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WHO WON THE FIGHT FOR EVEREST? – THE CENTURY OF THE DEATH OF GEORGE MALLORY AND ANDREW IRVINE

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Kto wygrał walkę o Everest? – stulecie śmierci George'a Mallory'ego i Andrew Irvine'a

Streszczenie

W 2024 roku minęło 100 lat od wspinaczki George'a Mallory'ego i Andrew Irvine'a (8 czerwca 1924 roku). Ich atak szczytowy jest jednym z największych tajemnic Mount Everestu. Celem niniejszego artykułu jest uczczenie wyprawy z 1924 roku oraz podsumowanie dostępnej wiedzy na temat tego co mogło się stać 8 czerwca 1924 roku. George Mallory i Andrew „Sandy” Irvine na pewno dotarli na wysokość pierwszego stopnia (8564 m). Na podstawie obserwacji Odella można wnioskować, że pokonali również wysokość co najmniej drugiego stopnia (8610 m). Prawdopodobnie George Mallory i Andrew Irvine schodzili podczas zmierzchu lub w nocy. Poniżej pierwszego stopnia rozegrał się dramat, na skutek którego Mallory spadł. Prawdopodobnie przeżył upadek, a śmierć poniósł wskutek urazu głowy (od uderzenia spadającego kamienia). Ciało Irvine'a do tej pory nie znaleziono. Odell cały czas dopuszczał możliwość, że opisywany zespół zdobył szczyt. Niestety z każdym rokiem szanse na rozwikłanie tej historii maleją. Warto zaznaczyć, że George Mallory uczestniczył we wszystkich trzech brytyjskich wyprawach na Mount Everest, był jednym z pionierów himalaizmu. George Mallory był w grupie himalaistów, którzy pierwsi dotarli i przekroczyli tzw. strefę śmierci. Niestety był również pierwszą osobą, która w niej zginęła.

Słowa kluczowe: historia, Mount Everest, 1924, George Mallory, Andrew Irvine.

Abstract

The year 2024 marks the 100th anniversary of George Mallory and Andrew Irvine's climb (June 8, 1924). Their ascent remains one of the greatest mysteries of Mount Everest. The purpose of this

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article is to celebrate the 1924 expedition and to summarize the available knowledge about what may have happened on 8 June 1924. George Mallory and Andrew “Sandy” Irvine certainly reached the height of the first step (8564 m). Based on Odell’s observations, it can be inferred that they have also overcome the altitude of at least the second step (8610 m). It is likely that George Mallory and Andrew Irvine descended at night. Below the first step there was a drama which resulted in Mallory falling. He probably survived the fall and died of a head injury (from the impact of a falling rock). Irvine’s body has never been found. Odell always considered the possibility that the team had reached the summit. Unfortunately, with each passing year, the chances of solving this mystery diminish. It is worth noting that George Mallory participated in all three British expeditions to Mount Everest and was one of the pioneers of Himalayan climbing. George Mallory was among the group of climbers who first reached and crossed the so-called Death Zone. Unfortunately, he was also the first person to die in it.

Keywords: history, Mount Everest, 1924, George Mallory, Andrew Irvine.

Introduction

Mount Everest is the highest peak on earth at 8848.86 m above sea level. In the local language it is named Chomolungma, which can be translated as “Goddess Mother of the World”¹. Over the years, climbing Mt. Everest has become increasingly popular.² The two most popular climbing routes on Mount Everest are the South-East Ridge on the Nepalese side and the North-East Ridge on the Chinese side.³

In 2022, it was 100 years since the first attempt to climb Mount Everest, which took place in 1922. Officially, they succeeded and safely descended from the summit on 29 May 1953, the conquerors being Edmund Hillary and Tenzing Norgay.⁴ However, it is still not known whether they were the first to reach the summit. This has caused much controversy in the mountaineering community. The first to propose the theory that Edmund Hillary and Tenzing Norgay were not the first to summit Mount Everest was Tom Holzel.⁵

In 2024, it will be the 100th anniversary of the British expedition during which George Mallory and Andrew Irvine died (on June 8, 1924). They attacked the sum-

¹ M. Tannheimer, R. Lechner, *Rapid ascents of Mt Everest: normobaric hypoxic preacclimatization*, “Journal of Travel Medicine” 2020, vol. 27, no 6, pp. 1–7.

² E. Garrido, J.M. Soria, R. Salisbury, *Breathless and dying on Mount Everest*, “The Lancet. Respiratory Medicine” 2019, vol. 7, no 11, pp. 938–939; M. Tannheimer, R. Lechner, *Rapid ascents of Mt Everest: normobaric hypoxic preacclimatization*, “Journal of Travel Medicine” 2020, vol. 27, no 6, pp. 1–7.

³ R. B. Huey, C. Carroll, R. Salisbury, J.-L. Wang, *Mountaineers on Mount Everest: Effects of age, sex, experience, and crowding on rates of success and death*, “PLoS ONE” 2020, vol. 15, no 8, pp. 1–16.

⁴ J. Hunt, *The Ascent of Everest*, Mountaineers Boos, Seattle 1993, pp. 20–40.

⁵ T. Holzel, *Investigates Mount Everest Mystery*, “Dartmouth Alumni Magazine” 1986, pp. 82–83; T. Holzel, A. Salkeld, *The mystery of Mallory and Irvine*, Seattle, WA 1999, pp. 35–85.

mit from the North-East Ridge⁶ with three rock steps. The first step is at 8564 m, the second at 8610 m and the third (not distinguished in 1924) at 8710 m.⁷ The first and third steps have a climbing difficulty of about II on the UIAA scale,⁸ while the second step has a difficulty equivalent to V to VI- on the same scale (currently, there is a 4.6 m ladder).⁹

George Mallory was born in 1886 and brought up in Mobberley, Cheshire. He became a teacher in 1914, married Ruth Turner in 1914. They had three children, two girls and a boy. Mallory had experience in the mountains, which he gained among others in the Alps. He was the only member of all three British expeditions to Mount Everest between 1921 and 1924.¹⁰ Mallory was one of the first people to enter the Death Zone in 1922. Unfortunately, Mallory and Irvine were also the first people to die in the Death Zone.¹¹ While giving a lecture (Philadelphia, 1923) to raise funds for another expedition, when asked by an anonymous reporter why he wanted to climb Mount Everest, he replied simply with words that have gone down in history:¹²

because it is there.

