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"Where were you when...?": The Interaction of the Personal and the Historical in the *Challenger* Explosion.

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A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements of the degree of Master of Arts, McGill University, Montréal, Canada.

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Acknowledgments

This object you are holding is perhaps misleading. In its final form it appears, almost like any other thesis or book, to be organized and complete. Books are always designed to convey the authority of their authors. What their formal appearance is not meant to reveal is the confusion, doubt, or even the boredom that sometimes went into its writing. Representing, as it does, two years spent in Montréal at McGill University, this thesis is for me more about the time and support of many people who helped alleviate the boredom and push away both doubt and confusion. Without these friendships, in their variety of forms, this thesis would never have found its completion.

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David Clearwater

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Abstract

"Where were you when...?": The Interaction of the Personal and the Historical in the Challenger Explosion.

This thesis explores the problems associated with an individual's interpretation of historical events; especially through a question such as "Where were you when you heard the news of the *Challenger* explosion?" Remembering an event in this manner implies that both a physical and temporal distance exists between an individual watching from afar and the event in question. This distance indicates that the event is never transparent nor is its meaning self-evident; it unfolds over time and is rendered almost incomprehensible through the proliferation of language and discourse surrounding the event, the fragmentary nature of its remnants, and the fallibility of both individual memory and the historical record. But instead of making the event meaningless, notions of 'distance' and 'incomprehensibility' provide a space where an event's meaning is most understandable for an individual. Beginning with Wittgenstein's *Tractatus* and ending with Barthes' *A Lover's Discourse,* I would like to show how little separates the philosopher attempting to understand the world, the historian interpreting the historical record, the amorous subject deciphering the signs and gestures of an absent or unattainable lover, and the individual remembering a historical event.

«Où étiez-vous au moment où...?»: L'Intéraction du privé et de l'historique dans le cas de l'explosion de Challenger.

Ce mémoire explore les problèmes associés à l'interprétation personnelle des événements historiques, surtout quand ou pose une question telle que «Où étiez-vous quand vous avez appris que *Challenger* a explosé?» Se rappeler un événement de cette manière implique qu'une distance physique et temporelle sépare l'individu regardant de loin et l'événement dont on se souvient. Cette distance indique que l'événement n'est jamais transparent ni sa signification évidente; il se déroule dans le temps et devient presque incompréhensible à cause de la prolifération des langages et des discours qui l'entourent, de la nature fragmentaire de ses restes, et du caractère fallible du souvenir individuel et des documents historiques. Mais au lieu d'enlever à l'événement tout son sens, des idées de 'distance' et d''incompréhension' offrent un espace où l'individu peut mieux se retrouver. En se servant du *Tractatus* de Wittgenstein comme point de départ et des *Fragments d'un discours amoureux* de Barthes en guise de conclusion, je vais montrer le peu de distance qui sépare le philosophe tentant de comprendre le monde, l'historien interprétant les documents historiques, le sujet amoureux déchiffrant les signes et les gestes d'un amant absent ou inaccessible et l'individu se rappellant l'événement historique.

Preface

"We're now taking you live to the scene. . ."

On the morning of January 28, 1986, at 9:40 MST, I was in bed sleeping. Two time zones to the east, at 11:40 Eastern, NASA pilot Michael Smith uttered two words: "Uh-oh." Under a second later the space shuttle carrying Smith and the remaining crew of *Challenger* exploded; a spectacle witnessed by millions of viewers across the US and the world. Moments later, I was being jostled awake by an incoherent and excited friend of the family... it was only later that I realized that what he was trying to tell me, before he left my room, was that "the shuttle just blew up!"

I am not alone in being abie to remember the moment when I first learned of the *Challenger* disaster. Many people carry with them memories of where they were when first learning of major and unexpected historical events, and it is the existence of these memories which usually precipitates the question posed to others: "Where were you when you heard the news of the *Challenger* explosion?"

At a very basic level, questions such as "Where were you when...?" suggest a spatial and temporal distance between an individual and some sort of remembered historical event. This distance implies that a certain but ambiguous dialogue exists between the individuals observing the event and the event itself; a dialogue which, if carried further, points to a correspondence between history and personal lives. It is precisely this correspondence—between the public and the private—which I am interested in and attempt to investigate through this study.

What is the role of the individual in relation to history? It would seem doubtful that individuals actually take part in an event simply by remembering where they were when they heard the news that the space shuttle *Challenger* exploded in 1986. Indeed, the issue of a distanced observer's role has been a problematic one for historiography in general and, more recently, for cultural and

critical theory. Nevertheless, the existence and persistence of a question like "Where were you when...?" indicates that on some level—and some would argue a naïve level—historical events are available to those who observe them from afar.

An important aspect of this is the notion that the way history is perceived is changing in the late twentieth century. "History," as Vivian Sobchack says, "seems to happen right now."[1] In a certain way, the past seems to have caught up with the present; Sobchack continues:

> ... there seems a sense in which we believe we can go right out and "be" in history: hence, the people who flocked to the sides of the freeway to watch—and be in—the "historic" parade led by O.J.'s Ford Bronco, who knew that they—as well as O.J.—might make the five-o'clock "news"; hence, too, the people who stood outside of Nicole Simpson's Brentwood condo and told reporters they were there because they wanted to be "part of history."[2]

As Sobchack points out, the individual is implicated as an important constituent of the historical, as events become more and more intertwined with individual emotions and no longer seem confined to distant places of authority and importance—places where history has traditionally been 'made.' Generally, history is conceived as something which took place temporally 'before' our personal and immediate experience. Likewise, the representation of this history was something which happened only 'after' an appropriate period of time. In essence, an event could not become 'history' until it was submitted to a certain degree of authoritative interpretation and reflection. Today, with the possibility of history happening 'right now' and 'right here,' historical events are available, almost from the time of occurrence, as narrativized and legitimatized objects for public attention.

It is within *this* historical framework that questions like "Where were you when...?" are inserted. These questions are predominately a phenomenon of the twentieth century; or more specifically a by-product of twentieth century forms of mass communication. The widespread existence of questions like "where were you when...?" is made possible by the instantaneous and

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[1] Vivian Sobchack, "Introduction: History Happens," in *The Persistence of History: Cinema, Television and the Modern Event*. Vivian Sobchack, ed. London: Routledge; 1996. p. 5.

[2] Vivian Sobchack, "Introduction: History Happens," p. 5.

comprehensive reach of communications technology. Television, telephone systems, newspapers, the Internet—all linked by an extensive network of fibre-optic cables and satellites—allow individuals to learn of an event as soon as it happens, making every person with access to this technology a potential 'witness' and, on some level, an actual participant.

Obviously, the live quality of an event is problematic and this is evident in the question itself. The witness was not *there*, they were somewhere else and this is the specific focus of the question. But the perceived immediacy of the event makes this 'elsewhere' important and the individual witness a significant part or aspect of the story. Herein, lies the original problem. That is, the question as to what legitimately constitutes history—whose story is it? and can an individual watching from afar, or from the side of the freeway, take part in it?

Feeling as if one is participating in an event as it unfolds is not, I think, a sort of false consciousness or delusory self-importance. The interactive nature of history and public events is not limited to watching from the perspective of the crowd or being interviewed on television. In some ways, this relates to how history is perceived in the postmodern age. There seems to be a new consciousness—that history is less about the revealing of objective truth and more about the arrangement of narrative and the telling of stories—which has permeated how history is viewed in both popular and intellectual circles. There is a contemporary fascination with historical story-telling. From A&E's *Biography* to The History Channel to the recent wave of films about historical events (*Nixon, JFK, Apollo 13* and even *Forrest Gump*), popular forms of entertainment are increasingly focused on historically based stories. Furthermore, these explorations of the past rarely claim to deliver objective truth or a definitive answer. Inasmuch as they try to provide documentary information about the past, an inherent quality of their message is that there are still many questions yet to be asked; a deferral to the future in that while the truth may be out there it still requires additional searching for it to be found. It appears that history is not something relegated to a dusty and carefully arranged library shelf but instead is an ongoing and constantly evolving process which requires the participation of its makers, witnesses, and 'readers.'

