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“Jeanne Calment’s daughter has usurped her mother’s identity”: an amateur work or scientific research?

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Summary

The press has widely reported on the questioning, by so-called “Russian researchers”, of Jeanne Calment’s longevity. The hypothesis put forward by these researchers is that Jeanne’s daughter, Yvonne, replaced her dead mother in 1934, and that the 122-year longevity established by French researchers would in fact be 99 years. Given the media coverage of this hypothesis, and INSERM’s (French National Institute of Health and Medical Research) position on this issue, this article examines the various arguments and recalls the criteria for any scientific work, none of which is satisfied in the work of “Russian researchers”.

At the end of 2018 and in the beginning of 2019, the press became passionate about a study by “Russian researchers” (sic) suggesting that Jeanne Calment¹ did not die in 1997 at 122 years of age but in 1934 at the age of 59. Her daughter, Yvonne, 36 years old at the time, would, in fact, have replaced her mother, which would explain her 122 years lifespan, which would only be 99. The body would have been replaced for a sordid history of inheritance fiscal costs.

Subsequently, since the fake Jeanne Calment sold her apartment as a life annuity in 1965 to a notary who had died before her, the scam would be double. This usurped increase in longevity of 23 years would then have allowed her to become the oldest human being and to remain, to this day, the person who has lived the longest.

The study of “Russian researchers” was not published in a scientific journal, but on the ResearchGate website (a social network of researchers), by Nikolay Zak[1]. It has therefore not been reviewed by peers, i.e. by other researchers experts in the field, which is not the way research works. Valery Novoselov[2], who claims to be the initiator of Zak’s work[1], also made an interview on the website of a company wishing to eliminate age-related diseases and Yuri Deigin[3], the manager of a rejuvenation company, published an article on another website, endorsing Zak’s arguments[1].

In the context of a so-called normal scientific activity, things would have stopped there: no publication of the authors, but statements on the Internet without any expertise from other researchers. This is not the way researchers work, unless they want to shoot to the fame through shocking statements. So there is no reason for other researchers to waste their time. Nevertheless, as it happened that the press, either by seeking the sensational or for some other reason, has published article after article on this issue, at the risk of misleading the public, it seems necessary to examine the arguments put forward by these “Russian researchers” in this controversy. All press articles were based on the text published on the ResearchGate website[1], so it is this “publication“ that will be discussed here.

It should be noted that, recently, Zak published this initial text in the journal *Rejuvenation Research* as an article essentially covering the original content: this article will be mentioned in the conclusions of this article.

Let us say at the outset that there is no interest in taking an interest in Jeanne Calment’s statements in her last years by looking for contradictions or confusions about memories dating back decades. Similarly, it is of no interest to ask why Jeanne Calment destroyed her family photos,

¹ Jeanne Calment is a French super-centenary born on 21 February 1875 in Arles (Bouches-du-Rhône) and who died in the same city on 4th August 1997. Dean of the French from June 20th, 1986, then dean of humanity from January 11th, 1988, she became the human being who lived the longest among those whose date of birth was verified.

which suggests, according to Zak[1], that she “had something to hide”..., or why she “didn’t want publicity when she was 100 years old”. All this is speculation about Jeanne Calment’s intentions with no other basis than the author’s suspicions.

In the following, we therefore focus on the arguments showing the *actual* possibility of the replacement of the corpse in 1934, which would explain the extreme longevity that has been established for Jeanne Calment.

The death certificate of Yvonne Calment, Jeanne’s daughter: the first argument of deception

Zak[1] writes about Yvonne’s death certificate: “A 71-year-old widow, Joséphine Audibert (born in Tarascon), claimed to have seen Yvonne’s corpse, and her testimony was signed by the aide of the mayor of Arles, Justine Valle, who claimed to have ascertained the fact that Yvonne Calment died at 2:00 a.m. on 19 January 1934, at the age of exactly 36 years at her home on Gambetta Street”. Deigin published this death certificate[3] and commented by saying: “Curiously, her death certificate was issued on the basis of testimony of a sole witness, a 71-year-old unemployed woman (i.e. not a doctor or nurse) who “saw her dead””. Novoselov[2], for his part, states: “In case of death, the usual formal procedures require a witness to look at the body and sign the statement of death. How you would do it normally, if one of your relatives would suddenly die? You would spare yourself the effort and would call some neighbors, I guess. This was not the case, as an old stranger living far away was invited instead. When I say old, I mean around 70 years old, and, at that time, this could have meant a lot of health issues, including sight problems. Why invite total strangers from far away, and why should they be old?”.

