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| RESEARCH ARTICLE

Mechanisms of Ideological Reinforcement in British and American Science Narratives

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| ABSTRACT

Through close reading and historical contextual analysis of *Copenhagen*, *Photograph 51*, and *Oppenheimer*, this article examines how British and American science narratives reinforce the existing value order while criticizing institutional injustice. The analysis shows that character-centered storytelling and the portrayal of psychological experience make individual choice, conscience, and responsibility central to the interpretation of scientific history. Institutional conflicts are framed primarily in terms of personal retaliation, procedural misconduct, or the neglect of individual contributions, directing expectations of redress toward procedural correction and the restoration of reputation. Identification with characters, in turn, makes responsibility, scientific autonomy, and fairness in professional recognition standards by which audiences evaluate characters, assess institutions, and regulate their own conduct. State recognition and historical retelling not only offer symbolic compensation to those who have suffered injustice but also sustain the authority of existing institutions and evaluative systems as channels through which justice can be achieved. These narratives thus direct criticism toward individual responsibility, professional norms, and institutional self-correction, reaffirming existing value principles through the questioning of injustice and producing a subtle form of ideological reinforcement.

| KEYWORDS

British and American science narratives; ideological reinforcement; narrative personalization; symbolic repair; subject identification

| ARTICLE INFORMATION

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1. Introduction

When scientific events are adapted for the stage and screen, the resulting narratives do more than recount the process of discovery. They also interpret historical conflicts, discuss the attribution of responsibility, and express judgments about social institutions. Questions concerning responsibility for war, national security, gender inequality, and credit for scientific achievements emerge through characters' experiences, choices, and conflicts, shaping audiences' understanding of the relationships among science, individuals, and institutions.

Existing scholarship has examined science narratives through the lenses of scientific ethics, gender politics, and public images of scientists. Barnett (2005) connects the dramatic form of *Copenhagen* with uncertainty in scientific and moral judgment. Through *Photograph 51* and other plays, Tiehen (2020) examines the gender biases faced by women scientists and the role of theatrical representation in reassessing their contributions. Slaughter (2024), meanwhile, argues that *Oppenheimer* critiques the mythology surrounding its protagonist while also portraying science as the individual achievement of masculine genius. These studies illuminate the interplay between ethical concerns and power relations in science narratives. Building on these insights, this article compares the three works, bringing together narrative personalization, symbolic repair, and subject identification to examine how criticism of institutional injustice can reaffirm established value principles and how those principles, in turn, contribute to sustaining institutional authority.

This article addresses the following question: How can science narratives criticize institutions while further reinforcing the legitimacy of the existing value order? This question is explored through *Copenhagen*, *Photograph 51*, and *Oppenheimer*. The three works address, respectively, scientific responsibility in wartime, gender inequality in research, and the conflict between national security and scientific autonomy. Their institutional criticism may also reinforce the values used to judge institutions: when injustice is explained as an institution's departure from principles such as freedom, fairness, and responsibility, criticism reaffirms those principles. If a work further suggests that institutions can correct their mistakes, audiences may also develop a stronger identification with those institutions. Combining close reading with historical contextual analysis, this article examines three interconnected processes: the personalization of the politics of science, symbolic repair through poetic justice, and identification with characters. It investigates how the works translate institutional relations into personal experiences and ethical responsibilities, how historical correction and belated recognition shift attention away from structural problems, and how audiences come to regard independence, responsibility, and fairness as basic standards for understanding society as they sympathize with characters and evaluate their actions. The resulting pathway of personalization, symbolic repair, and value identification explains how science narratives reaffirm established principles while criticizing injustice and sustain expectations of institutional fairness and self-correction.

2. The Personalization of Science Narratives as a Basis for Ideological Reinforcement

The development of modern science and its social consequences involve the combined activities of states, research institutions, military organizations, and scientists. Plays and films often connect these processes through the experiences, relationships, and choices of a small number of scientists, turning the complex politics of science into comprehensible stories. Such personalization changes not only how history is represented but also where its explanation is centered: which actions are treated as decisive causes, whose voices acquire interpretive authority, and which institutional processes recede into the background. This provides the narrative basis for ideological reinforcement in science narratives.