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- ⁶ E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*, Vertebrate Publishing 1925, pp. 120–225.
- ⁷ E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*; C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 10 November 1999; P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/> (accessed: 8 February 2024).
- ⁸ N. Draper et al., *Comparative grading scales, statistical analyses, climber descriptors and ability grouping: International Rock Climbing Research Association position statement*, “Sports Technology” 2015, vol. 8, no 3–4, pp. 88–94.
- ⁹ C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999; J. Hemmleb, *Tatort Mount Everest: Der Fall Mallory. Neue Fakten und Hintergründe*; E. Viesturs, D. Roberts, *The Mountain: My Time on Everest*, New York 2014; P. Summers, A. Dankekar, *The Mallory and Irvine Mystery: Solving the Second Step Problem*, The Wire, <https://thewire.in/history/mallory-irvine-second-step-everest> (accessed: 10 February 2024); J. Norton, *To See or Not To See? That is the question for Noel Odell*; J. Hemmleb, *What happened to Mallory & Irvine*, <https://www.jochenhemmleb.com/english/mundi/index.php> (accessed: 10 February 2024).
- ¹⁰ Irving, *In Memoriam George Herbert Leigh Mallory*, “Alpine Journal” 1924, vol. 36, pp. 381–385; R. Madhok, J. Lemery, G.W. Rodway, *Because It’s There ... The Education of George Mallory*, “Wilderness & Environmental Medicine” 2011, vol. 22, no 4, pp. 352–354; G.W. Rodway, J.S. Windsor, *Inheritors of Fate: Mountaineering, Science, and George Mallory’s Legacy*, “Wilderness & Environmental Medicine” 2011, vol. 22, no 2, pp. 185–188.
- ¹¹ H.V. Lankford, *The Death Zone: Lessons from History*, “Wilderness & Environmental Medicine” 2021, vol. 32, no 1, pp. 114–120.
- ¹² R.R. Madhok, J. Lemery, G.W. Rodway, *Because It’s There... The Education of George Mallory*, “Wilderness & Environmental Medicine” 2011, vol. 22, no 4, pp. 352–354; J. Rak, *Because It Is There? Mount Everest, Masculinity, and the Body of George Mallory*, “The International Journal of the History of Sport” 2021, vol. 38, no 2–3, pp. 157–183.

Andrew “Sandy” Irvine was born in Birkenhead in 1902.¹³ He was also a keen sportsman, particularly good at rowing. He studied engineering at Oxford. Irvine had little mountaineering experience.¹⁴ He was described as athletic and a talented engineer. This is probably why Mallory chose him for the summit assault. Irvine also improved oxygen masks, making them less unreliable.¹⁵

The purpose of this article is to celebrate the 1924 expedition and to summarize the available knowledge about what may have happened on 8 June 1924. Another aim is to describe hypotheses and theories about what happened to George Mallory and Andrew Irvine.

Problems and research methods

I employed various research methodologies to prepare this publication, including analyzing historical sources, synthesizing information, applying induction, deduction, and utilizing the comparative method. Through this process, several research problems were identified:

1. What height did George Mallory and Andrew Irvine reach during their expedition on Everest in 1924?
2. What might hypothetically have happened on June 8, 1924?
3. Did they have the opportunity to reach the summit?

Results and discussion

The day of 8 June 1924 – atmospheric conditions

On June 8, 1924, it was a Sunday. The sunrise occurred around 4:45 a.m. The morning was sunny and not too cold. Towards the end of the morning, clouds began to appear, gradually covering the mountain slopes. At 2:00 p.m., a heavy blizzard arrived, lasting for about 2 hours. Afterward, the sun came out and illuminated the mountain slopes.¹⁶ Moore et al. suggest that during this day, there was a significant drop in barometric pressure due to atmospheric changes.¹⁷ This drop was also associated with the arrival of the snowstorm, which could rival

¹³ J. Summers, *Fearless on Everest: The Quest for Sandy Irvine*, Weidenfeld & Nicolson 2001, p. 8.

¹⁴ R.G.C. Levens, *Merton College register, 1900–1964: with notices of some older surviving members*, Oxford 1964.

¹⁵ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999; *First on Everest*, (2010), scs. 5–10 min.

¹⁶ E.E.F. Norton, *The Fight for Everest 1924*, pp. 132.

¹⁷ G.W.K. Moore, J. Semple, D. Sikka, *Mallory and Irvine on Mount Everest: Did extreme weather play a role in their disappearance?*, “Weather” 2010, vol. 65, pp. 215–218.

the strength and power of the 1996 storm (at that time, wind speeds were 30 m/s and a temperature of 32°C).¹⁸ In the expedition journals, the night of June 8th to 9th, 1924, was described as moonlit, and the mountain was free from fog.¹⁹ Moore et al. believe that the decrease in barometric pressure prevented Mallory and Irvine from reaching the summit.²⁰

What Mallory and Irvine wore

Mallory and Irvine wore woolen and silk underwear, woolen and flannel clothing, with silk fabric between them to provide comfort during movement. They then put on gabardine jackets.²¹ Replicas of Mallory and Irvine's attire were tested on the slopes of Everest to determine whether it provided good thermal insulation and freedom of movement. One of the tests concluded at an altitude of 7000 meters with a temperature of -20°C.²² It was shown that if the weather and wind were stable, the attire would provide adequate protection in air temperatures down to -30°C.²³ However, it was noted that the insulation against cold was about 40% less compared to modern mountain attire.²⁴ The attire from 1924 was found suitable for climbing and moving but did not ensure survival during camping or long stops.

What has been found over the years

Mallory's body was found in 1999. Beside the body were found a pair of goggles hidden in a pocket, documents and letters, a watch that stopped at 5:10, an altimeter.²⁵ The photo of Ruth that he had promised to leave on the summit was not found²⁶ (Figure 1). It is a fact that Mallory's body was found with his goggles removed – suggesting this descent at sunset/at night.²⁷ He was familiar with the case of Norton who, at an altitude of 8382 m, began to experience significant vision problems, described as snow blindness.²⁸

¹⁸ A. Mustain, *Mysterious 1924 Everest deaths linked to storm*, NBC News, <https://www.nbcnews.com/id/wbna38639968> (accessed: 8 February 2024).

¹⁹ E.E.F. Norton, *The Fight for Everest 1924*, p. 140.

²⁰ G.G.W.K. Moore, J. Semple, D. Sikka, *Mallory and Irvine on Mount Everest: Did extreme weather play a role in their disappearance?*, "Weather" 2010, vol. 65, pp. 215–218.

²¹ *First on Everest*, scs. 23–28 min.

²² *The Wildest Dream*, G.W. Rodway, *Mountain Clothing and Thermoregulation: A Look Back*, "Wilderness & Environmental Medicine" 2012, vol. 23, no 1, pp. 91–94.

²³ G.W. Rodway, *Mountain Clothing and Thermoregulation: A Look Back*, "Wilderness & Environmental Medicine" 2012, vol. 23, no 1, pp. 91–94.

²⁴ G.W. Rodway, *Mountain Clothing and Thermoregulation: A Look Back*, "Wilderness & Environmental Medicine" 2012, vol. 23, no 1, pp. 91–94.

