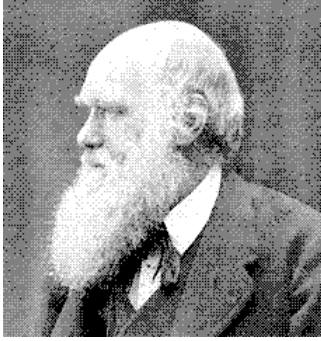


PROLOGUE



Charles Darwin (1809 ~ 1882) & Celiac Disease®

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Two goals were of utmost importance in preparing this work:

- 1. To exonerate Charles Darwin and his Wedgwood family;*
- 2. To encourage an interest in Celiac Disease, an autoimmune genetic disorder that was widespread for many generations in his Mother's Wedgwood family.*

CELIAC HISTORY

Nearly two thousand years ago a treatise written by Greek/Roman physician Galen (130--200 AD) was the first chronicled description of the fittingly described "Wasting Disease", today known as Coeliac Disease. In later eras, up until the late 20th Century, the disorder became as unfashionable as to be considered "rare," begging little inquiry or investigation into its cause. Research from Europe in the last several decades has tossed the "rare" point of view into a medieval wastebasket, exposing a startling reality: present day demographics indicate that Celiac Disease affects *at least* one in every 125 people, at present mostly those of Northern European descent. Its cause is an intolerance to gluten in the grains wheat, rye and barley.

Charles Darwin died in 1882 after suffering most of his life from an agonizing skin disorder. Six years after his death, in 1888, Samuel Gee, a London physician, presented a paper on the "*Coeliac Affection*" to a London Medical Society at St. Bartholomew's Hospital, London. Because Gee detailed what we today call the "classic" or "typical" symptoms of the disorder: weight loss, pallor, loose whitish diarrhea with a sour odor, wasted limbs and protruding stomach--Darwin's unusual skin or derma symptoms predictably would not have been recognized as "Coeliac". Dermatitis Herpetiformis was described by Durhing in 1884--intensely itchy lesions--2 years after the death of Darwin. Improbably, it was not linked to an intolerance to gluten/gliadin proteins until the 1960's.

CHARLES DARWIN'S HISTORY:

Charles Darwin was born in 1809 in Salisbury, England to Physician Robert Darwin and his wife Susannah Wedgwood Darwin. By the time of Darwin's birth, his mother's Wedgwood family had suffered through more than three documented centuries of ill health and premature deaths meticulously recorded by the intellectual Wedgwood family (*Josiah C. Wedgwood, 1908*). Their ailment(s) terminated at least four genealogical lines of Wedgwoods through childhood deaths, reproductive failures, and short life-spans. Many theorists assume that the disorder, which began to affect Charles in young adulthood, arose from within his father's Darwin family, but there is no evidence to support that hypothesis. Darwin genealogy does not indicate chronic illness. The recorded genealogical health history of the Wedgwoods dates back to Moses Wedgwood, circa 1640. In spite of having three wives and 10 children, only two of Moses' offspring survived to adulthood, both without issue, and the line ended. (*Josiah C. Wedgwood, 1908*).

WEDGWOOD FAMILY HISTORY

The grandfather of Charles Darwin, Josiah Wedgwood I (1730--1795) was featured in Smithsonian magazine in 1990, shortly after I was diagnosed with CD. The narrative fascinated me since Josiah's unexplained chronic illness greatly resembled my own. I delved into Wedgwood genetic

history with an anticipatory dedication that did not disappoint. Individual Wedgwood histories include:

- Charles Darwin's uncle Thomas Wedgwood, whose journal of suffering and death at 34 in 1805 still provokes sorrow when read 200 years later.
- His mother Susannah Wedgwood Darwin, who died at 52 in 1817 of a 'stomach complaint.'
- His uncle and mentor Josiah II, who suffered from 'a buffy discharge of the bowels.'
- 'Dear little Annie', Darwin's 10 year old daughter, whose manifestation of symptoms was eerily like my grandson's—until in 1851 hers became deadly. (Rio was rescued by the gluten-free diet when 8 years old, and is a healthy 6 foot-four inch tall young man today).
- Charles died in 1882, and fortunately for us left journals of documented symptoms that research reveals are eerily similar to Celiac Disease and its related skin disorder, Dermatitis Herpetiformis.