2.1 Character Centrality and the Narrative Reorganization of Scientific History

Scientific history must undergo a process of character selection, plot arrangement, and causal organization before it can become drama or film. Jameson (1981, p. 35) argues that history is not itself a text or a narrative, yet it is accessible to us only through textual forms, having already undergone textualization and narrativization. Science narratives therefore do more than represent established facts. By deciding whose experiences to follow and which events to foreground, they reorganize the routes through which audiences understand history. Scientific activities originally dispersed among different institutions and participants are connected through the actions and conflicts of a few individuals.

Copenhagen concentrates the history of wartime nuclear research on Heisenberg's visit to Bohr in 1941. Through the recollections of Heisenberg, Bohr, and Margrethe, the play organizes the politics of science around repeated questions about a single encounter. At the outset, Margrethe asks why Heisenberg came to Copenhagen (Frayn, 1998, p. 3). Bohr later asks Heisenberg to tell the story again and produce another version (Frayn, 1998, p. 53). Why the characters acted as they did and how they understood one another become the main threads connecting science with war, while the history of research institutions and military decision-making becomes the background to their stories.

The prominence of personal relationships does not remove national politics from *Copenhagen*. Bohr emphasizes that Heisenberg is an old friend, but Margrethe reminds him that the two men belong to Germany and occupied Denmark, respectively (Frayn, 1998, p. 3). The tension surrounding the meeting thus exceeds private misunderstanding: former colleagues now stand on opposing sides of a war, and friendship cannot dispel the suspicions generated by occupation. Heisenberg, meanwhile, explains his attachment to Germany through the familial ties embodied by his wife and children (Frayn, 1998, p. 42). Jameson (1981, p. 20) rejects the separation of social and political life from private experience. From this perspective, the characters' disagreements also show how wartime pressures enter personal relationships. Nevertheless, national politics is presented chiefly through the three characters' interpretations of the meeting. Why Heisenberg visited, how Bohr understood his intentions, and why Margrethe refuses to accept his defense remain the central questions. Although their accounts conflict, all three organize history around this encounter and its participants. By contrast, the organization of nuclear research by scientific institutions and military departments receives little independent treatment. Personalization here thus consists primarily in a concentration of interpretive attention: the play brings extensive wartime and scientific relations within the experiences that a few characters can recall, explain, and dispute.

Whereas *Copenhagen* concentrates wartime nuclear research on repeated reconstructions of one encounter, *Oppenheimer* connects a broader scientific history through its protagonist's life. The Manhattan Project involved state mobilization, military administration, and collective research. Through Oppenheimer's appointment, his organization of research, and his interactions with military and political figures, the film connects these complex processes within a biographical narrative. Audiences

encounter history chiefly through events in which he participates, which he witnesses, and which he understands. Collective research thereby acquires a relatively concentrated narrative point of entry. This reorganization concerns not only the protagonist's presence throughout the plot but also the representation of historical transitions. When the atomic bombs are handed over, Oppenheimer is still explaining the detonation height, while an Air Force officer makes clear that the military will take charge from that point onward (Nolan, n.d., scene 206). A transfer of authority between scientific research and the military within the state is condensed into an exchange between individuals. Through the change in the protagonist's involvement, audiences understand how a scientific achievement becomes a military weapon. The focus of historical explanation shifts from institutional operations to personal experience. Audiences consequently understand nuclear politics through Oppenheimer's participation, reflections, and persecution, while state and institutional actions become the background shaping his fate.

Unlike *Oppenheimer*, which organizes events around an already prominent historical figure, *Photograph 51* foregrounds Franklin's experience and reorganizes the discovery of DNA's structure around conflicts over research responsibilities, data use, and professional recognition. When Wilkins expects her to assist him, she states that Randall had told her she would lead the research (Ziegler, 2011, p. 13). Institutional arrangements for allocating responsibilities thus appear as disagreements between individuals. The rule excluding women from the common room is likewise translated into a personal experience of exclusion through Franklin's observation that scientific discoveries can occur over lunch (Ziegler, 2011, p. 16). The play gives inequality a concrete form while focusing audiences' attention on whether she receives respect and a position commensurate with her abilities. Questions about the allocation of authority and opportunity within scientific institutions thus enter judgments about the fairness of her treatment, laying the groundwork for subsequent symbolic repair through the restoration of her reputation.