At first glance, questions such as "Where were you when...?" would seem to have no documentable history as they are formed in the course of everyday discussion. These questions take place among individuals and are an oral form of private discourse where replies are rarely committed to the historical record. But the question, in its variety of incarnations, has itself become an object of public fascination and even academic study. Today, it is even anticipated at the time of occurrence of a major event. During the CBC's early coverage of the fatal automobile crash of Princess Diana, news-anchor Peter Mansbridge categorically stated that the event of her death was of such magnitude that the audience would, in the future, ask amongst themselves: "Where were you when you heard of Princess Diana's death?"

The very public existence of this question not only reveals a new form of historical consciousness but, in a related manner, also betrays how history and historical events affect individuals on a personal basis. The fact that it is a question—posed by one individual to another—implies that a personal dialogue with historical events is possible. It signals that the event was important and that the individual being questioned was somehow there (or at least somewhere) and that their presence was indeed significant. But the objection remains as to whether memories of events that are not directly experienced, are indeed an 'act' of participation in those events. This demands that a proper definition has to be made as to what actually constitutes an 'act of participation.' Arriving at such a definition is, however, difficult in an age where events are mediated by forms of communication such as television:

> When we consider early periods of human history, the distinction between experienced and reported events is clear-cut. Either one was present to observe and possibly participate in events or one was told about them afterward. With present-day technologies of observation and communication, the distinction may appear blurred. By means of telescopes and remotely controlled TV cameras, events may be observed at a distance that prevents participation. Are they still to be counted as personal experiences? By means of movies, video recordings, holograms, and so on, events may be communicated in a form that approaches actual experience, while satellite transmission provides for worldwide simultaneity. Are such cases still to be counted as reported, secondhand events? I think the answer to both questions should be yes, because the basic feature of possibilites for action is not changed. In experienced events, but not in reported

> events, one has at least some freedom to act, to influence what is happening (including at least some freedom to explore and pick up information directly).[3]

Even if we wanted to restrict ourselves to agency or the ability to 'act' as the sole criteria for the definition of participation, it would seem that in some instances the same technology that allows for the appearance of participation from afar also takes it away at the site of the event. If we did restrict ourselves to this definition, could it be argued that the crew of *Challenger* possessed the ability to act at the time of the explosion? Or did any single one of the thousand or so NASA technicians and advisors have this same ability? Technology such as the space shuttle and NASA (the governing body which created and manages it) combine knowledge, resources, and machinery of a scale hardly imaginable a century ago. Within such systems, many components are highly interdependent so that failure of a single component has the potential to escalate into total disaster. These 'tightly coupled' systems, as they have become known, makes the prediction and prevention of such catastrophes almost impossible.[4]

If we continue to maintain the categories of 'experienced' and 'reported' events then it would seem that the *Challenger* explosion complicates these categories in another way. That is, as an instance where a reported event includes *within itself* an experienced event—watching the *Challenger* explosion combined with the experience of watching the explosion in the midst of others. It is in this sense that memories associated with "Where were you when...?" questions are situated. The ability to act is not so much the ability to directly intervene in an event, but is the ability to interpret that event as it unfolds, commit it to memory and, through subsequent discussion, affect how that event becomes represented in the historical record. Here the person who will eventually answer a question like "Where were you when...?" is playing a similar role as the historian. Both are individuals faced with a social or public event. Both are confronted with a confusing series of

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[3] Steen F. Larsen, "Remembering Without Experiencing: Memory for Reported Events," in *Remembering Reconsidered: Ecological and Traditional Approaches to the Study of Memory*. Ulric Neisser and Ugene Winograd (eds.) Cambridge: Cambridge University Press, 1988; p. 329.

[4] See Charles Perrow, *Normal Accidents: Living With High-Risk Technologies*. New York: Basic Books, 1984 and Perrow, "The Habit of Courting Disaster," *Nation* 11 (October 1986) and C.F. Larry Heimann, "Understanding the Challenger Disaster: Organizational Structure and the Design of Reliable Systems," *American Political Science Review* 87 (June 1993).

facts, rumour and hearsay (either written, oral or visual) that surround the event. The event itself does not exist in a vacuum nor is it completely transparent; its meaning is reliant upon its context and the dominant ideologies and discourses contemporary with it, before it and after it.

When it comes to historical reconstruction there is a general belief in the 'burden of proof,' hard facts, and the rational and objective approach to understanding social events. That seems to be the official discourse. But, as will become evident in this study, so much of the public and even academic discourse surrounding the *Challenger* explosion is based on a complex condensation of facts, rumour and gossip, myth, official record, and speculation. In many instances, it is difficult to discern what is historical fact and what is merely rumour, what happened and what didn't, and, of course, what it all means. This is, however, not unusual. When an event such as the *Challenger* disaster unfolds it is not immediately obvious what caused it to happen or what its meaning is, since it takes time for evidence to be found and interpretations to be made. In a sense, the event is always *in question,* as it is surrounded by questions which may or may not be answered. And it is this openness or *incomprehensibility* which I would like to use as a way of understanding how public events can become meaningful to those who personally witness them from afar and how these events intersect with their lives.

CHAPTER 1

Introduction: "The sum-total of reality is the world."[1]

> Q. What do you mean exactly? A. I mean, but not exactly.
>
> — JEAN LUC GODARD [2]

> Not everything can be named. Some things draw us beyond words.
>
> — ALEKSANDR I. SOLZHENITSYN [3]

> Since the world expressed by the total system of concepts is the world as society represents it to itself, only society can furnish the generalized notions according to which such a world must be represented.... Since the universe exists only insofar as it is thought, and since it can be thought totally only by society itself, it takes its place within society, becomes an element of its inner life, and society may thus be seen as that total genus beyond which nothing else exists. The very concept of totality is but the abstract form of the concept of society: that whole which includes all things, that supreme class under which all other classes must be subsumed.
>
> — EMILE DURKHEIM [4]

Upon first reading, the passage from Durkheim produces a certain feeling of empowerment or confidence. This confidence exists because the reader is encouraged to think of the outside world not as a series of phenomena guided by chance or fate or divine circumstance, but as a world of our own creation; a world beyond which nothing else exists. This is a notion whereby our world can be understood, can *only* be understood, through the structures and meanings which society itself constructs. Society—that supreme class under which all other classes can be placed, that concept which forms the abstract notion of totality—is for Durkheim the key to understanding the

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[1] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*. Trans. D.F. Pears and B.F. McGuinness. London: Routledge; 1961. p. 8 (proposition 2.063).

[2] Attributed to Jean Luc Godard. I first saw this quote included as part of a person's signature file (email) who was subscribed to the CultStud-L listserv.

[3] Quoted in the frontspiece of Frederick Sontag, *Wittgenstein and the Mystical: Philosophy as an Ascetic Practice*. Atlanta: Scholars Press; 1995.

[4] Unreferenced quote in Fredric Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act*. Ithaca: Cornell University Press; 1981. p. 8.

complexity of structures, artifacts and meanings which he can see circulate, coalesce, and disperse around him.