²⁵ *The Wildest Dream*, scs. 9–10 min.

²⁶ *The Wildest Dream*, scs. 9–12 min.

²⁷ *The Wildest Dream*, scs. 9–12 min.

²⁸ E.E.F. Norton, *The Fight for Everest 1924*, pp. 111.

No one has ever officially announced that Irvine's body has been found. However, over the years, there have been regular reports from Chinese mountaineers claiming such a discovery. The first was Xu Jinga in 1960, who found a blackened body in a sleeping bag at an altitude of 8400 meters. Before 1960, only Mallory and Irvine were lost at this altitude.²⁹ Wang Fu-chou, also a member of the 1960 expedition, stated that he found the body of a European at around 8600 meters.³⁰ In 1979, Ryoten Hasegawa had a brief conversation with a Chinese mountaineer named Wang Hong-bao, during which Wang informed him that in 1975 he had seen the "English dead" body at an altitude of 8100 meters, lying on its side as if sleeping at the foot of a rock.³¹

No. 9 oxygen cylinder was found at 8470 m, while other cylinders and other parts of the equipment were not found.³² A mitten was found at 8440 m and an ice axe at 8460 m³³ (Figure 1).

Mallory and Irvine left no record of when they left the camp.³⁴ Magnetic flares and flashlights were found at Camp VI.³⁵ Odell (a member of the expedition) did not find a flashlight at that time. This suggests that Mallory and Irvine may have had a flashlight during the summit assault. However, in 1933, a flashlight was found at the camp, and to everyone's surprise, the flashlight was working,³⁶ raising doubts as to whether it actually belonged to the Mallory and Irvine team.³⁷ It is worth noting that no flashlight was found beside Mallory's body.³⁸ Even if Mallory had had a flashlight, he may have dropped it during the fall if they had been walking at night. There is also lack of information on whether Irvine had a flashlight. Consideration of whether they had a flashlight is one of the relevant considerations in the context of what time they set off.

²⁹ *First on Everest*, 4–8 min.

³⁰ AlpKlubSPb.ru., *Альпинисты Северной столицы. 1960. Впервые на Эверест – с севера!*, <http://www.alpklubspb.ru/everest/everest52.htm> (accessed: 15 February 2024); S. Edge, *Mount Everest's death zone*, Express.co.uk, <https://www.express.co.uk/expressyourself/170857/Mount-Everest-s-death-zone> (accessed: 15 February 2024); G. Hoyland, *Has Sandy Irvine's Body Been Found? (By the Chinese or Others) – MountEverest.info*.

³¹ P. Summers, A. Dandekar, *Could They Have Climbed the Everest: Part 2 of the Story of Mallory and Irvine*, The Wire, <https://thewire.in/history/could-they-have-climbed-the-everest-part-2-of-the-story-of-mallory-and-irvine> (accessed: 15 February 2024).

³² J. Hemmleb, L.A. Johnson, E.R. Simonson, W.E. Nothdurft, *Ghosts of Everest: The Search for Mallory & Irvine*, Seattle, WA 1999; *First on Everest*, scs. 23–26 min.

³³ *First on Everest*

³⁴ E.E.F. Norton, *The Fight for Everest 1924*, p.141.

³⁵ *Ibidem*.

³⁶ W. Davis, *Into The Silence: The Great War, Mallory and the Conquest of Everest*, Vintage, New York 2011, pp. 10–100.

³⁷ J.P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/> (accessed: 8 February 2024).

³⁸ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 10 November 1999.

Mallory's watch, found near his body, sparks debate. Some speculate it stopped around 12:52, possibly from impact with a rock during the second step climbing. Boettcher challenges this, citing lack of dial damage. It is suggested that cold-induced shrinkage caused the plastic glass to detach,³⁹ possibly during the storm between 2:00 p.m. and 4:00 p.m. Mallory might have used the watch to gauge climb pace or delays, stowing it upon malfunction. Another hypothesis proposes he hid it pre-climb to prevent interference, realizing its dysfunction only post-blizzard.

The camera that Mallory was supposed to take to the summit to document his ascent was also not found.⁴⁰ We do know that Mallory was carrying a Kodak Vestpocket camera.⁴¹ Breashears states that Irvine had the camera, because Irvine was more technically proficient and it was Mallory who was the team leader and he should have had the photo at the top.⁴² Therefore, investigations and expeditions to find Irvine's body are now crucial.⁴³ The Eastman Kodak Company reports that it is possible to obtain images after 100 years, using the appropriate technology.⁴⁴

Any traces of climbers' activities above the second step have never been found prior to its conquest by the Chinese expedition in 1960.⁴⁵ Consequently, accusations have emerged in the mountaineering community regarding the deliberate erasure of evidence of Mallory and Irvine's activities above 8610 m.⁴⁶ McGuinness presents the view that the bodies of both Britons were removed at some point in the first decade of the 21st century. It is worth noting that Synnott's attempt to relocate Mallory's body was unsuccessful despite having the GPS coordinates.⁴⁷ Such events raise more and more questions.

³⁹ D. Boettcher, *George Mallory Watch: A Borgel na Mount Everest*, <https://www.vintagewatch-straps.com/blogmalloryswatch.php> (accessed: 10 February 2024).

⁴⁰ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999, p. 20.

⁴¹ Ibidem, p. 40.

⁴² Ibidem, p. 82.

⁴³ Ibidem; H. Howard, *Did China cover-up truth about who first made it to top of Everest?*, Mail Online, <https://www.dailymail.co.uk/news/article-10808817/Book-suggests-body-1924-climber-Andrew-Sandy-Irvine-removed-Everest-camera.html> (accessed: 16 February 2024).

⁴⁴ J.J. Hemmleb, L.A. Johnson, E.R. Simonson, W.E. Nothdurft, *Ghosts of Everest: The Search for Mallory & Irvine*, Seattle, WA 1999; T. Holzel, A. Salkeld, *The mystery of Mallory and Irvine*, Seattle, WA 1999 p. 320.

⁴⁵ L. Cichy, *Przedmowa*, [in:] *Zaginiony*, Warszawa 2012, p. 9.

⁴⁶ P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 2*, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-cz-2/6/> (accessed: 15 February 2024); H. Howard, *Did China cover-up truth about who first made it to top of Everest?*, Mail Online, <https://www.dailymail.co.uk/news/article-10808817/Book-suggests-body-1924-climber-Andrew-Sandy-Irvine-removed-Everest-camera.html> (accessed: 16 February 2024); G. Hoyland, *Has Sandy Irvine's Body Been Found? (By the Chinese or Others) – MountEverest.info*.