The three works concentrate scientific history on individuals in different ways. These arrangements make complex institutional relations tangible while also shaping explanations of historical causation. Characters' intentions, interactions, and choices receive extensive treatment, whereas institutional decisions and the distribution of power enter the story more often through their effects on individuals. Personalization does not in itself entail support for the existing order. It does, however, make individual action an important point of entry for explaining the politics of science. The next question is how, on this narrative basis, the works further establish motivation, conscience, and responsibility as grounds for evaluating history.

2.2 Psychology and Conscience in the Ethical Reframing of Structural Conflict

Character centrality organizes scientific history around individual experience, while representations of psychology and conscience further shape how those experiences are evaluated. The works show not only what scientists did but also repeatedly ask why they acted, whether they could foresee the consequences, and whether they subsequently felt remorse. Conflicts between science and politics thus appear increasingly as moral dilemmas confronting individuals, and judgments of responsibility concentrate on intentions, choices, and self-reflection. When these questions dominate the narrative, the state's organization of war and research institutions' allocation of power receive less sustained scrutiny. Institutional contradictions are thereby placed within an interpretive framework of personal ethics, in which conscience and responsibility become the principal measures for understanding the politics of science.

By repeatedly questioning Heisenberg's motives, *Copenhagen* transforms wartime nuclear research into a scientist's moral dilemma. Heisenberg claims that he was asking whether physicists possessed the moral right to pursue the practical development of atomic energy (Frayn, 1998, p. 36). When explaining reactor research, he also acknowledges that the ability to build a reactor would make it possible to build a bomb (Frayn, 1998, pp. 37–38). Audiences must therefore judge how much he knew, what he intended, and whether he sought to prevent weapons development. The relationship between German nuclear research and the wartime system is presented chiefly through these personal explanations. Judgments of responsibility consequently tend to concentrate on the scientist's conscience: an intention to exercise restraint can justify a more forgiving assessment of his actions. Even when Margrethe counters his defense that he did not build a bomb by pointing to his inability to do so, thereby distinguishing deliberate refusal from technical failure, the argument continues to turn on whether the individual deserves exoneration (Frayn, 1998, p. 81). The opposing positions jointly sustain a framework that interprets nuclear politics through motives and moral responsibility.

Whereas *Copenhagen* emphasizes intentions before action, *Oppenheimer* organizes responsibility through guilt after action. In the celebration following the bombing of Hiroshima, cheering is interrupted by silence, screams, and visions of damaged bodies (Nolan, n.d., scenes 219–220). The protagonist subsequently tells Truman that he feels he has blood on his hands (Nolan, n.d., scene 224). The catastrophic consequences of nuclear weapons thus become psychological trauma borne by the scientist, and audiences experience the ethical cost through his suffering. Yet this emotional concentration also changes the representation of responsibility. Personal remorse receives extensive treatment, while state decisions, military execution, and victims' experiences recede comparatively into the background. Jameson (1981, p. 235) calls for moving beyond purely ethical judgment by examining historical dimensions outside the individual subject. From this perspective, when institutional actions are

represented chiefly through a character's suffering, guilt can readily become the center of moral evaluation. Criticism of the use of nuclear weapons is thereby linked to an affirmation of the scientist's enduring conscience.

This ethical reframing also appears in accounts of inequality in research. *Photograph 51* organizes conflicts over data and the allocation of credit around whether researchers are rigorous, honest, and fair. Franklin criticizes the rush to publish for producing absurd errors (Ziegler, 2011, p. 38). Wilkins, meanwhile, challenges the unequal terms of collaboration by observing that the others possess his group's findings without offering reciprocal access to their own (Ziegler, 2011, p. 46). Like motivation and remorse in the other two works, professional character becomes a measure for understanding conflict. Questions about the distribution of information and reputation are embodied in personal competition, breaches of trust, and unfair conduct. Expectations of improvement consequently turn toward more honest collaboration and more accurate evaluation. Questions about how institutions allocate authority and why they permit asymmetrical flows of data are overshadowed by matters of personal ethics.

Through the defense of motives, feelings of guilt, and professional character, the three works organize conflicts in the politics of science around how individuals judge, act, and assume responsibility. Whether Heisenberg deliberately exercised restraint, how Oppenheimer confronts the consequences of nuclear weapons, and whether researchers work rigorously and collaborate fairly become important grounds for evaluating history. Criticism thus centers on failures of responsibility, breaches of trust, and injustice, pointing toward more cautious choices, more honest collaboration, and fairer treatment. The characters' conduct is questioned, while conscience, responsibility, and professional norms are reaffirmed as standards of judgment.