CD SYMPTOMS:

Darwin's Mother, uncles and 10 year-old daughter Annie exhibited symptoms that were the classical or "typical" kind. It was more than half a century later when an astute Dutch pediatrician named W. K. Dicke discovered that the restriction of wheat, barley, and other cereal grains into Holland during World War II caused unexpected recoveries in Dutch children who had Coeliac-like symptoms. After the war, resumption of the use of grains brought about a relapse in his pediatric patients. Grains, he decided, were the culprits.

Classical or typical symptoms include weight loss, stomach distress, a pale stool with a sour odor, incontinence, fatigue, edema, withering limbs, short stature, joint and stomach pain, and neurological impairment, each symptom accumulative. Without intervention by proper diagnosis and diet, the wasting disease intensifies until the patient is severely ill, eventually suffering a sometimes early and painful death caused by starvation. Healthy small intestinal villi absorb nutrients, but when they are flattened and destroyed by the gluten/gliadin proteins, they become unable to function. Atypical symptoms are more varied and complex.

DH SYMPTOMS

While many theories about Charles Darwin's illness have been proposed, none match his health profile as snugly as Celiac Disease and its related skin manifestation, Dermatitis Herpetiformis, which Darwin exhibited. Even today, DH patients describe feeling better after the rash breaks out. "Darwin felt immense relief once the lesions erupted." (*Health List by C. Darwin, for Dr. John Chapman, 1865*)

DH patients, however, do not normally suffer from the severe vitamin and mineral insufficiencies that intestinal Celiacs do, but one can readily find evidence of milder deficiencies, and modern-day endoscopy examination indicates an impairment of the villi. According to the health list that Darwin recorded for Dr. Chapman in 1865, Darwin struggled with many such nutritional shortages, including pellagra (niacin deficiency) and pernicious anemia (deficiency of Vitamin B¹²).

Dermatitis Herpetiformis is the skin related ailment that is caused by ingesting gluten/gliadins and it too is treated by the removal of wheat, rye, and barley from the diet, leading to a reversal of symptomatic characteristics. Darwin's years of recorded symptoms are consistent with DH.

Dermatitis Herpetiformis differs from CD in the expression of its antibodies, which erupt from the skin as vesicles or papules that are intensely itchy. The acute intestinal involvement of CD is less prominent and less damaging to patients with DH, hence Darwin's long but uncomfortable life.

HEREDITARY IMPLICATIONS:

Speculation about the affliction suffered by Darwin began during his lifetime. He offered his own theories numerous times in letters and confidences to friends, contemplating the hereditary characteristics of his illnesses. In later years Charles cited 'gemmules' as the culprits which he regretfully had passed down

to his children. Genetics' mechanisms at that time were unknown, but heredity was an accepted concept. (*The Life of a Tormented Evolutionist by Desmond & Moore*).

1850: Charles "was petrified that his ailment was a heritable defect...he thought he could detect a glimmer of it in the children." p.375

1851: "The worst of my bugbears,' complained Darwin to cousin William Fox, 'is hereditary weakness.' p. 399

1855: "In the wake of Annie's death, Darwin became more and more convinced that his own affliction was inheritable, and even now lay dormant in the children. 'My dread is hereditary ill-health,' he told Fox. 'Even death is better for them.'" p. 425

1856: "Family inbreeding had long worried him. There were now four first-cousin marriages between the Darwins and Wedgwoods, with his and Emma's own," and at least 10 documented Wedgwood cousin inter-marriages in five generations. His children were struggling with ill health and "Charles believed that the main problem was hereditary: that his own constitutional weakness had been passed on, accentuated by Emma's Wedgwood blood." p. 447

MODERN DAY DIAGNOSIS

The various manifestations of Darwin's illness, which have led to over a century of speculation and conjecture, are integral to the accepted profile of Celiac Disease wherein two seemingly dissimilar syndromes appear to occur at once, interwoven like a medical double helix. The symptoms are caused by histologic damage to the small intestinal mucosa:

1. *The autoimmune response* weakens the patient's immune system, allowing other conditions to arise due to the destruction of the nutrient-absorbing villi in the small intestine.
2. *The syndrome of malabsorption* with accompanying diarrhea leads to subsequent starvation of every cell in the body until anorexia and/or neurological collapse become apparent.