⁴⁷ E. Douglas, *'It doesn't make any sense': new twist in mystery of Mount Everest and the British explorers' missing bodies*, *New Twist in Mystery of Mount Everest and the British Explorers'*

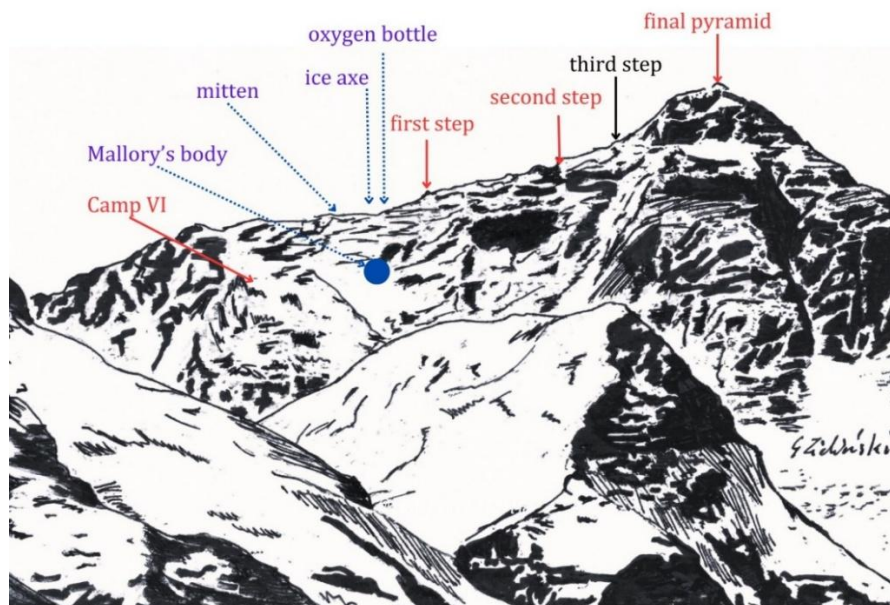


Figure 1. Traces of the expedition found. Characteristic points on the way to Mount Everest. (In black the third step not highlighted in 1924)

Source: Author's graphic created in the style of the graphic from Odell's work, i.e. N. Odell, *The Mount Everest Dispatches*, "The Alpine Journal" November 1924, vol. XXVI, no CXXIX, p 217.

Hour 12:50 What Odell saw

Other ambiguities concern the account of what Noel Odell (1890–1987), mountaineer, geologist, and member of the 1924 expedition, saw. Odell changed his description of his observations several times over the years. However, he ultimately stuck to his story of seeing Mallory and Irvine – not rocks, birds, and/or optical illusions⁴⁸ (Figure 2).

The first recorded observation in Odell's diary was: "At 12:50 saw M&I on ridge nearing base of final pyramid."⁴⁹ Roberts suggests, based on these words, that they may have been 500 feet (152 m) from the summit.⁵⁰

Missing Bodies, "The Guardian", 2024, section World news <<https://www.theguardian.com/world/article/2024/jun/01/it-doesnt-make-any-sense-new-twist-in-mystery-of-mount-everest-and-the-british-explorers-missing-bodies>> (accessed 9 June 2024).

⁴⁸ E.J. Norton, *To See or Not To See? That is the question for Noel Odell*.

⁴⁹ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999; p. 26. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/> (accessed: 8 February 2024); A. Roddie, *What happened to Mallory and Irvine in 1924? An extract from "Edmund Hillary – A Biography" by Michael Gill*.

⁵⁰ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999, pp. 26.

Similar but more detailed accounts appeared in July 1924⁵¹ and November 1924.⁵² Odell describes, “The place on the ridge referred to is the prominent rock-step at a very short distance from the base of the final pyramid, and it is remarkable that they were so late in reaching this place.”⁵³ The above descriptions may indicate the third step. It is closest to the summit pyramid (Figure 1). In none of the descriptions is there information about the “first step” or “second step.” This is significant because in 1924, the third step was not distinguished. If the descriptions applied to either the first or second step, why did Odell not mention them by name?⁵⁴ If they were at the level of the third step at 12:50, it is likely (in the context of the evidence found, oxygen mask off, goggles in pocket, no photo of Ruth) that they probably reached the summit.

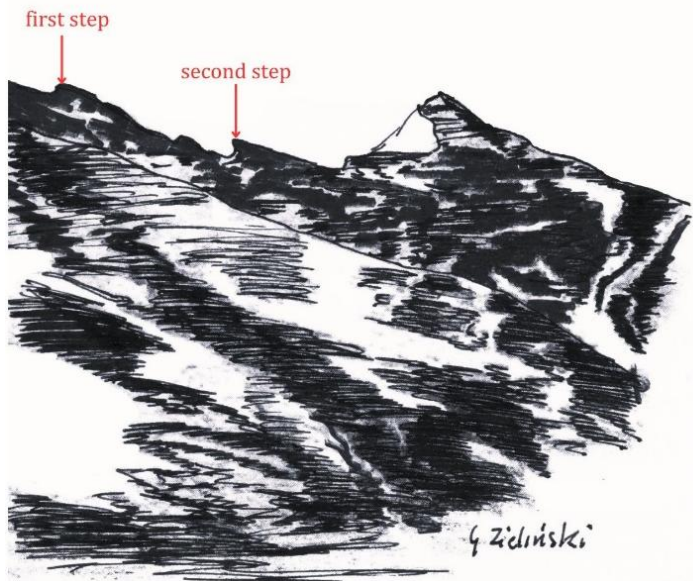


Figure 2. What Odell might have seen based on the work of Norton

Source: Author’s graphic created in the style of the graphic from Odell’s work. N. N. Odell, *The Mount Everest Dispatches*, “The Alpine Journal” 1924, vol. XXVI, no CXXIX, p. 2016.

However, Odell gave other descriptions over the years. For example, “The last point where they were seen was determined by theodolite to be 28,227 feet

⁵¹ E.F. Norton, N. Odell, *More Light On Everest Disaster: Mr Odell’s Last View Of Lost Climbers*.

⁵² N.N. Odell, *The Mount Everest Dispatches*, “The Alpine Journal” 1924, vol. XXVI, no CXXIX. pp. 217.

⁵³ *Ibidem*, pp. 223.

⁵⁴ J.P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024).

less than 800 feet from the summit.”⁵⁵ In 1925, Odell considered more broadly whether he saw two figures or one overcoming the step, and whether it was the first or second step, leaning towards the latter. He later describes that they calculated they had about “800 feet” (244 m) to climb, noting that if they encountered no difficulties, they should reach the summit in 3 to 3.30 hours.⁵⁶ Additionally, the first step is gentle and rounded, while the second step is completely different – it has a sharp character (Figure 2). Odell was a geologist and an experienced climber, even without seeing the entire ridge, he should have been able to distinguish the steps. However, was the team able to overcome the second step, i.e. the greatest difficulty on the way?