3. The Narrative Displacement of Institutional Contradictions through Narrowed Attribution and Expectations of Repair

Once the politics of science has been presented through individual experience, the explanation of injustice and the responses offered to it become crucial to the narrative's direction. This section examines how *Oppenheimer* and *Photograph 51* concentrate their explanations of institutional problems on personal retaliation, procedural misconduct, and the neglect of individual contributions. It then considers how procedural correction and restored reputations keep criticism of injustice oriented toward the values of the existing order.

3.1 From Institutional Contradiction to Procedural Misconduct through Narrowed Attribution in *Oppenheimer*

Through the Manhattan Project and the security review, *Oppenheimer* presents contrasting state attitudes toward scientists' professional participation. During the Manhattan Project, the state supplies resources and organizes research, while military administration leaves room for professional negotiation. Although Groves stresses that compartmentalization is essential to security, he eventually permits weekly exchanges among key personnel (Nolan, n.d., scene 101). This adjustment indicates that conflict between security requirements and research needs can be addressed through negotiation. The later security review, however, makes Oppenheimer's political associations and policy positions grounds for assessing his trustworthiness, allowing professional opinions to become reasons for excluding him. The contrast makes the suppression associated with the review especially conspicuous: a state that once accommodated professional discussion now restricts scientists' participation in the name of security. Institutional contradiction thus appears primarily in the state's demarcation of professional autonomy and in whether scientists can retain independent policy judgments.

The security clearance hearing further concentrates this contradiction on Oppenheimer's treatment. His political associations, personal history, and position on the hydrogen bomb are used to assess his trustworthiness. The hearing's findings acknowledge his loyalty but nevertheless deny the renewal of his clearance (Nolan, n.d., scene 276). The discrepancy between his scientific contribution and his political treatment becomes a basis for audiences' judgments of injustice. At the same time, the film foregrounds Strauss's personal hostility toward Oppenheimer, giving persecution a clear dramatic motive and connecting political exclusion with personal revenge.

The security review is no longer merely an institutional means of restricting scientists' policy participation. It also becomes a tool through which an individual uses power against an adversary. As the retaliatory motive is exposed, attention shifts from why the security system can exclude professional dissent to who manipulated the review and how the proceedings departed from fairness. The contradiction between state power and scientific autonomy is thus explained chiefly as particular individuals' abuse of institutions. This attribution also shapes the direction of redress: if persecution arises from personal prejudice and procedural manipulation, removing those distortions and restoring a fair review becomes the principal response to injustice. The security system's authority to control scientists' policy participation is nonetheless retained.

Attributing persecution to personal retaliation and procedural manipulation enables the film to criticize state conduct while preserving scientific autonomy and procedural fairness as principles the state should observe. What is rejected is power's departure from these principles, while the principles themselves remain the grounds for identifying injustice and demanding

change. Ideological reinforcement emerges as institutional failure becomes a reason to reaffirm institutional value commitments. Criticism of persecution is directed toward the expectation that existing institutions should fulfill those commitments.

3.2 From Institutional Injustice to Restored Reputation through Symbolic Substitution in *Photograph 51*

Photograph 51 displaces institutional contradictions in a different way. By placing Franklin at the center of the narrative and presenting her research labor and scientific judgment, the play corrects historical assessments that long overlooked her contribution. Institutional problems involving gender exclusion, research authority, and credit for discoveries are thereby concentrated on her experience of unfair treatment. The response to institutional injustice chiefly takes the form of reaffirming her place in the history of discovery. Restoring an individual's reputation, however, differs from changing the distribution of power in research. The former can be achieved by retelling history and acknowledging contributions; the latter concerns who has the authority to determine research responsibilities, use data, and define achievements. When the narrative centers on the evaluation Franklin deserves, scrutiny of scientific institutions is narrowed to the question of how to give her recognition commensurate with her contribution.

Science narratives accomplish this recognition within cultural memory. Franklin becomes a protagonist of scientific history once again, while audiences participate in historical correction by learning about her work and respecting her judgment. This constitutes a form of poetic justice: lost opportunities cannot be returned, but the character acquires dignity within the story. Whereas *Oppenheimer* preserves an expectation of procedural restoration, *Photograph 51* directly repairs reputation through artistic retelling. Jameson (1981, p. 79) argues that narrative form can construct imaginary or formal resolutions of social contradictions, achieving within the aesthetic realm what cannot be resolved in social reality. This illuminates the substitutive role of poetic justice: the play changes the historical evaluation of an individual without changing the distribution of research authority or opportunity. When renewed recognition is experienced as the achievement of justice, symbolic recognition may offer a sense of redress while leaving the institutional conditions of exclusion unresolved. By giving the character respect, audiences can also acquire a sense that injustice has already been addressed.

