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## Jeanne Calment and her successors. Biographical notes on the longest living humans

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**Abstract.** The vast majority of 115+-year-olds reported around the world have not, in fact, attained the age claimed. However, we are fairly certain that, since 1990, nearly 20 persons worldwide have reached the age of 115 years or more, among them the longest-living person, Jeanne Calment, who reached age 122. We have attempted to validate the stated ages of these people through the collection of available genealogical information, and through detailed evaluations of this information. This chapter attempts to paint a picture of these true long-livers based on insights about them gleaned from various sources, including interviews with some of them conducted by aging researchers. The life journeys of these very old people differed widely, and they are almost without common characteristics, aside from the fact that the overwhelming majority are women (only two are men), most smoked very little or not at all, and they had never been obese. Still, they all seem to have been powerful personalities, but decidedly not all were domineering personalities. They are living examples of the fact that it is possible to live a very long life while remaining in fairly good shape. Although these people aged slowly, all of them nonetheless became extremely frail in their final years. Their physi-

cal functions declined markedly, especially after their 105th birthdays. They spent their last years confined to wheelchairs, virtually blind and very hard of hearing. But they did not fear death, and they appeared to be reconciled to the fact that their lives would soon end.

## 1 Introduction

One of the pioneers of modern research on aging, Leonard Hayflick, writes in his book *How and Why We Age* (1994): “There is no evidence that the maximum human lifespan has changed from what it was about hundred thousand years ago. It is still about 115 years.” At the time this was written, Jeanne Calment had already exceeded the 115-year limit. Today we have reasonably good evidence that, during the 1990s, others reached the same age (Jeune and Vaupel 1999, Robine and Vaupel 2001). We can thus confidently reject the claim that 115 is the absolute limit for longevity.

Since the beginning of the 1990s, effort has been made to validate the ages of reported exceptional long-livers (Jeune and Vaupel, 1995). It seems that most of the alleged exceptional long-livers reported from all over the world cannot be documented, and the greater part of these reports may be false (Jeune and Vaupel, 1999). However, a few cases of people reaching the age of 115 years or more have been fairly well documented. There seem to have been more than 15 genuine long-livers 115 years or older since 1990. The following is a list of the longest living documented humans in the long history of human beings:

- Jeanne Calment, who reached the age of 115 on 21 February 1990;
- Charlotte Hughes, who reached the age of 115 on 1 August 1992;
- Margaret Skeete, who reached the age of 115 on 27 October 1993;
- Tane Ikai, who reached the age of 115 on 18 January 1994;
- Marie Meilleur, who reached the age of 115 on 29 August 1995;
- Sarah Knauss, who reached the age of 115 on 24 September 1995;
- Maggie Barnes, who probably reached the age of 115 on 6 March 1996;
- Chris Mortensen, who reached the age of 115 on 16 August 1997;
- Annie Jennings, who reached the age of 115 on 12 November 1999;
- Marie Bremont, who reached the age of 115 on 25 April 2001;
- Maud Farris-Luse, who reached the age of 115 on 21 January 2002;
- Kamato Hongo, who reached the age of 115 on 16 September 2002;
- Maria Esther Capovilla, who reached the age of 115 on 14 September 2004;
- Hendrijke van Andel-Schipper, who reached the age of 115 on 29 June

2005;

- Elizabeth Bolden, who reached the age of 115 on 15 August 2005;
- Bettie Wilson, who reached the age of 115 on 13 September 2005;
- Susie Gibson, who reached the age of 115 on 31 October 2005;
- Emiliano Mercado del Toro, who reached the age of 115 on 21 August 2006; and
- Julie Winnifred Bertrand, who reached the age of 115 on 16 September 2006.

Although there may still be some doubt about a few of them, these cases have at least been validated by independent researchers, i.e., researchers other than those connected with Guinness World Records, which bases its validation exclusively on documents sent by the families of the long-livers, or on government records. Others have probably have reached the age of 115, but their cases have not been validated by independent researchers. In the years 1997 and 1998, i.e., just before and after the death of Jeanne Calment, four documented long-livers age 115 were alive. Not until the end of 2005 has an equivalent number of living 115+-year-olds existed.

Apart from all the genealogical data which have been collected about 115+-year-olds for the purposes of validating their extremely high ages, we do not know very much about their life courses and life conditions, their past history of diseases, and their functional status and health characteristics as very old people. On most of them we have some biographical notes from interviews in newspapers. However, a few of them have been interviewed by aging researchers (including ourselves) who have reported their knowledge and observations in journals and books, with the informed consent of the long-livers studied.

The following accounts of the best-documented 115-year-olds are based on information that they themselves, or their relatives, gave in interviews published in newspapers, journals, and books, including information about their health. The information is therefore mainly based on written sources that have already been published (see the references). We have not included references from the many features in newspapers (they can be found, for example, by searching the respective names on Google). We report their names, as they all are famous and known from newspapers and online information published all over the world.

## 2 Jeanne Calment - a modern Methuselah

*"I'm starting to think I must be a phenomenon."* (Jeanne Calment)

Jeanne Calment is probably the longest-lived human being to date. She died on August 4, 1997, in the southern French town of Arles. She was born in the same place on February 21, 1875. She thus lived to the age of 122 years, five months, and 14 days. This made her not only a media celebrity to whom journalists from all around the world made pilgrimages, but also a phenomenon for researchers on old age, for she had exceeded what had long been considered the absolute limit for longevity.

Over the course of several years, Michel Allard, a doctor from Paris, who had initiated the French study of centenarians; her own doctor, Victor Lèbre; and Jean-Marie Robine, demographer from the University of Montpellier; conducted a number of interviews with Jeanne Calment, and collected her witticisms and aphorisms in a book about her (Allard et al. 1994, 1998) which is the source for the following discussion of her life.

*"Every age has its happiness and its troubles"*

Together with the local archivist, Caroline Boyer, Robine has researched Jeanne Calment's entire genealogical table (see their chapter in Jeune and Vaupel 1999). The documents about her in the city archives of Arles are situated in the old building of the psychiatric hospital where Van Gogh was treated. The archives in Arles, an ancient city with roots going back to Roman times, are exceptionally well kept. The births and deaths for each year are recorded in chronological order in yearly books, with a table of entries in alphabetical order in an annex. Special volumes list all entries in alphabetical order for each 10-year period. Censuses at that time were taken every five years. It was therefore possible to follow Mme Calment's trajectory over the years, tracing her to the various (not very numerous) addresses in Arles where she had lived, and seeing with whom she had lived at different stages of her life. Altogether, Jeanne Calment's name appeared in 16 different censuses between 1875 and 1975.

Robine and Boyer have assembled 23 certificates and documents showing the dates of birth, christening, marriage, and death of her closest relatives, from her parents' marriage certificate to her grandson's death certificate. Jeanne Louise Calment (this was also her maiden name) had had an elder brother, Antoine, who was born in 1862, but lived only five years; and an elder sister, Marie, born in 1863, who died in infancy. Since Jeanne herself was born in 1875, she never knew

these siblings; the only sibling she knew was her brother, Francois, ten years her senior (born in 1865). Her parents were both 37 years of age when she was born as their last child. There was also a marriage certificate showing that she was married in 1896, at the age of 21, to her second cousin, Fernand Nicolas Calment (their paternal grandfathers were brothers).

The American demographer, James W. Vaupel; the Finnish demographer, Vaino Kannisto; and the Danish epidemiologist, Bernard Jeune; visited Jeanne Calment the day after her 120th birthday. Together they formed an unofficial committee whose purpose was to look through the documents that Robine and Boyer had found in the city archives. There was a good deal of speculation at the time as to whether Mme Calment really was as old as reported. If the comprehensive documentation that Robine and Boyer had dug up could conclusively rule out all error and confusion, then she would indeed be “*la doyenne de l’humanité*” (the elder of humankind), as her compatriots called her. It was, therefore, of great importance that impartial experts examine the original documents.

The only errors this team of researchers found were minor—for example, a wrong middle name in some of the censuses. They tried to find out whether any other children had been born in the Calment family between Francois and Jeanne, or after the latter’s birth. There were, of course, other Calment children, since the family had several branches in the town, but the documents proved that they were born of parents other than Jeanne’s. There were, at any rate, no data on the parents of any of these children suggesting that any names had been swapped. The facts thus appeared extremely convincing and far better established than the cases of other long-lived people known to us.

Robine had undertaken a thorough investigation, going back five generations, into the ages to which Jeanne Calment’s forebears lived. Her 62 direct ancestors (two parents, four grandparents, eight great-grandparents, 16 great-great-grandparents, and 32 great-great-great-grandparents) appeared to have lived longer, on average, than a control person from each period in question. A large proportion of them, moreover, had lived beyond age 80, especially among her father’s ancestors. Living in Arles in the period from 1700 to 1900, these generations had survived the plague of 1721, two major famines during the hard winters of 1708/9 and 1788/89, and four epidemics of cholera in 1832, 1835, 1854, and 1884. But Jeanne Calment was the only one to live into her hundreds. She herself wished that her brother, Francois, had lived to 100 (he died in 1962 at the age of 97), but as she put it: “God

didn't want there to be two hundred-year-olds in the same family, so it fell to me".

*"I have lost my husband, my daughter, my grandson"*

Since the age of 88, Jeanne Calment had been without close relatives, since her husband and second cousin, Fernand, had died in 1942 at the age of 74; her only child, Yvonne, had died at the age of 36 in 1934; and her only grandchild, Frédéric, died likewise at the age of 36, as a result of a motorcycle accident in 1963. Although he was married, he had no children. Her brother, Francois, had married and had a daughter, who died at the age of 21.

Jeanne Calment spoke reluctantly of her sorrow at these losses. When she moved to the nursing home at the age of 110 she had not wanted to hang up pictures of her daughter and grandson, as these would only have awakened sad memories. She had always looked forwards rather than backwards. But they were included in her wishes for the future: "When I'm laid in my coffin, I want you to put a picture of my grandchild to the right of me and a picture of my daughter to my left. That way they will be buried with me." It seems that this wish was carried out (Allard and Robine, 2000).