Was it possible to climb the second step?

Over the years, four climbers ascended the second step. Oscar Cadiach soloed it in 1985 without oxygen, followed by Theo Fritsche in 2001. Nickolay Totmjanin ascended in 2003, style undisclosed.⁵⁷ Conrad Anker, belayed by Leo Houlding, passed it in 2007. Cadiach and Fritsche rated it 5.7 to 5.8.⁵⁸ Anker and Houlding 5.9,⁵⁹ corresponding to UIAA difficulties V to VI. Mallory’s potential ascent aligns with climbers’ capabilities. Fritsche suggests Mallory may have succeeded.⁶⁰

Odell saw two black spots, one moving rapidly towards the other in a 5 minute observation.⁶¹ It is a 40 m formation with a more difficult end in comparison to the beginning.⁶² If even Odell had seen the final climbing of the second step, then a time of 5 minutes for overcoming the key difficulties is too short.

⁵⁵ N.N. Odell, *The Mount Everest Dispatches*, “The Alpine Journal” 1924, vol. XXVI, no CXXIX pp. 161–217.

⁵⁶ N.E. Odell, *The Last Climb of Mallory and Irvine*, “The Geographical Journal” 1924, vol. 64, no 6, pp. 455–461.

⁵⁷ J.J. Hemmleb, *What happened to Mallory & Irvine*, <https://www.jochenhemmleb.com/english/mundi/index.php> (accessed: 10 February 2024).

⁵⁸ P.C. Anker, D. Roberts, *The Lost Explorer : Finding Mallory On Mount Everest*, New York 10 November 1999; J. Hemmleb, *Tatort Mount Everest: Der Fall Mallory. Neue Fakten und Hintergründe*; E. Viesturs, D. Roberts, *The Mountain: My Time on Everest*, New York 29 April 2014; P. Summers, A. Dankekar, *The Mallory and Irvine Mystery: Solving the Second Step Problem*, *The Wire*, <https://thewire.in/history/mallory-irvine-second-step-everest> (accessed: 10 February 2024); J. Norton, *To See or Not To See? That is the question for Noel Odell*; J. Hemmleb, *What happened to Mallory & Irvine*, <https://www.jochenhemmleb.com/english/mundi/index.php> (accessed: 10 February 2024).

⁵⁹ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 10 November 1999; J. Hemmleb, *Tatort Mount Everest: Der Fall Mallory. Neue Fakten und Hintergründe*; E. Viesturs, D. Roberts, *The Mountain: My Time on Everest*, New York 2014.

⁶⁰ *First on Everest*, scs. 28–31 min.

⁶¹ E.F. Norton, N. Odell, *More Light On Everest Disaster: Mr Odell’s Last View Of Lost Climbers*.

⁶² P.G. Philippe, *Mount Everest 8850 m, Tibet*, Philippe Gatta, <https://www.philippegatta.fr/mount-everest-8850-m-tibet/> (accessed: 11 February 2024).

Unless in 1924 the second step had looked different from the current one and there had been an extra step or hold which significantly reduced the difficulty. Over the years the grip or step through progressive erosion may have fallen off.⁶³ This is, of course, one hypothesis.

Another method of overcoming the second step was the one used in 1960 by the Chinese Mount Everest expedition, when Liu Lianman who was a firefighter suggested a 'human ladder'.⁶⁴ Andrew Irvine was about 1.80 m, George Mallory about 1.80 m.⁶⁵ The second step is a 40 m wall but the last vertical 5 m are crucial.⁶⁶ If Mallory had climbed on Irvine's shoulders, it would have been possible to overcome the key moment. Still another possibility is that Mallory, as the more experienced climber, climbed to the second step and from the summit threw Irvine a rope by which the latter could overcome the difficulties more quickly by the facilitation method. In both cases, the final elements of this method may have coincided with Odell's observation.⁶⁷

Another theory is that they could have overcome the difficulties below the second step by 'traversing below' to Norton Couloir or Great Couloir, as the British team did in 1933. Some researchers also believe that it may have been their return route.⁶⁸

Messner (the first person to climb all 14 eight-thousanders) points out that the second step in 1924 was an insurmountable obstacle. Additionally, according to him, if they had climbed via the Norton Couloir, they would not have de-

⁶³ D.W. Burbank, A.E. Blythe, J. Putkonen, B. Pratt-Sitaula, E. Gabet, M. Oskin, A. Barros, T.P. Ojha, *Decoupling of erosion and precipitation in the Himalayas*, "Nature" 2003, vol. 426, no 6967, pp. 652–655; K.R. Miner, P.A. Mayewski, M. Hubbard, K. Broad, H. Clifford, I. Napper, A. Gajurel, C. Jaskolski, W. Li, M. Potocki, J. Priscu, *A Perspective of the Cumulative Risks from Climate Change on Mt. Everest: Findings from the 2019 Expedition*, "International Journal of Environmental Research and Public Health" 2021, vol. 18, no 4, pp. 1928.

⁶⁴ J.P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024); J. Norton, *To See or Not To See? That is the question for Noel Odell*.

⁶⁵ C.C. Anker, D. Roberts, *The Lost Explorer : Finding Mallory On Mount Everest*, New York 10 November 1999; J. Norton, *To See or Not To See? That is the question for Noel Odell*.

⁶⁶ J.J. Hemmleb, *Tatort Mount Everest: Der Fall Mallory. Neue Fakten und Hintergründe*; P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024); "Chinese Ladder" Retires, <https://web.archive.org/web/20191123042026/http://english.cri.cn/2886/2008/05/28/1042@362958.htm> (accessed: 10 February 2024).

⁶⁷ J.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*; P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024).

⁶⁸ D. Morris, *The possible traverse*; P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024); R. Demarco, *The Mystery of Mallory and Irvine*, http://www.astroudec.cl/rdemarco/RjDL/mallory_irvine/mallory_irvine.html (accessed: 20 February 2024).

scended to the location where Mallory's body was found. According to the cited mountaineer, the equipment of the time, the terrain near the summit and the location of the body all argue against the success of the 1924 expedition.⁶⁹

When did they set out to attack the summit ?

Mallory and Irvine left, leaving no information as to what time they had left the camp.⁷⁰ The finding of the flashlight in 1933 and the attribution of its ownership to Mallory according to some indicates that they left the camp after dawn (4:45 a.m.).⁷¹ To even hypothesise the times of departure for the summit attack, it is necessary to analyse the earlier exits into the mountains by British teams (Table 1). The time interval between 5:00. and 7:00 for the departure of the Mallory and Irvine team from the camp is given by Hemmleb.⁷²

Table 1. Summary of days and times of camp departures by British expeditions

Day	Time of departure from the camp
18 August 1921	3:00 a.m. climbing start
21 May 1922	6:00 a.m. planned 8:00 a.m. climbing start
2 June 1924	6:30 a.m.
33 May 1933	5:40 a.m.

