, and Calabar all marked anomalies of arrested development capable of transmission from ancestor to descendant. Finally, I cite many facts and figures in illustration of the Rudimentary nature of Glossoptosis, Bryophyia, Beak Mutations, Balanitis and Phallic Segmentation.
Albinism has a certain tendency to run in families. But the evidence that it is transmitted by heredity is not satisfactory.

I. A street-flea had under his care a

pedologist who was an albino who had six children who were normally pigmented and whose father and mother were both

distant from the deformity. His mother had been married twice; of two first

husbands she had one child an albino

of the second she had four children of whom the two elder the pedologist and

his sister were both albinos. There

was no other history of albinism in

his family. (The Lancet Feb 26th, 1882,

p. 303.)

2. Sedgwick gives two instances

The first case is remarkable for the evidence of the relationship between the albino

as well as for the sexual transmission of

the anomaly. The two Sedgwick Daniel

and Baptist Gillieron of Appens in

Switzerland married and had each

of their two daughters, one affected

with albinism, the other exempt.

The two albino who are the great
granddaughter of the family referred

to and from whom the inheritance is

denied married the one who became
If marriage Madame Revaux has had no children, the other who became the wife of an agriculturist named Pache with black hair and born 1793 is the mother of an infant who is an imperfect albino.

The second case which says Ledy with is of a "still more conclusive character" is that of a young Paris girl named Josepheine Chassot whose parents had to care with that of seven other albino.

It appears that the first grandfather of Josepheine had two children a son and a daughter. Josepheine is but one of the descendants of her first (that is the son) who is affected with an abnormality. Among the descendants of the second (his daughter) who became by marriage Madame Ray there have been seven albino.

This Madame Ray had two sons named James and Charles. Ray who married two sisters. The elder son had among other children three albino. Finally one son and two daughters. The younger son Charles Ray had seven sons four of whom married to only one.
of these five had albino children and he had four albino daughters all of a family of three sons and nine daughters. I can see two in relatives by Mr. Cornog in the Annales d'Hygiène for 1857 and cited by C. Sedgwick in his paper on "Sexual Limitation in Hereditary Disease British and Foreign Medical Association" vol. xxvii p. 481.

"Narcis are frequently transmitted by heredity and it is a well known story that the missing heir of the Barons of Tassin - an illegitimate son traced to a woman's apprentice in London by the inquiry of the family - was known between his kindred (Traité de l'héredité naturelle et Propre Lucas énum. 7 p. 198.)"
Polydactyly in the progeny of supernumerary digits is a deformity whose transmissibility by heredity has been placed beyond question. The deformity runs in families. St Thomas Watson (Medical vol 7 p. 117) records a case where a man with six fingers was thus constrained to acknowledge the paternity—other wise doubtful—of a six digital child. That deformity may gain power as they descend. And an admirably instance of this increase as shown by the increase of polydactyly in successive generations is given by Darwin (Variation of Plants and Animals under Domestication, volume 1 page 458) in the authority of Professor Nuttall. In this case in the first generation an additional digit appeared on one hand; in the second generation the additional digit appeared on both hands; in the third generation three brothers had both hands affected and a fourth brother a foot also; and in the fourth generation all four limbs were affected.

This is however a very exceptional case for there is always a tendency toward a return of the primitive type.

In example, there is the well known case
of the Colburn family. The members of this family who exhibited six digits had each a supernumerary finger and toe, and the anomaly continued through four generations. But in each new generation the normal clearly gained ground on the abnormal so that whereas the relation of the normal members of the family to those characterized by the deformity was in the first generation as 1 to 35; in the second generation it was 1 to 14 and in the third generation the normal to the abnormal was as 1 to 34.

Ancestors had according to

Perry six fingers on each hand; she had also a supernumerary mamma placed between the other two.

Professor Annandale "The transformation's Briscoe and Simpson of the fingers and toes" also

the case of a boy aged fourteen who had a rudimentary finger on the right hand, connected loosely to its ulnar aspect. He had also at birth a supernumerary finger attached loosely by a pedicle to the ulnar side of the left hand, but it was amputated when he was an infant. He had also six toes on each foot. The supernumerary digit possessed only very slight movement and was quite useless. The toe was one of a large family and four of his brothers and one sister had exactly the same deformity of the hands and feet.
Many instances might be given of the hereditary transmission of this peculiarity.

The Revue internationale des sciences "Indias" of November 1886 gives the
genus of the prevalence of the deformity in a family numbering 27 persons and
including over 5 generations.

1. The first generation the man born in
the year 1752 and 6 toes on one foot.

2. The second generation the son had 6
toes on one foot, but daughter was
normal.

3. The daughter Henry normal had 5-
children amongst whom were a son and
a daughter who both exhibited
extensitatem in both hands.

4. This daughter again had 8 children
of whom one son had six toes on
one foot, another son and two
daughters had each six fingers on
both hands and another daughter had
not only six fingers on each hand but
six toes on each foot.

5. This last named daughter with the double
deformity had three children of whom
one son was doubly deformed like his
teather and the other was deformed
in his hands only. And his sister
one of the two who had extensitatem in
both hands had eight children among whom one daughter had an osseous thickening at the digital extremity and on the outer border of the fifth metacarpal, one son had six fingers on both hands and six fingers both on each foot and another son had six fingers on each hand.

Thus in the first generation one person was affected; in the second generation one person; in the third two persons; in the fourth generation five persons exhibited the deformity and in the fifth generation there were also five a total of fourteen cases occurring in a family of twenty-seven individuals.

Another instance of polydactyly extending through five generations is given by Bruce in the Glasgow Medical Journal volume XXI page 4720 while Bertram C. A. Windle in a paper read before the Philosophical Society of Birmingham was published in their proceedings for 1884 on "Congenital craniform and thoracic clefts" cites the case founded by Borea in which the abnormality persisted through six generations.

One of the best known and most frequently quoted cases of syndactyly...
is that of the Kellie family. Patitio Kellie, who had six fingers on each hand and six toes on each foot, married a wife with the normal number of digits. They had three sons: Salvator, George, and Andrei, and one daughter, Marie. Salvator was hexadactylic like his father and marrying a normal wife had four children, three of whom were hexadactylic like Salvator while the fourth was normal. George was normal and married a wife with the normal number of fingers and toes of the four children born to them, two girls were hexadactylic, another girl had six fingers on one hand, but son was normal. Andrei was normal and married a normal wife and the children were undeformed. Marie had five digits on both her thumbs were deformed. She married a husband who was pentadactylic and of the children three were normal and one boy had six digits on each foot. This case (quoted in Health, Feb. 27, 1888, p. 32) shows the tendency to return to the normal.

The most elaborate examination of a family history in which the presence...
of supernumerary fingers and toes in successive generations to that given in the Guys Hospital Reports for 1880, where Clement Lucas traced the descendants of a woman who suffered from polydactyly in both of her sons. There were eighty descendants of the woman so affected and of the eighty, thirty-five or 43.75% were similarly affected.

Deformations like this, recently acquired characters are often reproduced in the offspring with the same constancy and regularity that normal conditions are. The tendency is to return to the normal. It appears to be a general law of organisation that structures are stable in proportion to their antiquity. That while organs of relatively modern origin have had a comparatively superficial root in the constitution and readily disappear if the conditions do not favour their maintenance, organs of ancient origin have deeper roots in the constitution and do not readily disappear.

(See Robert Spence, "The Inadequacy of Natural Selection, Contemporary Review, Feb. 1893, p. 163")
Proximipity or the absence of a small number of digits is also a feature hereditary transformation. Many instances might be given of this kind of the deformity. One of the most remarkable is that recorded by Anderson in the British Medical Journal of June 12, 1886, p. 1107. He noticed features and hereditary connection. The transformation appeared to begin at zero in the great grandfather and descended through four generations afflicting 24 of 36 members of the family "and showing a tendency to increase in degree in the later scions." The condition was to the balance associated with other defects physical or mental. Thinks and females were attuned, life, and there was no influence manifest of the seen of zero above their kind of or vice versa. There was no marked direct heridity shown for instance in the following case. Some such families were important in the corresponding sex. The Road. Ch. Review X 19, p. 512 it is record that a male with hypoplaasia having married a female the female had six children, namely 4 sons all hypoplaasia—2 daughters both hypoplaasi—
In the Journal of Anatomy and Physiology vol XVIII pp 463-465 I saw an instance of hereditary transmission. The deformity the father noticed was a deformed thumb. The deformity consisted of a shortening of the left long finger which was 1.2 inch shorter than the middle finger and only 0.5 inch longer than the little finger of the same hand. The shortening was not due to absence of any of the bones but it was probably growth in length of the metacarpal bone which was about 3/4 inch shorter than it ought to have been. The phalanges were normal in size.

The pupils' maternal great great grandfather had this deformity. He transmitted it to a daughter and she to a son who was my pupil's grandfather. They seemed also to be a belief in the family that the great great grandfather's father had the deformity. Again the pupil's grandfather had three sons and two daughters. The sons were free. The two daughters had it. The eldest daughter was my pupil.
mother; he had a brother and sister who died in infancy but he does not know if their hands were deformed. And likely they were not or it would have been noticed. His another sister had a son in whom the malformation did not occur. A peculiarity here at once strikes one viz. that the deformity has alternated from mother to son and then again to the female line.

Another peculiarity in the same family is a widening of the thumb and first toe, which sometimes occurs along with the short metacarpal bone, as others where the metacarpal bone is normal. My pupil has it also his mother and her sister. One of his maternal aunts has it and a daughter of that uncle, if they have not the short metacarpal.

It is seldom says Dr. Lee Farmer in conclusion that one is able to trace through so many generations the transmissions of a structural peculiarity.

Other remarkable instances of the hereditary transmission of abnormalities are:
Lest Adams in a paper in the Lancet of April 11, 1784, "in a few abnormalities and certain trobied conditions met with in Surgery" gives the following instance:

A healthy lad aged 18 had one toe on both feet, the fifth and sixth being of the same length and lateral dimensions. He had an uncle and aunt on his mother's side and an brother and five sisters similarly affected.

A stout healthy man aged twenty assured the author fifteen of his family including his father, uncles and aunts on the male side, also his brothers and sisters presented like uniformly the following abnormality: The first and second toes on both feet had their phalanges interposed and separable and of the same length, with separate metatarsal bones and distinct nails of exactly the same size. The third and fourth were also of the same size and length but webbed almost to the tips; the bones here were distinct. The fifth and sixth were of normal dimensions and perfectly free. All family the accessory toe was one or other of the two first pairs

On the other hand it can by no means be considered that the frequency of
Supernumerary digits is always due to hereditary transmission. From inquiries made by Prof. Amandale (op. cit. p. 2) at the histories of the numerous cases brought under his notice it was evident that "such congenital deformities"—and the statement applies to all congenital deformations of the flexion and toe—may either be hereditary or they may occur in a single member of a family independent of any hereditary tendency, and where there has been no trace of any such abnormality in either of the father's or mother's family for generations back.
Webbing of toe. The second and third toes are the two most often webbed. The abnormality is more common on the lower extremity and is usually hereditary. The following cases are given by Leslie Adams in his

Treatise of April 10, 1874, pages 307.

a. The second and third toes of both feet webbed to the proximal joint in a father and daughter; one son not so affected.

b. The second and third toes of left foot webbed nearly to the distal articulation in four brothers but in neither parent. A similar condition where three children and a brother were webbed and neither parent; and a third where a mother and two sons were similarly distinguished.

c. The second and third toes of both feet webbed half way up to the middle phalanx; in a mother one son and daughter, the wanting in four of her sons and three daughters.

1. The second and third toes of both feet webbed to the tip of the distal phalanges in a mother and son.

This abnormality is generally regarded as the first step towards a decrease of digit. Adams' remarkable instance of its heredity may be found on pages 301 of the Edinburgh Medical Journal.
for 1858-1859.

1st generation. A web-fingered father had a son and daughter both similarly affected.

2nd generation. The son mentioned had two daughters and one son affected. The daughter mentioned had one son who was web-fingered.

3rd generation. You we have a curious instance of the frequency of the father in cross-breeding. The son last mentioned had.

4th generation. Five sons all of whom were normal and four daughters all of whom exhibited the deformity.

Dr. Thomas Watson records a case where the son

Father

Grandfather

Great-grandfather

He case he says (Principles and Practice of Medicine vol. 7 p. 447) was that of a

musical composer of some celebrity.
Pneumonia ran down of breath, may also exist with Polydactyly. An
historical instance is that of Anne
Boleyn who we learnt on the authority of
Pocoy had three breasts, six fingers
and six toes. And this transformation is occasionally hereditary. Whiddle (op.
41, f. 42) cites the case mentioned by
Dr. Robert lieu, surgeon of a woman
who had a third breast on the exterior
of the left thigh, with which she had
nursed three children. He further had
an abnormal thoracic trunk.

Woodman also in The Annals of the
Ophthalmic Society vol. 18 f. 30 gives a
case in which another deaf child had
each three thoracic mammae. The
transformation is one that is never likely
to be fixed.
Hereditary is an important factor in the production of hare-lip and cleft palate, as it is in all malformations due to arrest of development and as for example failure in the closure of the Branchial clefts, and hypospadia and epigastric trigons.

"In two instances in my own practice, say William Rose (Hare-lip and Cleft Palate, page 23), I have been able to determine that the father, grandmother, and great-grandfather had all suffered from hare-lip. These haemorrhagic harelips affected on four members of one family for hare-lip. I cite Bulletin de Soc. de Chir. Paris, 25, 1891. M. Vianney related a case in which from the grand parents downwards eleven children had been born with hare-lip. In the British Medical Journal, 1863, p. 441, a correspondent states that the deformity has occurred in his own family for more than one hundred years. Rose indeed dep. (op. cit.) that "an examination of the patient's mouth should always be made when possible, and very commonly it will be found that one or both possess a short upper lip and a high arched nasal palate."

Inconel the transformation to the
Which is more likely to be found by transmission. The tendency to return to the normal is not only strong for all deformity is one which tends to decay by its interference with nutrition and tends away from reproduction by the increasing unlikelihood of its possessor being married.

It is a curious thing that abnormalities of all kinds, especially those associated with arrest of development are far more frequent in the male than the female. How why is this? Is it due to their tend to be more frequent? Is it to the frequency of abnormalities being greater in the male. Obviously a malformation that will compel a woman in the struggle for life, in the competition for a husband to remain single will not have an equally detrimental effect upon the marriage of the male. Any man can get a wife no matter how ill favored he be, any woman cannot get a husband unless she is very pretty, but a man who has a cleft palate and hairy lips, defects which would be by any Standard degree bar to marriage in the case of a man. At any rate, there is no question about the greater prevalence of abnormalities, especially upon the face and mouth, among women.
Harlock Ellis in his essay on "Man and Woman" (360) has concluded on the prevalence of this condition. Thus at the St. Thomas' Hospital from 1881 to 1887 harelip was found in 43 males and only 20 females. Bryant's notebook, according to Braxton Hicks showed 44 males to 20 females, while Wranley in the International Medical Magazine for April 1893 found 27 males to only 6 females. Harelip being rare is found almost exclusively in males. Here up with cleft palate is always more frequently found in males; according to Bryant in 17 males to only 4 females.

Cleft palate alone is however more often found in females; in 58 females to 37 males according to the experiences in St. Thomas'.

Defects of the palate are frequently associated with mental defect. So Warner in the Lancet Aug 6th 1891 (317) found that in 1331 cases of defect of the palate 33% were mentally dull. So in the case of Byron this law of heredity allows us to couple the deformity of his foot with the disorder of his mind.
Great malformations are transmissible by heredity. Darwin in "Plants and Animals Varieties under Domestication" Vol II p.319 cites a case in which a Hindu family in India the men in the course of four generations were furnished with long jaws and teeth. Together with only four front and two main teeth and with eight molars. The men thus affected had very little hair. The women were not affected.

Wright (ib. cit. p.309) described a remarkable case where absence of one of the tubs resulted with polydactyl. The two conditions existing severally on the two sides of the family and after their union in marriages the double malformations appearing in the children. The British Medical Journal of Dec 3rd 1887 points out that it may be the congenital absence lateral established that absence of unknown, or may be followed by a parent is predominant of clipeal palate or hare lip in the children. This paper was read before the Clinical Society of London and was illustrated with three cases. The first a man with congenital absence of the lateral incisor on the left side had a daughter with precisely the same defect. The second a woman aged 25 who had
a congenital absence of the right upper lateral incisor brought the fifth child with a right harelip. The third a woman aged 23 having congenital absence of the left upper lateral incisor brought the forth child suffering from harelip and cleft palate on the same side.

In Clement tree's there held the following deduction the invariable: that the congenital absence of an upper lateral incisor tooth resulting from an arrest of development was to be regarded as a transformation closely related to harelip and cleft palate and capable of transmitting each or both of these deformities to a succeeding generation.

In the decision which framed Dr. T. T. Brant's pointed out that the teeth most commonly absent from that pair were the lateral incisors. While, thumples and others do not agree with the deductions made by Dr. Cenio.

Among dogs a corresponding abnormality, harelip and cleft palate has been found and by edition a breed of dogs has been formed in which the anomaly has persisted and formed a type. The case is reported by T.
Bland Sutton in his work in "The Contemporary Science Series ("Evolution and Breeds", p. 190)

"In the summer of 1886 while staying in Paris with Mr. H. W. Freeman of Bathe we
saw a mongrel bitch with a peculiar
cliff in its nose. At first we thought
that the case was an example of
cliff-like bone making surging we
found it to be a distinguishing feature
of this breed of dog and that it
confers upon them a high money value.
The bitch was brought to Bathe and
Mr. Freeman was successful in crossing
her with a Shy terrier and obtained
one pups. Half the litter had
normal noses like the dog, the
remainder had shore lines and licks
like the mother. The pups from this
litter—have since had young with
cliff noses and the transformation seems
to be established. The deformity
consists of a median vertical split
in the upper lip extending some distance
between the nostrils and involving
the hard palate."
Bradyan subjects to hereditary arthropathies.

Sir Henry Holland (Notes and Reflections p.33) says "A case is equally known to me where the patella was wanting both in mother and son.

B.C. Wride [Arhopathies and Heredity Birmingham Philosophical Society Proceedings 1887] 88 p. 28 says "A man not subject of an extraordinary number of moles in different parts of his body had a daughter in whose similar tumours were found in almost every situation in which he was afflicted. There commenced to appear when that child was a few months old. The man's brother probably and certainly his paternal grandfather were similarly affected; so also were his sisters who however had three normal children."
With regard to abnormalities of the vascular system a curious case of a departure from the normal in the arrangement of the radial artery and the inheritance of the peculiarity is recorded in the Chicago Medical Journal and Examiners for 1879, p. 475.

The radial artery in this case passed over the ulnae and then crossed over the radial ulnae above the clavicle before it could enter its normal distribution. This occurred in a man on both sides, all his children possessed it on the left side, the daughter transmitted it better than the sons and amongst his grandchildren it was met with on both sides in four, on one side only in four while the remaining seven grandchildren were normal.
A curious instance of the heredity of peculiarities is narrated by Dr. R. W. Felkin. "A gentleman I knew had a peculiar formation of the right eyebrow. It was strongly arched and some of his hairs in this curve grew upwards. Three of his sons have the same peculiarity; one of his grandsons has it also; so has his great-granddaughter and if we were to believe the artists his grandfather and great-grandfather had the same peculiarity." [Health Lectures for the People 8th Edition London 1887-1888 p. 38]
Talipes varus may also be said to run in families. A mother may have several children, all of whom suffered from congenital talipes. There is a marked tendency for the deformity to be reproduced in successive generations.

As an illustration, I can quote from W. Adams's work on club foot, published in 1856, page 180. "I have a labouring man aged 46 who was born with talipes varus of both feet, and was totally cured by mechanical means. He now walks very well and his wife (who gave birth to this account in July 1855) says his feet are straight or nearly so, and his legs are small. His brother is normal, but has a club footed child. He does not know of any other case of club foot having occurred in the family. He has had 13 children by one wife, a strong healthy woman, of whom 9 children have been club footed namely 3 boys and 2 girls, and 4 of these are all affected. The eldest of the 5 club footed children, a girl of 19, has also lately had a club footed child, her first child, and this is a case of talipes varus of one foot. This is an unusual case that the occurrence of this deformity in two
generations is common enough.

Lepros as we have said is no exception.

It is clear that all malformations especially those associated with arrest of development are more common in the male than in the female. Leprosomyceus varus is the most important form of clubfoot and indicates arrest of development in that it represents the normal position of the foot in the fetus and in man before birth. According to the experience of St. Thomas Hospital as quoted by Ellis (man and woman page 361) the proportion were 44 males to 26 females while if we include all forms of clubfoot the proportion is 80 males to 53 females. If we take longer figures he says Ellis the chief according to Bown that 364 males exhibit con genital clubfoot to 210 females.
Another instance however of arrested development does not agree with the above law but in its transmission by heredity shows a marked limitation to the female sex.