*"God has given me all I have asked of Him"*

She was much more willing to talk about her father, who had been a shipbuilder in the town. She had loved him greatly and listened to him "like an oracle." She told the authors eagerly about the launching of his last wooden ship, which was named after her; about her meeting with van Gogh when she was 13 years old; about the clothes she wore for her confirmation and her wedding; about her husband, with whom she loved to go hunting, though she never helped him in his manufacturing business; about her pleasure in painting, playing the piano, and going to the opera in Marseilles—in other words, about her enjoyment of life: "I had fun; I am having fun."

Mme Calment allowed herself one glass of port and one cigarette a day. She liked good food and wine, including cakes and chocolate, which she ate every day. But she didn't care much for social life: "I didn't enjoy visiting, I didn't like the fashionable world, but I loved being out in the fresh air." Like her husband, she was a great walker, and ran rather than walked about her everyday business. She liked to get things done swiftly, as happened when she gave birth for the first and only time: it "happened of its own accord, like everything else I've done. Straight away, it had to be done quickly." She thus offered little support for the dictum that taking things slowly is the best guarantee of long life. From childhood onwards she had lived without material

worries and had never needed to work, either in the home or outside. Asked how she had managed her household tasks, she answered in best upper-class style: "With spit my dear; I just needed to command".

Altogether, the book on Jeanne Calment presents her as a decisive, strong-willed woman. She herself stressed this repeatedly: "I had a damn strong will;" "I was physically strong;" "I had character;" and, "I wasn't afraid of anything. I was often reproached for that." She was also full of curiosity, but not especially passionate: "I'm interested in everything but passionate about nothing." Her strong will never deserted her, as the following stories testify.

Mme Calment first moved to a nursing home at the age of 110. Before this she had more or less managed on her own at home. A lawyer who wanted to buy her house arranged an advance contract for the purchase when she was roughly 90 years old. Under the French system, this involved an annual payment. The lawyer paid up for 30 years, in the end predeceasing her in 1995, at the age of 77. Mme Calment's eventual move to the nursing home was not due to illness, but to the fact that she almost burned the house down one cold January day. The water in the boiler in the cellar had frozen solid, so she fetched a candle, climbed up on a table, and attempted to melt the water with the heat of the candle flame. This set fire to the insulating material, which went up in flames. Neighbors noticed the smoke and summoned the fire brigade, who put out the fire. Very reluctantly, Jeanne Calment was moved to the nursing home.

There she became friends with one of the nurses, who smoked the strong, dark French cigarette, Gauloise. Mme Calment herself smoked a milder brand, but through her acquaintance with the nurse she acquired a taste for the strong French cigarettes. One evening she was going upstairs to the nurse's room to have a smoke, but fell downstairs and ended up with a broken hip at the age of 115. Despite her age, she underwent an operation, which proved successful. Warned that she might not be able to walk again, she replied laconically: "I'll wait, I've got plenty of time." She steadily improved, and within a few days was able to get out of bed. She succeeded in standing, but thereafter was more or less confined to a wheelchair. To survive for over seven years after undergoing such an operation at such an advanced age does indeed require a considerable will to live.

*"I'm not asleep, I'm reliving the good times of my life and I never bore myself."*

At the end of her life she was virtually blind, hard of hearing, and confined to a wheelchair. However, apart from moderate heart failure,

a chronic cough, and rheumatism, she did not suffer from any serious illness (Allard et al., 1994, 1998). Among her past ailments were migraine headaches. At her retirement age she had broken her ankle. At the age of 100 she had broken her leg and elbow during a fall, but had recovered and learned to walk again. As mentioned above, she did not regain the use of her limbs after breaking her hip at the age of 115, but she survived the operation at an age at which no one else has undergone such major surgery. A couple of years later she suffered a bout of flu which everyone believed would be the end of her, since it left her greatly weakened and depressed. But this too she survived.

During her final years Mme Calment was examined on several occasions for signs of incipient dementia. Over a number of years the neuropsychologist, Karen Ritchie, tested her memory every six months, and reported the results in a scientific journal (Ritchie, 1995). In fact, she improved over time, not least in arithmetic, showing that it is never too late to learn mathematics. She enjoyed contributing to the study by recalling the poems, fables, and songs she had learned as a child. These visits by researchers, which helped compensate for the lack of visits from relatives, together with the evident pleasure she took in them, may well have helped to prolong her already long life.

Considering that she was confined to a wheelchair, none of this would have been possible, of course, had she not been able to find consolation in her own inner life. As she herself put it: "My sight is bad, my hearing is bad, I feel bad, but I don't suffer, I don't complain." And she went on to say: "I don't lack for anything. I have everything I need. I've had a good life. I live in my dreams, in my memories, beautiful memories." Although she no doubt had secrets that she didn't share, there was one secret, at least, that she wanted to pass on: "Always keep your sense of humor. That's what I attribute my long life to. I think I'll die laughing. That's part of my program." One of her witticisms in particular was known to every fellow in town: "I've never had more than one wrinkle, and I'm sitting on it."

*"I'm waiting for death and the journalists."*

Jeanne Calment was a legend in the town where she had lived her whole life. She was very well aware of this herself, and enjoyed her fame: "I've waited 110 years to be famous. I intend to make the most of it for as long as possible." She awaited not only death, but also the journalists who had faithfully turned up for all her recent birthdays. But, unlike many others in their hundreds, she did not feel completely abandoned by God: "I'm God's little angel." At the very least, she required some explanation for his forgetfulness: "He's forgotten me. He



can't be in any hurry to see me. He knows me all too well." She knew her own historical worth: "I am a modern Methuselah."

### 3 Jeanne Calment's successors in the 1990s

#### 3.1 Charlotte Hughes: "A stiff brandy, bacon and eggs"

The next person to exceed the 115-year limit was most probably Charlotte Marion Hughes from England. She was interviewed in the press and appeared on television, but was never interviewed by researchers on aging. However, the now deceased Peter Laslett, a historian from Cambridge University, did have the opportunity to go through the documentation pertaining to her case (biographical notes by Laslett). Her birth registration has been found.

Charlotte Hughes was born on August 1, 1877, and died on March 17, 1993. She grew up in Middlesborough in Yorkshire, where her father ran a music shop. Until the age of 63 she worked as a teacher in a religious school. While employed there she was not permitted to marry, so she married for the first time only after her retirement. Her husband, Noel Hughes, was a retired army captain and was younger than she. They lived together for 40 years until he died at the age of 88, when Mrs. Hughes herself was 103.

At the age of 107, Mrs. Hughes received a visit from the Queen. At her 108th birthday, she took the express train to London for the first time in her life and had tea with Margaret Thatcher at 10 Downing Street, having declared on the radio the previous day that she supported the Labour Party. "I told her I was Labour when she cuddled up to me in Downing Street. I said 'Don't cuddle me I'm Labour.' She said: 'Never mind, come and let us have a cup of tea.'" Two years later, aged 110, Mrs. Hughes flew on a Concorde over the Atlantic, traveling in her wheelchair. She was received by the mayor of New York and appeared on television. At the age of 111 she took part in a BBC program on longevity, and by her 112th birthday she had become the oldest person in England. She still lived at home, staying most of the time in her wheelchair, receiving daily home help and regular visits from the district nurse. At the age of 113, she was moved to St. David's Nursing home in Redcar, Cleveland, due to her increasing frailty and poor eyesight. She died at the nursing home from bronchopneumonia, having reached the age of 115 years and 228 days.

According to newspaper accounts, Charlotte Hughes retained her mental faculties to the last, although she complained of not being

able to remember her grammar properly. Relatives described her as extremely domineering, outspoken, and sharp; but also as friendly and witty. Asked what she considered to be the secret of her long life, she replied: “A healthy lifestyle, a stiff brandy, and bacon and eggs.” On another occasion she answered: “A good honest life” and adherence to the 10 Commandments.

### **3.2 Margaret Skeete: “I guess that’s something, but it doesn’t buy me anything.”**

The next person who reached the age of 115 was probably the American woman Margaret Skeete. She was born on October 27, 1878, in Rockport in Aransas County, Texas. Her age has been validated by Robert Young (see his chapter in this monograph). He found her registered in the 1880 census. A two-year-old child named Mattie was listed in the correct county and town as the last of six children (the oldest was 14 years old) of R. H. Seward, aged 39, and his wife, Margaret, aged 39.

Mrs. Skeete married her husband, Renn Skeete, before 1910. They lived in Brazoria County, Texas, and had three children: Verne, a daughter, born before 1910; and two sons, Seward and Charles, both born after 1910 and before 1920. She lived in Texas until 1953, when her husband died. Then she moved to Rockport in Virginia, where she lived with her daughter, Verne Taylor.

She first attracted national media attention in 1993, when she was included in the Guinness Book of Records as the oldest living American at age 114. In an interview with a local newspaper, her daughter said that she never could put her mother in a nursing home. “It would break her heart. She had to be where she could see me and call me.” At her 115th birthday party, Margaret Skeete was unimpressed by her longevity: “I guess that’s something, but it doesn’t buy me anything.”

Taylor said that her mother was feisty and insisted on trying to walk with her walker even after the last, most serious fall. “She was always like that. She went camping with us when she was 75—you’d have thought she was about 40.” She was bedridden after this serious fall, which occurred just three weeks before she died. Mrs. Skeete died in her sleep on May 7, 1994, at the age of 115 years and 192 days.

### **3.3 Tane Ikai: A Japanese woman who survived her four children**

The next person who reached the age of 115 was probably the Japanese woman, Tane Ikai. She was born on January 18, 1879, in the former

village of Kansei, Aichi Prefecture, which is now part of Nagoya, 170 miles west of Tokyo. She was the third daughter of six children of a farming family. Her grandfather and father died in their nineties. She married her husband at the age of 20, and they had three sons and a daughter. She separated from her husband at the age of 38. She lived with her daughter until the daughter died at the age of 47.