Source: D. Robertson, *George Mallory* 1999 <<http://archive.org/details/georgemallory0000robe>> [accessed 10 February 2024]; Bruce, *Charles Granville and Mount Everest Expedition (1922), The Assault on Mount Everest, 1922 (1923)* <<http://archive.org/details/assaultonmountev00bruc>> [accessed 9 February 2024]; E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*, Vertebrate Publishing, Sheffield 1925; H. Ruttledge, *Everest – 1933*, Moran Press 2011.

What kind of climbing speed might Mallory and Irvine have had?

Mallory and Irvine were experienced athletes. During the 1922 attack Mallory decided to turn back from the climb when he estimated his pace at 122 m per hour, at which point they reached 8169 m.⁷³ Other climbing pace of British expeditions are shown in Table 2.

⁶⁹ R. Messner, *The Second Death of George Mallory: The Enigma and Spirit of Mount Everest*, transl. T. Carruthers, New York 2001.

⁷⁰ E.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*, pp. 102.

⁷¹ P. Summers, A. Dankekar, *The Mallory and Irvine Mystery: Solving the Second Step Problem*, The Wire, <https://thewire.in/history/mallory-irvine-second-step-everest> (accessed: 10 February 2024).

⁷² J.J. Hemmleb, *What happened to Mallory & Irvine*, <https://www.jochenhemmleb.com/english/mundi/index.php> (accessed: 10 February 2024).

⁷³ C.G. Bruce, *Mount Everest Expedition (1922), The assault on Mount Everest, 1922*, pp. 206–244.

A pace of 120–160 m per hour would be most achievable especially on the first section of the climb (the difference between camp VI and step I is 426 m). This would suggest covering this section in about 2.30 – 3 hours. With the assumptions of leaving at around 6:00, this gives 8:30 – 9:00 on the first step. The author’s hours assumptions are in line with those of Hemmleb⁷⁴ and Summers and Dandekar in which the authors assume reaching step I at 8:30 – 9:00.⁷⁵ This was within the sporting range of Mallory and Irvine (Table 2).

Table 2. Climbing pace

Day	Distance	Meters per hour	Additional information
21 May 1922	7620 – 8 169	122	Team with Mallory
27 May 1922	7772 – 8 321	73	Other teams
4 June 1924	6401 – 7 010	203	Mallory and Irvine
7 June 1924	7 010 – 8 138	261	Mallory and Irvine
8 June 1924	8 604 – 8848	69 – 81	Odell’s assumptions about Mallory and Irvine’s climbing speed
30 May 1933	8351 – 8 564	160	Other teams

Source: Bruce, Charles Granville and Mount Everest Expedition (1922), *The Assault on Mount Everest, 1922 (1923)* <<http://archive.org/details/assaultonmountev00bruc>> [accessed 9 February 2024]; T. Holzel, A. Salkeld, *The Mystery of Mallory and Irvine*, Mountaineers Books, Seattle 1999; W. Unsworth, *Everest: The Mountaineering History*, Mountaineers Books, Seattle 2000; P. Korczak, *Dlaczego Wierzę? Mallory i Irvine – Everest 1924*, Cz. 1, Brytan 2014 <<https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/>> [accessed 8 February 2024].

Climbing with or without oxygen

In 1978, the first ascent of Mount Everest without supplemental oxygen took place.⁷⁶ Attempts to climb without oxygen were also made in 1924 and 1933.⁷⁷ In 1924, Norton climbed to 8572.8 meters without supplemental oxygen.⁷⁸ Mallory and Irvine used supplemental oxygen; the question is, did they use it all the

⁷⁴ J.J. Hemmleb, *What happened to Mallory & Irvine*, <https://www.jochenhemmleb.com/english/mundi/index.php> (accessed: 10 February 2024).

⁷⁵ P.P. Summers, A. Danekar, *The Mallory and Irvine Mystery: Solving the Second Step Problem*, *The Wire*, <https://thewire.in/history/mallory-irvine-second-step-everest> (accessed: 10 February 2024).

⁷⁶ J. Norton, *Everest 1924: Norton & Somervell’s Record Attempt*; P. D. Wagner, *Operation Everest II and the 1978 Habeler/Messner ascent of Everest without bottled O2: what might they have in common?*, “*Journal of Applied Physiology* (Bethesda, Md.: 1985)” 2017, vol. 123, no 6, pp. 1682–1688.

⁷⁷ E.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*; H. Rutledge, *Everest – 1933*, p. 150 .

⁷⁸ E.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*, pp. 111–13.

time? A list with numbers and pressure of 5 oxygen cylinders was found near Mallory's body.

Analyzing the turnaround time for all expeditions until 1933, it seems that the typical turnaround time was around 1 p.m.⁷⁹ Mallory and Irvine were sighted by Odell above the second step probably around the same time. But since they were above the second step and Mallory and Irvine were likely to have 5 oxygen cylinders, they extended the turnaround time. This raises the question of why Mallory and Irvine probably decided to continue climbing? They had something that allowed them to extend the turnaround time.

Oxygen cylinder No. 9 was found (at 8470 meters).⁸⁰ This indicates that it may have run out of oxygen at this altitude. It can be suggested that they used it during the initial climb to the first step. It is assumed that no one moved it from another location. If they both had had the same oxygen flow, it should have run out at a similar altitude. So where is the second tank? Hypothetically, if the second cylinder had fallen or had been taken by someone else, and they had been left with one cylinder (assuming 2+2 cylinders), they would have had oxygen for a maximum of 4 hours. They must have known that they wouldn't have enough oxygen for the summit attempt. Oxygen would have run out around 2 p.m., at the start of the storm. On the return, they would have had to start descending while it was still daylight – so why were Mallory's goggles hidden in his pocket?

Based on the above information, it can be suggested that they climbed with a distribution of 3 and 2 cylinders. Another question is whether they used supplemental oxygen all the time. Simulations of possible oxygen use are shown in Table 3.

Table 3. Oxygen use hypotheses

Scenario	Number of cylinders	Use	Hypothetical start time for oxygen use	Hypothetical end of oxygen
1	4 cylinders	Using the cylinder from the tent exit. No flow regulation.	5:00 a.m.	1:00 p.m.
2			6:00 a.m.	2:00 p.m.
3	4 cylinders	Using the cylinder from the tent exit. Not using it when climbing to step II.	5:00 a.m.	2:00–2:30 p.m.
4			6:00 a.m.	3:00–3:30 p.m.

⁷⁹ E.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*; H. Rutledge, *Everest – 1933*.