B. C. A. Weddle in his paper on Congenital Trisomia in the Reports of the Philosophical Society of Birmingham 1887-1888 page 34 quotes the following case of hereditary transmission of the failure of closure of the Branchial Arch 1st generation. The mother with the deformity has

2nd generation one son and three daughters. Two daughters are affected.

The son and the third daughter normal.

3rd generation The two affected daughters marry and have

a. one son and four daughters of whom the son affected and three daughters.

b. one son and one daughter. The son is normal. The daughter shows the abnormality.
Blindness may also be transmitted by 

tendency. Thus Prosper Lucas (Qui est 
de l'heredite naturelle fait ?) gives a case where a blind beggar 
was the father of four sons and 
one daughter all of whom were blind. 
In the family case given by T. Ribot 
of this blindness was hereditary 
for three generations and thirty seven 
children and grandchildren became 
blind between the ages of 17 and 18. 
And in another case also given by 
Ribot—his father and his four children 
were all attacked with blindness in 
their 21st year.

Sir Henry Holland (Chirurgical lectures and 
Reflections, p. 32) knows a family where 
four out of five children autonomic health 
became totally blind from amaurosis about 
the age of twelve; the mind having been 
gradually impaired up to this time. 
And added to the singularity of the case 
was the existence of a family monument 
long prior to date where a female ancestor 
represented with several children around 
her; the inscription recording that all 
the number were blind.

Dr. Pauli (Annales d'oculistique, vol. v, 
p. 38) mentions the case of one family
of nine children who were all born blind.

L'Epine (op. cit. p. 450) says that in the family of de Compte, ninety seven children and grandchildren became blind like himself and the blindness in this case occurred about the age of 17 or 18 years for three successive generations.

The formations of the eye may be transmitted by heredity.

Coloboma iridica or cleft iris which L'Epine describes is the analogue of lenticulo and Vincent used to be quite common, then lenticulo quotes the following case from Vincent (Ophthalmic Hospital Reports 1853-1859) the case related is that of a boy who has a moderate rigid cleft of both irides in the common direction downwards. His eldest brother has a similar defect in both eyes and his youngest the same in one eye, and the asymmetrical inclination of the deformity in the other. The deceased father was said to have had the same defect in both eyes and his brother also in both eyes and the eldest brother was similarly affected and his eldest son likewise. The cleft iris seems to have belonged to the males of the mother's family.
Mother had perfectly normal pupils and four of her children, a boy and three girls were also unaffected.

The chief points of interest in the case are:
1. The transmission of the defect without its being shared by the mother.
2. That while two of her three sons had the defect her three daughters bore
   you from it.
3. That the maternal grandfather, the maternal grandmother, the maternal uncle and the son of the
   lady named all stand in the defect

which shows that the inheritance in this

case extended to a tish for generations.

The casual inheritance to the males was

very remarkable.

In the same paper, Cruttenden gives
another curious instance of sexual

inheritance in hereditary diseases. It is an

instance of Squinting. (The Squinting,

Squint was a well known family

peculiarity like the Haploenga.

It the Arndochi mouth and the

Elagies a son is of the Royal Family

of Spain from Charles V to Charles II.

A family of 10 children consisting of

5 boys and 5 girls only the 5 boys

Squint, one of these boys had a twin.
sister who did not squint—The eldest
boy aged 15 squints with the left eye;
the second aged 13 squints with both
eyes; the third aged 9 years squints with
both eyes; the fourth aged 7 years squints
with the left eye; and the fifth aged
fourth squints with both eyes. Neither
the brother nor the father squints but
the brother has "a sister who married
dearly and has two children
a boy aged 7 years and a girl aged 4
years who both squint with the left eye."

Cataract is also transmitted by

Tenderness is only in this sense that it
is not the structural train itself,
which is transmitted but the tendency
or predisposition to produce it. (Sir

Sir William Turner gives the
following remarkable case recorded by
Dr. Applegill in which a family
exhibited so strong a tendency to
Cataract that the males were
affected in 4 generations though
the females did not entirely escape.
Myopia a product of civilization an acquired character can certainly be transmitted by heredity. Since constant study creates myopia and heredity tends to perpetuate it it follows that the more intellectual a nation the more rapidly will it become shortsighted.

T. Ribot (L'hérédité f. 39) publishes some curious statistics.

In the Chelsea Military School out of 1300 students only 3 were myopic.

In Oxford 25 per cent of the students examined were myopic namely 32 in 127.

And Ribot cites Dr. Cohn of Bonn who found in the schools of his own country myopia in 1004 cases out of 10,000. They were distributed as follows:

In the Village Schools myopia occurred in 4 per cent.

In the Schools:

- Primary Schools: 6.7 per cent
- Middle: 10.3 per cent
- Normal: 19.7 per cent
- Gymnasia Municipalia: 26.2 per cent
What is the degree of hereditary transmissibility in deaf-mutism? Darwin in "The Variation of Plants and Animals under Domestication" Vol II p 22 says: "When a deaf male deaf-mute marries a sound person their children are most early affected; in England out of 203 children they produced only one was mute. Even when both parents have been deaf mutes as in the case of Mr. and Mrs. *".

In the United States and of 6 in Ireland only two deaf and dumb children were produced.

Sir Henry Holland in his "Notes and Reflections" p 44 says: "At the School for the deaf and dumb in Manchester in 1837 there were 148 children taken from 17 families; the total number of children in three families being 106 and giving therefore an average of nearly three such cases in each family. In three instances there appears but one in which the defect was known to exist in either parent."

Dr. Théodore Leguay in "Recherches sur l'origine de la surdité-mutisme" that habitually deaf mutes married deaf-mutes had children who told their deafness.

This is what we believe. The following
The extraordinary case of the hereditary transmission is given by T. F. Midlo.
(Handwriting and Heredity, etc.)
1st Generation. A man deaf-mute
married a healthy and normal woman.
2nd Generation. Their children were two.
a. a deafmute son who died childless.
b. a healthy daughter who
married a healthy man.
3rd Generation and had three children.
a. daughter deafmute.
b. daughter deafmute.
c. son healthy who married a
healthy woman.
4th Generation and had one son
who was also a deafmute.
In W. H. Irland's "Idiocy and Intensity"
there is an appendix containing an
elaborate investigation made by John C.
Comashe, clerk of the American Asylum
at Hartford, upon this question of
heredity in deaf-mutism. And the
conclusion is that the skeletons that
obtained have inevitably led them to
say that he summarized (p. 405)
it seq.
1. If two deafmutes marry both of
whom last hearing in early life,
they will be no more likely to have
2. If a congenital deaf mute marry a hearing and speaking person and have children, the probability that there will be at least one deaf and dumb child in such a family will be as 1 to 16.

3. The chances will be the same in case one born deaf should marry a mute who lost-hearing in childhood.

4. If two congenital deaf mutes marry, the probability that there will be one or more deaf and dumb children will be as 9 to 8 and on the other hand.

5. The deaf and dumb children of parents (only one of whom is congenitally deaf) will be to the children who can both hear and speak as 1 to 12.

6. But if both parents are congenitally deaf, the proportion of deaf and dumb children to the children who can both hear and speak will be as 3 to 8.

Other statistics one on too support the theory of the heredity of deaf mutism.
especially by direct descent. Instances of collateral descent are frequent enough.

"It is rare says Edgeworth of ed July 1861 p. 201 to find instances of the immediate parents of deaf and dumb children being deaf and dumb for even with the aid of "teaching in" this defect fails as a rule if their itself as the direct line of descent; and among the numerous examples or records of intermarriage between deafmutes a very small percentage of the resulting offspring share their parents' defect. To instance Joseph Adams ("A Treatise on the supposed Hereditary Properties of Deafness p. 56) states that of 148 children at one time in the foundation of the deaf and dumb institution in London one was of a family in which there were five deaf and dumb; one in which there were forty, eleven in which there were three; and 19 in which there were two... and some of these were children of deaf and dumb parents. The subsequent history of the scholars showed that some of them were married and had children all of whom were perfect in the organs of hearing. One instance occurred in which both parents had been born deaf, yet..."
The children possessed the faculty of hearing. For instance (The Census of Ireland 1813) or rather Sir William Wilde the father of Oscar, whose observations included the whole deaf and dumb population of Ireland stated that "98 deaf and dumb persons—60 males and 38 females—were married. 26 births - 54 males and 32 females - only one patient was deaf and dumb; from this marriage of three 203 children resulted among whom there was but one instance of mental, a child in the county of Limerick. Six instances have been recorded of the intermarriage of deaf and dumb persons, their offspring amounted to 13 of whom only one a female in the City of Dublin was deaf and dumb.

On the other hand deafness is specially mentioned by Sir W. Jenner as an instance of the organs of sense exhibiting a tendency to the production of congenital hereditary defects. He cites Dr. David Burton who has paid great attention to the subject and who states that the probability of congenital deafness in the offspring is nearly seven times greater when both parents are deaf than
when only one is so; in the later case the chance of a child being born deaf is ten to three-quarters for each; in the former the chances are that 5 for each of the children will be deaf mute.

Dr. Buxton refers to several families where the deaf-mutism had been transmitted through three consecutive generations though in one instance the affection passed on to generation to generation in the next. He also relates a case of a family of sixteen persons eight of whom were born deaf and dumb and one at least of the members of which transmitted the affection to his descendants as far as the third generation. And Sir

Crichton Skinner includes "There can be little doubt that congenital deaf mutism in the great majority of instances is associated with a definite developmental and therefore a structural variation of the organ of hearing, though in some cases perhaps the defect may be in the development of the brain itself."

[Report of the 29th meeting of the British Association, page 74]
Color blindness or Heterochromia iridum is inherited by an hereditary defect. It is markedly also
introduced to the male sex. And it presents
frequently the peculiarity of transmission
seen in hemophilia, hydronephrosis, and other
diseases (p. 402) of that it may be
transmitted by the female who is healthy
unaffected. The following case is given
by Dr. Ohio Earsley (American Journal of
Medical Sciences for 1845, vol. XXXV, pp
346-357). He says: "My maternal Grand-
father and two of his brothers were
characterized by it and among the
descendants of the Jorsh mentioned there
are nineteen persons in whom it is found.
There are not been able to extend my inquiries
among the collateral branches of the
family that have heard of me individual
a female in one of them who was similarly
affected." The defect is thus first transmitted
in eight distinct families of which one
was in the third generation, five in
the fourth and two in the fifth. Of
the fourth group consisting of one family
only five males were affected, 2 the
fifth group out of five families affected
the unusual restriction. Transmitted in four,
whilst in the third group consisting of
three families only five males had the
defect, and although in most of the families in this case including those in which the defect did not so well as those in which the defect did prevail, the number of females exceeded that of the males—having in one family 8 females to 7 males; in another 9 females to 3 males; in another 5 females to 4 males; in another 4 females to 3 males; in another 8 females and 2 males in which family both the males were affected but none of the three females; there was only one family in which the defect was not strictly limited to the male sex. The total number, of persons in the 8 families affected was 61 males 32 females 29.

Males affected 18

Females affected 2

Sidgwick (op. cit. p. 488) gives the following instances:—

Dr. Combe reports the case of Mr. Thistle who suffered from color blindness “his maternal grandfather was affected; ... also his two brothers and a second cousin.”

Dr. Corney reports the case of two brothers born of the same mother but of different husbands who suffered from daltonism the mother being normal.
In the breeding cases there showed her sexual limitation and indeed go for
most of the cases of Balbiani occur
in the male. But Sedgwick (op. cit.
§ 488.9) cites a case recorded by M.
Camer where the abnormality was finitarily
affected. The female son inherited in
its sexual limitation blue female sex.
The defect occurred in 13 individuals
belonging to five generations of one
family, all of whom were females.
A female had two defect she had

one con normal

two daughters affected

one daughter had an only daughter a.
the other " " " " son b.
The daughter a. was affected
the con b. was exempt.
The daughter a. had five daughters
and one con

the five daughters were affected
the con was exempt.
1st daughter has 2 daughters affected
2 con exempt
2nd daughter has daughter affected, con exempt.
3rd daughter has a son exempt.
4th daughter is unmarried
5th daughter has a son unaffected.
As I have said above Dallmair is
thinks to have been the male case. This
restriction is further markedly charac-
teristic of all abnormalities associated with
alimentary development. It is not therefore
surprising to hear that "Color blindness is
due to defective development of the retina
or of the optic nerve running in it or in
some instances is occasioned by defective
development of the brain itself." (Sir
A. Insom, Address on Inheritance. Report of
British Association of 1889 p. 763) And he
cites a case related by Dr. Homer in which
the color blindness was traced through
seven generations. In this family two males
were affected though the peculiarities were
transmitted by two females who themselves
remained unaffected. The family tree
showed that in the sixth generation
two brothers had children. Their five
collectively twelve in number were all
color blind with the exception of one.
In all none of their nine daughters
showed the hereditary defect.
Atrophic pigmentosis a very slowly progressive symmetrical disease leading to atrophy of the retina, beginning in childhood or adolescence progressing slowly to cancerous, and as a rule ending in blindness sometime after middle life, is called "atrophische pigmentose" and many high authorities believe that it is really produced by consanguinity of marriage either between the parents or their ancestors of the affected persons. Some of the subjects are of full mental and bodily vigor, but many are badly grown and suffer from progressive deafness and are defective in intellect. (Medical Officer's Report, p. 218). Various defects, including, and diseases of the nervous system are not infrequently noticed in the histories of these patients.
Part

Cancer

Syphilis

Between pages 48 and 49.
Passing now from the formations
and their transmission to tendency.
I proceed to examine the evidence
in favor of the transmissibility by
inherence of various diseases and as
far as possible endeavor to estimate
the extent of the transmissibility in
each case. And let me at the
beginning say that by calling a
disease hereditary, I use the term
hereditary with the limitation placed
upon it by Mendel and mean not
that the disease itself is actually
always inherited by the offspring who
in that case would be born with it.
But that the latter inherits a certain
organic constitution which being likely
to undergo that pathological develop-
ment in the ordinary circumstances of
life is therefore described as a
constitutional predisposition or tendency
of the disease. (See an Article on
Hereditary in Health and Disease in the
Fortnightly Review May 1886 p 652 3
of Henry Mendel, J)

I begin with Cancer often by
with a subject of the view held by
Dr. Herbert SHOW who considers
the fact that cancer occurs in three
consecutive
of Cancer is insignificant. Against
this view I quote the opinions of
Sir James Paget given first in his
lectures on Surgical Pathology and
secondly with more emphasis at a
meeting of the Pathological Society.
Sir George Parker's view is that
heredity of Cancer of the Liver and
hearts of Cancer in two chief
"ruling constitutional" causes are a
good instance of heredity gone into.
I quote from him, also from the opinions
of Hillyer, Figgis, Marshall, Chalmers
and Stadlen and I give an interesting
family history showing the alternation
of cancer with other diseases of
degeneration.

From Cancer I turn to Palmario
Enraying my information gathered from
many sources with a quotation from
Sir Wm. Siemens address a Hereditat-
the British Association meeting at
Daresbury in 1889. I gather that
Hillyer, Figgis has written and then
make a digest of the opinions of
Dr. C. F. B. and C.T. Marshall, and of
the statistics gathered by them. Following
these writers I make an examination of
the elaborate investigations of Dr. R. E.
Thompson at the Brompton Hospital and the conclusions drawn by Dr C.T. Williams. Other points of interest were the influence of tuberculosis on the inheritance of phthisis, which was a topic of the paper read by Dr Squire at the meeting of the Royal Medical and Chirurgical Society held on Dec 11th 1874 on 'Therapy of Phthisis' and the discussion that followed. And finally regarding the partnership alleged by some to exist between sleeping phthisis and insanity, and conducted by Cowden.

Then I give two examples which tend to show the transmissibility of inheritance of phthisis and asthma, the nervousness is the one collateral or descendant manifesting itself in a disorder of nutrition in another. With regard to the effect of the offspring of the mingling together by inheritance of cancer and phthisis I quote from Dr James Pegge and give in illustration a remarkable case recorded by Dr R.W. Richardson. Passmg now to Sir John Urquhart's difficulty in establishing the tendency of this affection and into the same facility can be established the
Inheritance factors in Rheumatism, and those affecting which are mainly confined to the forefathers of the Rheumatic rheumatics.

Heart disease and albumina of the urine are next mentioned in connection with the cases and opinions of Dr. Byron Bramwell and J. Lawson, the latter of whom gives a very convincing balance of the heredity of rheumatic and heart disease.

Other curious cases of Diabete mellitus dealing with this hereditary nature and following I give similar attention to Diabete, the disease diabetides which shows this additional peculiarity is being chiefly confined to those through transmitted through the female who herself remains unaffected. From Diabete Diabetides I pass to Albuminuria in which I note an extraordinary family history recorded by Pittman and from Albuminuria I turn to Rheumatism which shows the same curious though easily explicable limitation to males (non menstruating) though transmitted through the females "running underground like the rivers of Greece." Another disease having a similar peculiarity I mention chiefly
because of the frequency and because of the importance of the disease namely,  
Parkinsonism—Hyperpyrexia—Parkinsonism—
Other diseases having the frequency—
Syphilis and Lues and Bacillaria and Hydrocele—
the last of which is noted by Dr. 
Mary Holstein.

I make here a note of the tendency—
Nature of Progressive Paralysis—Weakly—
And Locomotor Ataxia; and many instances of the tendency of Syphilis—
Especially the history of the Lamberts—
And Egeria—
Nothing I write upon at some length because—
The disease can no longer be regarded—
as due to hereditary influence—nor can—
Syphilis and Lues and Bacillaria be regarded as—
Truly hereditary, the condition being due to—
The environment—though syphilis is—
Probably syphilis transformed and—
Intensified by inheritance, the—
Intensification being especially if not—
Inherently noted where the affection—
Is together at the same condition of life and surroundings as its parents—
And in conclusion I devote the last—
Pages of this section to two important—
Questions of the hereditary transmission—
Of Syphilis.
Cancer—It was timely alleged by Dr. Snow that

Trinity and not possibly be a cause of cancer because it could not explain the inception of this disease. Not only its transmission—there is no valid reason for assuming that an ancestral predisposition has any influence whatever upon the development of cancerous disease. The greater number of patients are unable to indicate any suggestion of inherited tendency; even those who are supposed to have "cancer in the family" can only bring the vaguest possible evidence most of which will not bear investigation; each individual instance of a malignant growth must be its own distinct incident; the mystery revolving the physical manifestations of mammary carcinoma is a large treasure applicable upon other grounds than that of constitutional origin; even the minority who really have had a cancerous ancestor do not form a larger percentage than is affected by various classes of persons not affected with cancer and so on.

Luc cannot be the present day estimate the writer discover any ground for holding that any one individual set out in life with a greater liability to the development of cancer than any
the like cause will always produce the like effect. Under the
provision all appear equally liable to suffer. In the genesis of cancer no
appreciable influence can be ascribed to heredity. (Herbert Snow, "Cancers
and the Cancer Cross," p. 15-16.)

And the following is a digest of the
statistics upon which Dr. Snow bases
his deductions:

Taking facts statistics drawn from
cancerous patients he finds.

1. That of 519 patients afflicted with
mammary seirrhus 94 gave some
family history of cancer, 425—
without any such.

2. Of 295 patients with uterine cancer
37 gave a family history 258 had none.

3. Of 207 cases of epithelioma in various
superficial sites 31 gave a family
history 173 had none.

4. Of 57 cases of sarcoma 1 gave a
family history and 56 denied any
hereditary trait.

Thus of 1075 cases of malignant disease
in its various forms, there was some
account (not by any means a hereditary
transmission) of more than one
individual in a family having been
affected by disease of a certain class not seen by the same disease in 169
instances only or 16.7 per cent. This again is the most liberal estimate possible
for all forms of blood relationship are included; and 22 of the above are
marked very doubtful.

Analyzing the 169 cases further; Snow finds that the
mother was stated to have been cancerous

Father

in 18 

Grandmother

in 12 

Grandfather

in 14 

Sister

in 36 

Brother

in 8 

Other relatives

in 35 

Among the 129 near relatives there were
only 7 instances of more than one member
of the family having been cancerous. Of
these 7 there were only 2 in which a
parent and grandparent had been both
affected by malignant disease.

Soundly Dr. Snow balanced these statistics
drawn from other causes and from patients
non cancerous divided into its
three classes

(a) People in sound health and intelligence
(b) Patients affected with one disorder other than phthisis.

c) Miscellaneous and patients.

(2) People in sound health and intelligence.

Of 78 medical practitioners whose
names were picked alphabetically from
the medical directory 15 or 19.2
per cent were cognizant of cancer
having occurred in a member of their
family, in 5 instances the father
or mother had been thus afflicted.
It is noteworthy that this large
percentage is found among males.

(b) Patients affected with one prevalent
disorder other than phthisis.

