
**From Subjective Camera to the Representation of Traumatic Memories of 1984: A
Critical Analysis of *Maachis*****Manjot Kaur***Senior Research Fellow, Deptt. of English and Cultural Studies, Panjab University, Chandigarh, India***Abstract**

Memory is never innocent; how and what one remembers is inevitably coloured by multiple elements. Besides archiving the past experiences, memory also permits the construction of a coherent life narrative; and a film and a novel has the potential to arouse an emotional or visceral response. Cinema is one of the powerful tools which not only gives voice to repressed memory but becomes a tool that exercises the act of commemoration. Secondly, a virtual image not only creates multiple senses but connects present with the past. In favour of acts of creation and images of thought, film has the potential to create its own fluid of temporalities and movements. The present paper proposes to overview and interrogates the salient aspects of screen memory including the celluloid depiction of traumatic remembrance. Through the study of selected text *Maachis*, we can distinguish between how the memories of those who experience the events first hand are transmitted to the next generation. The film portrays the atrocities of the time and it has provided a deep insight into the history and situation of Punjab during the turbulent times of 1980s. The cinematic techniques used by the director shows how fragmented memories in narratives can be re-membered, re-imagined and finally re-constructed. Alison Landsberg's term prosthetic memory helps to define the way multimedia represents traumatic pasts and how cinema creates 'transferential space' for spectators.

Key Words: Trauma, cinematic representation, subjective camera and prosthetic memory

Representing historical- traumatic events in cinema, or in any other form, helps a nation to remember and memorialize the issues from the past. However, it can also be challenging to the notion of unified and harmonious national identity that attempts to proffer official narrative of national history. It is why the alternative versions of remembering the past, i.e. recalling the incidents that are against the homogeneous ideal of nation, have long been repressed. Within last five years, more than ten films have been made on the massacres of Sikhs during 1984 and almost every film had to face censor. When people are killed and the survivors not allowed speaking for the victims, it no longer remains as a historic misfortune of the minority. Historical

trauma needs to be dealt with in order to reclaim one's national identity. Memory cannot be rejected as unreliable but to be informed of its imperfect nature, as one remembers the past without being paralyzed or manipulated by that memory. The reading of the film would show that cinema is one of the powerful tools which gives voice to repressed memory and works as a tool which exercises the act of memorialization, through which generations can look back.

This present paper intends to overview and interrogates the salient aspects of screen memory -- including the celluloid depiction of traumatic remembrance. Maureen Turim demonstrates that

flashbacks are central to the production and comprehension of screen memory. Since Hugo Munsterberg draws a convenient analogies between real and reel memory. Memory permits construction of a coherent life narrative; an archive of past experience. An image has the potential to arouse an emotional or visceral response. Second, an image/virtual image not only create multiple senses but connects present with the past. The question is that how an image can jolt together the presentational and the non-representational past. In favour of acts of creation and images of thought, film has the prospective to create its own fluid of temporalities and movements. Movement is something which is based on rhythm and duration; on the other hand temporality is determined by specific time. Time-image breaks itself from 'sensory motor links/schemes'. Here, emphasis shifts from the logical progression of images to the experience of the image in itself. Time-image move from 'acting to perceiving' carries over to the character in the film who ceases to be 'agents' and becomes instead 'seers'. Thus the time-image exists thus not as a series of chronology but as a series of juxtaposed presents.

Written and directed by Gulzar, *Maachis* (Hindi for match sticks) is a poignant tale of youngsters pushed into militancy, by the high handed tactics of the police and the machinations of politicians. Sampooran Singh Kalra is the pen name of Gulzar. He was born on 18 August 1936 and brought up in a Sikh business class family in Deena, Jhelum district (now in Pakistan). Partition in 1947 compelled him to come to Delhi. He started his carrer as a poet and associated with the Progressive Writers Association (PWA). He joined Bimal Roy

productions in 1961. One of Hindi cinema's most powerful political parables, *Maachis* saw Gulzar moving determinedly away from his characteristic lyrical style to explore a political crisis. It is the tale of wronged Punjabi youth who takes to arms and joins the league of terrorists to avenge the injustices heaped onto him by the corrupt political set up. The film throws light on the times and the situation of people in Punjab during the period of intense terrorism during the 1980s. The cinematic text can be considered as an outsider's view as Gulzar was in Mumbai during those times.