At the same time there is, I think, a hint of unease lurking beneath the confidence of this passage, visible within an aside made by Durkheim himself: *it* (society) *can be thought totally only by society itself.* One could ask about the proper place of an individual observer in this conception of the world. If society can be understood only by society itself does this mean that individuals can never really be sure if they have a true grasp of the world around them? If the epistemological basis for this 'understanding' only exists on some abstract meta-level—such as that of society—it would seem that Durkheim makes no place for an individual observer.

Perhaps this passage is somewhat circular and illusionistic; an illusion created by the very act of attaching a word or name ('society') to a concept. By believing the universe to exist only insofar as it can be *thought* brings with it the belief that it is somehow closer to ourselves; closer to the thought-process which brings it into being in the first place. But just whose thought is at stake here and who has control over it? Surely 'society,' as the term is used by Durkheim, is not a stable and constant concept. To name is to take possession but whereas the name itself stays relatively fixed, the processes which it is meant to describe and contain are in constant motion. Can we be sure that Durkheim's act—of attaching a name to an abstract and general notion—does not itself alter what it is that he is attempting to illustrate? After all, both Durkheim and his actions lie within society (the very thing which he attempts to describe). Therefore, we should have every reason to believe that this act—one performed by an individual on behalf of 'society' (and therefore a partial act of society)—has the capacity to simultaneously alter what it is that it is attempting to describe. It is possible that the object brought into existence by the act of naming is now somehow different; altered by that very act that brought it into existence.

If this passage from Durkheim seems disturbingly circular and if it seems to break apart at the very point when it looks as if it will reach closure, it is, perhaps, no fault of his own. It is of particular

import to remember that he was writing as an individual. For this problem is as much about the relation of the individual observer when confronted with the meanings and actions of much larger, abstract concepts. Writing in the 1700s, the German historian Friedrich Schlegel commented: "It is equally lethal for the mind to have a system and to have none. It may very well have to decide to combine the two."[5] Perhaps this illusion is a necessary tool for any understanding of the world or society to proceed. Contemporary thinking would correct the statement by Schlegel by saying the mind, or an individual, has no choice but to combine the two. Subjectivity is a mixture of systems applied to the mind and subjective experience. The question is, however, to what extent can these be held separate and distinct. It would seem plausible, from the discussion above, that there is little hope for knowledge to be either linear or final: at the same time that individuals are influenced by illusionistic systems of perceiving the world, they also have the capacity to alter the very things they are trying to understand.

My discussion so far is a problem of epistemological knowledge and this problem can be found lurking at the heart of most academic and philosophical debates. Interestingly, this type of questioning is not limited to academic or intellectual spheres. In one form or another, questions regarding meaning (the meaning of events, history, life and even love) take place daily on the most individual and personal levels and are presented through a diverse series of media and settings. Durkheim was neither the first nor will he be the last to attempt to theorize about, for lack of a better term, the 'collectivity.' This collective notion, to which Durkheim attached the term 'society,' can and does take many forms and goes by many names. In the above passage we could easily substitute one of many other terms for Durkheim's 'society'—science, discourse, history, knowledge—and the meaning of the text would not be lost.

If Durkheim is correct in believing the world to be a collective construction made possible by society, how can an individual ever hope to understand that world? If we understand the world to

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[5] Quoted in Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time.* Trans. Keith Tribe. Cambridge: MIT Press, 1985. p. 221.

be a collection of diverse and conflicting motives, beliefs, histories and myths that are supra individual—that is, collected over time and across many individuals—then the position of a single observer could not be a suitable vantage point to view the totality created by society. At best, this view of the world would only be partial and, in all likelihood, circumstantial; no individual's knowledge is total and differences in position would yield differing views of the totality.

Despite the epistemological questions raised above, common sense and experience would allow that the world does seem to be available to individuals who take part in its activities. Indeed, the fact that individuals can take part in the activities of the world and, to a degree, exert a certain influence over its evolution, would indicate that the world is accessible on a personal level. In his *Tractatus Logico-Philosophicus*, Ludwig Wittgenstein postulates that the "sum-total of reality is the world." (2.063)[6] However, this does not indicate that 'the world' be solely available to an individual observer who pays close attention to the reality of his or her surroundings. Elsewhere he states: "*The limits of my language* mean the limits of my world." (5.6) Here, Wittgenstein seems to conceive of the world in a different way, one that includes an individual observer *through* the role of language.

Thus, the 'world,' in the terminology of the *Tractatus*, is a complex term, and an individual's place in that world is shown to be equally problematic. But the *Tractatus* is useful precisely for this reason, as Wittgenstein shows the relationship between the world and the individual is made possible, but made problematic, through the existence of discourse or language. And for the purposes of my study, it is Wittgenstein's conception of the problematic nature of language which, I believe, is useful for understanding the way individuals approach the 'world' of a historical event.

...

[6] Ludwig Wittgenstein, *Tractatus Logico-philosophicus*. Trans. D.F. Pears and B.F. McGuinness. London: Routledge; p. 8 (proposition 2.063). Unless otherwise noted, all references to the *Tractatus* will be from the Pears/McGuinness translation and will be noted either by page number or by proposition number.

Limits and Meaning

The text of the *Tractatus* is a deeply complex work and one that has long been subject to a wide latitude of interpretations. Seemingly a treatise on logic and mathematics in the spirit of the logical positivism of Gottlob Frege and Bertrand Russell, the *Tractatus* is composed of "apocalyptic aphorisms numbered from 1 to 7, with decimal numberings for all the ones in between to mark their relative importance."[7] But even its structure has been subject to debate. As a work on logic—with its apparent logical or even mathematical structure—its "order of exposition... does not reflect its order of argument."[8] That is, its composition is anything but linear: "The *Tractatus* is not presented in an order of demonstration from premises; if we want to find the grounds for its contentions, then we must start in the middle and not at the beginning."[9] Alternately, as a work on the logical limits of language and thought, the *Tractatus*' seemingly non-sensical structure does make sense precisely because Wittgenstein wants to show that logic has limits and what lies beyond this limit is—in an important sense—senseless. In this way, the careful numbering system employed in the *Tractatus* may just be an aberration, useful only in its ease of reference.

In the *Tractatus*, Wittgenstein touches upon a surprising range of issues—from what constitutes the world, to language, logic, thought, knowledge, the soul, death, God, immortality, and mysticism. Many have characterized it as more like a work of modernist literature—akin to a poem[10]—where philosophy is interrogating its own medium: language. Wittgenstein's confidence in the *Tractatus* was, at least at the time, total; as he remarks in the Preface: "the *truth* of the

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[7] Daniel Kolak, "Translator's Preface," in *Wittgenstein's Tractatus*. Trans. Daniel Kolak. London: Mayfield Publishing Company; 1998. p. ix.

[8] Richard R. Brockhaus, *Pulling Up the Ladder: The Metaphysical Roots of Wittgenstein's* Tractatus Logico-Philosophicus. La Salle: Open Court; 1991. p. 25.

[9] G.E.M. Anscombe, *An Introduction to Wittgenstein's 'Tractatus.'* London: Hutchison University Library; 1959. p. 18.