Tane Ikai entered a nursing home in Nagoya in 1968 at the age of 89, for which she had to pay a small fee. Four years later, she moved to a special nursing home, which was free of charge. She moved slowly, but was able to walk and use the toilet independently until she was 107 years old. In 1988, at the age of 109, she suffered a stroke and was moved to the hospital affiliated with the nursing home. She lived her last years bedridden, but had three meals of rice gruel a day, and spoke to hospital staff when she felt good. At the age of 113, she became the oldest Japanese person.

When once asked for her advice on living a long life, she said: "You should not insist on saying you want to eat this and that. You should live naturally." Her children passed away before she died, but at the end of her life she was blessed with two grandchildren, five great-grandchildren, and seven great-great-grandchildren. She died on July 12, 1995, at the age of 116 years and 175 days. From an article in a Japanese medical journal we know that an autopsy was carried out. She had cancerous cells in different organs (metastases) and had changes in her brain indicating Alzheimer's dementia, but she died of kidney failure.

### **3.4 Marie-Louise Meilleur: A French-Canadian woman with 300 descendants**

When Jeanne Calment died on August 4, 1997, many newspapers in various countries published reports of people who were even older than she, but none of these alleged successors could be documented. Proper evidence could, however, be found in the case of 117-year-old Marie-Louise Meilleur, who lived at a nursing home in the province of Ontario in Canada. The demographer Bertrand Desjardins from the University of Montreal examined the documentation supporting her case (see his chapter in Jeune and Vaupel, 1999). Desjardins and his colleagues had established a comprehensive genealogical archive, going back to the early 17th century, on the families of French immigrants and their descendants. Since Mme Meilleur was a French Canadian, her genealogical table could be established from this archive. No evidence was found to suggest she was of different parentage than stated, or that she had

adopted the name of an older sibling or some other member of the family. Records of her could be traced through various censuses, as well as from her marriage certificate and the birth certificates of her many children.

She was born Marie-Louise Fébronie Chassé on August 29, 1880, in Kamouraska, a small village in Quebec on the south coast of the St. Lawrence River. She was one of eight children and attended a Catholic convent school. She married her first husband, Étienne Leclerc, a widower and ship's mate, on November 26, 1900, when she was 20 years old. They had six children: three girls, two of whom died in infancy, followed by three boys. Her husband died of pneumonia in 1911, leaving Marie-Louise a widow at the age of 30 with four children under the age of ten. Around the same time, she lost both her parents, who died at the ages of 61 and 59. She moved in with her sister, who ran a hotel for forestry workers on the Ottawa River. Here she helped in the kitchen.

In 1915 she married again, this time to a carpenter, Hector Meilleur, a widower with four children. They moved to a log cabin in a little village on the Ottawa River. She had a further six children with her second husband, of whom four were still alive at her death. Mme Meilleur lived in the village until her husband's death in 1972 at the age of 92, when she herself was 91. Thereafter she lived for sixteen years with her youngest daughter, until the age of 107. In 1988, she moved to a nursing home. At her 115th birthday, when her relatives sang, "Happy Birthday to you," she sang, "Happy Birthday to me." When they told her that she was the oldest living in Canada she said, "Poor Canada." On the occasion of her 117th birthday a journalist wrote: "Today she does not speak much, but when she does, she can be pretty humorous." According to her doctor, she was completely demented at the end of her life. She died on April 16, 1998, at the age of 117 years and seven months.

Thus, for eight months after Jeanne Calment's death, Marie-Louise Meilleur was the oldest documented person in the world. Unlike those who left no direct descendants, Marie-Louise was survived by about 300 descendants stretching over five generations. She succeeded in being the eldest of six generations. According to reports, she had always worked hard and remained active.

The above-mentioned genealogical archive allowed Bertrand Desjardins to follow the same procedure as in Jeanne Calment's case and investigate the lifespans of Marie-Louise Meilleur's relatives. In Mme Meilleur's case, however, the average lifespan of her 62 direct ancestors over five generations was found to be no higher than the average for

their contemporaries; nor was the percentage of 80+-year-olds among them any higher than the average for each period.

### **3.5 Sarah Knauss: The great-great-great-grandmother who “hated vegetables”**

Marie-Louise Meilleur was succeeded by the American woman Sarah Knauss, who was the world’s oldest documented person for almost two years. She died on the penultimate day of 1999 at the age of 119 years and three months, and is probably the second-longest-lived person ever. In an attempt to gain Guinness recognition after the death of Jeanne Calment, the genealogical data of Sarah Knauss was documented and researched by Edith Rodgers Moyer from the Phoebe Ministries when Mrs. Knauss was 117 years old (Moyer 1997). This documentation provides a good example of validation in absence of a birth record (see the summary of the documentation in Robine and Vaupel, 2001). Her case has been re-validated by Robert Young (see his chapter in this monograph). She has also been interviewed by the American geriatrician Tom Perls.

Together with Tom Perls and the American demographer, John Wilmoth, from Berkeley University, Bernard Jeune and Jean-Marie Robine visited Mrs. Knauss in November 1998, when she was 118 years old. She lived in a nursing home, Phoebe Home, in Allentown, Pennsylvania. Her 95-year-old daughter had just moved to sheltered housing next door. Mrs. Knauss received us sitting in her wheelchair. She was still partially sighted, but almost completely deaf, which made conversation nearly impossible.

Mrs. Knauss was born and grew up in the coal-mining area of Luzerne County, first in the tiny hamlet of Hollywood, then later in South Bethlehem, Pennsylvania. Her father, Walter Clark, worked as an engineer; her mother, Amelia Clark, was the daughter of German immigrants. Her mother died at the age of 68, and her father at age 85. They had seven children born between 1876 and 1893, of whom only four survived childhood. Sarah Clark was the third child. Her eldest brother, Albert, died as a child; the second brother, Charles, died at the age of 78; her younger brothers, Walter and Edward, died as infants; and her younger sister, Emily, died at the age of almost 90.

She was married at the age of 21 to Abraham Lincoln Knauss, aged 23, on August 28, 1901. He was a tanner, and died in 1965 at the age of 86. They had the above-mentioned daughter, Kathryn, who, in turn, had a son, Robert. There were, at the time of her death, three great-grandchildren, five great-great-grandchildren, and a newly-born

great-great-great-grandchild. Like Mme Meilleur, Mrs. Knauss thus succeeded in being the eldest of six generations. Her family was featured in *Life* magazine in February 1999, with a photo of her together with her 95-year-old daughter, her 73-year-old grandson, a 49-year-old great-granddaughter, a 27-year-old great-great-granddaughter, and the latter's child sitting in Sarah Knauss's arms.

She did not move to a nursing home until she was 111, due to her general frailty and failing eyesight. She had lived with her great-granddaughter since she was 96, and had, for many years, been a babysitter for the latter's children. At the age of 117, she was given a blood transfusion because of low haemoglobin. She took medication for her heart, but otherwise had no recognized illnesses. She was thought to be of sound mind right up to her death, although towards the end she had difficulty recognizing her 96-year-old daughter, who visited her every day. But it was hard to judge whether this was simply due to her poor eyesight and hearing. Her daughter had real conversations with her when she was 118 years old. However, during the six months prior to her death she was not very responsive in conversation.

A member of staff at the home described her as the friendliest person she had ever met among the home's residents. None of her relatives could remember her ever scolding anyone or appearing stressed in any way. She laughed easily and often good-humoredly brushed aside conflicts. She never allowed herself to be rocked by adversity or bad news, and never appeared worried on any score. She was a housewife throughout her life, but kept herself busy with knitting, crocheting, and sewing.

Unlike Jeanne Calment, Mrs. Knauss had never smoked, but, as noted above, she shared Mme Calment's love of chocolate and all kinds of sweets, while, according to her great-granddaughter, she "hated vegetables." Even at the nursing home, she preferred to go directly to the dessert, leaving aside the chicken, potatoes and carrots. Asked how she had survived to such a great age, she replied that you had to "keep yourself busy, work hard, and not worry about how old you are."

Sarah Knauss died, apparently peacefully, on December 30, 1999. An autopsy was performed, but the cause of death has never been officially published. Her daughter, Kathryn, died five years later at the age of 101.

### **3.6 Maggie Barnes: An African-American woman with 15 children**

The date of birth of the African-American woman, Maggie Barnes, is uncertain, but, according to the obituary in a local newspaper in

Raleigh, North Carolina, she died on January 19, 1998, at the age of 117. Robert Young's documentation (see his chapter in this monograph) about her age at different censuses, the reported age of her husband, and the ages of her children, most of whom died before her, make it probable that she at least attained the age of 115.

She lived her entire life in Wilson and Johnson counties in North Carolina. At the age of 19, she married William Barnes, aged 22, who was a sharecropper. She gave birth to 15 children in the bedroom in her home, and lost seven of them at childbirth or shortly thereafter. The oldest, Lilian, was born in 1900. Over the years, four other children died before her own passing. At her death, the remaining living children were her daughters, Clara Barnes, 92; Gladys Robertson, 90; Ruth Revell, 75; and Mildred Finch, 71.

According to the local newspaper, Mrs. Barnes's four daughters cared for her during the 10 years prior to her death in the small, white frame house she and her husband had purchased in the 1950s after he retired from sharecropping. She died from gangrene in her foot, which grew from a minor infection. She was treated with antibiotics in October 1997 at the Wilson Memorial Hospital, but she was apparently too frail to survive surgery. Then she was sent home again. Her daughter Ruth Revell told the local newspaper that, although her mother seemed lucid at times in her last months, she seldom spoke: "She was doing fine until January 6, and then stopped eating. When we took her to the hospital again, they said there was nothing they could do. So we decided to bring her home and let her die in her own house. She never wanted to leave that house anyway. But I didn't expect her to go so fast. She was in her own bed. She took one last breath. Then she was gone."