The film analysis is done under the light of ideology and psychology of the cinematic apparatus. The film portrays how this happened in the 1980s in Punjab, as thousands of youth took to terrorism, as revenge for the murder, humiliation, and betrayal the state had subjected them to. To counter the terrorists, the state unleashed even more violence, scarcely distinguishing between innocent and criminal, a divide that often existed within the heart of one human being, as much as between two. The film tends to flout some myths and look beyond the stereotyped image of terrorist. They are shown as a mixture of opposites - compassionate and caring at one time, insensitive and brutal at the other. Veeran (Tabu) is a young woman living in a prosperous village with her mother and her brother Jaswant Singh Randhawa (Raj Zutshi); the latter is the best friend of Veeran's fiancé, Kripal Singh/Pali (Chandrachur Singh). When Jaswant disappears into police custody following a routine house-search, his family endures a hellish fortnight of bureaucratic denials and anguished waiting. When he returns brutally scarred

from torture, Pali abandons the village to seek, first, answers, and later, revenge, eventually falling into the company of Sanathan (Om Puri), a Hindu Punjabi who has taken up the terrorist cause. Slowly, the once-comfortable world of Pali and his extended family falls apart, to be replaced by the fictive kinship of the hunted members of a terrorist cell.

Instead of being told in a linear way, a chronological manner, the story of a Sikh militant unfolds in overlapping segments that add more information as each narrator adds his or her story. The screen effects are furthermore achieved through flashbacks with different characters or protagonist, or what we can call floating memories, and their function in conveying the notion of redemption. When a spectator needs to know something from the character's past then flashback becomes important. Telling Pali's life story and revolution, entirely in flashbacks is another innovative approach to storytelling. The flashbacks are incorporated from the perspective of characters that became militants and joined the movement. The film begins with the death of Jaswant Singh Randhawa and then goes back and forth with the help of flashbacks. This independence of discourse is precisely and only possible because of the subsumed story –time. Flashback may be subjective, showing the thoughts and memory of a character, or objective, returning to earlier events to show their relationship to the present. Maurin Turim considers that flashback is a privileged moment in unfolding that juxtaposes different moments of temporal references. A juncture is wrought between present and past and the two concepts are implied in this juncture: memory and

history (2). Thus flashbacks reflect not only the development of filmic form, it is a way of seeing how filmic forms engage concepts and represents ideas. In this film, the flashback is introduced when an image in present dissolved to an image in the past, it can be considered as a story- being told or a subjective memory. A plethora of memories is offered across the history in flashback, each slightly different in form, ideology, tone. The constant play of difference of the film can be analyzed and examined as fragments of a cinematic discourse on the mind and its relationship to the narrating past. Flashback gives spectator the images of history, the shared and recorded past.

Such a formulation similarly re-evaluates the relationship between the concrete optical and sonic images that comprise the film. A film cannot be distilled to a structure that originates from outside itself. Instead, each film-image is contingent, particular, and evolving. The potential does not exist solely within the physical image itself, however, but is contained as well in the modes of perception and thinking that it triggers. Memory, in its psychoanalytic and philosophical dimensions, is one of the concepts inscribed in flashbacks. Cinema uses the flashback in order to make a different point concerning the past. Rather than focusing on the collective past, through the subject, it attempts instead to explore the ambiguity of the subjective experience of the past. The flashback is simply an image that represents the temporal occurrences anterior to those in the images that preceded it. To quote Maureen Turim,

[c]ertain characters get certain kinds of flashbacks at given moments, and analysis of a film can benefit from

remarking not only on the presence of a given flashback but the absence of others, not only on what information is presented in a flashback, but what is left out (10).

In these kinds of films, time-image plays an important role. To some the repetitive and gory sight of an execution may seem gratuitous and utterly unnecessary. The film is not saying "this is the state of affairs", rather there are characters like Snathan and Pali, who assert a property or relation which unfolds the mystery of life and death of terrorist group. Then the film has used its sound track in much the same way as fiction uses assertive syntax. Turim defines that Flashback concerns a representation of the past that intervenes within the present flow of film narrative" (3). In fact, in film, the flashbacks have often merged at two levels of the remembering past, has given the large scale social and political historical concerns. Turim calls it 'Subjective Memory'- this has the double sense of the rendering of history as a subjective experience of a character in the fiction and the formation of the subject in the history as the viewer of the film identifying with functional characters positioned in a fictive social reality.