Of 79 patients of the Brompton
Hospital taken equally from the
male and female wards 9 or 11.3
per cent each had of cancer in
some one member of their family.
In 2 instances the mother had been
thus affected.

c) Miscellaneous and patients.

Of 175 patients who presented their
cases at the Cancer Hospital with
involvements such as stromous lymph-
glands, dental services and the
like in no way allied to cancer.
46 or 26.3 for cent stated that cancer had affected one or more members of the family. By no means infrequently several relatives were stated to have been cancerous; whereas among the cancer patients themselves this was very much the exception. (2 Cases, Hendley, p. 48.) And the conclusion for snow comes to are in his own word.

"Taking any number of non-cancerous people we find a percentage roughly stated at from 10 to 20 per cent., the cancerous relatives; and no longer percentage is to be found among patients actually suffering from cancer. Hence the figures above quoted not only fail to indicate that cancer is hereditary and so especially prevalent in certain families, but make a direct opposite conclusion." (Op. cit. p. 48.)

"Like causes" says Dr. Snow (p. 249.) "will always produce like effects." Therefore every man who has decency a short life should have fulminations of the lips; every woman who has been struck or the breast should have eczema of the mamma.

"Dr. Snow's views are in direct antagonism with those of Sir James Paget. Then..."
Of 322 cancer patients examined by Paget—Surgeon Pathology, edited by Lermer, 786 or nearly one-fourth were aware of cancer in their families, in other members of their families. Paget is satisfied that the proportion thus attributed to the disposition denied by inheritance must be understood because of the large numbers of cases. The origin of cancer has not been recognized as well as the numbers of cases that having a disposition to cancer died before the cancer became evident, or before they transmitted their tendency to their offspring or descendants. In what is transmitted from parent to offspring is not cancer itself, but a tendency to the production of cancer at some time for failure from the birth. And the tendency is never commonly derived from a parent who is not yet manifestly cancerous.

Cancer in nearly all cases where due hereditary transmission appears in the offspring at an earlier age than it did to the parent; it may frequently appear in the offspring before any manifestation of it is seen in the parent. It may be hereditary through many
generations. In example Pagh records a case (op. cit. p. 789) as follows:

"I saw a young lady of 24 who had epithelial cancer of the pharynx and quickly died from it. Her mother, grandfather, and great aunt and great grandmother all in one line died with cancer of different organs. The great grandmother died at eighty or older; the grandfather between sixty and seventy; the great aunt (I think) about forty; her mother between forty and fifty. It is within the same rule that not rarely the son or daughter dies with cancer before the parent from whom it was inherited."

A heredity by heredity the forms of the cancer may vary e.g. the change from breast to medullary cancer and vice versa and change between these and the epithelial cancer (Pagh ibid. p. 787) where this disease is inherited it may affect the same part in the offspring as in two parent - in an equal number of cases at least it affects a different part - in the study of Pagh's cases by Horrath Baker (St Bartholomew's Hospital Reports 132.6) I a case will known to Pagh (op. cit. 790)
a lady died with cancer of the stomach. She had four children and about thirty
grandchildren who grew up. Some of them are still living, but of those who are dead
one daughter died with cancer of the
stomach; and of the grand-daughters two
with cancer of the stomach and one with
cancer of the breast; and of the grandsons
one with cancer in the bladder, one with
cancer in the stomach, and one with
cancer in the auxiliary lymph glands.
Dr. Paul Broca also relates in his "Histo-
deo tumours" an important case of family
transmission. A woman who died of
cancer of the breast had four married
daughters; two died with cancer of the
liver, two with cancer of the breast.
One of these daughters had seven children
of whom one son died with cancer of the
stomach, three daughters with cancer
of the breast, and one with cancer of the
liver.
Another of the daughters had also seven
children, three of whom died with
cancer of the breast, one of the liver,
one of the stomach; and of these daughters
one had a daughter who died of cancer
of the breast.
So Leuwen, told Papez of a family
where a grandmother, three daughters, and two grand-daughters died of cancer - the uterus, breast, oesophagus, and rectum, being the organs affected in one or other of these persons.

Hilton Yates (Principles and Practice of Medicine, 1894) insists that there is no doubt that malignant growths are tendentary more frequently than others. And he quotes from the later experience of Sir James Paget who "in the hospital days found that the proportion of (cancer) cases in which a family tendency could be traced was one in six; subsequently in private practice made it one in four and still more recently one in three." (The Lancet, March 21st 1874, p. 403)

Again in confirmation of the fact that cancer, when transmitted by heredity, often appears in the descendants at earlier periods of life than in the person affected. Yates (ibid. 95) cites the case of a schoolmaster of his own who died of cancer of the ileum before he was forty years of age, and whose father, and grandfather, were likewise known to have also suffered from cancer at an advanced period of life.

Not only in favour of transmission by heredity may the cancer spread in
The ascendants in a different light from that it had assumed in the past. Disease in one, inducilet cancer in the other, but the interchangeability may be noticed between these kinds of neoplasms without malice or benvolence. Thucydides states that a mother contracts cancer from adenoma of the breast, and her daughter suffers from cancer of the same organ. And Jonathan Hutchinson (Caract March 9th 1874) speaking before the Pathological Society on the hereditary transmission of cancer in hereditary transmission and said "I believe that patients who are liable to common warts in unusual members will generally be found to have relatives who have suffered from cancer."

In several remarkable cases in which patients were covered from head to toe with warts there were "near blood relations who had been suffering from cancer." (p.336)

This has very served to reinforce the view now held by nearly all authorities except Dr. Brown that Cancer is a constitutional disease capable of transmission by heredity. They were Sir James Paget's cancer etiologie of the origin of cancer suffered by inheritance. He says
I am disposed therefore to hold that it is not possible to enquire of the origin of cancer except by inheritance. It is not only constitutional theories that are inherited; local diseases are inherited with just as much certainty as constitutional ones. I mention it only that one may be able to express clearly the very great importance of studying the inheritance of cancer as indicating its origin. The ordinary fatty tumour is often by inheritance, much more commonly so. The ordinary contagious tumour is by inheritance; and common of all the ordinary cutaneous cysts of the scalp and of other parts is by inheritance. The formations to which we cannot assign the widest stretch of the term apply the term "constitutional" are always inherited. It is true nearer more than to the fact of its inheritance that we must look to its cancer to prove its constitutional origin. When a local disease is inherited it passes from progenitor to offspring in the same tissue, if not in the same place. A malformed fugu may pass from parent to offspring but a malformed fugu does not generate a malformed heart or a malformed brain. A cutaneous
Eyes may be inherited from parent to offspring but it is in the cutaneous tissues we do not find cutaneous eyes growing in the stomach or testis of twin that have had twin in their ova. Fatty tumors, fibrous tumors, and cartilaginous tumors may pass by inheritance but as they pass they pass from the fatty or the fibrous or cartilaginous tissue of the progenitor into corresponding tissues of the offspring, and it is a rule to which I suppose no fair exception can be made that the transmission of a local disease is of a disease for the same part if not from the same place in the progenitor to the same place in the offspring. Now that rule is in its usual case of limitation in regard to the transmission of cancer.

Referring to the cases published by Bille in the Transactions of the Medical-Chirurgical Society and arranged statistically about half of them he continued passed from the progenitor to the offspring as cancer and as affecting the same organ. Yet this is a rule which affects almost entirely the uterus and the breast; in the other half there is no rule at all. The cancer of the breast in the parent is marked as Cancer of the life in the child.
The cancer of the cheek in the parent becomes cancer of the bone in the child — and hence the transmission of cancer accords with the transmission of all other hereditary constitutional diseases.

The Lawat March 21st 1874 J. 404.

But in this transmission of cancer a hereditary transmission from fleeds a feasible argument against heredity in cancer. "In the present state of our pathological knowledge it can ("Is Cancer Hereditary?" J. 409) we are by no means entitled to assert the development of one form of cancer in an individual as having any relation whatever to the appearance of a totally different form in his or her relative. For instance if a parent have suffered from Epithelioma of the lip or tongue (a complaint in which we can invariably trace a direct and obvious mechanical cause) and the daughter, comes before us with a tumor called sarcoma of the ovary, it is difficult to imagine that any question of heredity can arise."

In support of his attempt to disprove those pathological views which a few years since were very generally current, describing a constitutional origin of malignant disease, Dr. Snow adduces the following figures which lead him to question that
Heredity is a predominating factor or even a factor of importance in the causation or predisposition to cancer.

Of 51 cases of cancer in which the mother was also affected the corresponding organ was affected in 19 cases two of which were double, namely the breast 16 cases the uterus 3 cases.

Of 18 cases of cancer in which the father was also affected there were only two cases and three very doubtful, where the same organ was affected in both instances.

Of 44 cases of cancer where the grandfather was cancerous none occurred in the same organ.

Of 12 cases of cancer where the grandfather were cancerous the corresponding organ was affected in 4 instances, in each case the breast.

Of 8 cases of cancer where the brother were affected there was no case.

And of 36 cases where the sisters were affected there were 11 cases namely 8 cases of the breast and 3 of the uterus.

There of the 129 cases here recorded multiple cancer appeared in only 7 instances.

Yet of 35 cases where the cancer occurred also in distant relatives 9 were single or double.
Summary of an authority who has made a special study of the diseases of a particular organ and judging what he says about the transmission of heredity of the cancer of that organ it is curious to find that his opinion differs from this authority in so far as he places emphasis on the exclusions arrived at by Dr. Snow.

For instance Dr. George Harley (Diseases of the Liver 1892) considers that the "most common meeting (i.e. cause of cancer of the liver is hereditary predisposition." And he goes so far as to say that the evidence of the occurrence of cancer and he of the report and is the most distant relation removed by generation from the patient to show the hereditary taint. It is not at all necessary he says to be able to discover that a parent or grandparent a sister or brother or uncle or aunt have suffered from the same form of the disease. All that is requisite to furnish legitimate grounds for the suspicion is that some blood relation no matter how distant cousin or half-cousin has been affected with some form of another of malignant disease in any part of
the body - the brain or the stomach, the uterus or the ovaries, the testicles or the mammae is seen in the limit. For it matters not one whit where the cancer has been located. The very fact of its existence having excited curiosity of itself, will raise the suspicion of hereditary traits.

Now it is well to bear in mind that a cancerous inheritance may descend through several generations even though missing more than one in direct succession.

Such a view of hereditary transmission in the case of cancer may be atheoronic reduced to its absurdity by treating that all are predisposed by heredity to cancer and that cancer is always due to hereditary influence. In other cases, can be the family in which at some time or other some relative, some close relation or even, however distant, did not suffer from some form or other of cancer.

Moreover, also attributes an hereditary influence to cancer in the family believing that if it can often be traced, this cause of cancer is the hereditary. "In a large proportion of cases," he says, "there
is no difficulty in tracing a history of cancer in the family. In two cases of my practice there have been two sisters, one of each, of the liver in one lifetime within a fortnight and in another within a few months of one another. C. Bressie, *The Liver*. 3rd. Ed. p. 245.

So William Cullen says that we cannot overestimate the importance of inheritance in the origination of cancer. It is a disease of degeneration and it is on the ground that a Cancerous diathesis is a family degeneration that one accounts for the fact that cancer so frequently affects the childless woman. The frequency with which malignant disease attacks the womb, breast, and other organs in this class is generally set down to the abnormal state of these organs attributed to their never being called upon to perform the functions for which they were designed. But Blaschka argues that the degenerate state of the system which ultimately shows itself in cancerous growths about the bursas, etc., is that the absence of physiological activity is the cause of this disease. In support of this theory he points out that a large number of the children of cancerous parents who themselves may
that develop cancer are childless.

Further he points out that cancer does not attack the unmarried woman in whom the functions of the generative organs are in total abeyance to anything like the same extent that it does the born married woman in whom the organs are subject in a great degree to the hormonal influences necessary for their proper health. "The children of the cancers, he concludes, are undoubtedly deficient in vitality and the deficiency may make itself evident in barrenness, as it may in idiocy or scrofula, or epilepsy, or insanity. 2. My opinion the born woman who develops cancer or who is the daughter of a markedly cancerous stock is barren from the same cause that the female imbecile and the prostitute are barren, viz., because she has reached a state of degeneracy at which nature refuses to continue the race."

[From the Strahan in his work quoted below, pp. 187-188]
E. Webster in his "Shame and Disease" says that such apparently distinct degenerate characters as Chilbury, keane, canes, rheumatism, gout, and scrofula, are in reality but the varying outward effects of a common constitutional depravity, and that they constantly displace one another in succeeding generations of the same deteriorating family and even in different members of the same generation. As illustration he gave the following family history:

The family of T.C.

T.C. became a bachelor at the age of 40. Married his deceased wife in 1800, T.C. having died of cancer of the stomach at the age of 66.

His wife died at the age of 74.

Of this family of seven children:

a. Son died of cancer of stomach, age 58.

b. Son died of consumption, age 18.

c. Daughter died of tuberculosis, married at the age of 18.

d. Daughter died of tuberculosis, married several years later.

e. Daughter died of tuberculosis, age 16.

f. Son healthy, has of children.

g. Son, epileptic, died insane, died at 21, unmarried, married, 20, mine.
"Twenty years ago I had no time discussing the subject of hereditary disease. The first example that came to mind have been adduced, and have been tuberculosis at the addition to my knowledge of late years. Hence some doubt upon its hereditary character. There can of course be no question that tubercular disease propagates itself in numerous families from generation to generation and that such families show a special susceptibility or tendency to this disease in one or other of its forms. But while fully admitting the predisposition of its which exists in certain families there is reason to think that the structural disease itself is not hereditary transmitted, but that it is directly united in each individual in whom it appears by a process of internal infection due to the action of the tubercle bacillus. Still if the disease itself be not inherited a particular temperament which renders the constitution liable to be attacked by it is capable of hereditary transmission."

For Dr. Jenner paper on Heredity read before the British Association Sep 12th 1884 London Seph 21st 1889 p. 600.
Hilton-jagge vol 1. p. 1887 considers

incubation the two most important infect-

ing causes of phthisis. But he

cannot accept the figures given by Dr.

Thudicke Williams in his treat. 1871.

for 1871 48. 4% cent as indicating

in a scientific sense the extent to which

consumption is transmitted by inheritance.

The difficulty in all such statistics is

to draw the line between hereditary and

accidental or acquired phthisis. And he

continues: "It is impossible at present to
determine in what proportion of cases

the so-called "family predisposition" to

consumption implies the actual transmission

de a definite tendency to this disease and

in what proportion of cases it is merely

the expression of a general delicacy of

constitution (or in the Germans case its

"Vulnerability") which renders those who

are derived from certain stocks liable to

be attacked by consumption in succession

do they happen to come under conditions

suitable to its development. — One

fact which tells strongly in favor of the

opinion that family predisposition is

often a mere vulnerability so that the

liability to consumption is believed to

be much above the average in those
who come from parents already failing in health from any cause, in those begotten by a father advanced in years, in those born of a very young mother and also in the later offspring of a woman exhausted by frequent and rapid child bearing. Moreover, there is little evidence of a specially strong tendency to phthisis in the children of parents actually consumptive, one or both of them at the time of conception. The evidence of the insurance offices as well as of medical practice is that a phthisiac tendency is more frequently transmitted by the mother than by the father.
Family indisposition says Dr. C.T. Williams has by general consent held a very prominent place (among the agencies which influence the human frame) under it liable to succumb to invasion by the tubercle bacilli.) Yet the value of its influence in the causation of phthisis has been modified of late years by the fuller recognition of other causes which some silent had been overlooked—such as damp, inflammatory adultery. For these and other direct causses of phthisis must serve in our calculations a depreciatory influence on the account we assign to hereditary transmission and numerous cases of this disease which have hitherto been held to originate in a consumptive ancestry will now be traced to a nearer and more direct cause. Nevertheless no small number of cases owe their origin to hereditary indisposition though it is not always easy to demonstrate their hereditary character.

One of the most striking traits of the hereditary character of phthisis is the presence of tubercle in the lungs of a
for the or of a young infant of consumptive tendencies; another, though less striking, is the found in instances where a consumptive and healthy person marry and the children become consumptive, yet the death of the afflicted parent the sound one marries again and the offspring of the second marriage is healthy. (Pulmonary Consumption by C.T. B. Williams and C.T. Williams edited by the latter p. 59. 60.)

Before giving statistics as to the extent of family indispisposition in phthisis Dr. Williams (op. cit. p. 9) points out that it is not necessary for parents to have consumptive disease in order to produce tubercular indispisposition in their offspring. The children of my aged parents, of syphilitic, gouty and or hectiche parents or of those whose constitutions have been greatly weakened by drink, sexual indulgence or other debilitating causes are prone to phthisis.

Authorities differ as to the extent to which hereditary indispisposition exists among cases of phthisis. The difference in largely due to the differences of the
degrees of relationship included.  

The 1010 cases of the Brompton Hospital report included only parents and gave an average of 24.4 per cent. Dr. Yaller's 385 cases embraced grandparents, uncles and aunts and furnished 59 per cent. Dr. Cotton's 1000 cases included parents, brothers and sisters giving 36.7 per cent; and Dr. Pollock's 1200 similarly examined showed 30 per cent. Dr. Copland gives 47 per cent but does not state his number of cases or the list of relations included. Of ut p. 62, Dr. C. T. Williams produces 1000 cases of phthisis of whom 48.4 gave a family history of phthisis as follows:

10 had grandparents affected.
43 " father.
67 " brother.
10 " both parents.
48 " uncles and aunts.
72 " father's brother's family.
224 " brothers and sisters.
10 " cousins.

Therefore Dr. Williams' percentage of family indisposition was 48.4.

As of purely horizontal transmission from parent to offspring only 12 per cent.
Thus differing greatly from the percentages of Dr. Cotton and Judge which empiric evidence showed were 24.1 and 28.7 for each respectively.

The difference was probably due to this that Dr. Williams' patients were juvenile patients, the others were hospital patients.

On the whole, Dr. Williams' is inclined to think that an average of 12 for cent for desert hereditary predisposition and 48 for cent for family predisposition are not unfair estimates for the upper classes.

It does not dispute the accuracy of the results obtained by Judge and Cotton but thinks it likely that the smaller percentage in a class of which few if any of the wealth is able to banish many of the social causes of delinquency gives a more just estimate of the influence that hereditary predisposition exercised by poverty and reference to devious pernicious influences exercised on the causation of delinquency. (As cited p. 68)
The greatest caution must be exercised in attributing Phtisis a hereditary character, seeing how frequent it is in its form and the extent to which it may be influenced or induced or modified by epidemic influences, by family conditions by different breeds and by infection.

What then is the relative value of heredity in consumption. The hereditary nature of the disease though usually accepted is not always, says Thompson, capable of easy proof. An insurance company take it as admitted that Phtisis is hereditary and base their tables of risk and loading accordingly.

From an exhaustive examination of the case books of the Brompton Hospital for Diseases of the Chest for the 25 years from 1865-1880, Dr. R. E. Thompson has attained an important series of results and deductions which he has tabulated in his book on 'Family Phtisis'.

The following is a digest of his more important conclusions:

1. Individuals who give a history of family Phtisis are more liable to Phtisis than the community at large.
An article among insured lives. Sec. 14 states
that taking 409 cases of policyholders
who had died of consumption and
comparing them with 409 other cases
who had died of other causes, 62
of the first class had lost a parent or
a brother or sister from consumption

\[ = 15.2 \text{ per cent} \]

And of the second class 44 had similarly
lost a parent, brother, or sister

\[ = 10.8 \text{ per cent} \]

The Mutual Life Assurance Company of
New York made a similar study conducted
or the same time in 1877. By examining
1031 cases of both classes and their
results are not very different from those
obtained by Downy, being

for the first class 18.81 per cent
for the second class 9.89 per cent

2. Consumptions who give a history of
parental phthisis are disposed to be
attacked by the disease at an earlier
period of life than those who have
no such history.

Comparing 2000 cases of hereditary
phthisis with 2000 cases of
acquired phthisis, as regards the
date of the inception of the phthisis it was
found that in the 2000 cases of Hereditary Phtisis 1131 were attached before the age of 25, 477 were attached after the age of 30.

On the other hand in the 2000 cases of Acquired Phtisis 871 were attached before the age of 25, 737 were attached after the age of 30.

If these are the results when one parent only is affected you would expect that when both parents are affected the onset of the disease would be still more markedly early and such is the case.

3. Circumstances who give a history of Phtisis in both parents are disposed to be attached by the disease at an earlier period of life than those who have a history of single heredity only.