What amazed her four living children the most was that she didn't outlive them. "She always said she would bury all of us," said Ruth Revell. "Her funeral is already paid for, because we thought we would die before she did." It almost happened: the longest living of her children died soon after she did; Gladys, at the age of 90, on September 7, 1998; and Clara, at the age of 93, on September 8, 1998. Her last surviving child, her daughter Mildred, was interviewed by Robert Young. When he asked Mildred how old her mother really was when she died, Mildred replied, "116." Maggie Barnes may have been born on March 6, 1881.

### **3.7 Chris Mortensen: World's oldest man, who still smoked cigars**

Of the nearly 10 individuals so far known to have lived to over 115 in the 1990s, all were women, apart from a Danish-American man named Chris Mortensen, who died on April 25, 1998, at the age of 115 years and eight months. He was probably the longest-lived man of all time.

When he reached age 112 while living at a Danish-American nursing home in San Rafael, north of San Francisco, an article about Mr. Mortensen appeared in a Danish newspaper. This was an extraordinary age for a man, so it was clear that this case was worth investigating. Bernard Jeune and his colleague, Axel Skyttthe, at the University of Southern Denmark, therefore contacted Paul Ørberg, then archivist at the Regional Archives in Viborg, Denmark, who, together with other local genealogists, had already been interested in the case, and had found the birth registration indicating the birth of Chris Mortensen on August 16, 1882. Nevertheless, there was still the possibility that this Chris Mortensen died at a much younger age, and that his name was adopted by another member of the family, as has been documented in several cases of reported long-livers. Since Chris Mortensen was still alive at that time, it was possible to obtain further information directly from him. Jeune and Skyttthe therefore asked their colleague, John Wilmoth, from the University of Berkeley to contact him at the nursing home in San Rafael, and request permission to interview him about his childhood and subsequent history.

During Wilmoth's interviews Mr. Mortensen accurately described a number of incidents that could subsequently be documented in the written sources at the archive of Viborg. This conclusively confirmed his age and identity. Together with Jeanne Calment and Marie Louise Meilleur, his case is the best documented among the 115+-years-old individuals studied (see Wilmoth et al., 1996, and the chapter by Skyttthe and al. in Jeune and Vaupel, 1999). Chris Mortensen was born on August 16, 1882, in the village of Skaarup near Skanderborg, Denmark, as the youngest of six children, of whom two died in infancy. His mother was 40 years old at the time of his birth. His three older brothers died at the ages of 31, 72, and 92. As a boy, he worked as a farm hand, but moved to Skanderborg at the age of 16 to train as a tailor. He completed his apprenticeship in 1903, and the same year he emigrated to the United States, arriving there in September 1903. He obtained his immigration permit on Ellis Island and made his way to Chicago, where he lived with relatives.



From 1908 to 1918, he traveled as an itinerant tailor in the western and southern parts of the U.S., spending periods of six months to a year in Kansas City, Denver, Salt Lake City and Sacramento; eventually moving to Los Angeles, where he remained for about four years. He then returned to Chicago, where he worked first as a milkman, and, subsequently, from 1929 to 1950, as a worker in a canned goods factory. He was married for four years in the 1920s, but the marriage ended in divorce. He never re-married and remained childless. After his retirement in 1950, he lived for many years in southern Texas, where he built his own sailboat and enjoyed sailing in Galveston Bay, just as he had enjoyed rowing on Skanderborg Lake as a boy. He also reported visiting Denmark a couple of times in his retirement, which was confirmed by his relatives in Denmark. In 1978, at the age of 96, he moved to the Danish-American nursing home in San Rafael, California, where he lived until his death at the age of 115 on April 25, 1998.

Together with John Wilmoth, who had interviewed him several times, Bernard Jeune, Axel Skyttthe, and Jim Vaupel visited Mr. Mortensen on his 113th birthday. He was sitting in a wheelchair, but was able to stand and walk a couple of steps. He was almost blind, but was still able to hear a certain amount, especially with the help of a hearing microphone. He was small in stature (less than 160 cm). As a young man, he had been exempt from military service in both Denmark and the U.S. because of his diminutive size. He appeared to be in good humor on his birthday and was happy about the good wishes and gifts he received. He was especially pleased with the large box of Danish cigars that we brought him. We knew that he enjoyed smoking a couple of mild cigars a week. In honor of his birthday and his guests from Denmark, he was allowed to light one of the cigars indoors. He would have liked to have smoked every day, but was not permitted to do so. He had smoked since the age of 20: mainly a pipe and later on cigars, but almost never cigarettes. For a short while he had also chewed tobacco. Earlier he had smoked several pipes a day, but had never inhaled.

Mr. Mortensen emphasized the need to “eat well and eat properly.” He had always had oatmeal for breakfast, and had otherwise eaten every kind of food, though for a while he had been a vegetarian. Asked why, in his view, he had lived to such a great age, he replied: “I live differently from most people and I have a strong heart, a strong body.” Asked whether he still enjoyed life, he replied: “Well, enjoying and living are two different things. I’m 113 years old. What pleasure can there be for such an old man? I eat every day. I listen to the radio.”

Until about the age of 115, he was still capable of long conversations with John Wilmoth. However, the conversations were very slow, and the interviews demonstrated that Mr. Mortensen was having good and bad days. At the last meeting, about the one week before he died, he was confused and delirious. He had been treated for different diseases during the latest years at the nursing home, but the physician's notes, which we have seen, are confidential and have never been officially published.

Chris Mortensen's successors as the world's oldest man included Antonio Todde, an Italian from the island Sardinia, who died aged 112 years in January 2002; Yukichi Chuganji, a Japanese man from the island of Kyushu, who died aged 114 years and 189 days on September 28, 2003; Joan Riudavets-Moll, a Spaniard from the island of Minorca, who died aged 114 years and 81 days on March 5, 2004; Fred Hale of the United States, who died aged 113 years and 354 days on November 19, 2004, and finally Emiliano Mercado Del Toro of Puerto Rico, who died aged 115 years and 133 days on January 24, 2007.

### **3.8 Annie Jennings: Living at home until her death**

Annie Jennings was born in Wales (UK) on November 12, 1884, and died at the age of 115 and eight days on November 20, 1999. She has been validated by the Office of National Statistics, which has sent a copy of her birth registration to the International Database on Longevity.

Mrs. Jennings worked as a schoolteacher at different schools in the district of Chesterfield. She married a Nottinghamshire clergyman and former missionary, who died after catching black water fever in the 1940s. They had no children. With some help from carers, she lived alone at home in the village Wingerworth, District of Chesterfield, County of Derbyshire, until her death. She was known in the village as a bit of a recluse. She shunned and disliked media attention, and refused to be interviewed by newspapers. "You had to be there to appreciate her wit and understanding. She was a remarkable woman," said a friend to a newspaper. When she was 100 she didn't want a telegram from the Queen. Being old was, she said, "nothing to shout about."

At the age of 108, Mrs. Jennings still attended the church services on Sundays, but, at the age of 109 she decided not to attend church any more as a protest at the ordination of women priests. At the age of 110, she had a fall and was admitted to a hospital with a broken leg. After that she was physically incapacitated. She was certainly in full

possession of all her cognitive functions at that time. She had a stroke around the age of 115, from which she later died.

## 4 Jeanne Calment's successors in the period 2000-2004

Jeanne Calment was a phenomenon, but as we have seen, she was not unique, for she was succeeded by others who lived to an extremely old age during the same period. Throughout the 1990s, there was always at least one person—and sometimes two, three, or four people—who had reached the age of 115 or more. When, however, Sarah Knauss died on December 30, 1999, the maximum lifespan dropped by more than five years. The British woman Eva Morris from Staffordshire was probably the longest-living person after the death of Sarah Knauss. She was born on November 8, 1885, and she died on November 2, 2000, just a week before she reached the age of 115.

### 4.1 Marie Bremont: A gourmet fond of chocolate

More than one year after the death of Sarah Knauss on December 30, 1999, another woman reached the age of 115. This was Marie Bremont, a French woman born as Marie Marthe Augustine Mesange on April 25, 1886, in Noëillet, in the *département* Maine-et-Loire in the western part of France. Jean-Marie Robine has found her birth registration and her family book (*livret de famille*). We have some biographical information from a few French newspapers.

Mme Bremont's father was a lumberjack, and she grew up in a family with eight children. She began working at the age of seven on a farm: "When I was seven I guarded cows. Life was hard and we had to get up at four o'clock in the morning." At the age of 20, she moved to join one of her brothers in Versailles. She married her first husband, Constant Lemaitre, in Paris at the age of 24. He worked at the railway. "We bought a little house with three rooms. We didn't have much for a living but we lived quietly." Her husband died during World War I. Over time, she worked as a nanny, as a worker in a pharmaceutical factory, and as a seamstress. As a widow she went twice on pilgrimage to Lourdes, although she told a journalist that she was not devout. "When I was widow, I was very well considered, you never saw me with anybody, except when I married again." That was in 1936, when she married Florentin Bremont, who was a taxi driver. "He was a good man and besides he was handsome." In 1959, they moved to the village of Vritz near the city Candé in the *département* Loire-Atlantique. Her

second husband died in 1967. “I had two good husbands. I have always been happy,” she once said to the local newspaper. “I like all people.” The same newspaper reported that she was a “gourmet” and fond of chocolate.

Mme Bremont lived independently at home until the age of 105, very often walking the eight kilometers from her small village to the nearest city, Candé. At the age of 103, she was hit by a car and broke her arm. At the age of 105, she was admitted to the nursing home of the local hospital, Aimé Jallot in Candé. She would have liked to have stayed longer in her home, but her sight and hearing were deteriorating. According to the nursing home staff she was “a rebel.” She refused to wear a hearing aid—like Jeanne Calment—because, according to her, she could hear the nurses perfectly.