Hundreds of combinations of the malabsorptive factors and genetic components can and do occur, leaving physicians with minds spinning in confusion. Before available modern testing, perhaps 90 -- 100% of long-term undiagnosed Celiac patients ended up on a psychiatrist's couch with no clear diagnosis in sight. Hypochondria was repeatedly suspected when the physician couldn't discern a cause. It was customarily assumed that the patient was fabricating. (Darwin suffered from this mistaken opinion of him held by his colleagues). When a patient today is eventually diagnosed correctly, after an average of 12 years of traveling from physician to physician in the halls of U.S. medicine, grief and rage are inevitable.

Until recently, diagnosis relied primarily on an awkward and expensive endoscope biopsy that loses its accuracy in untrained or unfamiliar hands; because it is invasive, compliance by patients has been erratic. A series of blood screening tests have since been developed by Dr. ALESSIO FASANO, et al., University of Maryland School of Medicine, and are being used extensively to screen populations and groups at risk such as relatives of diagnosed celiacs, people with epilepsy, diabetes, thyroid disease, osteoporosis, arthritis, etc. Italian school children are routinely examined when they enter kindergarten. In the United States, Denver Children's Hospital screens children with Type 1 Diabetes, a high risk group; and at Maryland University Hospital, children of short stature are routinely tested under the supervision of researcher DR. FASANO, who is a pediatrics' gastroenterologist.

It is also recommended that children and adults with Down's Syndrome be screened. From DR. LLOYD ROSENVOLD, Hope, Idaho: CAN A GLUTEN-FREE DIET HELP? HOW? 1992 Keats, Inc. Publishing New Canaan, Connecticut.

"Dr. Chris Reading, Australia...has over a period of years...carefully evaluated the family histories of more than 2,000 patients. He discovered that of 18 children with Down's Syndrome, 17 positively had gluten intolerance and in the remaining case he was suspecting the same in that child also.' Results of the gluten-free diet fortified with various vitamins and minerals given to these patients include 'rapid and measurable improvement in height, head circumference, weight, mental and motor development and general health.'" *Your Family Tree* by Chris Reading.

THE CHILDREN OF CHARLES AND EMMA WEDGWOOD DARWIN

Darwin, A Life in Science, by White & Gribbon: ...

"The tenth child of Charles and Emma Darwin may have suffered from Down's Syndrome. Retarded, he was backward and showed no sign of walking and talking, although he was 'remarkably sweet' and affectionate." Charles Waring Darwin died in 1857 at age 18 months.

Tragic 10 year old Annie Darwin lived and died in 1850 as a typical Celiac child, with her features and shrunken little body jarringly resembling those of Charles' mother Susannah and her brother, his uncle, Thomas Wedgwood when they were near death.

"In November and again in December Emma took Annie...to see Dr. Holland, a Wedgwood cousin, who believed that Charles's stomach troubles were inherited. He could do little for the child." *The Life of a Tormented Evolutionist, Desmond & Moore.*

"Wednesday 23 April, she lay tranquilly, her breathing soft and gentle, her wasted body a jagged outline beneath the sheets. Annie's breathing became shallower, (she) lay still." *Life of a Tormented Evolutionist.*

Finding few references regarding the health of Darwin's grown children, I was indebted to Dr. Ralph Colp, Jr's *"To Be an Invalid:"*, 1977, which has a description of son George's life-long struggle with an illness that "seems to resemble that of his father."