Thus through this 'Subjective Memory', spectator not only visits the life of characters but also confronts with the harsh reality and aspects of Sikh terrorism. To illustrate, let's take a look at one actual shot along with their representative strategies. The film begins with the title 'Maachis'. The title of the film is used as a metaphor that conveys that the youth of any nation are matchsticks that could get ignited due to the deficiencies in the political and policing systems. It is a film

about some innocent young boys who are punished for a crime they never committed. Being frustrated with the corrupt administrative system Kirpal Singh Pali, the protagonist of the film, gives up playing hockey and picks up gun against the police and the system to take revenge. His only aim is to kill Inspector Khurana and Vohra who were responsible for destroying their innocent families. They were forced to become terrorists. An intense, pensive portrait of the human complexities involved in violence, the film gives us a peek into the core of one of the most serious diseases that afflict our world today – terrorism. It proceeds at a measured pace, only too befitting to the grim theme at hand. It echoes with touching poetry, which is employed to describe not just the beautiful, but also the terrifying.

The first scene in the film is of the suicide committed by Jaswant Singh Randhawa alias Jassi in the well inside the jail. The act of suicide itself proves the torture and violence that police does on Jaswant Singh Randhawa. Then the camera pans from right to left and Inspector Vohra appears in the frame. In the meantime, one constable comes running and informs Inspector Vohra about the phone call from Chandigarh. In the next scene, Inspector SK Vohra (Kanwaljeet Singh) and his senior officer are talking about the incident in a moving police van. Senior police officer tells SK Vohra: "(It was very important for this terrorist to stay alive. I had told you so)." Inspector SK Vohra replies: (Yes, sir. However, I am not responsible for this. He committed suicide. No one killed him)." The senior police officer argues with Inspector SK Vohra and says: He adds: "(listen, to a prisoner

death is an option in face of the extreme. Then, for that person there is no fear of death. And a prisoner should not be pushed to that crossroad)." From the dialogue between Inspector SK Vohra and his senior police officer, it is clear that there was a limitless and unbearable torture on Jaswant Singh Randhawa.

Jean Mitry defines the subjective camera as follows: - "The image is called subjective because it allows the spectator to occupy the place of the heroes, to see and feel like them". Gulzar uses frame within a frame shot to focus audience's attention to a particular part of the character or an action. For example, in another shot, police detain jassi in connection with an attack on a minister. In one of the scenes, Pali is sleeping in the courtyard in Jaswant's house. Veeran overhears the sound of a barking dog and switches on the light and the lights make a frame of the door within the frame. It is obvious from his physical condition that the police have tortured him. In addition, when it is a frontal shot, spectator gets deeply involved in what is taking place on the screen. In the film, for example, there are two important frontal shots. The villagers come together to see Jassi, although they could feel the pain but stand still as silent spectators. One of the villagers, in a frontal shot, the first frontal shot, says: "yeh des hi apnaa nahi lagata" (This bloody country does not seem like ours anymore)." The voice of the villager is the voice of the whole country.

The second frontal shot in *Maachis*, in which, Pali and Veeran, look directly into the camera. Pali says: "(What harm had we done to anyone that we have been pushed into this hell? Our homes have been destroyed)." Pali and Veeran becomes the

representative of all the innocent people who were compelled to jump into the well of terrorism. Gulzar uses expressionistic lighting to highlight the expression of the characters to project their state of mind at very crucial points in the story. He has used chiaroscuro lighting throughout the film, which symbolizes the dark and dangerous world of terrorism in which the whole family of Jaswant is pushed. The scene in which Jaswant returns home, Pali opens the door and looks at Jaswant Singh, the frame is dark except Pali's face. This suggests that now Pali is going into the dark world of terrorism.

While Gulzar takes a thoughtful approach to the material and offers no easy answers on how to end the vicious cycle of injustice and reprisal that gives birth to terrorism and continues to feed it. On the plus side, the director includes a few scenes of surprisingly graphic violence that give the film some much needed jolts, and the ending almost reaches the poetic heights it aims for. Pali is sympathetic and believable as the innocent man who comes to see terrorism as the only alternative to an oppressive environment. Pali plays a victim of the cruel police excesses, through the quasi-philosophical tutelage of the extremist played by Snathan, turns to terrorism.