[10] Daniel Kolak mentions an episode where Wittgenstein, in his stubborn and abrupt manner, screamed at a roomful of "eminent" philosophers who had gathered for a public reading of the *Tractatus*, since he believed that what he had written was a poem, and, as such, wasn't meant to be "butchered" and "dissected." Daniel Kolak, "Translator's Introduction: A Tractarian Primer," in *Wittgenstein's Tractatus*. Trans. Daniel Kolak. London: Mayfield Publishing Company; 1998. p. xv.

thoughts that are here communicated seems to me unassailable and definitive. I therefore believe myself to have found, on all essential points, the final solution to the problems."[11] However, Wittgenstein tempers this confidence by stating: "And if I am not mistaken in this belief, then the second thing in which the value of this work consists is that it shows how little is achieved when these problems are solved."[12]

In an important sense, the *Tractatus* is self-referential and aware of its own limits. As Terry Eagleton says, it "cancels itself out in a gesture of modernist irony, illuminat[ing] the truth only in the dim glare created by its sudden self-implosion."[13] What comes after this implosion, or this act of showing how little can be achieved when the problems are solved, is what Wittgenstein calls the "mystical." This is perhaps the most important and misunderstood aspect of the *Tractatus* as it is in this space where Wittgenstein believes that 'value' and 'ethics' enter, not only into philosophy, but into experience.

Wittgenstein was reacting against the dominance of a tradition he (and we) inherited that was increasingly based on scientific rationality. As a system or symbolic language, it increasingly ignored those questions which it could not systematically explain, and tended to reduce the rest of the world to a system of scientific principles or mathematical formulas. Wittgenstein's method was not to reject this notion outright but to work through its own logic and show its deficiencies; by using, and working through, the symbolic language of logical positivism which he inherited from Frege and Russell.

Logic is understood as a universal language which has applications to almost any discipline, from engineering, computer science and mathematics to theology and philosophy. But logic is itself based on language; or at least the realization that, since Aristotle, much could be gained from

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[11] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*. p. 4.

[12] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*. p. 4.

[13] Terry Eagleton, "Introduction to Wittgenstein," in *Wittgenstein: The Terry Eagleton Script / The Derek Jarman Film*. London: British Film Institute; 1993. p. 6.

removing the meaning from language.[14] The *Tractatus* was Wittgenstein's attempt to create a "meaningless" or content-less language "for addressing philosophical concerns that can be viewed as being analogous to what in logic from Aristotle to Frege and Russell can be achieved only *outside* of ordinary language (or beneath it) with purely abstract symbolism."[15]

For Wittgenstein, language is an activity of the mind and one whereby some parts of experience are used to represent others; just as within logic, some 'facts' are used as symbols to represent other 'facts.' The isometric correspondence between the structure of the world and the structure of language is necessary—otherwise meaning would not exist—but problematic. As Wittgenstein tried to show, it is impossible in any significant way for one to distinguish the world *from* the language in which it is represented, and it is therefore necessary to find the limits of our language:

> Thus the aim of the book is to draw a limit to thought, or rather—not to thought, but to the expression of thoughts: for in order to be able to draw a limit to thought, we should have to find both sides of the limit thinkable (i.e. we should have to be able to think what cannot be thought).
>
> It will therefore only be in language that the limit can be drawn, and what lies on the other side of the limit will simply be nonsense.[16]

This directly corresponds to proposition 5.6: "*The limits of my language* mean the limits of my world." Here, it would be impossible to think or frame the conditions for the existence of language because "the limit of language cannot be represented in language."[17] Conceived of in this way, language is not only a system but one that is necessarily restricted by logic and the need to make logical sense. To be able to think of the 'limit' of language, language would have to move beyond itself. Proposition 5.6 is one that Wittgenstein associates with the solipsist, but the requirement for 'logical sense' renders the claim for "my language" and "my world" problematic:

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[14] Daniel Kolak, "Translator's Introduction," p. xiv.

[15] Daniel Kolak, "Translator's Introduction," p. xv.

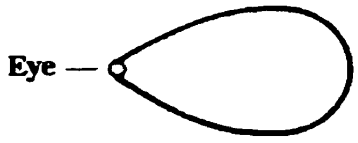
[16] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*. p. 3. Here, Wittgenstein seems to separate language from thought but later in the *Tractatus* he equates the two. Richard Brockhaus believes the reason for the discrepancy is that in the Preface, Wittgenstein has not properly introduced the doctrine whereby the two are equated. Richard R. Brockhaus, *Pulling Up the Ladder*. p. 296n.

[17] Richard R. Brockhaus, *Pulling Up the Ladder*. p. 293.

5.632 The subject does not belong to the world: rather, it is a limit of the world.

5.633 Where *in* the world is a metaphysical subject to be found?
You will say that this is exactly like the case of the eye and the visual field. But really you do not see the eye.
And nothing *in the visual field* allows you to infer that it is seen by an eye.

5.6331 For the form of the visual field is surely not like this



Which relies upon a previous passage:

2.04 The totality of existing states of affairs is the world.

2.05 The totality of existing states of affairs also determines which states of affairs do not exist.

2.06 The existence and non-existence of states of affairs is reality.
(We also call the existence of states of affairs a positive fact, and their non-existence a negative fact.)

2.061 States of affairs are independent of one another.

2.062 From the existence or non-existence of one state of affairs it is impossible to infer the existence or non-existence of another.

2.063 The sum-total of reality is the world.

In 2.061-2.063, Wittgenstein maintains that the world is composed of states of affairs or facts, and that the existence of each is independent of the existence of any other. Because facts are independent, it would be impossible for any conclusions to be drawn about the world from the existence of any fact: the world is, as the existentialists believed, absurd, for "no reasons can be given for the existence of either the world as a whole or any particular item it contains."[18]

The contingency of facts (the world) has important implications for the metaphysical subject. Since Wittgenstein believed that ethics came into the world through the metaphysical ego, it could not take place in the world of contingent facts, since the contingency of facts (a proposition of logic) makes no room for agency (2.061-2.062). That is, the unconnectivity or absurdity of the world has no place for value. The "eye in the visual field" metaphor comes directly from Schopenhauer (the

[18] Richard R. Brockhaus, *Pulling Up the Ladder*. p. 3. This paragraph is a paraphrase of Brockhaus' remarks. Brockhaus is also careful to point out (p. 300) that Wittgenstein is *not* an existentialist as he does not see the world as absurd in the existentialist sense because he believes value *does* reside in the world.

eye "sees everything except itself")[19] and says something similar. For the existence of the eye is a necessary condition (a limit) for there being a visual field, but the eye cannot be a constituent of that field: to see itself seeing would also entail that the eye should be able to see itself *not* seeing, which would be a violation of, in this case, the logic of seeing.

The crux of Wittgenstein's argument, as I see it, lies in the fact that the subject "does not belong to the world" but "is a limit of the world" (5.632):

> ... although language mirrors the world, the world does not in turn mirror language. Although they share the common element of logical form, the world lacks the intentional contribution, the willing, of the metaphysical subject, which provides ... the "method of projection" for the propositional sign.... Put another way, language (*my* language) has an "inside," a point of view, a vanishing point at the center, while the world does not. Thus, although the existence of the world requires only the contingent coming-together of Objects, language requires in addition the being of the metaphysical subject.[20]

Wittgenstein's mentor, Gottlob Frege, had no concern for ethics and worked purely with logic and mathematics.[21] But Wittgenstein could not ignore ethics.[22] Nor could he ignore the philosophical truths behind logic. His solution was to find an 'in' for value, and therefore ethics, but this came with a price. If logic, as a system, insisted on the world following its logical rules, it could simply not ignore those aspects which it seemingly made no room for... in a sense *it* had limits.

> 5.61 Logic pervades the world: the limits of the world are also its limits.
> So we cannot say in logic, 'The world has this in it, and this, but not that.'
> For that would appear to presuppose that we were excluding certain possibilities, and this cannot be the case, since it would require that logic should go beyond the limits of the world; for only in that way could it view those limits from the other side as well.
> We cannot think what we cannot think; so what we cannot think we cannot *say* either.
> 5.62 This remark provides the key to the problem, how much truth there is in solipsism.
> For what the solipsist *means* is quite correct; only it cannot be *said*, but makes itself manifest.