When, at the age of 111, she was told that she now was the oldest person in France (which turned out not to be true) after the death of Jeanne Calment, she said: “You know I have worked all my life. I don’t have anything to reproach myself.” For her 113th birthday, the nursing home prepared a public party without asking her permission. Consequently, she refused to come to her party. For the following birthdays, the staff asked her opinion and organized more intimate parties. Mme Bremont’s 115th birthday was officially celebrated in the nursing home in Candé, where she passed her final years. After her 115th birthday, she worried about how she could answer the emails received for her birthday. According to the staff of the nursing home, meaningful exchanges took place until her death, although she had good days and bad days. She died, apparently peacefully, shortly after her 115th birthday on June 6, 2001.

#### **4.2 Maud Farris-Luse: Outlived six of her seven children**

Marie Bremont’s successor was probably the American woman Maud Farris-Luse. She has been validated by Louis Epstein and Robert Young (see his chapter in this monograph) on the basis of census records, her marriage certificate, the birth records of her children, and newspaper evidence of earlier birthday celebrations since she was 98. She was born on January 21, 1887, in Morley, Michigan, about 40 miles north of Grand Rapids.

In 1891, her family moved to Angola in the county of Steuben, Indiana. On June 27, 1903, at age 16, she married Jason Ferris, a farmer and laborer, which required parental consent. They had seven children: four sons and three daughters. Six of the children were born in an eight-year period from 1905 to 1913, when she was 18 to 26 years old; while

the last, a daughter, Lucille, was born in 1928, when she was 41. Lucille was the only one of her children to survive her. The oldest, the son, Charlie, died in 1987 at the age of 82; the fifth, the daughter, Clair, died in 1988 at the age of 77; and the next-youngest, the son, Dale, died in 1986 at the age of 73. The other children probably died at younger ages.

In 1923, she and her husband moved back to Michigan, settling in Coldwater, a southern Michigan city about 100 miles southwest of Detroit. At some point hereafter, she decided to spell her name “Maud Farris,” instead of “Ferris.” Her husband died at age 72 in 1951 after 48 years of marriage, and she became a widow at the age of 64. In the early 1960’s, she married Walter Luse and called herself Maud Farris-Luse. Her new husband died three years into their marriage, when she was still in her sixties. She was in good shape at age 100, and was still fishing, a sport she had enjoyed since she was young. She lived on her own until the age of 104. In 1991, she fell in her home, breaking her hip. This forced her to leave her home for a nursing home, The Laurels of Coldwater, where she lived for more than a decade. In 1997, when she reached the age of 110, she was still able to write a letter, and she wrote to Jeanne Calment, then almost 122. However, during her last years she was mostly confined to bed.

Mrs. Farris-Luse was accepted by the Guinness World Records as the “world’s oldest person” on June 23, 2001, a few weeks after the death of Marie Bremont. When she celebrated her 115th birthday, one of her grandchildren, Susie Crandall, age 53, told a local newspaper that her grandmother could no longer speak, hear, or understand what was going on, but she loved visiting. “I hold her hand and give her kisses and tell her that I love her, but she doesn’t understand what’s going on. If I could turn out to be half the woman that she’s been, I’d consider myself lucky.” She outlived all but one of her seven children and had a dozen offspring, including one great-great-grandchild. She died from pneumonia on March 18, 2002, almost two months after her 115th birthday.

### **4.3 Kamato Hongo: “Just an ordinary life”**

Maud Farris-Luse was succeeded as the world’s oldest person by the Japanese woman Kamato Hongo, who was reportedly born on September 16, 1887, and apparently reached the age of 115 years on September 16, 2002, six months after the death of Maud Farris-Luse, or more than one year after the death of Marie Bremont. But the Belgian demographer, Michel Poulain, who has tried to validate her age, has questioned

her birth date (see his chapter in this monograph). She was born on the small island of Tokuno-Shima to the south of Japan's main islands, also the home of the alleged 120-year-old man, Shigechiyo Izumi, who is still mentioned by Guinness World Records as the longest-living man, but whose age never has been, and never can be, verified due to lack of documents. In Japan, Mrs. Hongo is officially still considered to have been the oldest of the Japanese long-livers.

According to information her daughter provided to a local newspaper, Mrs. Hongo grew up in a farming family; a very warm family from which she inherited her "warm character." She married and had four sons and three daughters. Her husband produced sugar cane. When her husband died in 1964, she moved to Osaka, and later, in 1983, she moved to Kagoshima on Kyushu, Japan's main southern island, where she lived with her daughter, grandchildren, and great-grandchildren. Her daughter said that "she's just lived an ordinary life," without doing anything special. She did not eat much processed food, but preferred natural foods. She had a very sharp sense of taste. She drank mainly green tea, and she also used to drink two or three cups of herb wine.

At the age of 110, she had a surgery for a hip fracture. The operation went well and she recovered, but she thereafter began to sleep for an entire day or two, followed by a day or two of being awake. She spent the end of her life listening to music from a tape recorder. Her hearing was fading away, and, during the last year of her life, her mind was not clear. Mrs. Hongo's daughter refused to place her mother in a nursing home, preferring instead to have her at home until she died. From her 115th birthday until her death, a banner hung from the second floor of her daughter's house declaring that this was the house of Kamato Hongo, aged 115, the oldest person in the world. It had been put up by the local municipality. She died, apparently peacefully, at the age of 116 years and 45 days, on October 31, 2003.

#### **4.4 Maria Esther Capovilla: "Only a small cup of wine with lunch and nothing more."**

Maria Esther Capovilla was publicly recognized by Guinness World Records as the oldest living person, based on documents provided by her family, including baptismal and marriage certificates. She had been regularly featured in the Guayaquil newspaper since her 100th birthday in 1989. Robert Young visited her in March 2006, and Bernard Jeune, Jean-Marie Robine and the Chinese demographer Siulan Cheung visited her in April 2006. They interviewed her children and some of her grandchildren, and have collected copies of several certificates from the

parish registers and other relevant documents. As Maria Capovilla has lived all her life in the city Guayaquil in Ecuador, it is possible to carry out a thorough validation at the same level as for Jeanne Calment and Chris Mortensen, although this has not yet been done.

She was born September 14, 1889, in the large sea port of Guayaquil in southwestern Ecuador. Her father was of Spanish descent and was a colonel in the Ecuadorian army. She grew up in an affluent home, the third of five children. She was a frail child who had to be raised outside the town by an aunt at a farm where she drank plenty of milk, both goat milk and donkey milk. She did not start school until she was 11 years old in 1900, when the first school opened. In her youth, she liked to embroider, paint, play the piano, and dance the waltz. As an adult she always ate three meals, but she never smoked or drank strong alcoholic drinks—“just one small glass of wine with lunch and not more.”

She was married at a relatively late age, when she was 27 years old in 1917, to Antonio Capovilla, a man of Italian descent who was born in 1864 in the Austrian-occupied part of northern Italy. He was an engineer and an officer. After a stint in the Chilean army, he came to Ecuador in 1910, where he had a significant position in the Ecuadorian fleet as a mine and torpedo specialist. He died in 1949. They had five children, of whom the oldest, a son born in 1918, died in 1920. The second oldest, Emma, was born in 1920 and died in 1999 at the age of 79. The three youngest were still living in 2007: Hilda, 82 years old, who was born in 1924; Irma, 80 years old, who was born in 1926; and Annibal, 78 years old; who was born in 1928. For the last 20 years of her life, she lived with her oldest daughter and her son-in-law.

When we visited her in April 2006 at her oldest daughter's house, she was dressed in a noble blue-black dress, and was sitting with an impressive fan in her hand in the middle of a sofa between her oldest and second-oldest daughters. She was sitting majestically and erect, but she had a tendency to lean to one side when she sat without support for a long time. She was able to see us and greet us. She was still able to read headlines in newspapers, but was no longer able to read ordinary text in newspapers. She watched television, but had difficulties keeping up with a TV program, possibly due to a hearing impairment, as she was able to see the photos which we took in a digital camera. Even though she had trouble hearing, we managed, with the aid of a hearing microphone, to have a conversation with her.

She was able to remember many details from her long life, and seemed, on the whole, of sound mind. According to her daughters, how-

ever, she had become less communicative, especially since her 116th birthday. Her memory was not bad, because she remembered many things, but not everything. Her hearing impairment may, however, have contributed to this, as it was necessary to speak very loudly and close to her ear to be able to make yourself understood. She was fond of receiving guests, however, and smiled at them and nodded communicatively with her head while sitting in her sofa.

She was still able to walk indoors when she was assisted, but had not been outdoors for about two years. She slept a lot, got up late, took a long time to get ready in the morning, but managed on her own. She also had an afternoon nap and went to bed early in the evening. She was always present at all family meals: for breakfast she drank coffee with warm milk and ate bread with cheese and jam; for lunch she liked lentils and chicken; in the afternoon she enjoyed something sweet, like cakes, jelly, and ice cream; and for supper she ate whatever the family was having. She could eat on her own if the food has been prepared. While we were there she ate a cake with ice cream on her own, holding the small plate with her left hand and the spoon with her right hand.

Around the time of her 116th birthday, Maria Capovilla developed a stomach ailment which required hospitalization. This almost claimed her life and left her quite frail, with a considerable loss of weight. Until that time, she was able to move around with a walker on her own in the house. She managed without a walker until the age of 111 years. When she was 103 years old, she felt so unwell after an infection that the vicar had to administer last rites. She recovered, but was somewhat frail thereafter. As a 20-year-old, she had almost died as the result of a serious illness, most probably the Spanish flu. But, aside from a gall bladder operation as a 60-year-old, her health as an elderly person was good. She took very little medication.

According to the family, Maria Capovilla's calm disposition might have been the secret to her longevity. She had always had a calm mind and never got upset by anything. She seldom smiled or laughed, nor did she cry. She had always been a person of few words; polite and reserved. She took things as they came and she had been like that all her life. Every day she thanked God for still being alive. In this way, she had also taken every death in the family with fatalistic equanimity. She prayed to God every morning and night.

She died on August 27, 2006, two weeks before her 117th birthday, after being hospitalized for a severe flu. She left three children, 12 grandchildren, 20 great-grandchildren, and two great-great-grandchildren.