The authors[1-3] therefore suggest that Jeanne died in 1934, and not her daughter Yvonne, and that she would have taken her mother’s place. By calling an elderly stranger, perhaps with a low vision, the family made sure that the body replacement would not be seen. But is that plausible?

It is not known if a physician reported Yvonne’s death in 1934. Before 1937, only an individual death form exists for statistical reasons, specifying the causes of death. This form is completed according to a doctor’s statement or “by the family itself or by witnesses to the death when the deceased had not received the assistance of any doctor”[4]. Since 1937[4], a physician has to issue a death certificate and only then does someone declare the death to the city hall, which constitutes the “death certificate”. For this act, reproduced by Deigin[3] and in Figure 1, the declarant may be a relative, but not necessarily, and it is often, nowadays, a funeral worker: this witness does not need to know the deceased to declare the death in the city hall. In addition, only

one witness is required (version of article 78 of the Civil Code in force from 1924 to 2016,[5]). In short, Yvonne’s death certificate is perfectly commonplace.

For there to be a substitution of a corpse, it would have been necessary, in addition to the family and relatives, to a possible physician, or even the witness, Joséphine Audibert, that the employees of the funeral undertakers in charge of the burial be accomplices (the Calment are known notables), or be unable to make the difference between a 59-year-old woman, Jeanne, and another 36-year-old woman, Yvonne. Since the funeral was religious, at Saint Trophime Cathedral, and the population having been invited to gather “at the funeral home, rue Gambetta”, the Calment’s house (Figure 2), it is necessary to imagine that the priest was also complicit, and perhaps also all the guests at the funeral wake... It would also be necessary that, afterwards, no one in the city of Arles notices that Jeanne Calment strangely resembles her daughter whom she has just buried, or that everyone is silent... In short, there had to be a large number of accomplices, none of whom would ever have mentioned this substitution of a corpse throughout his/her life: it is hard to imagine the Calment family bribing all these people with the certainty that they would never be denounced. The whole process seems more than difficult to implement, especially in the urgency of a death to be declared during the day.

Jeanne Calment’s eye colour: second argument

Zak[1] is surprised that Jeanne’s eyes are indicated on her pre-war identity card as “black” while the colour photos in his article show that her eyes were brown, more or less dark depending on the lighting. Deigin[3] also writes “By the way, on Jeanne’s ID card above, the color of her eyes is listed as “black,” although old Jeanne’s color is clearly different”. The surveys for Michel Allard’s IPSEN Foundation indicate “light grey” eyes.

None of this matters for the simple reason that there are no black eyes in humans. It is therefore more than likely that the civil servant, writing the information by hand on the identity cards of the time, was mistaken and meant, perhaps, “brown”. To find out if Jeanne Calment’s eye colour matches her identity card containing a manifest error — black eyes do not exist — therefore makes no sense.

The size of Jeanne Calment: third argument

Zak[1] writes that Georges Garoyan, who wrote a medical thesis in 1990 on Jeanne Calment[6], reports that she was 1.50 m tall at 114 years of age while her 1930s ID card indicates a height of 1.52 m, if the information on the ID card is accurate. In fact, the size indicated when

applying for an identity card is not verified by the administration, even today. Zak[1] had no access to Garoyan's thesis, as he himself says, but this thesis[6] clearly indicates, on page 26, that Jeanne Calment was 1.50 m tall. Such a small decline with age suggests identity theft for Zak, her daughter Yvonne being apparently taller. At the end of her life, around 120 years old, Jeanne Calment was 4 feet 6 inches or 1.37 m[7] (page 11). In short, from 114 to 120 years old, she would have lost 13 cm, but only 2 cm until she was 114 years old, which seems curious. However, Michel Allard and Victor Lèbre studied, for the IPSEN Foundation (innovation for patient care), these data concerning Jeanne Calment: at 115 years of age, her height recorded by Victor Lèbre was 1.43 m (Michel Allard, personal communication²). She would have only lost 2 cm until she was 114 years old, then 7 cm in one year, and finally 6 cm from 115 to 120 years old, which also seems curious.