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[19] Hans-Johann Glock, *A Wittgenstein Dictionary*. Cambridge: Blackwell; 1996. p. 348.

[20] Richard R. Brockhaus, *Pulling Up the Ladder*. p. 300.

[21] Frederick Sontag, *Wittgenstein and the Mystical*. p. 59.

[22] As Sontag writes: "Given the tormented role which love and sex played in Wittgenstein's life, it is meaningful to see his whole relationship to logic as emerging out of the ethical conflict he had with himself (and later, we will argue, with God)." *Wittgenstein and the Mystical*. p. xi.

> The world is *my* world: this is manifest in the fact that the limits of *language* (of that language which alone I understand) mean the limits of my world.

Wittgenstein ends the *Tractatus* with:

> 6.54 My propositions serve as elucidations in the following way: anyone who understands me eventually recognizes them as nonsensical, when he has used them—as steps—to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.)
>
> He must transcend these propositions, and then he will see the world aright.
>
> 7 What we cannot speak about we must pass over in silence.

This, however, is not the end of the *Tractatus* because what Wittgenstein wants to show is that the whole of experience is not limited to thought (logical language) but includes, what Wittgenstein calls, the mystical: "Feeling the world as a limited whole—it is this that is mystical," (6.45) and "There are, indeed, things that cannot be put into words. They *make themselves manifest*. They are what is mystical." (6.522)

The difficulty is that Wittgenstein has constructed a work, laid out in propositional form, which seemingly violates the laws of logic because it violates—by speaking about something which should properly be passed over in silence—its own propositions. It is this violation or self-cancellation which many take to be the meaning of the 'ladder metaphor' in 6.54. Thus, as Wittgenstein remarked in the Preface, most of the *Tractatus* is nonsense; but it is an illuminating nonsense as it must be climbed, and then discarded, in order to see the world aright.[23] What this 'way of seeing' is or yields is of course open to question. In a famous letter to the editor of *Der Brenner*, Ludwig von Ficker, Wittgenstein wrote about the meaning of the *Tractatus*:

> The book's point is an ethical one. I once meant to include in the preface a sentence which is not in fact there now but which I will write out for you here, because it will perhaps be a key to my work for you. What I meant to write then, was this: My work consists of two parts; the one presented here plus all that I have *not* written. And it is precisely this second part which is the important one.[24]

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[23] This interpretation of the *Tractatus* that focuses on Wittgenstein's 'ladder' metaphor in 6.54 is a relatively recent one.

[24] Richard R. Brockhaus, *Pulling Up the Ladder*. p. 296.

One could ask if this 'second part' was something which Wittgenstein had written but simply left out or if it couldn't in fact be written. What is important is that there always seems to be a remainder, a silent fragment—in this case a sentence (*a* key) inexplicably left out of a preface—left over. What is more important is that it is here, within a space that should be silent, where Wittgenstein believes value comes into the world.

It is within this space that I would like to approach the questions surrounding the *Challenger* explosion. These questions—"Where were you when...?"—are curious in the sense that while answers are given, the question always remains. As well, the question implies an active audience; one who not only listens or reads but is pressed for a reply. Questions create an active engagement with the material and an ongoing process whereby it is never guaranteed that there ever will be consensus or the arrival at a final explanation. What it is that motivates these questions to be asked in the first place is, I believe, precisely the intersection of the private and public nature of these events; that is, the improbable or illogical fit between individuals and history.

It is the motivation behind the "Where were you when...?" questions, and not the questions themselves, which is problematic. And if Wittgenstein is right, about the need for silence about that which we cannot speak, then the questions are an indirect way of addressing the problem. In a quite playful section from the *Tractatus*, Wittgenstein addresses the problem of questions and answers:

> 6.5 When the answer cannot be put into words, neither can the question be put into words.
>
> The *riddle* does not exist.
>
> If a question can be framed at all, it is also possible to answer it.
>
> 6.51 Scepticism is not irrefutable, but obviously nonsensical, when it tries to raise doubts where no questions can be asked.
>
> For doubt can exist only where a question exists, a question only where an answer exists, and an answer only where something *can be said*.

But here Wittgenstein seems to cross over the limit into non-sense:

> 6.52 We feel that even when all *possible* scientific questions have been answered, the problems of life remain completely untouched. Of course there are then no questions left, and this itself is the answer.

Of course, 6.52 contradicts 6.51, which directly precedes it. If the fact that there are no questions left, is the answer, then the existence of an answer—by itself and on its own—should dictate that further questions will follow; or, by necessity, will have to be created. But Wittgenstein also points out another contradiction: that an answer *always precedes* the question. I do not think that Wittgenstein is merely commenting on an individual's momentary lack of knowledge and subsequent deferral to expertise ("I do not know but someone else will") but that knowledge is always a 'limit' and the answer (or part of it) is deferred or exists as a silent remainder.

Roland Barthes is reputed to have said that every narrative begins with an explosion.[25] This analogy seems particularly relevant here for it is only from the leftover and silent fragments that questions can be formulated and a narrative put together. And like any good detective novel, pleasure comes less from the eventual solving of the crime than from the process whereby the evidence and facts are sifted through, interrogated or ignored, and brought together.

Public events in the late twentieth century happen, and happen regularly, with an explosive and overwhelming melodrama. Events are real. That is they have real and material causes and consequences and we generally believe that a thorough and objective analysis is capable of reconstructing the event to a degree that the primary cause can, theoretically, be found. In this sense, the answer is always there and it precedes questions of 'why' and 'how.' But what happens when an event is of such magnitude or holds public interest to such a degree that it gets taken up as an object of public discussion? The assassination of John F. Kennedy (1963), the explosion of the space shuttle *Challenger* (1986), the video-taped beating of Rodney King (1993), and the fatal automobile crash that claimed the life of Princess Diana (1997) are events which, through their entrance into various forms of discourse, seem almost unresolvable. Is this act of public discussion

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[25] I heard this comment made in a lecture at McGill University in 1997. I have yet to find the original quote in my own research and I have asked the person who originally made the statement, who, as it turns out, was already looking for the original source on behalf of another person. So far that original source cannot be found, if indeed it even exists. If Barthes didn't say it, he should have.

similar to Durkheim's act of naming? does the event become irretrievably changed in some way so that motives, causes and answers become unidentifiable or, at least, secondary? These events seem to become so crossed and confused with the various discourses that take them as their objects that questions such as 'why' and 'how' take precedence over the many answers which follow.

The event in question enters a different realm, one which is complimentary to Durkheim's 'society;' where the description and discussion becomes an active participant in the investigation but also alters what it is describing. At the same time, however, the event enters into private discourse—the level of individuals—and is displayed, remembered and interrogated there. If we recall the epistemological problems previously raised, it would seem that any attempt by an individual to understand matters of a 'societal' nature must be, from the outset, deficient. This is not problematic if the purpose of these investigations is not definitive (with an answer as the primary goal) but focuses on the 'process' or the investigation itself. My interest here is to use the possibility of *not* being able to 'know' or, in the tropological space of Wittgenstein's "silence," use the idea of incomprehensibility as a method for understanding the interaction of public and private discourses that are seen penetrating and surrounding historical events:

> [T]he "mystical" for Wittgenstein is not some transcendental realm of reality beyond experience, but an immanent realm of reality *in* experience that is beyond the reach of language. To attempt to discuss the undiscussable is pretentious. To pretend it doesn't exist is unphilosophical.[26]

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[26] Daniel Kolak, "Translator's Introduction," p. xix.