## 5 The increasing number of successors in 2005/2006

### 5.1 Hendrikje van Andel-Schipper: A herring and a glass of orange juice every day

The Dutch woman Hendrikje van Andel-Schipper, called “Aunt Hen-  
nie,” who reached the age of 115 on June 29, 2005, was recognized as the  
longest-living person in the world for more than one year, until Guinness  
World Records in December 2005 publicly recognized that Maria  
Esther Capovilla had reached the age of 115 almost one year previously  
(on September 14, 2004). Hendrikje van Andel-Schipper was visited and  
interviewed by journalists from the local and the national press, and  
was also interviewed by RTL television. Her birth registration has been  
found in the archives of her birth town (Wikipedia 2005).

She was born in a small village, Smilde, near Drenthe in Holland.  
Born prematurely and weighing just three pounds, her mother believed  
that the infant would not survive. However, thanks to the continuous  
care of her grandmother during her first four weeks of life, she recovered.  
But she remained a frail and ailing child. At the age of five, on her first  
day of school, she was sick again and was removed from school on  
the advice of a local doctor. She was not allowed to go to school and  
was tutored by her parents at home. Her father, who was the head  
of the local school, taught her to read and write. “My mother taught  
me arithmetic, as she found that to be extremely important,” she once  
recalled. “Because I didn’t go to school, I usually took to the land with  
the farmers. I was allowed to sit on the hay wagon. That was great.”

Hendrikje lived with her parents until she was 47 years old. At the  
age of 46, she met her husband, Dick van Andel, a tax inspector who  
worked in Amsterdam. She left her parent’s home to marry Dick at  
age of 49 in 1939. From then on, her name was van Andel-Schipper.  
She was too old to have children. She had loved the theater from a  
young age, but, after her mother objected, she decided not to pursue a  
career in acting. She became a needlework teacher instead, and drama  
remained a hobby. During World War II, she and her husband moved  
to Hoogeveen, where she had to sell jewelry to help pay for food during  
the German occupation. Her husband died of cancer in 1959.

“I was 49 when I married him,” She said in an interview. “My  
mother was dead-set against it; she thought I was too old to get mar-  
ried. But I held my ground and had twenty wonderful years with my  
husband. Then he died. My husband suffered for months before he  
passed away. That’s why I always tell people who ask me how I’ve  
lived to be 113: Don’t smoke and don’t drink too much alcohol. What

else have I done to reach this old age? Continue to breathe, nothing more. But I hope that people will stop asking me this question; the answer is becoming increasingly monotonous.” In another interview, she has stated that her secret was a raw Dutch herring and a glass of orange juice every day. She was a good cook and took her time to prepare meals. She never smoked, and she very much enjoyed riding a bicycle. Although she told *Time* magazine that the greatest advance in her lifetime was the automobile, she never learned to drive.

When she turned 106, Mrs. van Anandel-Schipper went to live in a nursing home, De Westekim in Hoogeveen. “Yes, I am very satisfied here in De Westekim. The staff is very kind and friendly. I couldn’t have wished for better.” On a table of her room in the nursing home was a picture of Queen Beatrix, and an Ajax pennant hung on the wall. She visited Queen Beatrix in 2001: “Who can honestly say that they’ve visited with the queen for tea? Very few people, if I’m not mistaken. It was a great honor. The Queen was very kind and I let her ask the questions. Then, in turn, I could respond, it was simpler that way. It was a wonderful afternoon, and on our way back in the evening, we were treated to a delicious dinner in Staphorst. I hope to live to 114. I feel fine, so that shouldn’t be a problem.” In another interview she said: “If I continue to feel as I do now, I will become a 120;” however, she added, “the Great Manager decides when my end is to be.”

She had been a fan of the football club Ajax Amsterdam since she attended a match in 1918. It was her favorite football club: “Even if they shoot down to the bottom rung, I will still remain an Ajax fan. I’ve only been to an Ajax match once in my life, when I was 28. Now I’m nearly 114 years, how is that possible?” Once, when the Ajax team visited her, she complained that the other residents of her nursing home were “hicks who don’t understand football.”

For her 115th birthday, she received visits from many prominent and local guests: the daughter-in-law of the Queen of the Netherlands, Princess Laurentien; a delegation from her favorite football club, Ajax; a representative from the Dutch association of housewives who declared her an honorary member; the mayor of Hoogeveen; the regional tourist board; and many other guests. The inhabitants of the town waved their flags, and banners reading “Hoogeveen feliciteert Hennie van Anandel 115 Jaar” hung several places in the municipality. She left the celebration after one hour; very tired, but also very grateful. “I had a great time,” she said afterward. “When you get as old as I am, you have few distractions left. That’s why I so enjoy having people visit me.”

Apparently, she had not suffered of major diseases until her nineties, when she was diagnosed with a breast cancer and went through a mastectomy at the age of almost 100. Afterward, she remained fairly well, although her hearing was poor and she was almost blind. At the age of 113, she was treated for a bladder infection. The director of the nursing home told a newspaper that “she was very clear mentally right up to the end, but physically ailments were increasing.” She was socially engaged and was “really interested in what’s going on in the world and listens to the news on the radio most days,”—at least until the age of 113, when her hearing became too poor. “I sit all day long. That comes with the territory of age. Besides, my former contemporaries are no longer amongst the living.” However, her standing reply whenever anything went wrong was: “There’s no point in moaning.”

At the end, she was waiting for death. “Ultimately you wait for death,” she said. “It’s been nice, but the man upstairs says it’s time to go.” Mrs. van Anandel-Schipper died peacefully in her sleep very soon after her 115 years celebration on August 30, 2005. She had decided some years previously that her body should be donated to an anatomist at the University of Groningen, Gert Holstege, who had visited her and interviewed her several times. As planned, she was autopsied. She died of stomach cancer (Science, 2005).

## **5.2 Elizabeth Bolden: A religious woman with 10 great-great-great grandchildren.**

Two weeks before the death of Mrs. van Anandel-Schipper, the African-American woman Elizabeth Bolden probably reached the age of 115 on August 15, 2005. Her claim has been accepted by Guinness World Records without a birth or a marriage certificate due to registrations from census reports and her seven children’s documents. After the death of Maria Esther Capovilla, she was probably the oldest person in the world. Her case has been validated by Robert Young (see his chapter in this monograph) with the help of a local genealogist, Jeff Knight.

Elisabeth Bolden was probably born on August 15, 1890 (it may have been one year later), on a cotton farm in Fayette, Tennessee. Both her parents were former slaves. She grew up with her mother, Annie Jones, and her four siblings. She was married to a tenant farmer, Lewis Bolden, in 1909. They had seven children, the oldest of whom, the son, Ezell, was born in 1908; while the youngest was born in 1920. Two of these children were still living in 2007: an 89-year-old daughter, Queen Rhodes, who was born in 1917, and a 86-year-old daughter, Mamie

Brittmon, who was born in 1920. Her husband died in the early 1950s. She grew up on the cotton farm where later she also worked. Her main job was processing the cotton after it had been harvested. Remembering the days on the farm when, in addition to chopping cotton, her mother would take in washing and ironing, her daughter Mamie said to the local newspaper: "In the summer we'd build a fire outside. We had the big smoothing irons and we'd heat the irons and in the winter we'd use a fireplace in the stove." Throughout her life she was a keen Baptist, and was a verger at the local Baptist church until she entered a nursing home at the age of 109.

Bernard Jeune, Jean-Marie Robine, and the Chinese demographer, Siulan Cheung, visited Mrs. Bolden on April 4, 2006, the 31st anniversary of the murder of Martin Luther King in Memphis. She was living in a nursing home, MidSouth Health and Rehabilitation Center, in Memphis (Tennessee). She was sitting in her wheelchair in her room, which was completely decorated with pictures of her very big family and a large number of newspaper cuttings showing her latest birthdays. It was very difficult to communicate with her as she was deeply affected by the impact of a stroke, but she could communicate with her eyes.

On her 112th birthday, she was allegedly completely mentally fit and was able to remember all details. But, on her 114th birthday, she did not speak much any more. Shortly after her 115th birthday, she had a stroke; thereafter she clearly had significant memory problems. The family believed she was not able to recognize them any more when they came to visit her. But the nursing staff closest to her said they were convinced she could recognize them, and that she could also hear what they said to her.

After she had suffered the stroke, it became difficult for her to eat, and she did not get enough nutrition. She was then fed artificially through a stomach tube. She therefore got abundant amounts of nutrition. Her face seemed full without many wrinkles.

When, prior to her stroke, Mrs. Bolden was asked by a local journalist why she believed she had lived to such a high age, she answered laconically, "I don't know." According to her youngest daughter, her mother was deeply religious: "She always asked us to read the Bible, be honest, go to church, and treat others in the way we would like to be treated. She raised us well." Her grandson added, "She has always been a spiritual person. She prays when she wakes up and she prays when she goes to bed."

She passed away on December 11, 2006, from respiratory distress. When she died, she had 34 grandchildren, 124 great-grandchildren,

more than 100 great-great-grandchildren, and more than 10 great-great-great-grandchildren.

### **5.3 Bettie Wilson: Survived a major surgery at the age of 114**

Another African-American woman, Bettie Wilson, reached the age of 115 on September 13, 2005. She was featured in the local Mississippi newspaper and was interviewed for NBC news. She has also been interviewed several times by Robert Young, who has validated her case (see his chapter in this monograph).

She was born as Bettie Antry Rutherford on September 13, 1890, in Benton, Mississippi, the daughter of ex-slaves Solomon and Delia Rutherford. Her mother was 45 years old when she delivered Bettie as the last child of 12. Her mother, who was from South Carolina, was sold to a Mississippi plantation owner. Her parents were freed by Union soldiers and settled as farmers in the north of Mississippi. She remembers as a little girl picking cotton in the fields, and the dinner bell ringing when it was time to eat. As a young girl, she was a servant. She had her first child in 1910; a son, Willie Rogers, who was still living at the age of 96 in 2007, although in a wheelchair like his mother. She married Rufus Rogers in 1919 who died soon after, and, in 1922, she married Dewey Wilson, a clergyman. They were married for 72 years, until Dewey Wilson died in 1994, aged 95. They had two daughters who are deceased.