The problem is that the height of 1.50 m at 114 years of age does not result from a measurement but from the simple statement by Jeanne Calment. Indeed, Georges Garoyan (personal communication), faced with the difficulty of measuring such an elderly person and while this information was quite secondary to his thesis[6], did not measure Jeanne Calment, but simply asked her for her size. Jeanne Calment gave a size, very close to that of her identity card, but when she was much younger. One year later, at 115 years of age, she was really 1.43 m tall and had therefore lost about ten centimetres since she was young.

In summary, Zak[1] proposed a hypothesis about Jeanne's substitution by her daughter Yvonne based on a suspect absence of age-related height decrease, but this height, 1.50 m at 114 years of age, was based on Jeanne Calment's statement and not on an accurate measure. The argument that the height age-linked decline of Jeanne Calment is too small is therefore worthless.

Life annuity fraud: fourth argument

Novoselov[2] states: "I am asking myself why the revalidation was not initiated earlier, as the more you dig, the more questions arise. I have found a hint to a possible explanation in the book "L'assurance et ses secrets" (Insurance and its secrets) by Jean-Pierre Daniel that was published in 2007". His interview[2] reproduces a passage from this book[8]: "Everyone remembers Jeanne Calment, who has officially died at age 122 on August 4, 1997. It was said at the time that this lady had benefited from having a life annuity, which was true. This was paid by a large French company that was not happy at all with this exceptional longevity. The company was even more upset as it knew that it had been paying not Jeanne Calment, but her daughter. In reality, after the death of the

2 <https://www.franceinter.fr/societe/les-medecins-qui-ont-valide-la-longevite-de-jeanne-calment-repondent-aux-chercheurs-russes-point-par-point>

real Jeanne Calment, her daughter who obviously was no longer a child, had taken her mother's identity to keep receiving the annuity. The insurance company had discovered identity theft, but in agreement with – or on the demand of? – the public authorities, it had not wished to reveal the truth, given how much the character of the “grandmother of the French” had become legendary.”

In summary, according to Daniel[8] supported by Novoselov[2], Yvonne Calment would have replaced her mother Jeanne, who died in January 1934, to receive her lifetime pension, which implies that this contract would have been concluded before 1934, when Jeanne Calment was younger than 59 years of age and married to a wealthy man. It seems strange that she separated from her capital or assets by signing a life annuity contract so young, while she was married with a child, and therefore an heiress. The argument of life annuity fraud is therefore fragile to say the least. Zak[1] is thus based, as he himself says, on a “rumor”.

The probability of living 122 years: fifth argument

Zak[1] explains that the probability of reaching 122 years of age is infinitesimal and, in particular, that in 1989 for Jeanne Calment, “her personal likelihood of living until 1997 was less than 0.5%”. This is absolutely true and INSEE (Institut national de la statistique et des études économiques)[9] considers that there will be no survivors after 120 years in France in 2050.

The mistake is to confuse probability and certainty, implying that an event that is very unlikely should not happen, but being unlikely does not mean that an event will never happen. All lottery players know this... The probability that only one person will find the right combination is very low, but it happens, and it is the biggest possible winning. Another mistake would be to think that if an event has a one in X billion chance of happening, we must wait until X billion events occur before it can happen. For longevity, given mortality rates above 105 years of age, the chance of reaching 122 years of age or older is minimal but not nil. It is likely (but not certain) that it will be a long time before Jeanne Calment's record is broken, if it ever occurs (see[10]). More than 20 years have already passed and, despite the care given to super-centenarians (people reaching 110 years of age), none has yet approached this 122-year record, but it could happen at any time!

It should be noted that the reasoning that a very improbable event, here being 122 years old, is probably due to the existence of fraud amounts to denying the entire theoretical basis for calculating probabilities. Let's take an example: if you throw a coin into the air, it is generally said that the probability of heads is 50% and that of tails is 50%. This is a mistake, because it cannot be excluded that the coin will fall back on its edge and remain in balance (and this probability increases with the thickness of the coin). This event can happen at any time, including the first throw of the coin, even

if it is very unlikely. To say that a coin falling back on its edge is the result of a fraud, denies what the calculation of probabilities is.

We have here a concept shift: if a very unlikely event occurs, it is abnormal, so it can only be explained by fraud.