Chapter 2

Tuesday, January 28, 1986; Part I: ("Objects of Discourse(")

On Friday, December 27, 1996, more than a decade after the explosion of the space shuttle *Challenger*, the FAS (Federation of American Scientists) created a guestbook for their Space Policy Project website to allow visitors to record their memories of where they were and how they felt when they first heard the news of the explosion. As of October 27, 1997 the guestbook has received over 230 replies from individuals primarily located in the United States:[1]

> I was sitting upstairs in the Student Union with some friends when someone ran by saying the space shuttle had just blown up. I remember heading downstairs to the Presidential room where there was a big screen tv. A small crowd had already formed as I joined to watch the newsbrake. Dan Rather was speaking and I could tell something had happened but as I watched the footage I saw the Challenger lift off and head for space. I remember thinking they must be wrong, everything seemed so normal, like the many other liftoffs I had seen before. So routine. Then suddenly, without warning, a huge fireball and white cloud. I felt my body shutter and heard the short gasps of breath from around the room. A girl in front of me began to cry and ran out of the room. I felt tears stream down my cheeks, but I stood there and watched. Hour after hour I stood there and watched.Steve Correa doc.cowboy@juno.com Tucson, Az USA - Thursday, January 02, 1997 at 13:30:43 (EST)

> My family was stationed in Okinawa, Japan at the time. My dad came into my room at 3am, told me to turn on the TV, then left just as suddenly. I turned it on to see the Y-shaped cloud left from the explosion and heard a bunch of stuff about the shuttle, how shocking it was, unprecedented, etc. For twenty minutes, no one said what happened or showed the video, so I was thinking that we had made first contact or something. It wasn't until about a half-hour later that they finally said what had happened and replayed the event. Bill Rehm barehm@mmm.com Austin, TX USA - Thursday, January 02, 1997 at 15:15:06 (EST)

> I remember I was in third grade at the time that it happened and it was like any other normal day in school. Everyone was excited because we all knew a teacher was going into space and a teacher at my school which was Lindbergh Elementary had submited an application to try and be on the shuttle. I remember walking to a classroom where a few classes were joining to watch the launch. The space shuttle launched and all of us

[1] Space Policy Project of the Federation of American Scientists (FAS), "Challenger Accident: Where were you when you learned of the Challenger accident?" [http://www.fas.org/spp/civil/sts/guestbook.html]. Guestbook maintained by John Pike. Created Friday, December 27, 1996 - 7:29:43 AM. Additional replies to the FAS guestbook are contained in Appendix 1. These replies, as well as other sources which come directly from the Internet, have not been corrected or otherwise altered.

were excited to watch. Then all of a sudden there was a big cloud of white smoke and a Y was made in the sky. I don't think anyone said a word for a while, we were all just stunned. Its amazing how I remember the whole event like it happened yesterday.Keith Wozniak bucky@buffnet.net Kenmore, NY USA - Thursday, January 09, 1997 at 17:20:18 (EST)

I was less than a year out of college when it happened. One of our technicians walked in and told me. "Oh?" I said, waiting for the punch line. I thought he was telling a joke. "No, really, I just heard." Afterwards, we went around telling each other that even so, if they asked us, we'd go in a heartbeat. The chance to travel in space was worth the risk. Our bravado soon faded when we found out the chain of events that led to the disaster. It suddenly became an accident waiting to happen. People made decisions, and sometimes those decisions are wrong. Challenger met the Titanic. We are reminded again that technology, while making our lives easier, cannot replace good judgement. Tom Busch tomb@kiva.net Naval Surface Warfare Center Crane, IN USA - Friday, January 10, 1997 at 09:17:24 (EST)

I was 31 years old and at work when one of my friends got a call from his wife saying that the shuttle had exploded. Very quickly the normally busy room fell quiet. Then the speculation began. We didn't know about the weather conditions at launch-time. We just knew a shuttle had exploded and 7 people were dead. I remembered how I'd felt when many years earlier when astronauts Grissom, White, and Chaffee died in the Apollo fire. Reaching for the moon, they'd found heaven instead. Days after the Challenger disaster more information was coming out about the cold, the O-rings, the decision to launch in spite of the warnings. That's when the rage came. I remember the sadness and the rage. Paul Stevenson Glendale, AZ USA - Sunday, January 12, 1997 at 11:13:13 (EST)

After working the night shift supporting testing on another Shuttle, I slept in the morning of the 28th of January,1986. Awakened by the alarm clock, I flipped on the TV just in time to see the lift-off of 51-L. After watching the first 30 seconds, I stepped outside my Orlando home to watch the ascent. I remember how cold the concrete felt on my bare feet. Emerging above the trees were two beautiful, strange corkscrewing contrails. It took a few microseconds to realize something wasn't right. Rushing back to the tv, I'll never forget those words "..obviously a major malfunction." as the image of the debris raining into the ocean was burned into my memory. I kept waiting for Challenger to emerge from the smoke and glide safely to an RTLS landing. The next day we began the investigation.. Richard Rogers Richard.Rogers-1@kmail.ksc.nasa.gov KSC, Fl USA - Tuesday, January 14, 1997 at 13:26:04 (EST)

I was a room service waiter at the Arizona Biltmore hotel in Phoenix AZ. I was just entering a guest room with a plate full of breakfast food, when the shuttle was in its last 10 seconds of countdown. As I came in, the guest quickly invited me to stick around and watch the launch. I thanked him and stood by. We watched the shuttle take off and we both made small talk about how incredible it was. I was just about to leave the guests room when Challenger boosted to 104%. We were both left there in awe. Neither of us wanted to say out loud what we had just seen. My mouth dropped open and we simply stared. He said something first -- "Oh my God." I instantly ran out of the room, back to the kitchen and told everyone that the shuttle had just blown up. At first no one believed me, but it only took a few seconds for them to realize I was telling the truth. We ran to an empty room and watched the news on TV. It was a day that I'll never forget. Ron Douglas rondo@microsoft.com Seattle, WA USA - Tuesday, January 14, 1997 at 16:18:34 (EST)

I remember the day the Challenger exploded very clearly. I had never taken too much interest in the Space Program before, really, so it was just any other take-off as far as I knew. I was sitting in my literature class (I think I was wearing something green--girls always remember what they were wearing when something big happened) and the principal came over the loudspeaker and asked for a moment of silence; that the space shuttle Challenger had just exploded. I remember I felt like crying, because I immidiately thought of the friends and families of the crew members and how they had probably just watched their loved ones die. I may have only been 12 at the time, but I knew I would never forget that moment; I would remember it the way my parents remember Kennedy being shot. Dammit, now I feel like crying . . . Kelly kmdonoh@acadcomp.cmp.ilstu.edu Normal, Il USA - Wednesday, January 15, 1997 at 21:06:46 (EST)

The specific day which these recollections speak about is, of course, Tuesday, January 28, 1986: the day the space shuttle *Challenger*, code named STS 51-L, exploded on television screens across the globe. The space shuttle is the world's first reusable spaceship and helped to firmly establish the United States as the leader in rocket technology and manned exploration of space. But at the time of the explosion in 1986, NASA's shuttle program was becoming a victim of its own successful flight record and public relations program. With over a decade of development and a budget nearing 10 billion US dollars, shuttle missions were, in the minds of the tax-paying public and their government leaders, becoming routine. Gone were the days when launches were broadcast around the world, and sending astronauts into space, and especially to the moon, was a source of national interest and prestige.