George expected to die from some of his 'attacks,' and his health remained a handicap throughout his life. 'His nerves were always as taut as fiddle strings.' *Cope.*

Other of Darwin's 10 children who complained of digestive and neurological difficulties were Henrietta, Francis, Leonard, and Horace. Charles Waring Darwin died when 18 months old from what might have been Down's Syndrome. Darwin recognized and accepted the "inheritable" quality of the illnesses of himself and his family, increasingly suspecting that diet was somehow responsible. "The worst of my bugbears is hereditary weakness.' *Correspondence of Charles Darwin*

The Darwin medical histories which included the four beautiful volumes of his own letters, and the genealogical charts of the Wedgwoods described symptoms that were consistent with Celiac Disease without exception: genetic ties; family lines of generations of Wedgwood adults not marrying; married Wedgwoods unable to produce children; and offspring dying before adulthood, causing specific lines to become extinct. Emma Wedgwood Darwin, his wife and cousin, displayed none of the symptoms.

LIST FOR DR. CHAPMAN, BY CHARLES DARWIN

With CD and DH, indications of malnutrition or starvation eventually appear because the small hair-like projections called villi in the small intestine are chronically damaged by the gluten/gliadin proteins and

can no longer absorb nutrients. Gastro problems are accumulative, and are eventually followed by effects of malnutrition such as a multitude of vitamin and mineral deficiencies. DH gastro involvement is milder.

Darwin's symptoms from his health diary, given to Dr. Chapman, are italicized here: *muscle weakness, dry skin, pallor, hair loss, muscle spasms, joint pain, edema, anemia, numbness in extremities, heart palpitations, arthritis*, and eventual *weight loss*, often severe. "He became half-starved to death...a haggard figure, gaunt and drawn. He lost 15 pounds." (Chapman List).

Charles Darwin was one of the world's finest thinkers and most prodigious researchers. It has been our grateful destiny that he perhaps had DH instead of CD, and so was able to live a long productive, albeit 'miserable', life. His granddaughter Nora Barlow, who compiled his 1958 autobiography, suggested that his illness was advantageous to a scholar, for it prohibited distractions to his incomparable work.

CONCLUSION: Every symptom described in seven books, volumes of letters, journals (including Darwin's) and genealogy (beginning in the 1600's) with reference to Charles Darwin and his Wedgwood family fit the medical profile of Celiac Disease and its skin disorder, Dermatitis Herpetiformis.

As a Celiac, I am tremendously sympathetic to Charles Darwin's struggles, and admiring of his astounding accomplishments. rjp/2009

DEFINITIONS:

While researching the symptoms described by and about Wedgwoods and Charles Darwin, I was occasionally stumped. Suspecting several century's differences in meanings of medical terms, I turned to Webster's Collegiate Dictionary and several old 19th century home medical books, with exciting results:

"Flatulence" indicated burping in Darwin's day, a common CD complaint.

"Eczema" hid within its definition all of the symptoms of DH as well as those of our present-day eczema.

"Dyspepsia," indigestion, 19th century definition includes classic celiac symptoms.

"Boils" are outdated since the infection responds to modern day antibiotics.

"Herpes Simplex:" remains incurable, plaguing Celiacs still.

"Costiveness," an outdated term, meant and means constipation.

The most enlightening definitions were of two perplexing words which change the personal 18th Century history of Darwin's poignant uncle, Thomas Wedgwood: "stroke" and "dejection." In the 18th and early 19th centuries, "stroke" was used to mean a *blow* as in 'stroke of bad luck' or a tap on the shoulder, not a cerebral hemorrhage. The use of the term "stroke" to replace apoplexy became medical jargon only a century later. "Dejecta" [to throw down] and "dejection" [what is thrown down, archaic] became a well-educated gentleman's euphemism for *diarrhea*. Almost a century later "dejection" continued to mean faeces or excrement. Not today.

From Samuel Gee, 1888: True the dejections are faecal, more liquid and larger than natural, but they are not always more frequent than natural; it may be that the patient voids daily but one large, loose, whitish stinking stool.'