This substitution simultaneously reaffirms the evaluative standards of the existing scientific order. Franklin deserves recognition because she is capable, conducts rigorous research, and makes a contribution. Her treatment is explained as a failure of scientific practice to distribute respect according to those standards. What requires correction is therefore an error of evaluation, while institutional conditions concerning who has the authority to evaluate and which forms of labor qualify for evaluation recede into the background. Criticism of injustice ultimately points toward the fair application of professional standards, reinforcing the principle that ability and contribution deserve recognition.

The two works displace institutional problems at the levels of attribution and response, respectively. *Oppenheimer* explains institutional contradictions chiefly through personal retaliation and procedural misconduct, directing expectations of change toward the restoration of fairness. *Photograph 51* responds to institutional injustice by restoring an individual reputation, making renewed recognition of contribution the principal means of compensatory justice. Institutional criticism is thus channeled toward correcting deviations and fulfilling established value principles.

3.3 Belated Repair from Value Affirmation to Institutional Support

Procedural correction and restored reputations provide directions for responding to injustice. Belated awards, commemoration, and historical retelling give these expectations concrete form. The issue is not only what compensation individuals subjected to injustice receive but also who grants recognition and how that recognition affects the standing of institutions themselves. Gramsci (1971, p. 12) connects spontaneous social consent with the prestige enjoyed by dominant groups and the confidence it generates. Compromises and concessions that respond to demands need not touch the fundamental bases of the existing order (Gramsci, 1971, p. 161). From this perspective, repair both responds to past injustice and offers existing institutions an opportunity to regain trust. By acknowledging contributions and restoring honors, the state and systems of scientific evaluation present themselves as agents capable of correcting errors and delivering justice, without necessarily changing the power relations that produced the harm.

The award ceremony in *Oppenheimer* shows that belated recognition compensates the scientist while also helping to repair the state's image. Once excluded through a security review, Oppenheimer receives a state honor. The state shifts from inflicting harm to acknowledging contribution. Einstein's observation that the ceremony will serve its organizers rather than Oppenheimer directly identifies the needs of those granting the award (Nolan, n.d., scenes 280–281). Honoring Oppenheimer also renews the public display of the state's respect for scientific achievement. Kitty's refusal to shake Teller's hand preserves a trace of unresolved injury, but the public ceremony still confirms Oppenheimer's standing through an honor conferred by the state. The state is thus both responsible for past injustice and the agent of present compensation. Criticism of persecution is directed toward the state's renewed fulfillment of its commitment to respect science, while its authority to define scientists' public standing is retained.

Beyond the film, the U.S. Department of Energy's official documents vacating the 1954 decision in 2022 display a similar logic of repair. The order emphasizes problems with the security review process, while the Secretary's statement reaffirms Oppenheimer's contributions to American defense and science (U.S. Department of Energy, 2022a, 2022b). The correction of error and the affirmation of national contribution work together to restore Oppenheimer to the narrative of national achievement, while allowing the state to interpret this history as the agent of correction. The belated decision cannot return his lost opportunities for policy participation, but it provides a public symbol of the state acknowledging wrongdoing and restoring fairness. Institutional legitimacy can consequently be maintained through a response to past injustice.

In *Photograph 51*, repair occurs through historical retelling, yet it similarly retains established standards of professional evaluation. The demand to reassess Franklin's standing still rests on her research ability, rigor, and scientific contribution. Injustice thus appears as the failure to apply these standards fairly to her, while renewed recognition realigns professional contribution with deserved reputation. The ending's emphasis on the impossibility of beginning again indicates that lost opportunities cannot be recovered, although historical evaluation can still be corrected (Ziegler, 2011, p. 59). By acknowledging previously overlooked contributions, scientific culture can demonstrate a capacity for self-correction. Unlike a state award, this repair does not arise from the formal decision of a particular institution. Instead, it reaffirms within cultural memory how science should evaluate researchers, allowing the system of professional evaluation to retain its normative authority even as it is criticized.