Bettie Wilson was a very spiritual person, giving God the glory for her long life. She was in good health until the age of 100, when she went to the hospital for the first time. She apparently could walk with the aid of a cane until the age of 114, when problems with her gall bladder put her in the hospital again. She survived gall bladder surgery in September 2004, after which she was on oxygen for a period months. The doctors didn't think she would make it. Before her 115th birthday, she tended to sit most of the day in a big easy chair, but sometimes used a wheelchair, although she could not sit up in the chair and had to lay back. She could not walk, but she could still read and talk coherently. She remembered her age and birth year, and she knew the name of the current president. However, after her 115th birthday, her vision, hearing, and memory declined, and she suffered from bed sores as a result of being more bedridden than before. During the last months of her life, she was declining. She died on February 13, 2006, at the age of 115 years and 153 days.

Prior to her death, Mrs. Wilson lived in a new home with her great-granddaughter and caregiver Della Shorter in New Albany, about 70 miles southeast of Memphis. When it was believed that she was the oldest American woman (i.e., before Elizabeth Bolden was officially accepted by Guinness), Della told the local newspaper that her mother wouldn't mind not being the oldest: "She didn't want people feeling that she was higher than anybody."

#### **5.4 Susie Gibson: Still going out to eat at the local restaurant to the very end**

A little more than one month later, Susie Gibson reached the age of 115 on October 31, 2005. Her case has been validated by Robert Young (see his chapter in this monograph). He also interviewed her several times in 2004 and 2005.

She was born as Susie Potts on October 31, 1890, in Corinth, Mississippi. Her grandfather owned a plantation, and her father was said to have owned just about the whole town. She said that her father owned so much land you couldn't reach the end of it in a day, riding a horse. She remembers when she as a child in the 1890s picking up leftover shells from the Civil War battlefield of Shiloh.

When she was a girl, she became sick and her family thought she was going to die. She remembers an angel that came to her. The town doctor, the first person in town to own an automobile, promised her a ride if she got better. She got better, but the doctor didn't keep his promise. As a young woman she went to dictation school, and was educated as a typist. In 1912, she won a trip to San Francisco. While at theater in that city, she remembers that the movie was interrupted to announce that the Titanic was sinking. She also said that she had to "wait a long time to vote;" not until 1920, when she was 30, were women first allowed to vote.

In 1915, she married James Gibson, Sr., and they moved to Sheffield, Alabama, shortly thereafter. He died in 1955, aged 71. They had one child, James Jr., who was born in 1917. He was a pharmacist and lived to the age of 70. After the birth of her child, she did not work away from home. Instead, she operated an inn and made neckties. She was an avid fisher, and claims to have rescued a child from drowning.

Mrs. Gibson still drove until the age of 95, and she fished into her low one hundreds. At the age of 104, she moved into a nursing home in Tuscumbia, Alabama, due to declining vision. She walked unassisted until age 109, and, though confined to a wheelchair, was still able at 115 to wheel herself around. In November 2005, at the last interview,

she wheeled herself to her closet to look through her many fine dresses. She was able to sit erect in her wheelchair. She loved to tell stories, and her memory at age 113 was very good; at 114, she was still a loquacious talker, able to be interviewed for one hour.

Her memory gradually declined in her final years, and she had her ups and downs, but she still had the ability speaking coherently when she was feeling well. She had become a bit forgetful. When she was asked in September 2005 when she was born and how old she was, she said “I was born in 1889;” and, “I am 118.” She also did not know who the current president was. Even so, she lit up when you talked to her. Her sight and hearing were not good, but she was not given a hearing aid until 2005. She could no longer sign her name. She still had her purse, and went out to eat at the local O’Charley’s restaurant once a month. She enjoyed the frequent visits of an 88-year-old man, and the visits of her nearest relatives, including her granddaughter, who lived about two hours away, and her daughter-in law, Ernestine Gibson, who was 84 years old. She had a bout of pneumonia in February 2005, and the doctors were worried, but she recovered. However, her condition declined gradually thereafter. In January 2006, she suffered from heart failure, and died on February 16, 2006.

### **5.5 Emiliano Mercado Del Toro: “I never damaged my body by liquor”**

The American, Emiliano Del Toro from Puerto Rico, is probably the second man who has reached the age of 115, about nine years after Chris Mortensen, on August 21, 2006. He was acknowledged by the Guinness World Record as the longest living man based on documents which the family provided. Robert Young has independently validated his case (see his chapter in this monograph), having found his birth certificate and his baptismal record listing him as having been born on August 21, 1891. The following biographical information about him is taken from a few local newspapers and a feature in the New York Times.

Both parents, his father, Delfin Mercado, and his mother, Gumersinda Mercado, were born in Puerto Rico, and lived in 1910 in Pedernales, Cabo Rojo, Puerto Rico. He remembered the U.S. seizure of Puerto Rico from Spain in July 1898, when he was nearly seven years old. He also remembered the hurricane San Ciriaco, which swept across Puerto Rico in 1899, killing more than 3,000 people. He grew up among the sugar cane plantations in the southwestern part of Puerto Rico. He attended a public school in the town of Cabo Rojo through the sixth

grade. As a young man, he worked for 50 cents a day driving animals loaded with sugar cane to processing centers. At the age of 27, he was drafted into the U.S. Army, but was still at a training camp in Panama when the armistice ended World War I on November 11 of that year. According to a certificate that his niece has preserved in a plastic envelope, he was discharged on December 4. In this certificate, he is described as having chestnut eyes, chestnut hair, and a good character. After the war, he returned to working in the sugar cane fields. He had several love affairs, but, for reasons of fate, never married. He retired at the age of 80, and quit smoking after 75 years at the age of 90.

He lived in the northwestern coastal town of Isabela (70 miles from San Juan) with his 85-year-old niece, Tomasita Ruiz. At the age of 111, he was the grand marshal of the Veterans Day parade, which he attended in his wheelchair and with a navy-and-gold garrison cap on his head. He told a local journalist that he felt satisfied with the honor. At the age of 112, he survived gangrene of the foot, which nearly killed him. After that he was described in the *New York Times* as frail, almost blind with unseeing eyes ringed with dark circles, and nearly deaf. He spent most days in bed with a cool washcloth over his eyes, but his memory was good. His fingers were in constant motion, but he was able to grasp a visitor's hands. At his 115th birthday, an ambulance drove him to an outdoor plaza for a party with his family. His favorite singer, Iris Chacon, sang a birthday tune set to mariachi music. "I feel happy," he said after the party. "I never thought I would last so long." He attributed his longevity to a healthy diet of boiled cornmeal, cod, and coconut milk; and to avoiding alcohol: "I never damaged my body by liquor." His favorite drink was coffee. When he died on January 24, 2007, at the age of 115 and 133 days, he was the second-oldest validated male ever, after Chris Mortensen.

### **5.6 Winnefred Bertrand: Never hospitalized for a serious disease before the age of 112**

Almost one month later than Emiliano Mercado del Toro, the Canadian woman, Julie Winnefred Bertrand, reached the age of 115 on September 16, 2006. At the end of her life, she lived in a long-term care facility, Résidences Berthiaume Du Tremblay, in Montreal, Quebec. Together with two demographers from the University of Montreal, Robert Bourbeau and Bertrand Desjardins, who thoroughly validated her case, Jean Marie Robine and Bernard Jeune visited her on October 1, 2006. Desjardins found her baptismal certificate, which constitutes in Quebec her birth registration, as well as census registrations and several



biographical notes from different public sources. She was mentioned in different newspapers after her 105th anniversary, although she only rarely accepted interviews, and never agreed to have photos taken. But her 75-year old nephew, André Bertrand—who, together with his sister, Elaine Saucier, received us when we visited their aunt—has talked about her to different newspapers.

She was born on September 16, 1891, in Coaticook, which was, at the time, a small rural community near the U.S. border, some 140 kilometers east of Montreal. Her father, Napoléon J. Bertrand, was born in 1862 and died at the age of 82; and her mother, Julia Agatha Mullins, was born in 1864 and died at the age of 85. As adults, they both had diabetes, and her mother underwent the amputation of one of her legs. Her parents were married in 1886 and had seven children: five sons and two daughters, the oldest born in 1887 and the youngest in 1911. Winnefred Bertrand was number three of the seven children. The longest living of her siblings were her sister Irene, who died at the age of 92, and her brother Maurice, who died at the age of 85. Two of her brothers died at young ages, one of the Spanish flu.

Winnefred Bertrand never married, but as a young woman she had some lovers (“*j’ai eu quelques flammes*”), including a young lawyer, Louis-Stephen Saint-Laurent, who later became prime minister of Canada in the period 1948-1957. Until the age of 112, she was in very good health and “*une force de la nature*,” her sister-in-law, Germaine Bouchar-Bertrand (married to her youngest brother) told a journalist. During all of her life, “she stood five-foot-eight and weighed 150 pounds in her fighting days,” said her nephew André Bertrand to another journalist. He also said that she has always been “a strong lady, fiercely independent and self-sufficient.” She spent most of her working life (35 years) as a shop assistant in the store Lajoie-Lajoie in Coaticook, where she was responsible for the sales of women clothes. This store was situated about half a mile from her parent’s farm. When her parents sold their farm, she cared for them in her apartment just above the store. She took care of her parents well into their eighties. At the age of 105, she told a journalist that the periods following the deaths of her parents “were the most difficult in her whole life.”

In 1974, at the age of 83, she entered the above-mentioned nursing home, not because she was sick or dependent on help with daily activities, but because she wished to live with other people. Apart from a short hospitalization for a collar bone fracture after a fall at the age of 95, she had never been hospitalized or treated with medications before she had a stroke when she was 112 years old.