"Dejection" at that time did indicate low spirits as well, but with careful reading one can distinguish between the two meanings in Thomas Wedgwood's letters. Regrettably, he is even today portrayed as a mentally ill depressive who died of a stroke.

CHARLES DARWIN'S HEALTH LIST[©]

THE FOLLOWING SYMPTOMS WERE CHRONICLED BY CHARLES DARWIN IN 1865 FOR DR. JOHN CHAPMAN*
 DESIGN AND INTERPRETATIONS[©] BY MONTANA CELIAC SOCIETY EXECUTIVE DIRECTOR R. JEAN POWELL,
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Darwin's Symptoms	Celiac Disease Interpretations
Air Fatigues	Breathlessness.
Dying Sensations	Heart palpitations, feeling faint.
Ringing of Ears	Tinnitus, a common Celiac symptom; preceded Darwin's vomiting.
Treading on Air	Proprioceptor damage in the hands, feet & legs. The numbness in Darwin's fingers was disdained by his physician father.
Shivering	Fasciculation or fine-muscle tremors.
Hysterical Crying	Experienced by both children & adults with untreated Celiac Disease.
Half Faints	Might include breathlessness as well as fainting.
Vomiting	Nausea and vomiting not universal, but common.
Nervousness	'...when Emma leaves me.' Anxiety.
Head Symptoms	Explained by Celiacs as 'my head feels funny;' described as dizziness or giddiness.
Vision: focus and black dots	Optic Neuritis, night blindness common; black dots described by Celiac patients.
Flatulence	Refers to burping or belching; severe at times; 'daily and nightly.'
Tongue crimson, ulcerated	Redness and soreness: B vitamin deficiency; pellagra; pernicious or iron anemia.
Stomach constricted, dragging	Tightened band felt around the middle by Celiac patients. Bloating.
Feet 'coldish'	Cold <i>and</i> heat caused Darwin misery; extremities were often cold.
Pulse: 58-62 or slower, thready	Concerned about a 'slow' pulse rate, which he learned how to measure from his father.
Appetite good	Two hours after eating, he vomited not food but acid; acidosis. Acid reflux common with CD.
'Evacuation regular & good.'	Diarrhea and/or constipation are not definitive symptoms for DH patients.
Urine: 'Scanty':	'Because do not drink (much).' Dehydration.
'Copious, very pallid':	Diabetic symptom; colorless urine (lacking urochrome); vitamin deficiencies
'Pinkish sediment if cold:	'Often much'; blood cells from infections, kidney involvement, some red food dyes.
Cannot walk above 1/2 mile	Improvement over the short one block he was able to walk the year before (1864).
Always tired	'Conversation or excitement tires me much.'
Heavy sleep	'On bad days... fatigue, languor, exhaustion,' 'Stayed in bed one month.'
Eczema, rash	DH; Darwin felt immense relief once the lesions erupted, a typical DH experience
Lumbago	Muscular Rheumatism; joint pain.
Fiendish rash	Dermatitis Herpetiformis; Boils from staphylococcus bacteria; Eczema &/or Erysipelas; Herpes simplex. Most consistent with DH
Wines comfort me much	Formerly unable 'to take any.'
Acid stomach	Ketocidosis is caused by diabetes mellitus, starvation. Acid reflux.
Physic no good	Strychnine, arsenic and other compounds caused him harm.
Chalk & Magnesia	For acid; quickly proved ineffective.
Water cure	'Last time at Malvern, I could not stand it.' Dr. Gully recommended he stop treatments.
Excessive Salivation	Preceded flatulence (burping of acid & gas).
Cold, stomach acid	Cold liquids would generate gas somewhere 'beneath' his stomach.

"Dr. Chapman's 'Spinal Ice Bag' did no good..."
 TORMENTED EVOLUTIONIST, pg 531.

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GLUTEN-FREE FRIENDS NEWSLETTER, MONTANA CELIAC SOCIETY, R. Jean Powell, Editor

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