Both forms of repair allow the existing order to acknowledge injustice while continuing to supply the grounds for evaluating individuals and responding to harm. The state recognizes Oppenheimer anew through awards and official correction, while scientific culture confirms Franklin's contribution through historical retelling. Individuals subjected to injustice receive recognition, and the means and grounds through which recognition is granted are affirmed in turn. Ideological reinforcement therefore consists not only in the reaffirmation of fairness but also in the continuing treatment of existing institutions and evaluative systems as channels for achieving justice.

4. The Formation of Critical Subjects through Identification

Personal experiences and symbolic repair do more than organize stories. They also provide audiences with grounds for evaluating history. As audiences sympathize with individuals subjected to injustice, question their choices, or support historical correction, they must judge what constitutes responsible action and fair treatment. This section therefore turns to identification with characters, examining how independence, responsibility, and professional fairness become standards of judgment through viewing, and how these standards keep criticism oriented toward established value principles.

4.1 From Character Identification to Values as Common Sense through Interpellation

Identification with characters is not limited to liking or agreeing with a scientist. As audiences understand characters' circumstances and evaluate their actions, they are invited to consider the standards of judgment offered by the work. Althusser (2006, pp. 85–86) argues that ideology interpellates concrete individuals as concrete subjects: individuals confirm their identity as subjects by recognizing that the address concerns them. Science narratives likewise offer audiences an acceptable identity, that of a person capable of independent judgment, the recognition of injustice, and respect for scientific contribution. Audiences may support or criticize characters, but both attitudes can rest on responsibility, fairness, and professional autonomy. Ideology thus operates within the activity of judgment itself: the works invite audiences to evaluate history while supplying the values through which that evaluation takes place.

By repeatedly reconstructing the meeting, *Copenhagen* places audiences in the position of judging motives and responsibility. Bohr asks Heisenberg to tell the story again and produce another version, while Margrethe suggests that doing so might even help him understand himself (Frayn, 1998, p. 53). Different versions require audiences to compare the characters' explanations and decide whether they are honest, whether they could foresee the consequences, and whether they are seeking to excuse themselves. Margrethe's accusation that Heisenberg now wants Bohr to absolve him further places moral responsibility at the center of the viewing experience (Frayn, 1998, p. 39). Audiences need not accept any particular account of motivation to continue interpreting nuclear politics through motives, conscience, and reflection. Uncertainty about the conclusion does not prevent affirmation of the interpretive framework: complex questions of war and research remain subject to judgment chiefly through whether individuals have fulfilled their responsibilities. The personalization discussed above is thus sustained within audiences' evaluative activity.

Photograph 51 invites audiences to reassess Franklin as fair-minded evaluators. Her defense of her independent research position and refusal to become someone else's assistant provide a concrete basis for professional autonomy and equal recognition (Ziegler, 2011, p. 13). As her research labor is presented, audiences can recognize the discrepancy between her contribution and her treatment and judge whether earlier evaluations were fair. Viewing thereby acquires the significance of

participation in historical correction: acknowledging her importance and giving her due respect become available audience responses. The work connects support for the character with an affirmation of professional fairness, making the principle that contributions deserve recognition both a standard for evaluating history and a basis for audiences to affirm their own commitment to fairness.

Through its protagonist's psychological experience, *Oppenheimer* enables audiences to understand technological consequences through a scientist's conscience. In the celebratory speech, cheering, silence, screams, and visions of damaged bodies intermingle, presenting a moral burden that scientific success cannot remove (Nolan, n.d., scenes 219–220). Understanding the character's suffering can strengthen the demand that scientists respond to the public consequences of their work. At the same time, such empathy can make the preservation of an individual conscience an important basis for evaluating the politics of science. The protagonist's reflection thus expresses criticism of technological violence while also affirming the responsible individual as an ideal subject. Audiences may oppose state conduct yet still find values worth defending in the character's independent judgment and sense of responsibility.

The three works offer audiences different positions from which to judge. *Copenhagen* asks them to compare explanations of motives; *Photograph 51* invites them to reassess neglected contributions; *Oppenheimer* makes a scientist's sense of responsibility an object of both empathy and scrutiny. Audiences need not endorse every choice the characters make, but they draw on responsibility, fairness, and independent judgment to evaluate them. These principles are repeatedly employed in debate and extend from criteria for assessing individuals into standards for judging institutional fairness. Through character identification, the works invite audiences to adopt these values as standards for judging both individuals and institutions, constituting an important element of ideological reinforcement.