The film's songs evoke nostalgia for what has been lost, and underscore the young people's effort to cement new bonds, though these will be periodically betrayed by acts of brutality calculated to preserve discipline and protect the security of the fugitives. Through its portrayal of the terrorism, a waiting game haunted by memory and fear, the film moves toward an ending that, like the real life it so painfully evokes, leaves some questions

unanswered. The song, “Chod aye hum who gailayaa”, itself shows a transition - from four (apparently) happy young men singing (and whistling) about leaving behind their loved ones' streets (in the mukhda) - to a slightly melancholic mood (in the first antara) - and suddenly shifting gears to a hard-hitting second antara talking about 'Ek chhota sa lamha hai, jo khatm nahin hota'. The four boys are going through the forest singing and each of them are shown between the trees. In addition, this motif, or design catches the eyes of the audience. It is also an example of frame within a frame. Each boy can be seen in a different frame. In another image from the same film, in a medium shot, four men are shown moving with the flow of the water. This shot has a symbolic meaning also. Water makes its own path and in the same way, these men have chosen their own way.

The conversational scenes are significant. Next there is a reverse shot or over the shoulder, these two types of shots have been taken tactfully. To present these dialogue scenes, the purpose is to give the sense that two or more character are conversing with each other, that particular conversation displays the problem itself. The conversational scenes are captured through medium shot. Medium shot contains a figure from the waist to knees up. It is a functional shot, often used for scenes with dialogue. Spectator gets a space through which they can interpret their situation. Here Snathan and Pali are sitting and discussing the problem of their nation where they live. Snathan is the one who lost his family in Indo-Pak partition in 1947 and rest of the family was lost in 1984 Punjab. He has witnessed the violence twice in his life and ultimately

became a rebel and stood against his own country.

Despite the brutal mission of murder that has brought them together, attachments are formed, passions are enkindled, and doubts creep up. Human, all too human, the terrorist remains, even when he calmly walks away from a bus full of innocent people which, two minutes later, is blown apart as a result of the bomb he planted in it. At its heart, this is what *Maachis* impresses upon us that violence does not belong to one man or woman. It is a phenomenon that can capture anyone's heart, and make him an instrument for its own ends. It leaves a black stain on his soul, a stain that eventually results the person's spiritual, and also, usually, physical death.

By contrasting the terrorist training camp actual footage of horror with peaceful shots of Himachal in the present, Gulzar shows the effect of time on human memory. Even the camps themselves are a euphemism. They were provided with arms and all sort of facilities except home. Here home is used as metaphor which keeps on reminding them their traumatic past. At various points in the story of the film, they wish to give up guns but destiny has something else in store for them. What is important in the story is that at various stages Pali and Kuldeep wish to give up arms and go back to their villages to lead a normal life. However, the film advocates that terrorism is a one-way traffic. There is an entry gate but there is no exit. It is evident from the death of Kuldeep.

Veeran's visit to prison is the most significant shot. This shot is complimented by the silent soliloquy of her steps towards Pali. Here her face speaks with the subtlest

shades of meaning without appearing unnatural and arousing the distaste of the spectator. In this silent monologue the solitary human soul can find a tongue more candid and uninhibited than in any spoken soliloquy, for it speaks instinctively, subconsciously. The face of the language cannot be suppressed or controlled (Balasz, 317). Veeran visits the prison to meet Pali, a slightly forward shot advances towards the place where Pali is placed. The prison scene is depicted in a moving shot.

Even more curiously, the confusion between seeing and knowing is found and perceptions and sensations have been conflated in *Maachis*. Cinematic spectatorship becomes an experience due to its experiential nature, especially on the spectator's engagement with the image. Landsberg refers to the research done by Herbert Blumer under the Payne Studies in which a group of researchers, mostly university psychologists and sociologists, did a research on the capacity of motion

pictures to affect individual bodies and subjectivities of the audience. "Blumer's study suggested that the experience of the film might be as formative and powerful as other life experiences. What people see might affect them so significantly that the images would actually become part of their own archive of experiences." (Landsberg, 30) It could even affect the person so much that he or she can no longer distinguish cinematic memories from lived ones or the "prosthetic" and the "real." This is in accordance to Jean Baudrillard's notion of media and mediations, in which people's actual relationship to 'authentic experience' has become so mediated that it is no longer possible to distinguish between the 'real' and 'not real.' *Maachis* steps back to show a collective memory and cultural trauma. It dialectically contrasts image with sound, past with present, and stasis with movement to set up a thematic tension between our responsibility to remember and the impossibility of doing so, between memory and oblivion or denial.