⁸⁰ J.P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 2*, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-cz-2/6/> (accessed: 15 February 2024); *Oxygen Bottle #9*, Mallory & Irvine, <https://malloryandirvine.com/2017/04/26/a-possible-clue/> (accessed: 11 February 2024).

Table 3. Oxygen use hypotheses (cont.)

Scenario	Number of cylinders	Use	Hypothetical start time for oxygen use	Hypothetical end of oxygen
5	4 cylinders	Using oxygen from step I, continuously.	8:30–9:00 a.m.	4:30–5:00 p.m.
6	2+3 cylinders (use of 1 cylinder together for step I)	Using cylinders from the tent exit. No use while climbing to step II.	5:00 a.m.	4:30–5:00 p.m.
7			6:00 a.m.	
8	4 cylinders	Using oxygen from step II onwards. Not using it while climbing to step II.	8:30–9:00 a.m.	6:00–6:30 p.m.
9	2+3 cylinders (use of 1 cylinder together for step I)		5:00 a.m.	6:00–6:30 p.m.
10			6:00 a.m.	

Source: P. Summers, A. Dandekar, *Could They Have Climbed the Everest: Part 2 of the Story of Mallory and Irvine*, “The Wire” 2020 <<https://thewire.in/history/could-they-have-climbed-the-everest-part-2-of-the-story-of-mallory-and-irvine>> [accessed 15 February 2024]; P. Korczak, *Dlaczego Wierzę? Mallory i Irvine – Everest 1924 Cz. 1*, Brytan 2014 <<https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/>> [accessed 8 February 2024]; P. Korczak, *Dlaczego Wierzę? Mallory i Irvine – Everest 1924 Cz. 2*, Brytan 2014 <<https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-cz-2/6/>> [accessed 15 February 2024]; ‘Oxygen Bottle #9’, Mallory & Irvine, 2017 <<https://malloryandirvine.com/2017/04/26/a-possible-clue/>> [accessed 11 February 2024].

Based on the analysis in Table 3, it can be hypothetically assumed that they had a sufficient amount of oxygen for the summit attempt. However, over the years, another significant limitation related to hydration has been noted. There are suggestions that the team had too little water, which is essential for physical exertion during a summit attempt.⁸¹

Cause of death

A likely dramatic situation unfolded approximately 250 m below the first step. Mallory began to fall, and in an attempt to save him, Irvine threw out his ice axe and grabbed the rope with both hands. Unfortunately, the hemp rope snapped.⁸²

The arrangement of Mallory’s remains and the bloodstains on the front of his jacket suggest that neither the fall nor frostbite was the direct cause of death. Bloodstains on Mallory’s clothing suggest that he was attempting to move. The probable cause of death was a wound to the skull above the left eye

⁸¹ *Curious Questions: Were Mallory and Irvine the first to reach the summit of Mount Everest?*, Country Life, <https://www.countrylife.co.uk/nature/curious-questions-were-mallory-and-irvine-the-first-to-reach-the-summit-of-mount-everest-269743> (accessed: 8 June 2024).

⁸² *First on Everest*, scs. 37–45 min.

socket.⁸³ Based on the descriptions found by Chinese climbers, Irvine likely froze, either waiting for help or resting.

Additionally, one clue is that Mallory's buttocks were pecked by birds. Birds from the crow family are most active in the early morning and evening hours. It is estimated that the temperature drop of -10 degrees Celsius was 3.6 ± 1.9 degrees Celsius per hour.⁸⁴ On Mount Everest, temperatures are significantly lower at the end of the day/night. Mallory's skin was exposed and would have frozen in less than 5 hours. Combining the potential temperature drop with the nighttime conditions and assuming sunrise at 4:45 a.m., death must have occurred after midnight (00:00). Of course, these are just hypotheses.

When could they hypothetically have reached the summit?

Contemporary ridge returns suggest a descent rate ranging from 69 to 212 meters per hour.⁸⁵ We know that Mallory and Irvine were already out of oxygen. They were certainly fatigued and experiencing the effects of the storm. Hypothetically, assuming a slow descent of 50 or 70 meters per hour seems acceptable. Finding the ice axe indicates the accident site (8460 m). Based on these two pieces of information, hypothetical scenarios were presented in Table 4. If Mallory and Irvine had turned back at 4:00 p.m., passing only the second step but not the third, and descended at a rate of 50 meters per hour, they would likely have been at the accident site by 8:00 p.m. It would have been nighttime, with 9 hours until dawn, Mallory's body would have frozen. They either had to descend more slowly, which also seems inadequate, or they must have been higher. Assuming that Mallory and Irvine descended slowly (Table 4), this would align with the assumption in all scenarios that the start of their descent was above the third step.

In summary, this means that any time after 4:00 p.m. would have been acceptable for summiting, coinciding with Mallory's set time.⁸⁶ Summers and Dandekar suggest that the earliest time Mallory could have been on the summit was 4.30p.m.⁸⁷ Korczak suggests that the latest time for summiting was 5:00 p.m.⁸⁸ Korczak points out that Mallory and Irvine had to reach the second step while

⁸³ *First on Everest*, scs. 39-45 min.

⁸⁴ H. Mizukami, K. Shimizu, H. Shiono, T. Uezono, M. Sasaki, *Forensic diagnosis of death from cold*, "Legal Medicine" 1999, vol. 1, no 4, pp. 204–209.

⁸⁵ I. Tate, *How Long Does It Take To Climb Mount Everest? – Everest*; A. Arnette, *Mt. Everest South Col Route Maps*, <https://www.alanarnette.com/everest/everestsouthroutes.php> (accessed: 16 February 2024).

⁸⁶ C.C. Anker, D. Roberts, *The Lost Explorer: Finding Mallory On Mount Everest*, New York 1999.

⁸⁷ F.P. Summers, A. Dandekar, *Could They Have Climbed the Everest: Part 2 of the Story of Mallory and Irvine*, *The Wire*, <https://thewire.in/history/could-they-have-climbed-the-everest-part-2-of-the-story-of-mallory-and-irvine> (accessed: 15 February 2024).

⁸⁸ P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/> (accessed: 8 February 2024).

they still had daylight. Descending in nighttime conditions would have been very difficult. Demarco also opts for 4:00-5:00p.m.⁸⁹

Table 4. Hypotheses on the return from the summit attack

Scenario	Time of attainment of altitude	Height	Accident point	Height difference	70 m/hour	50 m/hour
1	4:00 p.m.	8670 (approach in a snow-storm over the second step)	8460	210	7.00p.m.	8.00 p.m.
2	4:00 p.m.	8710	8460	250	7:30p.m.	9:00
3	4:00 p.m.	8848	8460	388	9:30p.m.	12.00a.m.
4	4:30 p.m.	8710	8460	250	8:00p.m.	9:30p.m.
5	4:30 p.m.	8848	8460	388	10:00p.m.	12:30a.m.
6	5:00 p.m.	8848	8460	388	10:30p.m.	1:00a.m.
7	5:30 p.m.	8848	8460	388	11:00p.m.	1:30a.m.
8	6:00 p.m.	8848	8460	388	11:30p.m.	2:00a.m.