In instance in the case of 486 males attached into Phtisis between the ages of 15 and 25, the probability being hereditary Phtisis, 387 per thousand will be the proportion of those who have received their Phtisis by direct heredity 486 per thousand will be the two proportion of those who owe their Phtisis to Cross Heredity.
while 535 for thousands and be the proportion where the heredity has been double
of the case of females the relative proportions for thousands of those where
hereditary tillsitis has manifested itself between the ages of 10 and 20 will be
there attributed to direct heredity

277 per 1000

Where attributed to cross heredity

270 per 1000

Where attributed to double heredity

390 per 1000

A father with tillsitis married to a
healthy woman what is the probability of
his son having tillsitis, what the
probability of his daughter having tillsitis
and what the probability of both being
affected?

What are the probabilities of the offspring
being affected with tillsitis where a mother
with tillsitis is married to a healthy husband
and both facts and another are co-
effected the probability of the disease being
intensified in their offspring is enormously
increased: out of fourteen families where
the father and mother both died of
cancerous bloom found that only
one child out of every four healed
the heredity p. 101
The extent to which hereditary influence in Phthisis is present in a city like London is thus stated by Thompson ("Family Phthisis," p. 441):—

For 1000 males in London from whom a history of family Phthisis is obtained (that is, 1000 males suffering from Phthisis) 17.78 will give no history of the kind; while for 1000 females who give such a history of family Phthisis 12.4 will give no history.

From this it appears that Phthisis was more often hereditary in the female than in the male, and were often acquired in the male than in the female and this we know has long been the general opinion. It was not however that examination. From a careful examination of closely arranged statistics Thompson demonstrates the falsity of this belief.

He carefully tabulated the family histories of 80 cases of Phthisis in which the hereditary influence was indubitable. The 80 cases consisted of the following:

Three derived from paternal inheritance 24
Three " from maternal " 30
Three " from Double " 14
Three " from Consanguine " 12

80
The 80 cases had between them 385 children, namely male 203, female 182.

Among these phthisis developed in male 98, female 96.

Those who died in childhood numbered male 21, female 16.

Those who did not develop phthisis were male 84, female 70.

To examine more closely still these restrictive figures:

The 34 cases of familial inheritance had 93 children, male 39, female 54.

Among these phthisis developed in male 20, female 30.

Those who died in childhood numbered male 2, female 5.

Those who did not develop phthisis were male 17, female 19.

The 30 cases of maternal inheritance had 180 children, male 102, female 78.
Among those phthisis developed in
male 38
female 34

Those who died in childhood numbered
male 9
female 14

Those who did not develop phthisis were
male 55
female 40

The 14 cases of double tuberculosis had
by children male 34
female 30

Among those phthisis developed in
male 17
female 17

Those who died in childhood numbered
male 9
female 5

Those who did not develop phthisis were
male 8
female 8

The 12 cases of atavism had 48
children namely male 28
female 20

Among those phthisis developed in
male 23
female 15

Those who died in childhood numbered
male 1  female 2
That who did not develop phthisis were male 4

Jenner 3

From this examination Thompson (ibid. cit. p. 143) is impressed with the notion that the discrepancy which his figures then reflects as manifesting a greater liability to the heredity on the part of the females is based upon unsatisfactory evidence, and it inclines to think that the actual result of heredity is not very different for males and females.

Then with regard to the effect of direct inheritance Thompson by a comparison of 1000 cases of acquired tuberculous phthisis with 1000 cases of hereditary phthisis deduces (ibid. cit. p. 79) that "the effect of the paternal inheritance upon males is to precipitate the onset of the disease upon an early period of life or in other words inheritance is manifested in the early anticipation of development and the constitutional powers of resistance which is natural to the male becomes reduced to the condition natural to the female. The effect upon the female is also manifest in the anticipation of the development; but there is also super-added in many cases some portion of
That power of resistance which naturally belongs to the male."

And again of the thorough, the evidences of the hereditary tendency (whereas father only affected), is seen generally (that is to say in a large number of cases) chiefly developed in the members of the family with attacked and the subsequent development of the disease in other members takes place later in life and with some diminution in the severity of the attacks.

A similar law seems to govern those cases where the inheritance has been derived from the mother transmitted only by this route the woman by fortifying their liability and being complicated later in order of succession derive more benefit from this than the males.

As regards double heredity we note that whereas the effect is exhibited very early in life and its intensity is very decided.
The conclusions thus on the subject of the hereditary transmission of susceptibility to puerperal fever may be briefly summed up by Dr. C. T. B. and C. T. Williams (op. cit. p. 77):

1. Family predisposition founds among females and males, and the former have a greater power of transmission than the latter.

2. Fathers transmit more frequently to sons and brothers to daughters than the converse.

3. Maternal inheritance whilst most unfavorable for the males is less so for females as it generally includes an increase of resisting power.

4. Paternal inheritance is unfavorable for both sons and most so for the mates.

5. Female inheritance exercises the greatest influence and affects sons more strongly than daughters.

6. Family predisposition does not directly shorten the duration of the disease.

7. It facilitates the onset of the disease and thus shortens the duration of life.
with regard to tuberculin in its influence on the occurrence of Phthisis. Thompson (op. cit. p. 113) considers that "unhappily too many widows are at hand to afford any test to their faith — that consumption has passed from an ancestor to a descendant from a great-grandparent to a grandchild, and even from a great-grandparent to the fourth generation without the intermediary parents being evidently affected with the disease." But if unhappily too many instances were at hand Thompson has unhappily cited in support of his statement as his first case one that is not very convincing. Case 7. A young woman aged 19 had Phthisis. Both parents were in sound health, the evidence of the disease was traced back to the maternal great-grandfather. Both maternal grandparents had good health and lived to the age of 70. The connection with the ancestor was exhibited as the sister of the mother, the maternal aunt of the patient, two of whom died of consumption. Patient, her brother and one of her maternal aunts had suffered from a tendency to profuse rhinorrhagia. The following is a letter to
Case 2. Out of a family of six children,
the four sons died and the two
daugthers suffered all from phthisis.
The mother also developed any symptoms
of phthisis the last two sisters from
phthisis. Her mother again died
from phthisis; as did she could be
traced on the fathers side.

This case we find true collateral
descendants in the second generation with
sexual limitation while in the third
generation all members are attached
unfitness of sex; the disease has been
aggravated in the tendency of the disease
to be increased by transmission.

Case 3. A lad of 14 with enlarged glands
of the neck and a history of occasional
epistaxis. His father who was 67 years of
age was of robust make and in
perfect health; but at the age of
11 he nearly died from a severe attack
of hemoptysis. Subsequently he had
an attack of bronchitis at 20 years
of age that completely recovered.
The paternal grandfather of the
lad had died of phthisis and
hemoptysis at 30 years of age.
The paternal grandmother had
lived to 70. The father had
married twice. By the first wife who had not suffered from pulmonary disease he had nine children as the following order:
1. A daughter who was threatened with phthisis at 16 years of age but recovered.
2. A son who died aged 9 of phthisis and haemoptysis.
3. A son who lived a few days only.
4. A son who died of phthisis at 18.
5. A daughter who died of phthisis at 16.
6. A daughter who died when two weeks old.
7. A daughter who died aged 2 years.
8. A son who suffered from croup at 18 but had recovered being constantly on board ship.
9. An infant who died soon after the mother.
The second wife was a perfectly healthy and robust woman and the last mentioned above was her first child, the tenth of the father's family.

The case shows the influence of the factor and indicates the influence of atavism in precipitating the period of attack.

Humphry (cit. cit. p. 120) concludes that the heredity of atavism is not a diluted condition as one authority has stated but one which in many cases is strong in the anticipation of the period of the attack and in the extent to which
it affects the members of a family. As in
hearing the heredity is intensified by
successive inheritance while syphilis on
the contrary is lost in the extinction of
inheritance.

"The inheritance of phthisis is in an
aspect closely comparable to the inheritance
of insanity, and indeed it is difficult to
find any point in which they differ.

Either parent is effective. The disease
may appear in the child before it is
developed in the parent, and the effect
of inheritance is certainly manifest
in the early death of the child from the
disease of childhood. The inheritance
of the disease is not protective but
foster-feeding but the transmission of
the disease does not necessarily mean that
the disease is developed in the individual
who transmits. The offspring entom-
inated by paternal heredity does not
infect the mother and there is no
reason for believing in atomatic origin
in this disease. Atavism is frequently
exhibited and is a very important feature
of the inheritance. I can three points
the inheritance of phthisis and the
inheritance of insanity are exactly similar.

R.E. Thompson "Family Phthisis" 1897.
Much has yet to be done in studying the
heredity of phthisis. We have observed
that, agreed upon the amount of hereditary
influence, opinions vary according to
the general equation of the observer
and while one authority will attribute
the cure of cases of phthisis to
hereditary transmission another will
declare it emphatically that the per
centage would be a mere estimate. It is
so difficult to eliminate the influence
of the environment, the soil and the
decay and the exposure to infection
and the nature and methods of living
that it cannot be believed that the
bacteria of tuberculosis is transmitted
as that can
be allowed to bear a predestination to
a condition of the tissues favorable to
the development of the
bacteria. Thus it is

A paper on the
influence of heredity in phthisis. The

At a meeting of the Royal Medical and
Chirurgical Society held on Dec. 17th, 1895
Edward Squier read a paper on the
influence of heredity in phthisis.
paper was an attempt "not to disprove the fact of heredity but to modify the
effect of heredity so as to be preponderating
influence of this factor." He made an
analysis of 1000 cases of phthisis to
determine the frequency of apparent heredity.
Of these he reported 474 cases or
families and taking the total number
of children in these cases he was able to
come to a comparative statement of
the frequency of phthisis in children
1. Where parents were non-phthisical
2. Where father was phthisical
3. Where mother was phthisical
4. Where parent were both phthisical
And the conclusion he came to was
that the proportion of phthisical children
are as 8.64 to 100-fig. larger than in the case of phthisical
counting children reared of whose parents were
effected.
1. Where parents were non-phthisical
275 families and 1745 children
193 died in infancy
386 were phthisical
luring 24.87 per cent.
2. Where father only were phthisical
84 families. 571 children
67 died in infancy
138 were phthisical
being 31.8% ext.
3. White parents only were phthisical
  82 families 536 children
  56 died in infancy
  155 were phthisical.

  34.4% ext.
4. White parents were both phthisical
  33 families 165 children
  18 died in infancy
  58 were phthisical.

  39.45% ext.

Grouping together last two items 
2. 3. 4. 2 199 families 1182 children

  141

  351

  33.71% ext.

Subtracting 24.87"

  8.84"

This discussion which follows Dr. Spurrier's thought statistical study cast only a limited light on this subject of
retardity and that more advanced research for the study of individual cases and their family histories. I felt Dr. Spurrier did
not explain how statistics could be
utilized except for the study of the
family history of individual cases.

Dr. Expedition went on to comment on the final report of the Brompton Hospital which referred to cases where the well-known frequency for the case in the hereditary disease (a well-known frequency which notoriously does not exist of all diseases).

For example, this hereditary occurred in 60 per cent of the cases, cross hereditary in 43 per cent. He quoted also Dr. H. Gromlov's work to the effect that the occurrence of phthisis in a family tree rendered the liability to the hereditary transmission of phthisis.

Dr. F. E. Pollock said that hereditary not only transmitted phthisis but it transmitted definite forms, such as the fibroid or the haemoptoic, in some cases as a result of this transmitted trait members of different generations in a family died off at the same age. If both parents died of phthisis he often living (I believe in this developed phthisis) not only die at an earlier age but women exhibit a more acute form of this disease. He this experience of forty years practice pointed to hereditary being the most important factor in the causation of phthisis.
Dr. Watt said that his figures were much in accord with Dr. Squire's, he ascribed about 12 per cent of cases of phthisis to the influence of heredity. Dr. Foster referred to the remarkable relation between tuberculosis and cancer; he had seen patients dying with cancer with sufficient vitality to withstand the growth of tuberculosis at both apices. And he quoted for his efforts of the Middlesex Hospital for 1888 showing that tuberculosis in the parent predisposed the offspring to tuberculosis when young and to cancer when advanced in years.

Dr. Herron regarded infection as the chief factor in tuberculosis.

And Dr. Squire in conclusion thought the mode of life and the environment more important than the family tree and pedigree.
Not uncommonly the handedness of Pathesis shows itself in the same lung being attacked in two parents and children and as a rule the sequence of symptoms is similar. Dr. Williams can call to mind several examples of both paternal and maternal inheritance where the same lung was the first attacked in father or mother and in several sons and daughters consecutively and where the disease took the same course in them all (p. 17).

What, it may then be asked is the partnership between Pathesis and Epilepsy and Mania?

Porter says that he knew a town in the department of Tarn where the members of some families are attacked successively from generation to generation with Mania Epilepsy and Pathesis.

(Considérations sur la nature et le traitement des maladies de famille. Paris 3ème édition 1844 p. 36)

Mandelsley has given generalised that one of the four ways in which
Morbid neurosis may manifest itself in a disorder of nutrition, whereas diabetes is the earlier and phthisis the later stage.

S. B. Maudsley (Pathology of Mind Chap III p 113.)

But W. Gowers considers that the frequent association of Epilepsy and Phthisis is rarely accidental, his opinion being based on the observed facts:

1. That Phthisis is not more common in those without than in those with a neurotic tendency.

2. That in Phthisis those with a neurotic tendency are not less than those without such a tendency.

S. Gowers (Epilepsy p 112.)
Obstetric and Putthism. It is long been known that in regard to inheritance a connection exists between the two diseases. In inheritance they are transmutable. Curtis family requisites were often present in the case of putthism. The prevalence of putthism is in the family or vice versa.

For example:

The paternal grandfather died of putthism; the maternal grandmother died of asthma; the father was suffering from asthma.

Their family consisted of:

- A daughter aged 17 with cough, no asthma.
- A son aged 15 with cough.
- A son died 5 years old with putthism and asthma.
- A son aged 5 years with a bad cough.
- A daughter died at 1 yr. 9 mos. of putthism.

Thompson (op. cit. 163).

And again:

Maternal grandmother died at 68 of asthma; all the other grandparents died at a great age.

The mother died of putthism aged 42.

Her sister died of putthism aged 41.

The father was alive and healthy.

Their family consisted of four cons of whom had putthism.

in 1874.
At the Lancer of Dec. 8th 1848, Dr. James Paget is quoted as drawing attention to the fact that certain lines of family history:

"It has never been studied carefully what may be the effect when one parent has a transmissible disease and another has another; what comes if one parent is a member of a cancerous family and another a member of a tuberculous family.

So these two diseases in any respect disturb one another? Are they mutually exclusive or do they mingle together? We know that acute tuberculosis and acute cancer have made rapid progress together. They remain in as far as that the antagonistic.

But what comes of it when they are introduced together by inheritance? Of that I think we certainly know nothing."

Yet a very simple guess at the intermarriage of two ethics the one with marked tuberculous predispotion to cancer the other with a marked family predispotion to phthisis is that I said given by Sir B. W. Richardson and quoted here in saltoos. It is taken from his "Dreams of a阿森as life. "A young man of content
cancerous tuberculosis, married a woman whose parents had both died of pulmonary consumption. This married couple had a family of five children, all of whom grew up to adulthood sustaining at their best delicate and sickly existence.

The first of these children died of a disease called tuberculosis; the second of suicide from pulmonary consumption; the third owing to tubercular deficit in the brain succumbed from epilepsy; the fourth with symptoms of tubercular brain tissue came from diabetes the result of the nervous injury; and the last living was born after the boy was 13 or 15 years old. Out of these five parents in this instance survived three of the children, for they both died comparatively early in life - the father from cancerous disease of the liver, the mother from heart disease and bronchitis.
Gout is without question a hereditary disease. Sir Charles Scrubamore found among 522 patients suffering from gout 190 in whom no hereditary taint could be traced. Of the remaining 332 patients, 181 inherited it from the father, 59 inherited it from the mother, 24 inherited it from both parents, 68 inherited it from grandparents, 21 inherited it from uncle, 3 inherited it from aunt.

Page 266, vol. 2. Sir A. B. Cawood says that Dr. Cullen evidences some of the family hereditary. "Among my gouty hospital patients," he says (Gout and Rheumatic Gout, 3rd edition, page 209), "I do not exact every individual in hereditary predisposition to the disease; but when the cases which have occurred in private practice are reviewed, a still higher percentage is obtained. From a somewhat rough estimate made from some thousands of the latter case of opinion that nearly 75 per cent inherited the disease from their parents or grandparents." Canon (id. 209) had a patient suffering from gout for whom he ascertained that for upwards of five centuries he
elder son of the family had invariably been afflicted with goitre when he came into possession of the family estate.

Sir Bryce Hutchinworth (A Treatise on Endocrine Disease, page 10) says that statistics culled from English, French, and German practices go to show the powerful factor of heredity in goitre. Among the urban classes the percentage of cases showing her influence of heredity is from 50 to 75, and with wider knowledge of the asexual peculiarities, the percentage ought to increase to 90.

Even among hospital cases — where such family histories cannot be so easily obtained — Hiller Esper (loc.cit. 1st ed. p. 676) found 21 out of 61 cases with a clear family history.

Goitre is very much more frequent in women than in men. Of 80 cases examined by a Danish commission 34 attributed the disease to its influence and in 46 the heredity seemed to have been acquired. Of the 80 cases 78 were male and only 2 female. Indeed so rare is this disease among women that evidence of this fact is kept up by distinguishing between goitre and chronic.
For rheumatism is if anything rarer in the elder than in the younger.

Gout and rheumatism have attained their remarkable place of transmission because they are as a rule diseases which develop after the period of menstruation. Both diseases are interchangable and the teratogenesis of each is well seen in that the children of Gouty parents have a strong predisposition to chronic rheumatoid arthritis.

The same general law as the incidence of the acquired and hereditary forms of Gout applies. They are demonstrated in Gout. In hereditary type or early establishment of the disorder, while "acquired" rape has been apt (as cited § 131), seldom entails gouty symptoms before the middle or end of the fourth decade of life. A table drawn up by Palacioes and cited by Garland (op. cit. § 210) dealing with the question as to the importance of the Tiedy water in treating gout, among other statistics, it is shown that the mean age of 34 cases of hereditary gout was
34 years, whereas in 43 cases of acquired gout the mean age was 38 years, the extremes of age in the former case being 13 and 60 years and in the latter very different in its extremes from the statement of Backworth—27 and 50 years.

But according to me writers the younger children in a family are more likely to suffer than the older and more sturdily. (Hutchinson T. Third Memo 7 Ceylon 1876 Login by Letter p. 676) whereas 

in phthisis the eldest son who has inherited phthisis from his father is more likely to be attacked than his brothers and to suffer more severely.

The hereditary transmission of Ent does not then admit of question. The other case I shall quote from Parrot (14 ed f24)

A sailorman aged 48 has been attacked with Ent since the age of 36. His father had very severe gout; likewise his mother who was attacked at the age of 70. He had 6 brothers of whom 5 died from Ent while the 6th who is still living suffers from Ent in the same way as the patient.
Before dismissing altogether the question of the hereditary transmission of this cutaneous affection, I did cite another great authority on the subject. In the article on Gout in Dr. Quain's Dictionary vol. 7 p. 744 Sir J. F. R. Roberts says that Gout is one of the most striking examples of an hereditary disease and once established it may be transmitted through several generations even when every endeavor is made to eradicate it; but as the malady is as a rule more or less intensified by pernicious habits it becomes in most cases a permanent legacy.

Then he quotes from Sir Alfred Garrod's Inquiry and agrees with his conclusions and he goes on to say: "It sometimes happens that when gout becomes developed de novo as an individual children born thereon are free from the complaint—while those born subsequently are affected. (an interesting fact if true.)

Roberts also reviews that gout appears the more readily transmitted by the female than by the male sex. And he cites Hutchinson according to whom the chondritis becomes chronic in the parent with advancing years whereas
The disease shows itself with greater frequency and in more marked form in the younger than in the older members of a gouty family. Hereditary influence may be so powerful that the complaint arises without any other obvious cause; but most commonly it is aided by more or less indulgence in certain injurious habits. Part sometimes simplifies the cause of alburnum which is usually due to the fact that in the generation prior to the complaint every generation is taken to avoid causes which tend to originate a gouty diathesis. It has been affirmed also, that this 'revising a generation' only alludes to the transmission from a grandfather through the daughter to the grandson. The hereditary nature of gout is seen not infrequently in the age at which the disease manifests itself. Under the disposition to gout the complaint may appear in early life, and the younger the subject who is attacked, the more likely to be the hereditary taint. Hutchinson, he concludes, is of opinion that many obscure joint affections in young persons are due to hereditary gout.
Rheumatism. A few details of the
influence of heredity are clearly marked
made in Rheumatism. Dr. Fuller's statistics
of 246 cases treated at St. George's Hospital
between January 1845 and May 1848
show that a history of Rheumatic fever
in one or other parent was obtained in
71 cases or 28.8 per cent.
As we have seen in the case of
pneumonia and post-natal interlude,
positive in Rheumatism tends to
a precipitation of the attack. Thus
of Fuller's patients
Of those under the age of 15 years
1 in 1.9 had a rheumatic parent
Of those under the age of 20 years
1 in 2.6 had a rheumatic parent
Of those between the ages of 20 and 30
1 in 3.5 had a rheumatic parent
Of those over the age of 30
1 in 6.6 had a rheumatic parent.
Along 500 patients treated at the
Westminster Hospitals Dr. Lyers obtained
family histories of Rheumatism in the
parents, uncles, aunts, brothers or sisters
of 33.4 per cent of rheumatic fever
a three of 20 per cent a proportion
considerably lower than that found by Fuller.
Mr. A. Smith was able to trace a hereditary
Tendency in 23 per cent of his cases. The total number of patients he examined was 4,000.