In 1970, with the moon missions seemingly at their height, NASA found itself at a crossroads. The space race—a symbolic offshoot of the Cold War—was winding down and the arrival of a new decade brought with it a host of public concerns which, rather than being caught up in the idea of space conquest, were directed towards more earthly matters. The shuttle program was born in this era of concern over Vietnam and more domestically-orientated anxiety over education, poverty, racial relations and a sagging US economy. As well, the shuttle program, as it was conceived at this time, only made the flagging public interest—which was already noticed in the latter stages of the Apollo program—more acute. The whole concept and design of the shuttle was intended to make space travel a banal and common occurrence. NASA had been forced to give up the moon and Mars as 'targets' for manned space flight due to the cost of such ventures and a

change in 'national priorities.' The shuttle, consequently, was designed for limited, low altitude orbits around earth, the ferrying of commercial and military payloads, and would play a major role in the implementation of a US space station. This required a fleet of re-usable shuttles that would fly regularly—even weekly in one NASA estimation. In an analysis made by outside consultants in the early seventies, the shuttle program would begin to pay for itself if it made maximum use of its commercial payload capacity and flew a minimum of thirty flights per year.

By the early 1980s, this scenario seemed to have been realized. In the words of President Reagan, the space shuttle guaranteed the United States "safe, routine, and cost-effective access to space,"[2] an image which does not lend itself to live television coverage and, at times, was not considered newsworthy enough for inclusion on the evening news. But for political reasons this was the public image that a US space program, if it was to exist at all, had to maintain; an image that NASA had constructed for itself from the very beginning. On January 5, 1972, another Republican President, this time Richard Nixon, echoed the 'safe but routine' sales-pitch which NASA administrators had been making to him for the previous two years:

> I have decided today that the United States should proceed at once with the development of an entirely new type of space transportation system, designed to help transform the space frontier of the 1970s into familiar territory, easily accessible for human endeavor in the 1980s and 90s.[3]

By 1986 and after twenty "operative" launches and only four "test" launches, the space shuttle or 'Orbiter system' had a seemingly flawless record and proved that it could carry out missions which no unmanned system could have ever done. It had launched twenty five commercial satellites and the European Spacelab, repaired two malfunctioning satellites while in space and salvaged two others. If space travel had become routine this was the face which NASA would continue to paint for itself and, through its public relations, put to good use.

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[2] Claus Jensen, *No Downlink: A Dramatic Narrative about the* Challenger *Accident and Our Time.* Trans. Barbara Haveland. New York: Farrar, Straus, Giroux, 1996; p. 3.

[3] Claus Jensen, *No Downlink.* p. 139.

Space, at least that area limited by low-altitude orbits, was no longer the 'frontier' that it once was. By projecting the image of space as "familiar territory" NASA could no longer rely upon the inherent danger and unpredictability of its launches to garner public interest and ensure support in Congress and the White House. The characterization of space flight as 'safe and routine' also had its effects on one of NASA's most symbolic assets: the astronauts. Figures like John Glenn and Neil Armstrong possessed all the mythic and, at times, contradictory traits which Americans believed represented their nation as a whole. Above all, these were individuals—daring and selfless mavericks who were willing to take calculated risks and put their lives on the line—but, in a characteristically American way, not above their duty to God, family and nation. As test pilots, they were the product of intense mental and physical training and especially military discipline; models that every American 'boy' could aspire to and whose exploits brought the admiration of every citizen. But the Orbiter program was based on an entirely different model and, as Claus Jensen has noted, lowered the standards for astronaut selection:

> The space shuttle has brought about the democratization of the astronaut corps. The physical stress to which astronauts are now subjected is only a fraction of what earlier astronauts had to withstand. Thus it is no longer necessary to use supermen in peak condition. Almost anyone can now get into the act.[4]

As space was no longer a 'frontier,' the US space program shifted from a model based on exploration to one of colonization. This dictated that a new type of astronaut was required; that is, a series of new astronauts with specialized skills and knowledge to match the commercial and scientific payloads which the shuttle was to carry to space. Test pilots were still required to command and fly the shuttle but now career astronauts included a mixture of physicists, medical doctors, and engineers who were needed to fill the newly created job of Mission Specialist (MS).

In order to focus attention on the 'democraticization' of the astronaut corps, NASA created the Teacher-in-Space Program (TISP) in 1984. Christa McAuliffe, a thirty-seven-year-old high school teacher from New Hampshire and mother to two was selected by NASA from 11,000 other

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[4] Claus Jensen, *No Downlink*. p. 4.

applicants to be the first 'civilian' in outer space. McAuliffe was to stand as proof that the shuttle could safely transport ordinary citizens into space and, perhaps more importantly, renew public and media interest in NASA.

Technically, McAuliffe was not the first civilian to climb aboard the shuttle. The title of Payload Specialist (PS) was created for representatives of one of the many commercial and research organizations under contract with NASA. Although the criteria for what actually constitutes a PS is somewhat vague, most who flew under this designation accompanied scientific cargo where their expertise and specialized knowledge was required. Gregory Jarvis, who also was part of the crew of 51-L, was a forty-one-year-old electrical engineer from Hughes Aircraft Company. However, the role of PS was widely regarded as political, as is evident even in the following quote from a technical manual on the shuttle by Jane's Publishing[5]: "Many payload specialists are flying as a result of a NASA sales ploy under which some potential customer companies or nations are offered a seat on the flight for a payload specialist of their own choosing."[6]

Even if we include these highly specialized civilians as astronauts, Christa McAuliffe was still not the first civilian to be part of a shuttle mission. VIPs had already made the trip into space. In June of 1985, the Saudi Arabian, Prince Sultan Salman Abdul Aziz Al-Saud was included as a payload specialist on board the shuttle *Discovery* (STS 51-G) after NASA had received an Arabian order for an expensive satellite system. Al-Saud, at age 28, became the youngest person to be launched into space by the US space program, but other than gracing the mission with his 'royal' presence, his duties were rather dubious:

> Al-Saud conducted 70mm photography of the south-western region of Saudi Arabia, photographed Orbiter thruster plumes and assisted [French astronaut Patrick] Baudry in the postural experiment. The Muslim astronaut also tried to observe the crescent new moon with the unaided eye as it became visible close to

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[5] Jane's Publishing Company, based in London, publishes a variety of technical manuals and popular books documenting military and experimental hardware from around the world. Books are usually arranged by topic and include military aircraft, tanks and artillery, submarines and naval ships, bombs and missiles, and even land mines.

[6] Tim Furniss, *Space Shuttle Log.* London: Jane's Publishing Co.; 1986. p. 89.

> the western horizon imediately [sic] after sunset on June 17, at the end of Ramadan, the Islamic religious holiday.[7]

Two powerful American politicians had also made the trip: Senator Jake Garn and Congressman William Nelson.[8] Garn, a former navy pilot, was the Republican chairman of the Senate Appropriations Subcommittee—the committee which overseas the budget of NASA—and had been lobbying for a space on a shuttle mission for over a year. NASA's approval of Garn as a payload specialist on STS-51D (April, 1985) was publicly known and widely criticized; one newspaper cartoon depicted Garn floating inside the Orbiter, saying: "That's one small step for me, one giant leap towards NASA getting its budget approved."[9]

While people like Al Saud and Garn could hardly be considered as ordinary citizens, they were, at the same time, not astronauts. Their inclusion in shuttle missions were blatantly political moves on the part of NASA and as such could not form the basis of a major public relations campaign outlining the 'routine' of space travel.[10] There is some credibility then to the belief that McAuliffe was the first *ordinary* citizen to be selected for space travel; that, as Constance Penley has noted, she "was selected for her representative mediocrity and *knew it.*"[11] But this conception of mediocrity, as it turns out, is a very peculiar and specific one. In addition to meeting NASA's goals for the Teacher-in-Space Program it also fit with the views of the Reagan administration and their desire to have the presidency appear to care about and believe in those who were in 'the front lines' of the American educational system.