4.2 From Critical Identification to the Continuity of Order through Subtle Ideological Reinforcement

Character identification does not necessarily produce institutional support, but it can situate criticism within a particular framework of values. The subject endorsed by science narratives is usually someone capable of questioning authority, defending professional judgment, and assuming responsibility, rather than someone who obeys unconditionally. The key to ideological reinforcement is therefore not the elimination of criticism, but the narrative specification of its guiding principles and expected direction. In discussing belief and practice, Althusser (2006, p. 82) observes that a person who believes in justice may protest violations of its rules, illustrating how opposition to particular actions can coexist with an affirmation of the principles used to judge them. A similar relationship may develop in science narratives: audiences oppose political persecution, gender exclusion, and the appropriation of credit precisely because they already endorse scientific autonomy, fair recognition, and individual responsibility.

These values also shape audiences' understanding of change. *Oppenheimer* presents respect for professional judgment and compliance with fair procedures as requirements the state should fulfill. *Photograph 51* makes the accurate evaluation of ability and contribution the principal standard for responding to injustice. Audience support for the characters can therefore readily become a demand for the implementation of these principles. Criticism persists, but its objective more often appears as bringing institutional practice into line with established commitments. Independent judgment and fair recognition give criticism moral force while keeping expectations of change oriented toward the existing value order. This is the distinctive operation of subtle reinforcement: by questioning injustice, audiences further affirm the principles on which their judgments of injustice depend.

Gramsci's account of social consent identifies the prestige of dominant groups and the confidence it generates as important foundations of social support (Gramsci, 1971, p. 12). Science narratives can accordingly be understood as cultural practices that participate in organizing such support. They acknowledge institutional failures while maintaining expectations of legitimate principles through commemoration, historical correction, and the reaffirmation of values. This effect need not take the form of direct audience endorsement of existing institutions. It may instead consist in audiences continuing to understand problems through the values institutions proclaim and investing their hopes for change in the fulfillment of those values.

Such subtle reinforcement also involves the formation of self-regulation. Foucault (1982, p. 781) observes that subjects can be tied to their own identities through conscience or self-knowledge. Characters in science narratives provide reference points for this kind of self-evaluation: whether one maintains independent judgment under pressure, respects others in collaboration, and accepts responsibility for the consequences of achievement. When audiences examine themselves through these questions, independence, responsibility, and fairness move from standards for evaluating characters to norms that individuals should follow. Contradictions produced by institutions consequently acquire moral responses that individuals can undertake: greater caution, honesty, and responsibility. Science narratives thus connect public criticism with self-regulation, sustaining established value principles through the demands audiences place on their own conduct.

5. Conclusion

Through *Copenhagen*, *Photograph 51*, and *Oppenheimer*, this article has traced how science narratives reinforce ideology through personalization, symbolic repair, and subject identification. Although the three works expose responsibility for war, political exclusion, and injustice in research, their arrangements of historical causation, the attribution of problems, and possible resolutions direct criticism inward, toward the existing value order.

First, character-centered narratives organize state policy, military action, and scientific power through scientists' experiences and choices. Representations of psychology and conscience further establish personal ethics as a principal framework for interpreting the politics of science. The question of how institutions produce contradictions thereby shifts toward whether individuals are honest, responsible, and fair. Second, injustice is represented chiefly as personal hostility, procedural misconduct, or neglected contribution. Demands for change consequently narrow to removing prejudice, restoring reputations, and granting renewed recognition. Historical retelling and state recognition provide symbolic compensation to individuals subjected to injustice while affirming existing institutions and evaluative systems as channels for achieving justice, sustaining expectations that fairness can be realized and errors corrected. Finally, through sympathy, moral judgment, and historical correction, the works offer audiences positions of identification, transforming independence, responsibility, and professional fairness from character qualities into standards for understanding society and regulating personal conduct.

The ideological operation of these science narratives thus lies in redirecting criticism. Institutional practices are questioned, while the values institutions proclaim are reaffirmed. Injustices generated by power relations are exposed, while expectations of redress settle on individual responsibility and limited institutional correction. Criticism, compensation, and identification consequently work together, enabling the existing order to retain its normative authority and legitimacy even as it undergoes moral scrutiny.

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