The comparison of the photos of Yvonne and Jeanne Calment: sixth argument

As with Jeanne Calment's statements, which can be confusing, full of false memories or real omissions, comparing photos at different ages makes little sense. If Zak[1] really wanted to use the photos to look for possible identity theft, it was up to him to rely on professionals (forensic doctors?), but not to engage in amateur manipulation on Photoshop. This is the case for all the anthropometric considerations that Zak[1] makes when writing "Comparative analysis of photos of young Yvonne and old Jeanne shows a very high visual similarity in the height and shape of the frontal bone, the shape of the nose, and anthropometric parameters of the facial skull".

Conclusions

This article was written only because the media and the lay public, particularly in France, have paid great attention to Zak's theses[1] and it seems necessary to provide the answers that these media and the public can ask themselves. The usual approach of researchers, when faced with ramblings on the Internet, is generally to ignore them, in the same way that astronomers do not react to astrologers' statements.

One would also be inclined not to react to these statements, because if Zak[1] is affiliated with the Moscow Naturalist Society, as indicated on the ResearchGate website, it is difficult to know who Novoselov is[2]. His only recent article on the PubMed or Europe PMC bibliographic databases[11] (2018 article, another from 1995), indicates that it is affiliated with an "autonomous non-profit organization, the Scientific Medical Gerontological Center", located in the suburbs of Moscow. In his interview[2], he is presented as an "assistant professor of the Department of Gerontology and Geriatrics of RUDN University (Moscow)" (the Peoples' Friendship University of Russia). As there is not such a department or any Valery Novoselov on the website of this university³, the author of this article wrote twice to the university administration⁴ to ask if this department existed, without getting an answer. In other press articles, but without being able to know whether the information really comes from Novoselov, he is presented as the "head of the

3 <http://fr.rudn.ru/> ou <http://eng.rudn.ru/>

4 PR@rudn.university et rector.office@rudn.ru

gerontology section of the Moscow Naturalist Society”, which is part of the Lomonosov State University. The link to this gerontology section refers to a web page⁵ containing only one photo... of Lake Baikal. It is therefore questionable whether Novoselov is affiliated with a university and what is this “Scientific Medical Gerontological Center” in his 2018 article.

Whoever Novoselov could be, Zak’s[1] methods have little to do with those of scientific research. The researchers’ approach is to design a study or experiment plan and carry it out, taking care to systematically consider and test hypotheses that are opposed to their own hypothesis. Their purpose is not to confirm their preferred hypothesis, but on the contrary to do everything possible to invalidate it: if the hypothesis resists these attempts, it is provisionally accepted[12]. To be accepted, a research must then be reviewed by researchers competent in the field, through the submission of an article to a known scientific journal. The experts review the article and provide comments to the authors, the final result being publication without modification, with modifications, or rejection of the article. When the article is published, and only at that time, authors may decide to report their research to the press if they believe that the results are worth it.

This is not the Zak’s approach[1].... He does not seek to refute his hypothesis, but interprets any data in its favour, such as, for example, the following sentence about the destruction of most of his family photos by Jeanne Calment: “Most likely, it was a result of cold calculation and acute necessity instead of an emotional act”. Then, Zak[1] does not publish his research in a scientific journal but on a website, ResearchGate, a social network of researchers that has nothing to do with a scientific journal. From that moment, and because of the enormity of the thesis put forward, the media rushed, also relying on the interventions of Deigin[3] and Novoselov[2] on other websites. It seems obvious, given the criticisms made above, that Zak’s work[1] had no chance of being published in a scientific journal of gerontology, demography, or generalist, except in so-called “predatory journals” of obscure companies that publish any article, without peer review, provided authors pay high publication fees. Under these conditions, publishing his hypothesis on the Internet offered Zak the possibility of a high degree of rapid impact, to the detriment of peer validation, as the media did not necessarily make the difference between publication in a scientific journal, after peer review, and publication on the Internet, without any control.

To build a reputation in science, it is necessary to do serious work that results in publications in scientific journals, which are themselves serious. It is often long and tedious, but sometimes, by chance, one obtains an extraordinary result that ensures immediate notoriety: it is rare. One way to save time is to put forward extraordinary hypotheses that attract media attention, even if they are

5 http://www.moip.msu.ru/?attachment_id=1579

not based on anything. One example is Aubrey de Grey, who hypothesised in 2005 that humans born in 2000 could live for 5,000 years[13], which has since ensured him a high media profile based on an unverifiable hypothesis. One could mention all the extraordinary claims that later turn out to be unfounded: television news are often fond of them.