Out of 1,200 patients treated at the Middlesex Hospital 27 per cent gave rheumatic family histories.

Dr. Chedle estimated that a child of a rheumatic family is five times as likely to develop rheumatism as one who has no such hereditary tendency.

[Note: The above figures are taken from A. E. Garrod "A Treatise on Rheumatism", page 51.]

Among 4,000 patients, F. H. Fagge (lb. cit. P. 674) found a history of heredity in 68 per cent.

The Lancet for July 21st 1888 p. 110 is a paper entitled "an attempt to determine the frequency of rheumatic family histories amongst non rheumatic patients." A. E. Garrod and E. H. Cook published the results of an investigation to that end. The statistics are based upon inquiries made among the casualty patients of St. Bartholomew's Hospital. They confined their inquiries to the immediate families of the patients (parents, brothers and sisters) and they rejected all except distinct histories of
Chronic Fever.

Of 500 patients who had run themselves suffered from chronic fever and who came to the hospital on account of ailments—having no recognized relation to rheumatism, 105 or 21 per cent gave histories of rheumatic fever in immediate families. Of these 40 suffering from tonsillitis there were entitled because of the intimate relation between tonsils and rheumatism. The exclusion of these reduces the percentage to 19.78.

Of the 40 who suffered from tonsillitis the percentage of those who gave histories of rheumatic fever in immediate families was 33 per cent.

In addition to these 500 patients they obtained the family history of 100 other patients—those who had at some definite period of their lives suffered from chronic fever and among these 35 per cent gave a history of rheumatic fever.

In addition, of 80 patients who were under treatment for chorea 32.5 per cent gave a history of rheumatic fever. To sum up.

“The statistics indicate that whereas about 20 per cent of the patients who present themselves at the London Hospitals...
Suffering from morbid conditions which stand in no recognised relation to rheumatism have family histories of rheumatic fever, amongst those who have themselves suffered from rheumatism or allied disease such histories are obtained in some 30 to 35 per cent; in each instance however considerable allowance must be made for erroneous information. (cit. p. 110.)

Dr. Cheadle (W. B. Cheadle, "Rheumatic Fever in Childhood," p. 26) stressed the fact that the tendency to rheumatism is transmitted as strongly as the tendency to gout. He drew the inference that the incidence of the disease was confirmed by the careful inspection of statistics drawn up by Dr. Claffey, late registrar at the Hospital for Sick Children, Great Ormond Street. Taking 572 cases of children admitted for diseases of all kinds both medical and surgical careful registry was made into the family history with regard to acute rheumatism. In 153 there was clear history of acute rheumatism in immediate blood relatives. Of these 173, 38 had developed unremittent rheumatic affections equal to 20 per cent.
If rheumatic arthritis, chorea, heart disease and other less certain manifestations were admitted as evidence, this proportion would of course be largely increased.

Taking now the remaining 319 in whom the history of joint affection or immediate blood relation could be traced, my 15-developed arthritis rheumatica equal 64.5 for adult "so that in children - to repeat what has been said before - with a family history of acute rheumatism or immediate blood relatives the chance of an individual with such hereditary tendency contracting arthritis rheumatica is nearly five times as great as that of an individual with no such hereditary taint."

An illustration of this is given in the following case.  Mrs. H. aged 9 years, and 5 weeks, had chilblains, rheumatism, laryngitis, and initial rheumatic fever of endocarditis.  His mother had had rheumatic fever; his mother's sister rheumatic fever followed by chorea; another sister of the mother rheumatic fever; the father had rheumatism, but of doubtful nature.

His case also the case published by Dr. Goodhart in vol. xxv of Guy's Hospital.
reports, where "with a rheumatic strain in both father and mother, five out of six children under fifteen — that is, a baby of fourteen months, had either arthritis, rheumatism, or heart disease. A boy of 15 had had rheumatic fever twice and had mitral regurgitation; the second a boy of 10 the same; the third a girl of 8 died of mitral disease. The fourth a girl had rheumatic fever after scarlatina followed by mitral disease; the fifth a boy of 14 was laid up as a winter with rheumatism."

Dr. Goodhart having quoted another more remarkable case from Stévieu. A rheumatic mother had 12 children and 11 of them had rheumatism before the age of 20.

Dr. Shade says when speaking of this family, "Indications that the tendency of rheumatism to run in families might be due to some factor of locality or circumstances that careful inquiry into a number of cases showed that they arose in very various localities & members of the family when in different places and under different conditions." Op. cit. p. 30.
Heart Disease. The hereditary transmission of rheumatism, being established, it is easy to demonstrate that there must also be inherited the predisposition to these diseases, with which it is so closely associated. Heart disease is therefore particularly liable to occur in those families which exhibit a susceptibility to rheumatism.

For Cradle for a careful examination of the the family history of 173 children in whom there was a clear history of acute rheumatism in immediate blood relatives, and of 319 children in whom there was no similar history arrived at the decision that the chance of an individual with such hereditary tendency contracting acute arthritis, rheumatism is nearly five times as great as that of an individual who has no such taint.

(The Rheumatic State in Childhood, p26)

But independently of the hereditary tendency some people inherit directly a tendency to disease of the heart or vascular system. Dr. Chamberlain of New Castle on Tyne says, (Syphillis of the Heart, p56) Dr. Pyeman Trammell that two brothers in very circumstances who had not been exposed to any undue strain and who
had not suffered from rheumatism
cases under his care suffering from
atheroma of the aorta (thoracic) and died
at the unusually early age of 23 and 25.
I have cases it was
difficult to reach the conclusion that the
disease was hereditary.

In later life
while arterial degeneration is common this
hereditary tendency to atheroma is still
more apparent. It may be due to some
or rheumatism. All functional forms of
cardiac arrangement are of course
more common in those of marked rheumatic
intercourse, and the rheumatic temperament
is markedly hereditary.

Dr. Sarnoff ("Diseases of the Heart"; 
and Thoracic Aorta 1937) also believes
that the tendency of heart disease may be
transmitted without any obvious rheumatic
manifestations being discernible in the
parents. And he gives this instance:
In a certain family father and mother
presented no notable signs of rheumatism
in an aged 14 years the most
pronounced rheumatic pericarditis which rapidly
proved fatal being accompanied with
valvular disease. Another son at the age
of 14 suffered from rheumatic fever and
at 38 presented signs of aortic valv.
dissected and a daughter aged about 30 presented the like calciculus lesions with
her brother.

Seaman (op. cit. p. 57) soon believes that
Hereditary may determine the form of the
lesions in heart disease or the incidence of
the disease upon certain of the alters. It
also this case: a gentleman aged 43
had a history of rheumatic fever at the
age of 6 and a second attack between
17 and 18. He manifested aortic valve
lesions with marked regurgitation and
much hypostrophy of the heart from which
he eventually died. His son aged 17
endeanced the doctors for irritability of the
thorax. He had never suffered from
rheumatism nor from any symptom other
than that I have mentioned. Yet he
presented precisely the same signs of
calcificulus lesions as his father — those of
aortic insufficiency with marked hyper-
strophy of the left ventricle.

But the most important statement that
Seaman makes is regard to the heredity of
heart disease and rheumatism is "that
rheumatism and its attendant heart disease
are transmissible from the parents to the offspring
for the fetus in utero may transmit the signs
of the rheumatic form of Endocarditis."
Sir Henry Holland in his "Lectures and Reflections" page 33 gives a case that came under his own care of "four brothers all of whom died between the ages of 60 and 65 of organic diseases of the heart into four cases of the same kind in their family."

He has also given an instance where these cases occurred in three successive generations. His lectures lectures on Diseases of the Heart third edition vol. II p 373 an account of the death of T. A. (Dr. Thomas Arnold of Rugby) from Angina Pectoris. The death was sudden. Just before death he was asked by Dr. Bucknill if any of his family had ever had any disease of the chest? "Yes, my father had; he died of it." Five six years later on April 14 1888 Matthew Arnold his son died suddenly, also of heart disease.

On the other hand how are we to explain the incidence given by Holland (op. cit p45) of four cases of angina pectoris disease of the heart all fatal about the same period of life occurring in the brothers and sisters of one family without any suspicion of the parents having been the subjects of the disease.
Diabetes Mellitus is often hereditary and
diction. Diseases of the kidney and
urinary bladder—Park 7 p. 73 says
that of the circumstances which determine
the occurrence of diabetes hereditary
influence is one of the most frequently
evident. An idea of the tendency
tendency to run in families.
Dr. Henry Chorley [British Medical Journal
Vol. xlvii 1889 p. 17] refers to an
instance where the disease was transmitted
into the fourth generation.
J. W. Parry [Diabetes 2nd edition p. 198]
is quite certain that a susceptibility to
diabetes is inheritable. He gives many
instances: A gentleman aged 68 is the
subject of diabetes. He belongs to a family
of seven and three in this family besides
himself by two sisters and a brother have
been affected with the complaint.
A man aged 23 died of diabetes; he
stated that both his father and his aunt
had died of the disease.
A former surgeon at the Treasury succumbed
to the complaint a year or two ago. A
daughter of his father's wife died of diabetes
at the age of 22, her father at that same
time was being affected. By this second wife
he has a daughter who now at the age
of 21 to be subject of diabetes.

A man suffering from diabetes for two
years four years and now 60 years
of age lost nine years above a man at
the age of 23 of the same disease.

Sclerosis might be multiplied.

Sir Thomas Watson had under his observation
three children, two brothers and their sister,
all of whom were affected.

But despite the occurrence of many similar
cases the cases of diabetes which present a
family history of diabetes are rare compared
with the great number of cases which can
show no history of tendency. Thus Dickinson
says (op. cit. p. 76) that of 29 fatal
cases of diabetes at St. George's Hospital
there were only two in which any hereditary
influence or family tendency could be traced.

Li. H. Roberts in "Urology and Renal"
3rd Ed. p. 222 J. considers that hereditary
influence is not a prominent predisposing
cause of diabetes. But he states cases
where the disease has run in families one
case being that of a family of eight children
all of which became diabetic though their
parents were healthy.

Roberts also noticed the frequency of diabetes
in families where Ptilosis and Epleysy
prevailed.
Frisch found 39 incipient cases among 400. Hélia Tagge op. cit. p. 585.

One hundred and twenty cases were collected from Tagge from the records of Guy's Hospital by Dr. F. E. Lewis and in 8 of these there was a history of diabetes in one or more members of the patient's family.

Adding cases obtained from the registries of St. Bartholomew's, St. Thomas's and the London andthose recorded by Schweig and Grisinger there were found 35 incipient cases in a total of 557 (6.5%) in all. In one remarkable case the mother and seven of the mother's brothers had died of the disease (ci. p. 585).

As the relation of Diabetes Mellitus and the morbid nervous condition of Epilepsy and the frequency with which the two diseases are found in the same family. I may refer to the theory of Hawdon, quoted before in connection with Phthisis. That the theory in this case manifests itself in a disorder of nutrition which of diabetes is the earlier and Phthisis the later stage. (See Pahlow, Medicus Lehr. p. 113.)
Diabetes Insipidus is also frequently—
due to hereditary predisposition and
Bickhunen says (op. cit. p. 197) that
Duchenne has collected a considerable
number of instances in which two
subjects of this disease have been had
relatives affected similarly or what is
of more interest with diabetes mellitus.
Several cases many members of the
same family—i.e. three brothers and
a sister, their uncle and some of the
uncle's children—i.e. another two brothers,
two sisters and their mother—had
diabetes insipidus. I other instances
both kinds of diabetes occurred.
Denssten, Bickhunen ground ten,
less frequently a young woman with
insipid diabetes whose grandfather had
the mellitus, and indeed the tendency
of diabetes insipidus to occur in
families where the zaccharioid form has
shown itself runs for quite enough to
make of this former form of
diabetes insipidus.

Other to his Principles and Practice of
Medicine p. 306 cites the case noted by
Wallis among 21 members of a family
distributed over 4 generations 23 had
persistent polyuria without any
Deterioration in health.
As has elsewhere been stated this disease is frequently transmitted from female to male, the female usually escaping. The disease is considerably more frequent in males than in females. Theses of 77 cases collected by Roberts—[January and rural diseases]—of 198/55 were males and 22 females.

Out of the 77 cases only three cases (cf. cit. p. 201) could be attributed to hereditary influence. One was a man who had suffered for 57 years from polyuria. His father, two brothers and a sister had suffered similarly. Another was a healthy soldier of 24 whose brother, brothers, and two sisters suffered in the same way. The third was a girl of 19 whose grandfather had diabetes mellitus and the uncle: Bright's disease.
Albuminuria.

"Whether foodspringing or urinary hypertonic influence is sometimes the sole recognizable cause of the disorder ... occasionally the family longevity declares itself unimpeachably "

Mr. Horseship Richardson's cases of the kidney and urinary disturbances of 378 c.c. seq. I. And then he proceeds to give the following remarkable family history obtained by Dr. Pollan." of an ancient house in which renal disease certainly of this nature (Pyramidal Degeneration) has been transmitted from generation to generation as if by an invariable and unhappy entail —

1st Generation. B. and four sisters. The brother died from an unknown cause at the age of 34 suddenly hit after long waiting. Two of the sisters died at 49 and 48, having had albuminuria for many years.

2nd Generation. The brother left two sons and four daughters. One of the sons died at the age of 46 having had albuminaria from the age of 12. Of the four daughters, three were affected. One lady ... of the three 3rd Generation has six children alive."

125.
two sons and four daughters.

a. All are living and of the six
   feet have albuminuria, viz.
   a. aged 21 affected twice 9 months old.
   b. " 20 affected no known then.
   c. " not affected.
   d. " 16 affected twice early childhood.
   e. " 15 affected for two years past.
   f. " 3 affected twice 6 months old.

"It is possible there was a kidney that
this remarkable chapter in the genealogy
of disease might have been still later
had the condition been observed earlier.

As for back as the Wars of the Roses the
portraits show that the family's ancestors
were remarkable for a complexion of
fair transparent yellow such as was
noticeable particularly in the case
about of lady T. This suggests that
the disease may have been transmitted
for longer than the three generations
in which the state of medical knowledge
enabled it to be recognized."
Hemophilia is the first majority of cases is hereditary and the remarkable fact connected with its hereditary transmission is that it is usually handed down by the mother who is the daughter of a man suffering from the affection. He who is himself free from the condition. Obviously the disease can hardly exist in a non-remark- tering woman. But the disease usually manifests itself in the early or with few years of life and is much more common in males than in females the proportion being estimated at from 11 to 1 or even 13 to 1. Bell says (Principles and Practice of Medicine 1920) "The hereditary transmission in this disease is remarkable. In the Appleton-Swain family of Reading Mass. there have been cases for nearly two centuries and J. H. Broom of that town tells me that instances have already occurred in the twelfth generation."

Although the female alone is almost the rule and her daughters of a blinder though healthy and free from any tendency are almost certain to transmit the disposition to two males of offspring. A remarkable fact connected with the disease is the extraordinary frequency of the mothers of blinders in a large
Member of cases the average number of children born to the mothers of sufferers who were themselves the sufferer's agents in the transmission of the disease was three.

A proof of the hereditary transmission of haemophilia may be cited in the case recorded by Immernann which shows how the transmission of the disease may be avoided. This case is taken from 'Helen Legg vol II, p. 664.

"At Tonna in the Gower there were once two families not known to be related to one another in which the disease had been known to exist for a century. In 1855 the females of those families determined to divorce marriages and in 1877 Immernann was able to state on the authority of Dr. Hinde of Trefin that there was no longer a well marked example of haemophilia in the village."

Withham Legg (in 'A Treatise on Haemophilia') found that haemorrhage was the best ascertained cause of haemophilia. Out of 98 families there was a disposition to haemorrhage in the parents, grand parents or cousins in 52. Of the remaining 46 families the parents enjoyed good health.

"20,000 in 26 they suffered from Gonorrhoea, Syphilis, Lung and Heart disease."
When the men of a bleeding family themselves the subject of haemophilia
their children it is not often that they
transmit the disease directly to their
children. "Haemophilia however through
the father directly to the son is not
inconmonly seen where the father's
brothers are bleeders but he himself has
escaped.

A famous Greek family to this
cited by Dr. W.B. Turner in his address
on Heredity at the British Association
Meeting in 1857, Record p. 765.

Here叙述 the name of the
family of the head of the
family tree, I submit on
the family tree.

The frequency showed itself first
in the generation born of a man and woman
who were themselves exempt from the
disease; in this generation it showed
itself in 3 out of 14 males.

In the next generation the frequency was
found in 13 out of the 14 males
while in the succeeding generation only one
out of 9 males was affected so that
it would seem as if the tendency was
fading away in it."
1st Generation 0 2nd 3, 3rd 13 4th 1
Another instance of this character of hernia seen is hermaphroditism where a disease almost exclusively confined to the female sex is transmitted by the female parent in what appears as "Pseudo-Hydropathic Paralysis." Among 77 cases collected by Friederich, the number of boys attacked was as to the number of girls as 64 to 13. Buchner who in 1861 was the first to describe the disease recorded 15 cases, of whom only 2 were girls. Yet the disease Jones Hiller Tague (ap. cit. vol. 1 p. 574) is almost always transmitted through mothers to sons.

Both is similarly transmitted as the location elsewhere does in Bilharziasis. Ballavic in early civilization also shows a remarkable limitation of sex and again claims still to the hereditary transmission of Hydrocele.

Sir Henry Holland (Notes and Reflections p. 31) gives an instance of Hydrocele occurring in three out of four successive generations in one family; this coincides adding to the singularity of the fact from its depending on a female being a third in the series in whose son the complaint appeared.
Some special affections are distinctly hereditary. Progressive Paralysis Aplastic sometimes runs in families. Genetically though very rarely, locomotor ataxia is hereditary. Cases quoted by Eric (Klemensson's Cyclopaedia of Medicine, vol. 3, p. 523) say eighteen cases of the disease in one family in three generations.

Byron Bramwell (Diseases of the Spinal Cord, p. 82) emphasizes the importance in diagnosis of certain diseases of the hereditary tendency to the patient. For example, "in a case of slow compression of the cord a strong family tendency to cancer is the absence of evidence as to the exact nature of the compressing cause would be suggestive of a neoplastic growth within the spinal canal." So too in a case of spinal meningitis arising without any obvious cause, a hereditary tendency to cerebellar ataxia points to the tubercular character of the lesion.
Ichthyosis is often hereditary. Mr. Siddow.
(Bronchial infection & Hereditary Disease)

British and Swiss Thalidio-Chromatographic
Curries April 1861 to 478 patients. His
father of a boy aged 14 suffering from the
disease belonging to a family in which the
existence has been hereditary for 3 generations.
The grandfather was affected in a remote.
He had 3 sons and 3 daughters. Two of
the sons died. The other and the 3 daughters
lived, one of the 6 showing any symptom
of the disease. Two of the daughters have
had children, the oldest 4 children. She
other three. Three 4 children of the
oldest 3 sons and 1 daughter. Two sons
are affected. The others are normal.

Of the 3 children of the other one girl
and two boys. The girl to the 1st born.
The boys are affected.

The historic case of family Ichthyosis is
the famous Porcupine family described
for Edward Lambert who was shown at
the meeting of the Royal Society on the 16th
of March 1731 by the Secretary Dr. Machin.

Edward Lambert was the father of five
sons all of whom from the age of six
months presented the same kind of
hairy carapace as their father. The
only one of those who survived transmitted
of both his sons and this transmutation gone from male to male was tried up during five generations. (Dr. Ribot L'Heredita p. 617). Ledueit (op. cit.) says that the case was confirmed by the males alone for four generations. In 1802 Mr. Timms of Ipswich published an account of John and Richard Lambert, whose descendants of Edwards. They had seven sisters and no brothers and while both of their sons affected their seven sisters were free from the disease.