At the age of 105, she still performed most tasks independently: cleaning her room, washing her clothes, going to the dinner room to take her lunch and dinner, going to the bank to manage her finances, etc. She was particularly engaged in keeping her wardrobe with her elegant clothes in order. Nobody was allowed to touch her clothes. She very much liked to read books and newspapers, and to watch the news on the TV. She was well-informed about what was going on around her, and in the world. However, at that age she was starting to have difficulties with her sight and her hearing.

At the age of 110, she did not allow anybody to interview her, and she did not want a party (she didn't appreciate the party which was held at her 105th birthday), although she was still in relatively good shape: in spite of her decreasing sight and hearing, she still went to the dining room with help of a walker (*marchette*) and her cognition was intact (she was still very "*lucide*"). But she was more tired and rarely left her room. At the age of 111, and until her stroke, she was still able to walk around, and was still communicative and had an excellent memory.

After the stroke, she was no longer capable of holding a conversation, although it seemed that she could give some adequate answers and comments, and expressed her wishes with gestures. Her nephew said that his aunt still recognized him and his sister when they visited her. Some days she slept for most of the day, as she did when we visited her.

Not long before her death, her nephew said to a journalist that "she would say that she was tired and praying for the good Lord to come down and fetch her." He believed that, if she were to go to sleep and not wake up, it would be a relief to her: "She's is like a great general. She won't die. She's just fading away." At the age of 105, she told a journalist that she considered "moderation" to be the secret of her long life. Her faith may have contributed to her longevity, as she was a devout Catholic throughout her life. Julie Winnefred Bertrand died on January 18, 2007, at the age of 115 years and 124 days.

## 6 Did they have something in common?

As can be seen from Jeanne Calment's successors, none came near her record of 122 years. In fact, since the death of Sarah Knauss at the age of 119 on December 30, 1999, no one has reached the age of 118. However, the appearance of several new long-livers reaching the age of 115 years in 2005 and 2006 may indicate a new trend; a future in

which such longevity would become the norm. Do they have anything in common that would explain their extreme longevity?

If God isn't simply playing dice with our fates and deciding who should be spared the longest, then presumably Jeanne Calment and her successors must have possessed something that most of us more mortal creatures do not have. As we shall see, it is not easy to determine what these special qualities might be. However, being born a woman definitely seems to be a great advantage, as only two of those who reached the age of 115 or more were male.

Jeanne Calment evidently descended from long-lived stock: her forebears lived longer than the average. Susie Gibson was the daughter of a 102-year-old mother. But this was not true in the other cases. Most had at least one relative who had lived beyond age 90, but that would also be true for many people who have died at younger ages. Jeanne Calment, Susie Gibson, and Maria Capovilla grew up in a well-to-do family. But others came from a working class or a farmer family, or even from slaves, and were busy during most of their lives.

About half of them had no children or only one child. Emiliano Del Toro and Winnefred Bertrand never married and had no children. Charlotte Hughes bore no children, but she did marry late in life; similarly, Hendrikje van Andel-Schipper married too late to have a child. Annie Jennings married, but had no children, and Chris Mortensen remained childless, though he was married for a brief period. Marie Brémont had two good husbands but no children. Both Jeanne Calment and Sarah Knauss had only one child, but the lineage of Jeanne Calment died out when she was 88 years old, while Sarah Knauss succeeded in becoming the oldest of six generations. Susie Gibson had only one child; but Bettie Wilson had three children; Tane Ikai had four; Maria Capovilla had five; Maud Farris-Luse, Kamato Hongo, and Elizabeth Bolden each had seven; Marie-Louise Meilleur had 12; and Maggie Barnes 15 children. Most of those with children also had great-great-grandchildren, and Marie Louise Meilleur, Sarah Knauss, Maud Farris-Luse, Bettie Wilson, and Elizabeth Bolden all had great-great-great-grandchildren.

There is nothing to suggest that most of them ate what we would nowadays regard as a healthy diet. It is, of course, noteworthy that three of the longest-lived women were all great consumers of chocolate, and others liked to eat sweets. Along with vegetables, fruit, tea, and red wine, good chocolate contains antioxidants that appear to protect against hardening of the arteries and cancer. But in other respects, their diets varied greatly, and none had been vegetarian or had been

on a special weight-reducing diet. Nor was there any indication that any of them had at any point been overweight.

There is no doubt that smoking shortens life, albeit to a varied extent, depending on how much one smokes and inhales. Indeed, tobacco is one of the most powerful known factors in reducing a person's lifespan. It is, therefore, noteworthy that both Jeanne Calment and Chris Mortensen had smoked for almost 100 years, and Emiliano Del Toro quit smoking at the age of 90, after having smoked for 75 years. However, it is questionable how much harmful smoke they actually inhaled. Jeanne Calment smoked only two cigarettes a day, and possibly did not inhale at all. Chris Mortensen smoked much more, but stuck to pipes and cigars and never inhaled the smoke. However, the majority did not smoke.

The most amazing fact is, however, that Hendrijke van Andel-Schipper, who was born prematurely with a weight of only three pounds, survived to such a high age. According to the programmed fetal origin hypothesis, low birth weight is a strong risk factor for later chronic diseases. Nevertheless, Mrs. van Andel-Schipper avoided major life-threatening diseases until her nineties, when she got a breast cancer and ultimately died of a stomach cancer. As she stressed herself, she avoided smoking, she loved to bike and seems to have lived a very quite life.

Perhaps their long lives would not have been possible without the life-prolonging effects of the modern medical treatments that have become available in recent decades. Hendrijke van Andel-Schipper was successfully treated for breast cancer just before she turned 100 years old. Bettie Wilson survived surgery for a gall bladder disease at the age of 114. At the age of 115, Jeanne Calment survived surgery for a hip fracture. Just after her 120th birthday, moreover, she was treated with antibiotics for pneumonia arising from a particularly severe bout of flu. Kamato Hongo survived a hip fracture at the age of 110. Sarah Knauss was given a blood transfusion to treat low haemoglobin at the age of 117. The other long-lived successors had survived pneumonia or stroke or other illnesses, such as moderate heart failure at an advanced age. Although our official knowledge of their past diseases is scanty (the notes of their physicians are confidential), and they were not thoroughly examined at the end of their lives, it seems that none of them had suffered from severe heart disease, and most of them avoided serious forms of cancer, unlike many less long-lived centenarians (see Andersen-Ranberg et al., 2001).

It is also striking that Jeanne Calment, Charlotte Hughes, Sarah Knauss, Maggie Barnes, Chris Mortensen, Marie Bremont, Hendrijke van Andel-Schipper, and Bettie Wilson all apparently avoided dementia, at least until shortly before they died. Although this was not the case with Tane Ikai, Marie-Louise Meilleur, Maud Farris-Luse, Kamato Hongo, and Elizabeth Bolden, it provides evidence in itself that dementia is not an inevitable corollary even of extreme old age.

Another striking feature of Jeanne Calment and her successors was their will to live and their sense of humor. A recurring point in relatives' descriptions of all these centenarians was that they were strong personalities who were able to combine strength of will with friendliness. By definition, of course, a person who has withstood the loss of numerous family members and endured many years of frailty—progressively losing mobility, sight, and hearing—must possess a certain will to live. Yet they all exhibited their strong personalities in different ways. Some were considered domineering, e.g., Jeanne Calment and Charlotte Hughes; while others were described as quite the opposite, e.g., Sarah Knauss and Maria Capovilla. The descriptions given by younger relatives may, in part, of course, have been rationalizations after the event, or reflected their perception of personality traits more generally prevalent among an older generation.

Provisionally, however, we may conclude that Jeanne Calment and her successors did not reveal any particular secrets that could serve as straightforward explanations for their extraordinarily long lives. They therefore remain a complex phenomenon. Nonetheless, they offer exceptional examples of the fact that certain people can age extremely slowly, although we do not as yet know why the aging process is slowed down in certain cases, or how this happens when it does.

Although these people aged so slowly, all of them nevertheless became extremely frail in their final years. Their physical functions declined markedly, especially after their 105th birthdays. They walked very slowly and had increasing difficulty in performing daily tasks. Their sight and hearing weakened, so that in the last years of their lives they were virtually blind and very hard of hearing. They spent their last years confined to wheelchairs and slept most of the time. Most of them entered a nursing home between the ages of 105 and 110, but a few lived at home to the very end of their lives (Maggie Barnes, Annie Jennings, Kamato Hongo, and Bettie Wilson).

Although they retained their youthful personalities and were able to live on their memories, none of them could escape the effects of old age. But nor, on the other hand, did they fear death, and they appeared

to be reconciled to the fact that they were approaching the end of life. They never expressed any wish to recover their youth. "Enjoying and living are two different things," as Chris Mortensen put it.

Whether Jeanne Calment and her successors were exceptional, one-off cases, or the first examples of a new trend, their stories, together with recent discoveries in biology, have given rise to new reflections. For concurrently with the survival of several 115-year-olds, a number of biological experiments were conducted which proved that changes in genes involved in fundamental biological mechanisms, and changes in environmental factors, such as dietary restriction and improvement of anti-oxidant capacity, can increase the lifespan of yeast cells, roundworms, fruit flies, and mice. These results have contributed to a far greater understanding of the aging process than we have had up until now. Along with Jeanne Calment and her successors, these findings have shaken the hitherto widespread assumption that aging and lifespan are unalterable.

However, Jeanne Calment and her successors also show that life must eventually come to an end, whether that end is the conclusion to a long period of suffering, or the culmination of a lifetime of fulfillment. It is, therefore, understandable that some have maintained an unshakable belief in the inexorable decline that comes with old age. Lone swallows such as Jeanne Calment and her successors, who went beyond the presumed absolute limit of 115, have not succeeded in dislodging the idea that there is an absolute limit to the human lifespan. Nevertheless, they give us a more nuanced picture of aging and longevity. Neither aging nor longevity can be reduced to simple causes.

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