To attract the media, one can also tackle results already published and suggest fraud, which will obviously attract attention: this is Zak's strategy[1]. To say that Yvonne Calment impersonated her mother who died in 1934 was a guarantee of media success, especially in France. We have seen that Zak's[1] arguments are fragile, to say the least: we are dealing with amateur deductions, at best, based on a preconceived idea against which any data is interpreted. To say it openly, managing a scientific career in this way is not a good idea, but maybe Zak is just looking for a quick notoriety. If that is the case, it is his own choice, let us just say that all this has nothing to do with science.

It must be noted that the contribution of Zak[1], which does not benefit from any validation by experts, is therefore of no interest in the context of research on super-centenarians. The author's only success is that he shot to the fame worldwide for weeks by playing on the fact that the media often do not distinguish between a publication in a scientific journal and a text "published" on the Internet and are always looking for what will ensure the maximum audience or sales. In this context, whoever declares, by providing irrefutable evidence of a scientific conspiracy, that dinosaurs never existed (or, if you prefer, that the Loch Ness monster indeed exists), is much more likely to make the headlines on the Internet and in the press than anyone who claims otherwise.

Recently, Zak finally submitted an article to a scientific journal, but the review process could only be polluted because of the media hype, and one may always wonder whether the journal based its publication decision on the sole value of the article. By first "publishing" his hypothesis on the Internet, Zak rendered impossible a subsequent publication decision based solely on the quality of his work. Zak published his article[14] in the journal *Rejuvenation Research*, the editor-in-chief being Aubrey de Grey whose controversial views have been discussed above. This article was reviewed by two reviewers (personal communication from Aubrey de Grey): for such a controversial article, one would have expected at least three or even four reviewers to be involved. The article is based on Zak's[1] text but describes more briefly some of the elements mentioned on ResearchGate, such as death certificate, height, or eye colour. The main difference with Zak[1] is that the new version explains that the notary who bought Jeanne Calment's house as a life annuity when she was 90 years old in 1965, and who died before her, would have been paid by Jeanne Calment not to reveal this identity theft or was in fact her accomplice, having taken the life annuity to mask the identity theft. Zak obviously does not provide any evidence to support his thesis. In this

last version, Zak[14] clearly identifies the insurance company with which Jeanne Calment would have contracted a life annuity before 1934: it is the Caisse Nationale de Prévoyance created in... 1959. That a journal claiming to be a scientific one has published such a delirium is astonishing.

Did Yvonne Calment impersonate her mother Jeanne, who died in 1934 at the age of 59 and not in 1997 at the age of 122? The hypothesis is fascinating, worthy of a detective film scenario, but for it to be considered it would have to be seriously argued in its favour and having resisted the contrary arguments. In all the cases, the longevity of super-centenarians must be established with certainty by examining all available sources, both for and against the hypothesis of extreme longevity[15]. This work is not always done, and a well-known scientific journal has reported that Korean eunuchs living two centuries ago could reach a 109 years lifespan[16], while this conclusion is unfounded[17]. This example shows that that while publication in a scientific journal with a peer review is an essential guarantee, it is not necessarily sufficient because experts are not infallible.

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Captions to figures

Figure 1. Death certificate of Yvonne Calment on 19 January 1934, registered at the city hall of Arles on the same day, and reproduced by Yuri Deigin[3].



Figure 2. Notice of the death of Yvonne Calment, published in the newspaper *Le Petit Marseillais* on 20 January 1934, announcing the funeral at Saint Trophime Cathedral and inviting people to come to the funeral home (“maison mortuaire”), the Calment family’s home (<https://www.retronews.fr/journal/le-petit-marseillais/20-janvier-1934/437/1804823/11>).

Arles. — Le capitaine Billot-Calment, chevalier de la Légion d'honneur, Croix de guerre;
M. Frédéric Billot-Calment;
M. et Mme Fernand Calment;
Mme veuve Paul Billot et ses enfants et leurs familles ont la douleur de faire part de la perte cruelle qu'ils viennent d'éprouver en la personne de
Mme Yvonne BILLOT-CALMENT
décédée le vendredi 19 janvier 1934, à l'âge de 36 ans, munie des sacrements de l'Église, et prie de vouloir bien assister à ses obsèques qui auront lieu aujourd'hui, samedi, 20 janvier, à 15 heures, en la primatiale Saint-Trophime.
On se réunira à la maison mortuaire, rue Gambetta.