Eugene is another case wherein which his mentally been handed back of hereditary influence in a large number of cases. In "An Anderson's "his book on Diseases of the Skin" p. 137 quotes the opinion of Habbs who is of opinion that Eugene is in his cases hereditary only to express his disapproval of it. He has seen too many cases where parents and their offspring are affected to believe that these cases are purely coincidences. Eugene Hunt the "treatise on the skin" p. 246 is also quoted who believes that one constitution which indisputable Eugene is undoubtedly hereditary.
Leprosy has from early times been regarded as a divine cause of transmission by heredity. The probability of this belief is lower, the criterion of its accuracy, "The lepers of Naaman shall come unto thee, and unto thy sons and unto thy grandsons," (2 Kings v. 27). But the leprosy that was to come unto Nabi and his seed for ever may have been a different disease from that we know now. Leprosy being a parasitic disease and one that is contagious, it is difficult to establish that it is hereditary and such is the opinion of George thin (Leprosy page 167). Evidence remains shows that children removed from leprosy parents sufficiently early escape the disease. Dr. Hansen found in North America that of 100 Norwegians of leprosy family history who had migrated there and had become lepers. Dr. Rockmann estimates that there must be in Minnesota about 100,000 persons of Norwegian descent of leprosy ancestry; yet leprosy never appears amongst them, as leprosy Norwegians in the States being reported.

The evidence upon which the belief of the heredity of leprosy is founded is thus summarized by Dr. Thin (op. cit. p. 167):

"People in my cases traced heredity in..."
Three fourths. Lewis and Cunningham found that of 80 lepers in an asylum 28—that is 35 per cent.—had one or more leprosy relatives, the figures indicating a "tendency to transmitt in the female line." Of 125 lepers in Iceland in 1877 the majority belonged to leprosy families. In Madras in 48 cases 26 traced heredity in 19. At Poona in 147 cases the parents or grandparents of lepers were lepers. At Bagam in 228 cases it might have been hereditary in 40.

Of 91 cases observed by Dr. Heidemann in Cyprus in 52 the relation of the leper had had the disease. Hiller states that in 183 cases heredity was acknowledged in 14 in the direct line and in 11 in the collateral line or 18.09 per cent. Llewellyn found in 107 unpublished cases that heredity was possible in 47 cases and not possible in 60.

On the other hand, the cases in which one member of a family is leper and others remain free are so numerous that it is unnecessary to quote them. There are many cases in which heredity is unanswerable to show that South Europeans who have contact with the case of leprosy have
been recorded for centuries against the disease in countries in which it prevails.

To this it may be considered that "Lepra is undoubtedly a disease which may be acquired without any hereditary taint," and that "the evidence seems to show conclusively that whilst without these facilities there is no leprosy but when facilities is introduced into the leper after birth and generally in adolescence and adult age-

The evidence against the heredity of leprosy is thus marshalled by Dr. Fisher:

Dees and Cunningham state that their observations among adult children of lepers in India show who transmitted the indication of leprosy and are married and have apparently healthy children. This Almora asylum, there were 14 children in an admitted the children of lepers, but parents being there or had formerly been inmates of the asylum. Of the 14 one had died, a girl of 22 had married and had children, these appearance healthy. The remaining twelve of were born in the asylum of two leper parents, and 5 of the lepers and are healthy parents. Their ages ranged from 9 to 5 years. They were
in excellent health and showed no sign of leprosy.

The first settlement at Kalawao, Hawaii, was opened in 1866. From that time to 1884, 286 patients were conveyed there as lepers. At the end of this period only two out of 26 surviving children bore a lid settlement of their parents were lepers.

In the course of his investigations in 1885, Kato found out of 72 cases in 8 the family history was uncertain. In 2 of these 8 the uncertainty was only in regard to the grandparents; all others were healthy. Among the remaining 56 cases were careful inquiry for the relations, friends, and incidents of the patients in regard to the relation of their own history of leprosy in the family. In 34 cases, the other 30 had leprosy in both lines in 47 cases, in the direct line only in 5, and in the indirect line only in 21 cases. Of these 21, 3 were in brothers or sisters living together, one case only becoming affected 4 years after the brother who was attacked in Australia. He returned and lived in the same house with her. There were 5 in brothers and sisters, and also in
uncles and cousins besides and 13 in
uncles and cousins (think cousins
included). Now of these 13 I found
that 8 here in more or less continuous
communication with the affected relatives,
in one illustrative case the boy having
lived with his aunt while she was
sick, apart from his mother. In 2
cases there was uncertainty as to
contact but in one of those who had
been 20 years sick his stepmoor aunt
died of cholera 3 years after his attack
and she had lived all his life in one
village, inside his family and relations.
In 3 instances only was it stated that
there had been little or no communication.
Yet of the truth of this statement I
am more than doubtful in one case
and in another case whose half sister
was affected 12 years before him he
attributed his illness to sleeping with
a leper—a reasonable after thought of
excluding that such a case is necessarily
hereditary because there has been no contact with the affected
father.

To this conclusion:

The absence of proof, the hereditary hypothesis
of the origin of leprosy must fall
it is no longer necessary even as an
explanation. (p. 172 et seq.)
Of Goitre and Ostitis. It is true he said that they are not necessarily on the institution of the parent. And parents who have been districts where goitre is endemic can be excluded from these dangers of breeding endocrine children. Yet in districts where the disease is endemic the marriage of near relatives will remain. The position is to goitre and the remarrying of goitrous will be the result of their union, insofar as their children will suffer. Wherein, Ostitis exists there also must exist goitre. Let the converse also apply, that whenever there are goitrous there are also Ostitis. For Ostitis is the complete development of the disease which in its earlier development is goitre.

So that if a family migrates to a district where both under-classes are met with goitre is the fourth to appear; it is easy in the second and third generations that Ostitis appear.

It is conceivable says Hilton Fogg (op. cit. vol. ii. p. 863) that when goitre has passed in a family for two or three generations the structure of the thyroid may undergo deterioration in
some of the succeeding generations, and the likelihood of the occurrence of such a local degeneration is perhaps augmen-
ted by the consideration that our families in which advanced syphilis is present tend to undergo complete extinction within a very few years. According to the anatomical Commission it is rare for any family residing in the Valpellese to reach a fifth generation.

Gore may occur at any time of life up to 40 — children may be born with the typical enlargement from more than half the number of critics says Dr. Thomas and others of goutous parents. 

The effect of intermarriage between goutous parents is to intensify the indisposition that characterizes their offspring. The same effect results from the marriage of a healthy person with a goutous person as sometimes happens.
Coming now to the hereditary transmission of syphilis, there can be no question as to the fact, the chief difference of opinion has regard to the mode of inheritance. In his Contemorary Review for March 1893, Dr. Herbert Spencer publishes the following statement from Matthew Hutchinson: "I do not think that there can be any reasonable doubt that a very large majority of those who suffer from inherited syphilis take the taint from the mother parent. . . . It is the rule when a man marries who has no remaining local lesion that in whom the taint is not eradicated for his wife to remain apparently well while her child may suffer. The doubt the chief infects its mother's blood but this does not usually evoke any obvious symptoms of syphilis. . . . I am sure that I have seen hundreds of syphilitic infants whose mothers had not so far as I could ascertain for displayed a single symptom."

Dr. Hutchinson writing so recently as 1897 states that "in regard to the inheritance of syphilis, there have been many collected and tabulated cases."

The question is how did the child inherit syphilis? Becker of " Germ inheritance" or inheritance from the father or by "Gene inheritance" as from the taint inheritance from the mother.
The female can only infect her offspring by sperm transmission, while the offspring that is to say, density, but the mother may transmit her disease to the child either at conception or having herself acquired the disease some months later to the child during its intra-uterine existence.

Poletti 1824 (Syphilis Part I, Chap VII, pp 102 ff.) that the evidence is overwhelming that a syphilitic father may beget a syphilitic child quite independently of any previous infection of its mother.

With regard to the intensity of this disease in the offspring there appears to be no evidence to show that when a child has congenital syphilis that there is any difference in the intensity of this infection whether the infection took place by form inheritance or at some subsequent period of intra-uterine life.

In the case of evidence to show that when both parents are syphilitic the disease is syphilis is intensified in the offspring. It may renders transmission more certain.
It is generally said and accepted by Hutchinson (Op. Cit. p. 70) that the inheritance of syphilis when entered through a female of children shows a tendency to fall off and decreases in severity in each successive child until it comes finally to an end. This belief is erroneous. That the eldest child or eldest children (those born nearest to the parental acquisition) are the most likely to inherit it unquestionable and so also to the fact that the younger ones often escape. I admiring this claim he by no means admits that the disease is apt to occur in a modified form in the younger ones. It is probably nearer the truth to assert that the inheritance of syphilis the taint is often irregular; that frequently of several children born under apparently similar conditions one may receive it, and another escape; but that if it be received it is always one and the same specific malady.

Where any one parent has had syphilis a child has two chance of escape, where that parent is the father.
From the foregoing it must be clearly understood that in the transmission of syphilis the occurrence is out of a hereditary predisposition to syphilis. Yet the occurrence of a definite and actual virus, after long years that communicate the syphilis in acquired syphilis. The times acquired and inherited syphilis are in this sense interchangeable, that both forms are due to precisely the same cause, the difference being in the method of its occurrence.

A woman who bears a syphilitic child is syphilitic father, and has herself infected every symptom of syphilis has nevertheless been inoculated with that whatever further from it be— which gives her immunity from syphilis in the future.

Can syphilis be transmitted beyond the first generation? Helothain emphatically asserts (op. cit. p. 90) that there is absolute proof, for reasonable probability than syphilis can descend to the third generation, and as if possible transmission still were remotely the wholly disbelieves in it.
Part

...}

For the Parasympathetic Nervous

To

Edna and

Orchard

Between 145 and 146.
In the third part of my thesis I consider the hereditary factor in the various races and in the many degenerations of the race which are found in Abohahani suicide, crime, and prostitution. I begin with the various races especially the Caucasian races and their characteristic make-up. I quote from Sir Henry Holland, Hallen, Lefèvre, Laté, and others and other authorities. All have a common origin, and are bound together by a common factor and that factor is heredity. From Hallen and Lefèvre I pass to that other type of horses "Heredity Horse" and quote two extraordinary family histories from Clarence King and Wyard. Epilepsy I next consider assuming the authorities Russell Reynolds, Evans, Echeverria and Brown Segard, all of whom agree as to the importance of the hereditary neurotic factor in the causation of epilepsy. From epilepsy I pass to insanity and insanity (I mean I pass to the subject of.) Having read carefully W. E. Irland's work and the various papers of Langdon Down as well as the elaborate investigation at Helenie Beach.
In the same connection, I introduce a family
history given by J. R. Asbury in the Journal
of Mental Science XCVII. 43.

Then I go to many writers to trace their
views on the part heredity plays in
the causation of insanity and cite Dr.
Roe's and the authorities quoted by him,
Strahan, Landseer and others and I
ref. incidentally on the relationships which
subsist between insanity and diabetes
and the views of Dr. Savage. I have also
gone carefully over Mr. Bacon's statistical
researches in his voluminous work on
'Philosophic Enquiries.' From the former
of which insanity is admitted I pass to
Sirius Foda and refer to his elaborate study
of Heredity in the many volumes of the
Readon Macquart series; especially his illus-
trations of Avarice in Insanity—drawn
from a family interested by his marriage.
I show also Foda's illustration of the fact
frequently recorded and cited by Spencer
against Avarice, that a woman may
by no means
give birth to child who should resemble
the man by whom she previously had
given birth to another child. Then I give
a terrible instance of paranoia in a
family. From insanity I pass to another
morbid neurosis named deicide, how
That it runs in families, that it may be committed at the same ages by the descendants -- ancestors and I give many instances, the best from Darwin's "Psychologie Morbide," and Hammond's "Inebriety and its Medical Relations." The I show the alternation of insanity, epilepsy, and suicide in a family and devote a few pages of alcoholism and its determination to crime and its treatment. By this accumulation in a family of morbide tendencies the family becomes instinct is in the case of the Royal Family of Spain and others residing Island, Victor, Contrebnts S. Stabach, and Mandelstam. Then I come to the hereditary predisposition to crime and have read not only much of the authorities that remarkable study of a criminal family "The Luets," by R. L. Brugdai, and the equally remarkable "Psychologie NATURELLE," by Dupuis.

And conclude with a memorable passage for a distinguished Colonel, Professor Pearson.

[Signature]
The tendency of diseases to transformation in the process of hereditary transmission is well exemplified by the whole class of Neuroses. The maladjustment is found characteristic of the group. Hilton Young in his Principles and Practice of Medicine Vol I & II has pointed out that all Parasympathetic nerves such as Efferent (both the petit and the haut mas), Catalphyl, Seratphylia, Hypotonic and Parasympathetic nerves as well as the adrenal, parasympathetic valusit, Augia System, Parasympathetic Gastrology, Ectosomatic Aethusa, Epidemic sick and Parasympathetic centiles are for the most part varied and hereditary and to different degrees of the same family the inherited tendency may show itself in different ways - one child being epileptic, another asthmatic, a third subject to hypotonic and so on.

Dr. 1. Dorsey of Town [from, Acad. Soc. de Théâtre et XVIII pp 1319] speaking of the tendency of epilepsy decides especially that kind of inheritance which implies the transformation of maladie. Those are done (he says) or exceedingly rare

ear of epilepsy which may not be traced back to hereditary predisposition
When one understands "...", one again he asks: "In how many families do we not see this neurophatic condition while preserving its intrinsic unity: manifest itself under a thousand different forms—under two forms of hysteria, of epilepsy of partial convulsions, of chorea, of general and partial neurasthenia of the nervous centres of the general sensibility?" (Traité Pratique de la Folie Neurophatieque, Introduction, p. 18).

Multitudes of instances are at hand to illustrate this peculiarity of transformation in this disease—

63 of 483 cases of Chorea examined by Dr. Redcliffe (Article Chorea in Reynolds's System of Medicine). Carpez inquiries into the family history demonstrated that in 27 cases, father or mother or brother or sister nurse or had been but subject of or a sufferer of these disorders—paralysis, epilepsy, apoplexy, hysteric or insanity. Similarly, with regard to Altima, Dr. Saltor (Dr. Altima, Philadelphia, p. 255) relates the following family history:—

The patient himself a small boy, made this statement: "My great-grandfather, father, and mother, and my aunt, on my father's side and my aunt, on the other father's side, had..."
of my brothers suffers from it. My father suffered from general neuralgia for many years, ending in paralysis. One of my brothers, when a young man, had attacks of psoricetic dysphagia; another had had epileptic fits and several of the family have been sleepwalkers.

Again in the case of another humorous Thragane "there is no one feature which is more constant in the history of the malady than its hereditary character. Out of 53 cases I find 26, or just over half in which some family was stated to have a family complaint. I am not sure that the proportion should be much larger because in many recorded cases the inquiry was not made. But this statement gives us an adequate idea of the strength of inheritance even as exhibited in the table for those 26 patients had no less than 40 near relatives suffering from the same complaint." (Thragane and Sick Headache E. Living. p. 29)

Living quotes Sir A. Holland, Dr. Burnard, who in 90 cases found 84 physical evidence of an hereditary predisposition received from their parents while
a few more mentioned cases among collateral relatives. Trist, Romberg and Calmeci (E. Living to, cit. 28.)

Having thus established the undoubted influence that heredity performs in the causation of this form of paroxysmal vertigo, Icmen found other cases and discoveries, transformations of tic douloureux and in pages 39 and 51 of his well-known work gives instances of hypnic vertigo affecting a member of a family whose members suffer from paroxysmal epilepsy or megrim.

Again on page 314, leaning into Felix, for the following curious fact in connection with the hereditary transmission of the disorder: "the tic douloureux is bequeathed to children of either sex who bear the closest resemblance in the conformation of their bodies to the sufferers among the complex from whom they are descended." And he goes on to say: "I have repeatedly observed this transmission through three generations from the first grandmother to her son and from him to his daughter, while theGov. have gone free and exactly the
converse in the care of thedream from the great grandfather. Commenting on this living says, "I can so far, enforce this that I remember one patient telling me while I inquired if his malady were a family one. That my one out of rural of his children suffered in the same way and this was a daughter and he my one who closely resembled himself."

The opinion is gaining ground every day that "all forms of nerve trouble either with or without affectable nerve lesions have their origin from some fibrioidal nerve lesion and that all forms as are now known to exist are but variations from this original and only type modified by transmission through successive generations. They have a common origin; they are referable and yet they are all bound the one to the other by an important factor and this factor is heredity. Might not this forth the fibrioidal case here been due to some amount of development?"
Inheritance has an important share in the causation of asthma. Letter (in Asthma, p. 109) gives many instances of its transmission from generation to generation. Of 35 cases he obtained evidence of heredity in 16 cases; he could obtain no evidence in the remaining 21 cases. Yet several brothers and sisters may be affected and the parents be normal. Sir Henry Holland (Medical Notes and Reflections, p. 35—) has shown the complaint to occur in three successive generations and often so numerously in the same family as to make it certain that a common cause (hereditary transmission) was concerned.

Chorea is the only nervous to which rheumatic fever gives a marked predisposition although the question of heredity in rheumatism has been much studied, few have examined the influence of rheumatic heredity in chorea. The available statistics are given by Dr. A. E. Garrod (op. cit. p. 126). In the largest series obtained rheumatic family history i. 28 out of 214 cases of chorea; 112 out of 141 cases of chorea; 41 out of 72 cases of chorea; 30 out of 80 cases collected by Dr. Garrod.
Herself there were 25 who family histories of Rheumatic Fever and 6 with histories of rheumatic arthritis. The inquiries in each series were limited to the immediate relatives. H. F. Heflger (p. 24) states that two children in the same family often have Chorea but it is rare to find a child whose parents have suffered themselves from the malady. He terms this "familial" hereditary relation.

Hereditary Chorea is a very infect-difficult from the Chorea of children. It differs especially in the absence of the "mental chorea" as it has been termed signifying the jerky, weak, intertwined and normal actions of the sufferers from Hereditary Chorea. The Lancet of Aug 17, 1889 in a leading article p. 326 suggest a close likeness between Hereditary Ataxia and Hereditary Chorea the difference being one of situated of the falldown basis.

I have found two extraordinary cases of this hereditary affection. The first case that the disease was transmitted through four generations is taken from an article on Hereditary Chorea in the New York Medical Journal for 1885. It is by Charles King and is as follows:
1st Generation: The great grandfather suffered from hereditary Chorea. (ancestral history not obtained.) He had 10 children.

2nd Generation:

1. Subject of Hereditary Chorea
2. " " "
3. " " "
4. " " "
The other 6 children except for disease. So 4 had 7 children.

3rd Generation of whom one had Hereditary Chorea. None were exempt.

4th one with hereditary Chorea had five children.

4th Generation

a. Daughter Hereditary Chorea
b. Daughter "
c. Daughter "
d. Son had paranoia Chorea. His infancy was completely cured. He now 35 years and suffers from few paroxysmal symptoms of Hereditary Chorea.

e. Daughter exempt.

f. twins all had Hereditary Chorea. This family proved also mental worry.
The other cases that I have given is taken from J. Nijhoff's L'Hygiène dans les maladies du système nerveux, p. 135—
who borrow the history from Brodti [Uebel-Hydratäre chronische Bewegungstörungen, Berlin, Klein, v. 1885, p. 50—
111 ff. 824 et 858].

Dans la famille dont de Jean N.,
atteint de Charcot-Hydratäre et dont les
parents et grands-parents étaient affectés
sou de troubles psychiques soit de
mouvements choriques.

II. à 4 enfants dont deux

un fil Andre. 3 années de l'effet
une fille à 10 ans

et deux filles identiques dont les
enfants et petits-enfants sont égale-
ment bien portants.

a. à 2 filles

II. à 5 enfants—

a. 2 fils

3. un enfant

S. 1 fille alcoolique et atteint de

Tremblant

é. 1 fils mélée

La deuxième fille âgée de Charcot l'héritat
aux (p. 1) est l'unie à 5 de 4 enfants
avec un fils âgé de 35 ans formé dès
l'enfance une démarche particulière.

Les enfants de la 3e génération n'ont—
pas encore atteint l'âge où se développe la chirurgie héréditaire.

André N. a eu 10 enfants mais de deux mariages. Sur les 17 enfants du premier mariage 2 fils et 2 filles sont chrétiens, 1 fille est morte à 30 ans d'extension périnéale, 2 fils ont quitté le foyer, l'un étant
des lettres originales. Sur les 3 enfants reus du deuxième
mariage 2 filles sont chrétiennes et 1 fil a été mort à 19 ans paralysé après avoir présenté pendant 4
l'événement suivant que des „écoulements ne cessant. La dernière fillette est de même âge et de 5 enfants dont 2 garçons et
ont terminé à l'école pour leurs
grandes.

Nous avons une famille alors que
les deux 12 membres souffraient de trichiasis. Chose, la torture étant destinée aux Mère générations.