Works Cited:

1. Andrew, Dudley. *The Major Film Theories: An Introduction*. The University of Iowm Oxford University Press, 2003. Print.
2. --- *Concepts in Film Theory*. Oxford: Oxford University Press, 1984. Print.
3. Arnheim, Rudolf. *Film as Art*. Calcutta: Rupa and Com, 1969 rpt.1983. Print.
4. Balazs, Bela. *Art Form and Material in Film and Literature*. Ed. John Harrington, Prentice Hall, 1977. Print.
5. --- "From Theory of the Film" *Film Theory and Criticism*. Ed. Leo Braudy and Marshal Cohen.6th Edition. Oxford: Oxford UP, 2004. 314-321. Print.
6. Barthes, Roland. "The Face of Garbo." *Film Theory and Criticism*. Ed. Leo Braudy and Marshal Cohen.6th Edition. Oxford: Oxford UP, 2004. 589-591. Print.
7. Baudry, Jean Louis ."Ideological Effects of the Basic Cinematographic Apparatus." *Film Theory and Criticism*. Ed. Leo Braudy and Marshal Cohen.6th Edition. Oxford: Oxford UP, 2004. 355-365. Print.
8. Bazin, Andre. *What is Cinema? Essays selected and Trans*. Hugh Gray. Vol. 1. University of California : California Press, Berkley and Los Angeles, 1967.

9. Beja, Morris. *Film and Literature: An Introduction*, NY; Longman, 1979. Print.
10. Bordwell, David. *The McGraw Hill Film Viewer's Guide*. University of Wisconsin, 2006. Print.
11. Bordwell, David and Kristin Thompson. *Film Art: An Introduction*.(New York: McGraw Hill, 2004
12. Buckland, Warren. *Teach Yourself Film studies*. London: Hodder Education, 2008
13. Cartmell, Deborah, and Imelda Whelehan "Introduction." *The Cambridge Companion to Literature on Screen*.Eds. Idem. Cambridge: Cambridge University Press, 2007. Print.
14. Caruth, Cathy. *Unclaimed Experience: Trauma, Narrative, and History*. Baltimore: Johns Hopkins University Press, 1996. Print.
15. Chatterjee, Partha. *The Partha Chatterjee Omnibus*. New Delhi. Oxford University Press, 1999. Print.
16. Chatman, S. "What Novels Can Do That Films Can't (and Vice Versa)." *Film Theory and Criticism*. Ed. Leo Braudy and Marshall Cohen. 6th Ed. Oxford: Oxford UP, 2004. 445-460. Print.
17. Chatterjee, Saibal. *The Life and Cinema of Gulzar: Echoes and Eloquences*. New Delhi: Rupa & Co., 2007
 - 'Lyrics today aren't poetry, just bad prose' Outlook, 26 June 2006:62.
18. Corrigan, Timothy. *A Short Guide to Writing about Film*. Second Edition. HarperCollins: 1994. Print.
19. --- *Film and Literature: An Introduction and Reader*. Upper Saddle River, NJ: Prentice Hall, 1999. Print.
20. Dix, Andrew. *Beginning Film Studies*. New Delhi: Viva Books Private Limited, 2010
21. Deleuze, Gilles 'The Brain is the Screen' Trans. Marie Therese Guirgis. In Gregory Flaxman, ed. *The Brain is the Screen: Deleuze and the Philosophy of Cinema*. Minneapolis: University of Minnesota Press, 2000: 365-373.
22. Gilles Deleuze, *Cinema 1: The Movement-Image*. Trans. Hugh Tomlinson and Barbara Habberjam. London: The Athlone Press, 1986
23. ---- *Cinema 2: The Time-Image*. Trans. Hugh tomlinosn and Robert Galeta London: The Athlone Press. 1989
24. Eisenstein, Sergei. "Film Language." *Film Form: Essays in Film Theory* (London: Dennis Dobson, 1963. Print.
25. Felmon Shoshana and Dori Laub. *Crieses of Witnessing in Literature, Psychoanalysis and History*. Routledge Publications. 1992.
26. Gulzar, Meghna. *Because he is...*New Delhi: Rupa & Co., 2004.
27. Gulzar on Life, Literature, Film and Sex." *The Navhind Times*.20 March 1977.
28. Halbwach, Maurice. *On Collective Memory*. Ed. And Trans. By Lewis A. Coser. *The Heritage of Sociology*. The University of Chicago Press. 1992
29. Hall, Stuart. *Representation: Cultural Representation and Signifying Practices*. London: Sage.1997. Print.
30. Hayward, Susan. *Cinema Studies, The Key Concepts*. Second Edition. Routledge: Taylor Francis Group, London and NY, 2000. Print.