Source: T. Holzel, A. Salkeld, *The Mystery of Mallory and Irvine*, Mountaineers Books, Seattle 1999; P. Summers, A. Dandekar, *Could They Have Climbed the Everest: Part 2 of the Story of Mallory and Irvine*, "The Wire" 2020 <<https://thewire.in/history/could-they-have-climbed-the-everest-part-2-of-the-story-of-mallory-and-irvine>> [accessed 15 February 2024]; P. Summers, A. Danekar, *The Mallory and Irvine Mystery: Solving the Second Step Problem*, "The Wire" 2020 <<https://thewire.in/history/mallory-irvine-second-step-everest>> [accessed 10 February 2024]; P. Korczak, *Dlaczego Wierzę? Mallory i Irvine – Everest 1924 Cz. 1*, Brytan 2014 <<https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-roku/>> [accessed 8 February 2024]; P. Korczak, *Dlaczego Wierzę? Mallory i Irvine – Everest 1924 Cz. 2*, Brytan 2014 <<https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everest-1924-cz-2/6/>> [accessed 15 February 2024]; I. Tate, *How Long Does It Take To Climb Mount Everest? – Everester*, 2023 <<https://www.everester.org/how-long-does-it-take-to-climb-mount-everest/>> [accessed 16 February 2024]

It is also worth noting that at 4:30p.m., Odell began the ascent from Camp VI to Camp IV, which he reached at 6:45 p.m.⁹⁰ Odell did not witness their potential success or failure. No one observed the summit during the potential summit attempt.

Table 4 shows some hypotheses. However, Cichy presents a different perspective on the events of 1924, suggesting that Mallory and Irvine's team reached the second step. Above it, due to fatigue and poor weather conditions, they bivouacked and began their descent after sunrise (which could explain the hidden glasses and the unfrozen tissue eaten by birds).⁹¹ However, this raises

⁸⁹ D.R. Demarco, *The Mystery of Mallory and Irvine*, http://www.astro-udec.cl/rdemarco/RjDL/mallory_irvine/mallory_irvine.html (accessed: 20 February 2024).

⁹⁰ E.E.F. Norton, *The Fight for Everest 1924: Mallory, Irvine and the Quest for Everest*, pp. 447–449.

⁹¹ L.L. Cichy, *Przedmowa*, [In:] *Zaginiony*, ed., Warszawa 2012.

the question about Ruth's photograph: did Mallory lose it, or did he leave it at the highest point he reached? However, there were no frostbites on Mallory's body, which would have likely occurred due to camping in unsuitable clothing.

Conclusion

Among historians, mountaineers and researchers of the subject, there are different opinions about what may have happened. The story of George Mallory and Andrew 'Sandy' Irvine has moved and divided public opinion for 100 years. Attempts to resolve it involve a desire to sort out the pages of sporting records and the pages of history. For some, it is a criminal story (in the context of the clues left to solve the mystery of whether they reached the summit),⁹² for others it is a romantic story (in the context of Mallory's love for Ruth and his desire to bring a photograph of his wife where no one has gone before him).⁹³ Attempts to assess Mallory and Irvine's chances of climbing Everest can range from cautious optimism to skepticism.

Responding to the research problems. George Mallory and Andrew Irvine certainly contributed to reaching the first step altitude (as indicated by the artefacts found). Based on Odell's observations, they also climbed the second step. If these observations are accepted, this was a new world altitude record.

Hypothetically, the day of June 8, 1924, might have looked like this: the team set off around 6.00. Hypothetically, they could cover the distance to the first step in about 2.5-3 hours. Around 8:30–9:00, they reached the first step. Based on modern climbing times, they could have reached the base of the second step around 11:00–11:30. They had 1 hour to 1 hour and 20–50 minutes to complete the second step. Odell likely sees the final stage of overcoming the second step.⁹⁴ In the most optimistic scenarios, Odell sees them at the third step. They were probably caught by the blizzard below the third step; there is a chance they still had oxygen at that time; otherwise, they should have turned back earlier. Undoubtedly, their pace significantly slowed compared to the initial tempo. It is possible that the summit was reached between 4:30 p.m. and 5:00 p.m. Hypothetically, this is also when he left Ruth's photograph.

Another course of events is also possible. After overcoming the second step, they were caught in the blizzard. Climbing in the blizzard, exhausted, without concrete reference points (no functioning watch to determine time and poor

⁹² *The Ghosts Above*

⁹³ J. Kelly, *Mallory and Irvine: Should we solve Everest's mystery?*; O. Clarke, *George Mallory—First To Climb Everest?*

⁹⁴ J.P. Korczak, *Dlaczego wierzę? Mallory i Irvine – Everest 1924 cz. 1*, Brytan, <https://brytan.com.pl/dlaczego-wierze-mallory-i-irvine-everst-1924-roku/> (accessed: 8 February 2024).

visibility), they could have misjudged their location. A barometric altimeter was found with Mallory's body.⁹⁵ The drop in barometric pressure that occurred during the blizzard could have been interpreted as an increase in altitude.⁹⁶ Given the potential lack of the aforementioned reference points, this could have led to the assumption that they had reached the summit, and then Mallory could have left Ruth's photo near the summit. They began their descent at the end of the blizzard – before 4:00 p.m., the accident would have occurred by nightfall.

In both cases oxygen was surely running out, so Mallory took off his oxygen mask and put it in his pocket. How they traversed the second step on the way to the summit is just as mysterious as how they traversed it on the way back/or traversed under the second step. It was getting darker, so Mallory took off his goggles. The drama unfolds below the first step, Mallory begins to fall. Irvine throws the ice axe to catch the rope with both hands. Due to the low strength of the rope, it breaks. Mallory falls, trying to stop the slide along the slope. Rocks fall on him, injuring his head and killing him. The whole situation probably occurred after midnight. Irvine freezes.

However, without additional evidence of their activity above the second step, these are hypotheses. Finding Irvine's body, remaining oxygen cylinders, or the camera could shed light on this story. However, with each passing year, the chances of unraveling this story diminish. Undoubtedly, Hillary and Norgay are the first climbers who ascended and descended Everest.

George Mallory, as a person who participated in all three British expeditions to Mount Everest and the fact that he was one of the first to enter the death zone, should be described as one of the greatest pioneers of Himalayan climbing.

I will conclude with the words of Odell:⁹⁷

...June 8, 1924, and would still allow of the possibility I originally put forward that they may have reached the summit.

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⁹⁵ *The Wildest Dream*, scs. 9–10.

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