La deux génération sont de 9 personnes
mère trichiasis, chauve 5 chevres mental
d'âge de 1 alcoolard 1 Scétoire 3
masculins, les deux formes being males, trois
femmes.
Mr. Russell Reynolds in his discussion on the etiology of epilepsy speaks of the conflicting opinions regarding the importance of the hereditary taint in epilepsy. The current belief he says among ancient writers and among many at the present day is that epilepsy is fundamentally an hereditary affection. (Epilepsy p. 123.) He thus summarizes the opinions of different observers of that date in which his book was written (1861). A 1845 - M. Ettin published The Question carefully and concluded that the hereditary transmission of epilepsy was more rare than many thought. M. Hopton arrived at a different conclusion for he found that epilepsy was very much too common in families where there was no history of epilepsy than it was in families where there was such a history. Thus, in the former case, in the letter from 22 to 29 per 1000. Mr. Delavaine states that of 300 cases there was no information in 1673 that there was a formal denial of hereditary taint in 120. Hence there was evidence of epilepsy in the relations of the 5; and of allied cerebral diseases in only 8. If then we exclude the doubtful...
case 167 is number 5. Verlaicierio's
research found evidence of hereditary
taint in 5 cases. Dr. Leitch
found an hereditary taint in 11 for each
of his cases.

Reported finding gave "accurate inform-
ation" in regard of 38 individuals viz.
22 males and 16 females.

Mumps disease was positively absent in
the families of 15 males
11 females

Present in 7 males
5 females.

12 in 38, a proportion of 31 per
cent of cases in which there was
hereditary incidency of mumps
occurred.

Of the 12 cases
Antecedent relatives affected in 6
Collateral " " 6

13. Antecedent
1. Father, paralytic
2. Mother, idiotic
3. Father, idiotic
4. Mother, idiotic
5. Father, idiotic
6. Father, idiotic

Collateral
1. Brother, paralytic.
2. Brother and sister control diseases
3. Brother fits
4. Brother and children died with fits
5. Imbecile died with fits
6. Fits occur in fits.

Even including the control cases there were still 16 per cent of the cases which might fairly be considered hereditary.

Amended therefore "is led to believe that an hereditary tendency to epilepsy is much more common than it is generally represented to be by recent writers after the subject (cf. cit. p. 124.)

Errors always but percentage still higher than Reynolds. Of 1218 cases in which the family history was carefully investigated 429 or 35 per cent showed evidence of hereditary inheritance that is of every 8 cases of epilepsy or of convulsions fits or convulsion fits, even afterfiling, on an average 3 will furnish evidence of hereditary heredity and five will not.

Heredity is too frequent in males than in females (33 for each male, 37 per cent females.) therefore when there is an inherited cases the females of a family are more likely to suffer than the males. The transmission disea
Distinct tendency, Cerebral from the Father's side to the son, and from the mother's side to the daughter. The cerebral tendency is therefore in a much smaller proportion of cases than the father. The father himself was the subject of neurasthenia in 45 for cent, of the cases in which the inheritance was paternal; the mother in only 35 for cent of the cases in which the inheritance was maternal.

There is a family history of epilepsy in one third of the inherited cases; of insanity in one third of both is a third. Of the 429 cases of inherited epilepsy examined by Grant, the family history showed epilepsy by itself in 240 cases; epilepsy combined with insanity in 87; " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " &n
The forms of paralysis, paraplegia and infantile palsy included in this investigation were not more frequent in the families with other evidence of mental tendency than in those who presented no such history. The cases in which an antecedent family history of idiocy was obtained were very few.

Of 394 cases of inherited epilepsy the father was epileptic in 45, and the mother in 46 cases; but fathers were traced in 21 cases, the mother only in 11.

In some cases the family tendency as evidenced by the number affected was very strong: in one case S. S. the patient, his mother, maternal aunt, two uncles, and a cousin were affected. In another patient, patient's mother and maternal grandmother; her brother, sister, and mother's brother's son; four of the patient's cousins, and five of the patient's children or 14 persons in the family (see W. R. Mount's "Epilepsy", 1897-10-11, and same author's "Diaries of the Oregon Asylum", Vol. 2, p. 731.)
Very important statistics dealing with the hereditaryism of epilepsy are given by M. H. Ackerman in a paper in the Journal of Mental Science for Oct. 1880 (Hereditary and Inheritance of Epilepsy) p. 364 et seq.

Starting from the epileptic parent he traced the effect downward from the first degree the second degree as far as third degree. He always adopted in this method that usually adopted in inhumaning to ascertain the exact genealogy of patients of the kind. He calculated his index for more than ten years to ascertain the real state of health of the offspring including from this calculation many cases in which he had not been able to verify the facts accurately.

A series of 136 married epileptics
-62 males and 74 females brought
533 children of whom

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<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>264</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Taking into account that in one instance both father and mother were epileptics he finds 135 families (136 individuals). The hereditary relationship to be:

- From the paternal side: 61 cases
- From the maternal side: 73 cases
- From both parents: 1 case

Among the 136 families epileptics he found:

1. 68 whose descendants have been epileptic and either idiotic, or brain, paralytic, hypertonic, and healthy.

2. 61 whose descendants have been either brain or idiotic paralytic, hypertonic, chronic, and healthy. In addition several after children in the first and second groups have died during infancy from convulsions.

3. 7 parents have recovered children who have arrived in life age 7 having without displaying any nerves or mental disorder.

Ehrenreich further says (op. cit. p. 367) if we estimate the whole of these...
affected with two consecutive accidents. All of the 533 children he found 195 who died from accidents in infancy. 98 Epileptics

\[ \frac{195 + 98}{533} = 0.4972 \]

or a proportion of 49.72 per cent. To which an Epileptic parent seems to have obviously entailed his disease without any change of type in the offspring.

Finally, C. E. Brown-Lippey regards tendency as the most undeniable cause of Epilepsy. And in further confirmation of the family relationship of the twins he cites statistical data given by Frit in which it is shown that among the direct descendants of 594 Epileptics.

70 had suffered from Epilepsy
166 \("\) insanity
88 \("\) paralysis
21 \("\) General Paralysis
72 \("\) Hypertension
73 \("\) Suicide
33 \("\) Puerperal Eclampsia
61 \("\) Chorea

Cases of nervous disorders among the direct descendants of the 594 was 1024. Brown-Lippey's Experience agrees with that of Frit. (See Article Eclampsy "Eclampsia" dictionary and "p. 594").
Idiocy. There can be no question of any
supreme fact that idiocy taken in
the caution of idiocy. It occurs in the
process of development of a child; it is
indispensable to the presence on the family
of other neuroses; it is almost inevitably
the outcome of the blending between neurotic
and innate stock on both sides. How does
it arise not merely as idiocy but how does
any neurotic arise. The subject is still obscure
and if we are to believe with Wernicke that
acquired peculiarities are never transmitted.
It will always remain to,
Dr. W. Board in his work on "Idiocy and
Vileliness," page 15 says that the cases
appear as if a single pair unaffected with
any neurosis may give birth to children
also healthy and yet their children, grand
children and great grand children may be
affected with insanity—idiocy epilepsy or
depress while other members of the
same family stock are aberrantly healthy
and intelligent. Though the ancestral taint
may appear in their descendants.
Wernicke remarks, aberrants idiocy in his work
frequently propagated by descent—
A 45-year period of 2000 cases of idiocy by
Laughter Down found out traced anomalies in
one or the parents. (British Med. Jour. Oct. 11, 1873)
Incertainty

Further, with regard to the influence of tendinitary tendinositis in the production of Incertainty, we have the valuable facts on this very subject by Fletcher Baker, the Medical Superintendent of the Darnley Asylum in the British Medical Journal for May 28th, 1887.

Examining into his own experience in dealing with 836 cases where he had been able to obtain information, he found a history of tendinitary tendinositis in 68.4 or 46 per cent. (Bennett of Toorak had found a percentage of 90 per cent; Ludwig Wahl of 50 per cent; and Dr. Langdon Boris of 45 per cent.) The only difference between Beach's results and those of the two latter being due to the difference in the admission or exclusion of different cases. The causes included by Beach are:

Incertuity

Insanity

Incertity

Edilepsy

Phthisis

Chronic Leukalgia

Paralysis

Irrease of the Brain

Excitation

Lethargy


<table>
<thead>
<tr>
<th>Cause</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depréciation</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td>Depréciation &amp; other causes</td>
<td>77</td>
<td>59</td>
</tr>
<tr>
<td>Arénavirous</td>
<td>32</td>
<td>29</td>
</tr>
<tr>
<td>Arénavirous &amp; other causes</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>Arénavirous</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Arénavirous &amp; other causes</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Hygiéfry</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Métabléfry &amp; other causes</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Phtéris</td>
<td>83</td>
<td>57</td>
</tr>
<tr>
<td>Chronic Irenalgie</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Paralgie</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Basis of the Brain</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Suggestibility</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Severe hemorrhage</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Arénavirous</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Hygiéfry</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Suicide</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Reéadutabilié Father</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Reéadutabilié Moun</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

| Total                      | 377  | 260    |
Giving the following percentages of the cases in which the above causes were recognized in the descendants or columbates of 637 cases of insanity. The total cases amount to 76.08.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insanity</td>
<td>136</td>
<td>16.26</td>
</tr>
<tr>
<td>Insanity and other causes</td>
<td>61</td>
<td>7.29</td>
</tr>
<tr>
<td>Intoxication</td>
<td>43</td>
<td>5.14</td>
</tr>
<tr>
<td>Intoxication and other causes</td>
<td>13</td>
<td>1.55</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>17</td>
<td>2.03</td>
</tr>
<tr>
<td>Epilepsy and other causes</td>
<td>47</td>
<td>5.62</td>
</tr>
<tr>
<td>Alcohol</td>
<td>47</td>
<td>5.62</td>
</tr>
<tr>
<td>Chronic meningitis</td>
<td>142</td>
<td>16.98</td>
</tr>
<tr>
<td>Paralysis</td>
<td>7</td>
<td>0.83</td>
</tr>
<tr>
<td>Disease of the brain</td>
<td>23</td>
<td>2.75</td>
</tr>
<tr>
<td>Suicide</td>
<td>5</td>
<td>0.59</td>
</tr>
<tr>
<td>Intoxication and other causes</td>
<td>7</td>
<td>0.83</td>
</tr>
<tr>
<td>Cancer</td>
<td>4</td>
<td>0.47</td>
</tr>
<tr>
<td>Drowning</td>
<td>5</td>
<td>0.59</td>
</tr>
<tr>
<td>Suicide</td>
<td>2</td>
<td>0.23</td>
</tr>
<tr>
<td>Suicide in other</td>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td>Suicide in father</td>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td>Total</td>
<td>637</td>
<td>76.08</td>
</tr>
</tbody>
</table>
Some of the cases given by Drach are very interesting and instructive. In example—

E.K. aged 11. Female—

Natural great-grandmother insane
Natural grandmother and aunt Epileptic
Natural great uncle Epileptic, died paralysed.
Natural grandmother Epileptic
Natural aunt has an insane daughter.

Thus on the natural side
1. Female child suicide
2. Mother sane
3. Grandmother Epileptic
4. Great-grandmother insane

On the paternal side
1. Female child suicide
2. Father sane

An excellent instance of hereditary tendency.

D.A.P. aged 8—Female—

Father demented
Natural son Epileptic died insane
Natural grandmother died insane
Natural great grandmother insane
Natural aunt Epileptic.

Two other children also markedly prejudiced
The following is an abstract of family history.
Father eccentric married an active woman with no obvious peculiarity and had nine
three sons and one daughter.
1. Son  
2. Daughter. Uncommon slightly weak minded
   married and had one son  
3. Son. Strange looking and eccentric, rather
   weak minded. Married a sensible sharp
   woman with no known tendency to insanity.
   He died aged 70 from "old age + debility."
   She died aged 72 from "disease of liver."
   They had nine living sons and four
   daughters:
   b. Helen. Sane.
   c. Mary. Intiride.
   d. William. Idiot.
   e. John. Idiot.
   g. Frank. Sane. Had illegitimate daughter.
      Died dying from Phthisis.
   h. Thomas. Sane. Married. Only son
      Intiride.
   i. Son. Intiride died from Phthisis.
   k. Charles. Intiride.
4. Son. Said he have been weak minded.
For "Illustrations of Heredity" by
J.R. Dunlop. Trans. Dental Science XXVII. 43.
To what extent does insanity enter into the causation of suicide? Opinions and estimations differ widely. The following is the summary of Th. Ribot (of cit. p. 1574)

<table>
<thead>
<tr>
<th>Bureau of Touro</th>
<th>90 per cent</th>
<th>Andrews, above 25 - under 50 &quot; &quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>(16 in 50 cases)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vital (total suicide) in 73 cases of insanity found 43 due to insanity.

The next recent inquiries and the most accurate those of Turnham and H. Graham, Stewart arrive at a percentage of from 40 to 50 per cent. as the true extent of insanity.

These figures must be added others collected by Dr. H. Graham in the same

<table>
<thead>
<tr>
<th>Bureau</th>
<th>85 per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holst</td>
<td>69 &quot;</td>
</tr>
<tr>
<td>Tasso</td>
<td>65 &quot;</td>
</tr>
<tr>
<td>Britia</td>
<td>50 to 75 &quot; &quot;</td>
</tr>
<tr>
<td>Turnham</td>
<td>51 &quot;</td>
</tr>
<tr>
<td>Webster</td>
<td>32 &quot;</td>
</tr>
<tr>
<td>Deidem</td>
<td>31 &quot;</td>
</tr>
<tr>
<td>Guilain</td>
<td>30 &quot;</td>
</tr>
<tr>
<td>Sigurd</td>
<td>25 &quot;</td>
</tr>
</tbody>
</table>

These figures are returned puzzling.

This time so are those collected by
Pecqinier (p. 179) and Legrand du Selle (Legno sur la folie héréditaire, p. 4) and cited by Ribot (op. cit. p. 157). They gathered 45 statistical tables made in the different countries of Europe and the United States and they found the percentage of hereditary influence in insanity to vary from 4 per cent. by 7, or 85 per cent.

In the English translation of Ribot's book (p. 131) it is stated that "from a report made to the French government in 1861 it appears that in 1000 cases of insanity of each sex admitted to asylums 264 males and 266 females had inherited the disorder.

Of the 264 males 128 inherited from the father 110 from the mother and 26 from both. Of the 266 females 100 inherited from the father, 130 from the mother, and 36 from both. Hence the chief hands by which were the 1756 cases of hereditary insanity represent only one half or one third of the total number."

Mundley Ewings (Pathology of Mind, Chap. III, p. 106) says that "the main value of the many discordant statistics"
which have been collected by authors
in order to decide this topic a part
hereditary trait plays in the production
of insanity is to prove that with the
increase of opportunities of obtaining
accurate information the smaller is the
proportion of cases in which the influence
is detected; the more careful and exact
the researches the fatter is the stream
of hereditary tendency which they disclose.

Leyinul (of Strahan at Chelsea) noticed it
in 182 of 264 cases of his private
patients.

Incidentally may note here the
relationship of insanity and Diabetes.
A paper read before the Medical Society
of London in 1870 by Savage said that
after a study of 440 patients in Bethle-
hem hospital for the insane who had
diabetic relations and 10 patients who were
at once diabetic and insane he came
the conclusion that diabetes and
insanity are closely related but that
in such families the form of
mental disorder most common is
melancholia.
Mr. Baillarger in his Recherches statistiques sur l'hérédité de la folie (Heredities Monats. Tome I, p. 163) thus replies to the following questions.

1. The insanity of the mother and the things being equal, is it more frequently hereditary than that of the father? In 453 cases of inherited insanity, paternal inheritance occurred in 271, or 182 paternal inheritance and 89 difference. Therefore, paternal insanity is more frequently transmitted than paternal insanity, the proportion being as 3 to 2.

2. Are children attacked when the inheritance is maternal or more when it is paternal? The answer is yes in accordance with the following results: In 271 families, where the insanity had been transmitted by the mother, the child only attacked in 203 families, two " " " " 62 " three " " " " 5 " four " " " " 1 "

In 68 families more than one child had been attacked = 1/4
1. The 182 families where the insanity had been transmitted by the father, one child only was affected in 152 families, two 26, three 4, 182.

2. Of 30 families out of the 182 more than one child had been affected = 16.

3. Insanity more often transmitted by adult lunacy, from mothers to daughters and fathers to sons.

Of 346 children who received their insanity by maternal inheritance there were 194 daughters, 149 sons, 346.

Difference 48.

Of 215 children whose insanity was attributed to paternal inheritance there were 128 sons, 87 daughters, 215.

Difference 48.

The question must therefore be answered in the affirmative.

Moreover 14. Sons inherit their insanity almost as often from the father as from
The mother.

Daughter is the contrary exhibit. Their insanity twice as often from the mother as from the father.

As above —

of 271 cases tainted with insanity

maternal inheritance caused 146

Paternal  " " 125—

271

of 274 daughters insane

maternal inheritance in 189

Paternal  " " 85—

274

In insanity the kindness may be of three kinds

1. Where the same form of insanity is transmitted acute mania in the parent acute mania in the offspring.

2. Where an acute form is transmitted acute mania in the parent becoming melancholy in the offspring.

3. Where there is a transmutation of Acute mania to acute mania in the parent mania in the offspring —
In their series of novels known as the Rougon-Macquart series, Émile Zola has written a comprehensive study of humanity, presenting us with living instances of the illustrations of humanity in all its forms. Thus he illustrates the question of humanity by showing the influence of insanity in the third, fourth and fifth generations descended from the main mother of the family, Fantôche. The genealogy can be worked out from the arbre généalogique provided in his terminal work of the series "Le drap de Pascal."

*Fantôche* married by
*Ponson* her husband had a
son, Pierre Rougon
whose daughter Marche was married
i.e. the grand-daughter of Fantôche.

*Fantôche* married by
*Ponson* her town had a
daughter, Violante
who married Mount-
their daughter Helène married
Grandjean
their daughter Jeanne was married
i.e. the great-grand-daughter of Fantôche.

*Fantôche* married by had a son
Pierre Rougon who had a son
Aristide dit Saccard whose son
Francois had a son

Saccard Charles, meaning

i.e. the great great grandson of Tonti's side.

This, Zola gives examples of Iridite in
return to the 3rd, 4th and 5th generations
from the 1st generation affairs.

There was also a remarkable
physical resemblance between Charles Recy
and Saccard and his great great grandson
Adelaide Tonti Tonti side.

(For this reason, Zola quotes an absolute proof
of the doctrine of Weismann that the reproductive
cells are independent of and uninfluenced
by the somatic cells. He quotes the fact that "a woman (he
is quoting from Austin Flint's Physiology, p. 797
in the Contemporary Review, May 1893, p. 755) may
have children by a second husband who resembles
a former husband." A white woman married
to a white man may have children modified
by the character of the black man to whom
she had previously given birth to a child.
An unfaithful wife impregnated by her lover
may give birth to a child more resembling
its putative father than its true father.

So Zola describes this extraordinary circu-
ence of Anna Conpian - the notorious
Kana - the daughter of Giovine Macguard-
and converse her husband especially in her childhood to the first born of her mother, the Cantier by whom her mother had three sons. It was as says Bata, "il avait mispris celle-ci a jamais."

Some of the family histories showing the hereditary transmission of insanity are simply people in their horror. I had learnt for June 21st 1873, in Shepparton where a case of mania came there into this tribe and told me my husband for the first time in Australia at a station where my father held an official post of importance. It was a handsome man who had just migrated from England bringing good introductions with him. He was a frequent guest at our table; we fell in love and were married. There were some of whom or about whom family inquiries could be nothing but. My father was pleased that he married to the child who was devoted to and who had been given unworthy of me. We did not succeed in having and my father dying we returned to England. Soon after our arrival there my husband became melancholy and then I gathered from his family that both his father and grandfather had died insane of their fathers and sisters were "very strange." He became so unmanageable that it was necessary to place
now in a lunatic asylum. Twice since then
the insanity has recurred and twice he has
again been confined. I am the mother of
ten children by him, the eldest of whom
seventeen years of age is permanently
ruined in a county lunatic asylum. The
condition of several of the others already
causes great uneasiness. I am alone
with an unrewarding task to perform.
I have no friends but you and God.
Suicide is hereditarily transmitted in a family, both directly and indirectly; it is truly interchangeable in transmission with other such degenerate conditions as epilepsy, idiocy, and insanity; it frequently appears in those coming off a bad stock; and finally the offspring of the suicide is often too degenerate to live and the family with it disappears.

Of all countries in the world, suicide is most common in China; it is there a condition of training and education, it is by no means so with as the evidence of a pathological nervous type. China is the land of Tertullian, may be applied as well as to Rome who says that among the Romans suicide was the effect of education, it depended upon their customs and manners of training; with the English it is the effect of pleasure and depends upon the physical condition of the body. Thus suicide times in families many relatives might be given.

S. A. K. Strahan gives the following:

A woman who was married three times had two sons a. and b.

a. committed suicide and had two sons x and y.
x. committed suicide

y. was health and had an

any child who was

Insane. Thus extinction of

the family descending from a.

b. the other son was health and had

two daughters A. and B.

A. committed suicide

B. was insane and had a
daughter who was insane

and killed her only child

daughter at birth. Thus

extinction of this family

descending from b.