31. Jelin, Elizabeth. *State Repression and the Labors of Repression*. University of Minnesota Press, 2003
32. Keightely, Emily and Michael Pickering, *The Mnemonic Imagination: Remembering as Creative Practice*, Sage publications. 2012.
33. Lacan, Jacques. "The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience." *Écrits: A Selection*. New York: Norton, 1977.
34. Landsberg, Alison. *Prosthetic Memory: The Transformation of American Remembrance in the Age of Mass Culture*. New York: Columbia University Press. 2004. Print.
35. Lyotard, Jean-Francois. "The Unconscious as Mis-en-scene in Ed. Performance in Postmodern Culture, Michel Benamour and Charles Caramello Madison: Coda Press, 1977. Print.
36. Metz, Christian. *Film Language: A Semiotics of the Cinema*, trans. Michael Taylor, Oxford University Press: New York, 1974. Print.
37. Miller, Toby and Robert Stam. *A Companion to Film Theory*. Malden, MA: Blackwell Publishing, 1999. Print.
38. Mitry, Jean. *The Aesthetics and Psychology of the Cinema*. Indiana University Press, 1997. Print.
39. Monaco, James. *How to Read a Film: The Art, Technology, Language, History, and Theory of Film and Media*. New York and Oxford: Oxford University Press, 2000. Print.
40. Mulvey, Laura "Visual Pleasure and Narrative Cinema." *Film Theory and Criticism*. Ed. Leo Braudy and Marshal Cohen. 6th Edition. Oxford: Oxford UP, 2004. 837-848. Print.
41. Pickering, Michael. *Research Methods for Cultural Studies*. Edinburgh: Edinburgh University Press, 2008.
42. Patricia Pisters, *The Neuro-Image: A Deleuzian Film-Philosophy of Digital Screen Culture*. Stanford: Stanford University Press, 2012.
43. Rajendran, Girija. "Gulzar: Back to the fore."... 05 June 1986.
44. Recoeur, Paul. *Time and Narrative*. University of Chicago Press, 1990. Print.
45. Rudolf, Arnheim. *Film as Art*. Berkeley and Los Angeles, CA: University of California, 1957. Print.
46. Subramanian, Anandhi. "Telling account of a turmoil." *The Hindu*. 18 Oct. 1996.
47. Spivak, Gayatri. "The Politics of Translation (outside in the teaching machine) Pub. in *Great Britain*, Routledge, 1993. Print.
48. Stam, Robert and Alessandra Raengo. *Literature and Film: A Guide to the Theory and Practice of Film Adaptation*. Oxford: Blackwell, 2005. Print.
49. Turim, Maurin. *Flashbacks in Film, Memory and History*. Routledge, New York and London, 2003. Print.
50. Turner, Graeme. *Film as Social Practice*. Second edition. Routledge: London and New York, 1996. Print.
51. Vasudev, Aruna. *Frames of Mind, Reflection on Indian Cinema*. UBS Publishers Distribution Limited, 1995. Print.
52. --The New Indian Cinema. Macmillan Indian Limited, 1986. Print.

53. W, Rhode. *A Novel about Writing a Novel*. Riverhead Books, 2003. Print
54. Wharton, David and Jeremy Grant. *Teaching Auteur Study*. London: British Film Institute, 2005.
55. Young, James E. *The Texture of Memory: Holocaust Memorials and Meaning*. New Haven, CT: Yale University Press. Print. 2003.

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