(Suicide and Insanity § 71)

And again on page 73 of the same

work there is the following Family

history.

a. mother who was insane and committed

suicide was married to a man who

committed suicide. They had four sons.

a. committed suicide while confined in

a mental asylum

b. was insane and attempted suicide

and had an only son who was

insane.

c. was eccentric.

d. was a drunkard and weakened

and had an only son who was insane.
and suicidal.

Strahan further shows that suicide can be traced to vice in families as suicide itself is a product of civilization and proceeds with the degeneration of the race.

And that (this is his book on "Marriage and Disease" p. 103) as an criminal population to be for the most degenerate section of the community the criminal is almost forty times more liable to insanity than the ordinary citizen and twenty four times more liable to suicide.

Of the 1899 persons who were admitted into a certain asylum in the ten years between 1882 and 1891 there was a hereditary taint in 20.5 per cent.

Of the 1899 patients 473 were suicidal.

Of the 473 suicidal patients there was no history in 105.

Of the 368 suicidal patients with a history there was distinct hereditary taint in 64.13 per cent.

Insanity occurs in the population in 55 persons in 100,000 but among lunatics in 2180 in 100,000.
Of every 239 deaths in the population adult at large one is a suicide. But of every 10 deaths occurring in cases against our passions one is a suicide.

Suicide cap. Thibet (Marriage and Inheritance) p. 113 is nature's great remedy for insanity. Nothing is better demonstrated than the tendency of suicide. Voltaire was one of the first to draw attention to this circumstance (Encyclopedia Philosophique). It tells us of a woman of a prosperous family, at an age near, whose conduct illegal, having not a passing, being in the house of her husband, her own father, and his elder brother before her had killed themselves at the same age. Similar facts are recorded by Salz, Eyguel, publics of Tocco and others. Eyguel knew a family in whom the grandmother, mother, daughter, and grandson all committed suicide. And the them another in which the father, a merchant, had six children, four sons and one daughter.

The four sons committed suicide. The father became insane and recurred.
The daughter was seized with mania and made frequent attempts at suicide. And a grandchild confined to the care of Ballanger endured their misfortune by hanging himself in the hovel.

Faber (Pict. op. cit. p. 144) knew a father of taciturn disposition who had for 20 years

The ostent at the age of 40 issues himself

at the third story window

The second at 35-strangled himself

The third hung himself out of a window

The fourth cut his throat.

A case of their doomed himself for a trifling cause.

In the Britten family the eldest is Sereniff's two sisters were affected with suicidal mania and brother grandfather and two

nephews put an end to their own lives.

As the most singular combination of related suicides in record as this: D. son and nephews of suicides married a woman

who was daughter and niece to suicides. He hanged himself and his wife married a second husband who was in nephew

and first cousin of suicides.

The hordes of suicides at the same age has often been noticed. In instance
I have of Town two cases where a
man put an end to his life at the age
of 30. His son had hardly attained the
same age when he was seized with the
same mania and made two attempts
at suicide. Another man named
Mayo, his son did so also at the
same age. A broker committed suicide
by drowning; it was ascertained that his
father and one of his brothers had
committed suicide at the same age and
in the same way.

[Psychologie morbide, p. 174]
A notable remarkable case of the tendency transmitted of the suicidal propensity is given in Hammond's "Deity and its Medical Relations." "A gentleman once tried to write a slight tendency tending to suicide, killed himself in the 25th year of his age by cutting his throat while in a warm bath. He was found to be assassinated for the act. He had two sons and a daughter—both under age at the time of his death. The family separated—son marrying.

In arriving at the age of 35, the eldest son cut his throat while in a warm bath but was rescued and life was restored. At about the same age, the second son succeeded in killing himself in the same way. The daughter, in her 34th year, was found dead in a bath tub with her throat cut. Her son at the age of 27 attempted suicide by cutting his throat while in a bath at the hotel in Paris but did not succeed. Subsequently, at the age of 30 he made a similar unsuccessful attempt but was again saved. A year afterward, he was found in his bath by his servant with his throat cut from ear to ear.
It may give another instance of the 
transformation of mania into one 
manifestation of mania, with all the manifestations 
of mania, dementia, alcoholism, and epilepsy (see also melancholia, p. 107).
Thomson wrote that a patient who had 
been cured of a first attack of mania 
took poison later.
1. His eldest daughter was seized with an 
attack of mania passing into dementia.
2. His son stabbed himself in the stomach 
with a knife.
3. His son took to drink and died in 
the swath.
4. His third son, owing to domestic annoy-
ances refused all food and died of 
anemia.
5. His second daughter, a woman of weak 
constitutions, was married in her 
one son A.
one daughter B.
A. The son died insane and epileptic.
B. The daughter took to mind during her 
lying in became hypochondriac and wished to harm herself to death.
After three children two died of brain fever
And the third by refusing to take the treatment.
Alcoholism. Havelock Ellis has said it is part of a vicious circle. "In a well conditioned person of wholesome heredity to become an inebriate is not altogether an easy matter (the Criminal of 98).

It is an important fact in the predisposition to crime in the descendants (especially that of vicious environment) of 44,000 criminals who have passed through the Eltham Reformatory. Instances in the case of the parents was chosen with some certainty in 38.7 per cent and probably in 11.1 per cent of the remainder.

The chief difficulty in making even an approximate estimate as to the part played by heredity in the determination to crime is in eliminating the effect of the environment. As Dr. Martin will said (The Lancet Aug 8th 1891 p. 317) "whereas our inherited organization is our fate, on the other hand in the influence of our surroundings we find our hope of modifying this fate."

Genetics is an indispensable to the product of two factors heredity and circumstance.
Knowing then what we do of the etiology of alcoholism the statements made in conference that books to curify us with total abstinence are often not too wildly exaggerated. I trust memory of the Prohibitionists the "Foundation of Death" by Axel Gustafson the following is the typical scheme of retribution which punishes mere use of alcohol. Quoting from Professor Kraftsteig at his Psychiatry Stuttgart 1883 he says "The children of parents who are guilty of alcoholic excesses, come into the world as idiots with hydrocephalons or aseptic convulsive constitutions and perish in early years of convulsions. I those who survive epilepsy, hysteria, mental diseas and weakness and exactly the several forms of mental impairment are developed out of the morbid constitution of the nerve centres and thus is how sudden death of generations springing from drunkards 1st generation. Moral depravity and alcoholic excess.


3rd generation. Hypochondria, melancholia, epilepsy and tendencies to murder.
4. Education, Inbreeding, idiocy, and extinction of the family.

[Pages 178-179]

No one can doubt that the appetite of the drunkard is an acquisitive character not only that he can transmit the appetite to his children. But, on the other hand, the drunkard or the inheritor of a neurotic condition which may not have manifested itself in his parent as drunkenness. A drunken father may have an epileptic son. In that case, the drunken father was probably himself the son of a neurotic parent.

The following family history is given by Mr. Potter (Heredity in Sheffield, 1897):

A man a good workman early fell to drink and died of chronic alcoholism leaving seven children.

1. Died at an early age of accidents.
2. . . . . . .
3. Drowned at 22 died an idiot.
4. Attempted suicide died an idiot.
5. Parasite and misanthropic.
6. Daughter - Syphilis with insanity.
7. "A very intelligent workman but of nervous temperament, fully gives evidence of the gloomiest forebodings as to his intellectual future."
One of the most remarkable instances known of the distinction of a family by the transmission through heredity of mental heredity which occurring in the family was transmitted with increasing intensity through many generations for two hundred and fifty years to that narrated by W. W. Ireland (The Bloxagh Brasie 147-157) and amplified and published as a family chart by Beringer in "L'hérédite" dans les maladies des systèmes nerveux" (p. 90). It is the neuropathic family history of the Royal Family of Spain between 1449-1700. Briefly told the story is this: Juan II de Castilia an uncle of whose line is described as little better than a fable as a minor—married in 1449 Isabel of Portugal who died without issue. Yet their daughter was the strong-minded matronly Isabel la Católica who married Fernando King of Aragon and thus united the two kingdoms of Castilia and Aragon. This union was the most glorious in the annals of Spain associated as it was with the Expedition of Columbus, the expulsion of the Moors and the expansion of the Sea by the treaties of Cardinal Fergusano.
Of their four children (one son and three daughters) the son died young and the three daughters married. One daughter married the King of Portugal and had an only child, a daughter Isabel; another married our glorious monarch and defender of the faith, and likewise had an only daughter, Queen Isabella, who died childless; the third daughter, Isana de Toro, was confined for years as a criminal lunatic in the Alhambra and at the Castle of Tordesillas. Isana married an Austrian Archduke and had an elder son, Carlos V, the King of Spain, in succession to Fernando and Isabel.

His character was sufficiently tarnished. He was mystic and subject to melancholia, epileptic with an unbridled temper. The prominence of his two sons made inattention difficult; he listened to his flush, was terrible unformed captious and incredulous.

Having a granddaughter of Fernando and Isabel he married their grand daughter Isabel, the daughter of the King of Portugal and his son was Felipe II, a cruel supertititious投保 traitor, who married Queen Isabella of England.
Felipe II was the father of Felipe III by his own cousin the daughter of a brother of Carlos V — he became insane and was succeeded by his son Felipe IV the father of Velázquez, a sovereign who is described as "admirable, voluptuous, enfeebled of spirit" and after two sons of Felipe IV one died of mumps in infancy, two other Carlos II died insane in 1700 having exhibited in this pathological history, dulness, epilepsy, cruelty, delight of torturing cows, camels, melancholia, and mania. The characteristic features of these cows and stags and bears were seen 200 in the Royal Paintings of Velázquez here reproduced in all four generations from Carlos V to the insane Carlos II at whose death the dynasty became extinct. In connection with this remarkable case it is worth noting that the Epileptic Carlos V left two natural children one son and one daughter while two others were widely separated from the royal family. The presidency was on the side of the healthy, although not in that of the
Felipe II was the father of Felipe III by his own concubine, the daughter of a brother of Carlos V. He became insane and was succeeded by his son Felipe IV the Father of Vizcaino, a sovereign who is described as "Idolatria, sodomia, facie d'asfis" and after two Sons of Felipe IV one died of monstrosities in infancy, the other Carlos III died insane in 1700 having exhibited in his pathological history idiocy, epilepsy, cruelty, delight of torture, loss of reason, melancholy, and mania. The characteristic prominent club hands and elongated lower jaws can be seen in the Royal paintings of Vizcaino were reproduced in all four generations from Carlos V to the madness Carlos III at whose death this dynasty became extinct. In connection with this remarkable case it is worth noting that the Epileptic Carlos V left two natural children one son and one daughter while both were widely separated from the royal family. The prejudice was on the side of the healthy mother and on that of the
taught King and by hereditary reason their two children inherited this healthy and vigorous type of the ancestral stock; their daughter indeed gave birth to the famous Alexander of Parma, the greatest captain of his age.

Sigmund in commenting on this family history while he notes this incestuous tendency constantly increasing by consequent marriages the true reason pointed out the fact that the Austrian Royal Family with which the Royal Family of Spain was then so closely allied in marriage gradually fused itself with the autocratic Court. Yet at the present time I understand that there is no Royal Family in Europe in which there are so many manifestations of insanity and brain trouble among its members as in the Family of Hapsburg.

This more violent case of mental derangement is described in the "Annales Medico-Psychologique" for 1869 and cited by J. F. Théodule in his "Mémoire et Terrible - 69" 1st Generation. Father intelligent but
Hydrochondriae and suffering from delusions.

2nd Generation

1. Two children of whom three die in childhood.
2. Daughter A. Hydrochondria + emotional
4. Daughter C. Weak-minded.
6. Son E. Weak-minded.
7. Son F. Hydrochondria
8. Son G. Hydrochondria.

3rd Generation

1. Two 10 children of whom
2. 5 die in childhood.
3. Are intelligent, many fit the childless.

A. Deformed
B. Eccentric and extravagant
C. Tub of meanness.
D. Two nine.
E. One child mitre and hemaphroidet.

D. 3 children

1. Died of apoplexy at 23.
2. Mitre.
3. Artist “Eccentric.”

E. Has son who dies meane

and daughter who disappears

and is supposed to commit suicide.
f. Childless

g. One child who is semi-insane.

Another instance proving that an
tendancy transmutes diseases or degen-
trations tend to the one goal - the instruction
of the family is the case of T. W.
given by S. A. K. Strahan (Manages and
Doctor, b. 1809).

He was a man eccentric and passionate who
who
died of asthma had one sister who
committed suicide. He married a
woman who died at the age of 70.
They had six sons a. b. c. d. e. f.
and one daughter g.

a. Epileptic married twice and had
six children. Of the first wife
one child by his second wife
all died under one year old.

b. Epileptic committed suicide. He
married and had two children
who died in infancy.

c. Committed suicide. He had three
children. Two of them died in
infancy, one is still living a
married to the mater and
depressed. While he was married
his wife had no children and
is now living with another woman.
a. Attempted suicide. A melancholic suffered from neuralgia all through life. Became blind and afterwards had left eyeball removed for neuralgia. Married twice but had no children.

b. Died in infancy

c. Died in infancy

d. The daughter married a soldier, her history is unknown.

G. Mandelby in The Pathology of Mental Disease Ch. 111 p. 114 quotes the history of a family which Must investigated with great care. It is an instructive example of a telescopic movement of the human mind riding on to ride a deviation from the normal type. That stability means.

1st Generation:

Immorality, depravity, alcoholic excess, and great moral degradation in great grandfather who was killed in a tavern brawl.

2nd Generation

Hereditary drunkenness, marital attachment ending in General Paralysis in the grandfather.

3rd Generation

Sobriety via hydrocephalic tubercle
Defective intelligence. First attack of mania at 16 years of age; stupidity and transition to complete idiocy. Probable extension of the morbid line; for the generative functions were so little developed as those of a child of 12 years of age. He had two sisters who were both defective physically and morally and were clamped as insane.

To make the proof of hereditary tendency more striking it may be added that the mother had an adolescent child while the father was confined to the asylum and that this child did not exhibit any signs of degeneracy.

"Thus while the strong tendency to hereditary transmission works in the majority of cases so as to preclude those most fitted to survive it occurs too rarely much in other cases by a course action, the descent of disease is furnished tons to "purify the race by accumulating incapacitie which lead to the extinction of the defective strain."

Annandale's Cattle. 1904. Remif. 1408.
From its earliest antiquity, there has existed the belief in the hereditary predisposition to crime. But the influence of heredity says Hancock Ellis (The Criminal § 93 et seq.) that not the in the personality or its developed particularities, it may be that the criminal tendency is but a stage in the progressive degeneration of a family.

Lest for a moment at the following figures.

By all the inmates of the Elmira Reformatory 13.7 for each have been of insane or epileptic heredity.

By 233 inmates at Auburn New York 23.03 for each were of nervous origin.

Voigts found that 195 out of 266 criminals were afflicted by diseases that are usually hereditary.

Rossi found among 41 criminals
5 with insane parents
6 with insane brothers and sisters
14 with other relatives insane.

Rossi found that 77 to 90% of criminals show a history of heredity an unusually large proportion of their parents having died from cancer, syphilis, tuberculosis, and from phthisis.

Richard found among 4,000 criminals in Germany that the percentage of those with mental epileptic suicides and...
alcoholic tendency was
among Indians 36.8 per cent
among Negroes 32.2 per cent
among Moral offenders 28.7 per cent
among Thieves 23.6 per cent
Data found among the parents of 184
criminals only 14 to 15 per cent who
were quite healthy.

Alcoholism, both chronic and temporary
alcoholism at the time of conception are
important factors in determining the
criminal propensities of the offspring.
Here is for example the case given by Morel
A father alcoholic married to a woman who
became insane had five children:
1. Committed suicide
2. Became a convict
3. Became a convict
4. A daughter became insane
5. Another daughter became delinquent

But alcoholism was an effect as well as a
cause. It is part of a vicious circle. In
drugs, his root is its prompting to crime
but in its letting loose the inherent mortal
propensities to crime -

Yet crime runs in families both at an early

The hereditary transmission of the
trait that leads to crime and prostitution
has never been better exemplified than in
the family history of "the Fakers." In his
monograph on his family history, a
monumental effort of patient research and
meticulous

source statistics P.L. Figdor, shows the
prevalence of criminality and prostitution
in a family extending over five generations.

Seven hundred and ninety members of this
family were descended in five generations
from five sisters called by Figdor Ada

Bill, Clara Maria, and Effie.

Of the 709 members of this family,
whose histories were known, 35 were
marriageable women and of
these 84 were married—52.40 per cent.
Of the 73 children born to these 162
women, 82 were illegitimate—23.80
per cent.

Of the 709 persons 20.02 per cent
received at-door relief and 9.02
received almshouse relief, a total of
29.04 receiving emergency aid.

And of the 709 persons there were
44 convicted criminals who received
sentences for 116 separate discovered
crimes, namely 56 persons who
committed 91 offenses against property,
and 21 persons who committed 24
crimes against the person.

Hartley (loc. cit. p. 26) thinks that sex may become a hereditary characteristic and be perpetuated without any
speciality favoring environment to call it into activity. And he considers that
prostitution in the woman is the analogue
of crime and pauperism in the man.

The difference in two careers being only
the accident of sex. Bagdale also seeks to find an explanation of the hereditary
transmission of crime and prostitution in
such a family as this. That the tendency
of human beings is to obtain their living
in the direction of least resistance
according to their own views as to what that
direction is, and in that direction for men
of this class reduces to them to be either
in pauperism or in crime. The actions taken
from those locations. The actions finding
in prostitution a more lucrative career
than pauperism and crime. Then every one
and any one than crime thus avoid both to a measurable degree. A. H.
Bagdale (loc. cit. p. 25.)

Another instructive instance of the hereditary
transmission of crime leading one to ponder
whether the criminal is not an irresponsible agent in the genealogy of the Christian family. (Psychologic Natalie p. 5, Drainie ii 410)

There is a destiny made for man says Randall and no one can elude the tyranny of his organization. But in this he difficulty is how far his condition has been induced or modified by his environment.

In this family Jean Christian, coach, commissary, had three sons and no daughters. Their names were Pierre, Thomas, and Jean Baptiste.

1. Pierre had one son by Jean Lancier who was sentenced to penal retributions for life for robbery and murder.

2. Thomas had two sons
   a. Lancier imprisoned for life for the murder of his wife.
   b. Martin indeed for murder. He had a son who was transferred to Cayenne for robbery and died there.

3. Jean Baptiste had 2 sons Jean Lancier who married Marie Tanze belonging to a family of acrobats and had seven children.
   a. Jean Lancier many sentences for robbery, died in prison.
f. Bomboth killed by a fall while
   breaking into a house.

e. X—did claim many sentences for
   robbery—died at 25.

d. Marie Priez—many sentences for
   robbery, died in prison.

c. Marie Priez—many sentences for
   theft—died in prison.

f. Victor now in France for theft

g. Victoire never in Canada—many
   sentenced Theophile Lemaire. He
   was convicted to death for
   murder and robbery.

Note

e. Marie Priez had an illegitimate
   son who received many sentences
   for theft.

The brother of the true criminals
was Marie Tarez, she was 11 years in
Jura for theft and forging and other
offenses. Her brother Andre was a
convict; her father Andre was so
he have said as intermediary.

Note

9. Victoire married Theophile Lemaire
   whose sister was the mother of a
   murderer and assassin with the wife
   of a murderer and a known ringleader
   of robbers to murder and murder.
How clearly this is it revealed to us and
more and more clearly every day that
the capacity and character of our
body and mind are the results of
ancestral body and mental experience. This
immediate is true misfortune of the growth
the words of a modern writer on
Darwinism. "We see more clearly now
than ever that everything which has once
been in the race endures as a permanent
influence reworking it and that family
traits are apt to remain secretly altering
for generations. Even if a particular man
can flatter himself with reason that he
has escaped or conquered a vicious tendency
he knows that he is doomed to see it
happen in his children. 

The
futility of science in this direction
seems of a more hopeless kind than the
old theological doctrine of Predestination.

Life eternal or death eternal.

A
Calvinian believes man does not know
his fate. Persuaded he fancies he knows
and is confronted by the horror of this
situation that as a rule he acts on the
assumption that he may be one of the few
who believe and escape the fate. On the other hand very rare persons
that the furies of past generations are
behind him, and that he is bound to
inherent the passions and the appetites as well as the noble qualities of his ancestor but... The modern
Hunter is beset at every critical moment
by the doubt whether it is really possible
for him to escape from his character that
he inherits as he inherits physical types.

It is not conceivable that of the two
great inspirations which society needs
and which it is impossible to weigh at
present in balances the prascivum which
accompanies death and defeat beforehand
may be even more desirable as a
permanent force than the opsinium
which aids the swift passage of victory
and animates for the change that
decides the fight. (C. H. Pearson
"Prascivum" Fortnightly Review Oct 1893
p. 453.)