By 1984, when the first plans for sending an ordinary citizen into space were being set in place the idea was to select an accomplished American journalist who regularly covered space and science; someone who was not only a civilian but one who could effectively communicate his or her impressions to the American public. The role of ordinary citizens in space was there almost from

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[7] Tim Furniss, *Space Shuttle Log*. p. 74.

[8] Claus Jensen, *No Downlink*. p. 198.

[9] Tim Furniss, *Space Shuttle Log*. p. 68.

[10] Unless, of course, we take political patronage as a routine occurrence.

[11] Constance Penley, "Spaced Out: Remembering Christa McAuliffe," *Camera Obscura* 29 (May 1992); p. 180.

the beginning of the shuttle program. NASA had planned for its crews to include passenger observers (POs) once the shuttle had become fully operational. In keeping with the notion that space had finally changed from an unknown and dangerous frontier into a familiar place to explore and colonize, NASA was following a pattern typical of the colonization of a new land. Just as with the colonization of the New World and the American West, artists and later photographers were among the earliest travelers sent by various commercial concerns to record their impressions for potential settlers who would, hopefully, arrive later. NASA's category of passenger observers was to include just such an array of 'specialized' citizens—writers, broadcasters, artists and photographers—whose role was itself symbolic and whose work would be to symbolically represent the possibilities of the new land.

By 1984, however, the campaign to re-elect Ronald Reagan for a second consecutive term was in place and opinion polls showed the widespread belief that the President was soft when it came to education and was well on his way to leaving the whole US educational system in ruin. Campaign strategists and then the White House itself insisted that the first ordinary citizen be a teacher. On August 27, 1984, Ronald Reagan publicly announced the creation of TISP in a speech on education at Jefferson Junior High School in Washington:

> Until now we hadn't decided who the first citizen passenger would be. But today I am directing NASA to begin the search in all of our elementary and secondary schools and to choose as the first citizen passenger in the history of our space program one of America's finest—a teacher.
>
> When the shuttle lifts off all of America will be reminded of the crucial role that teachers and education play in the life of our nation. I can't think of a better lesson for our children and our country.[12]

Evidently, in their rush to organize this major speech on education and, by introducing TISP, remind America of the crucial role that teachers and education play in the life of the nation, Reagan's campaign officials forgot that this date fell in the latter stages of summer vacation. But

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[12] Malcom McConnell, *Challenger: A Major Malfunction*. New York: Doubleday, 1987; p. 102.

campaign organizers managed to collect enough students from the surrounding area to make the speech appear convincing.[13]

From the beginning, TISP was a carefully choreographed media relations program and one which had to serve a multitude of different priorities, interests and definitions. Clearly, the successful candidate would not be merely ordinary but somehow, *extra*-ordinary. As Penley points out, McAuliffe exemplified what has been called "the American tradition of Republican Motherhood:"[14]

> In NASA's view McAuliffe was perfect, the all-American girl next door, pretty but not too pretty, competent but not overly intellectual, a traditional mother and teacher whose lawyer husband was her high school sweetheart. She led a Girl Scout troop, volunteered all over town, and taught catechism.[15]

Penley's description, taken out of the larger context of her essay, may seem overly simplified especially when we think of the many and sometimes conflicting interpretations of McAuliffe which surfaced at the time and over the last decade. In her essay, Penley is careful to point out that TISP was sharply protested by U.S. education leaders[16] and was widely regarded as a transparent political and media relations move. However, the same program criticized by education leaders generated, in the space of only two months, over 11,000 applications from teachers working across the United States.[17]

Conditions of Discourse

That conflicting interpretations of a public relations campaign should exist is not surprising. But this fact should not be attributed to a poorly conceived media program on the part of NASA or the

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[13] Claus Jensen, *No Downlink*. p. 215.

[14] Constance Penley, "Spaced Out," p. 180. Penley borrows this phrase from Elaine Tyler May's "Explosive Issues: Sex, Women, and the Bomb," in *Recasting America: Culture and Politics in the Age of the Cold War*. Chicago: University of Chicago Press, 1989.

[15] Constance Penley, "Spaced Out," p. 180.

[16] Constance Penley, "Spaced Out," p. 180.

[17] Claus Jensen, *No Downlink*. p. 215.

Reagan administration even though that is likely a contributing factor. According to Michel Foucault, any object of discourse—in this case Christa McAuliffe—exists under and is prefigured in a set of complex relations:

> The conditions necessary for the appearance of an object of discourse, the historical conditions required if one is to 'say anything' about it, and if several people are to say different things about it, the conditions necessary if it is to exist in relation to other objects, if it is to establish with them relations of resemblance, proximity, distance, difference, transformation—as we can see, these conditions are many and imposing.[18]

A discursive object appears to be heterogeneous and, at times, contradictory. For Foucault, the conditions of discourse can be treated as "an obscure set of anonymous rules"[19] whereby discursive objects and the strategies by which they are articulated are, in effect, constructed in advance and governed "by rules that are not all given [over to] consciousness."[20]

It is evident that NASA and the White House had slightly different motives for constructing the role which McAuliffe would ultimately represent. NASA was, especially at that time, looking to please the current White House administration which controlled its financial situation. A situation which had seen less and less public money devoted to NASA and the shuttle program. The Reagan White House, in addition to its desire to be seen as dedicated to education, wanted to distance the past popularity of NASA from the popularity of the Democratic presidency of John F. Kennedy; consequently, the potential popularity of a continued program of manned space travel—specifically the shuttle—would then be associated with a Republican administration. Both NASA and the White House had a keen eye on the US voting public who had become apathetic towards the space program and grown weary of large military and space budgets.

The role devised for McAuliffe would have to serve the interests of these two organizations and appear, at the same time, natural and seamless. But, as Foucault has noted, a discursive object

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[18] Michel Foucault, *The Archaeology of Knowledge and the Discourse on Language*. Trans. A.M. Sheridan Smith. New York: Pantheon Books, 1972; p. 44.

[19] Michel Foucault, *The Archaeology of Knowledge*. p. 210.

[20] Michel Foucault, *The Archaeology of Knowledge*. p. 211.

cannot only exist under conditions that are solely "negative" or attached to an institution whose power attempts to conceal its hidden motives. Its efficient operation would necessitate that it also possess "positive" connotations. Like any public relations campaign, the Teacher-in-Space Program would have to ride on public opinion; that is, it would have to be carefully designed to align itself with certain aspects of public sentiment while avoiding associations with any issues that could have negative repercussions. What Christa McAuliffe had come to mean—to NASA, to the Reagan White House, and to that complex entity collectively known as 'the public'—lay outside the control of any one agency and was, itself, prefigured in the larger groupings of meanings that circulated throughout society even before the creation of TISP:

> ...the object does not await in limbo the order that will free it and enable it to become embodied in a visible and prolix objectivity; it does not pre-exist itself, held back by some obstacle at the first edges of light. It exists *under the positive conditions of a complex group of relations.*[21]

McAuliffe was, as many people were aware at the time, a simple media relations ploy. However, the "positive conditions" from which her role came forth provided a means for many to interpret her differently. These interpretations were prefigured in events from the past—the 'great leap' of Armstrong's historic first step on the moon, the American tradition of transforming an unknown frontier into a space suitable for habitation—which seemed destined to be repeated in the future. Perhaps it was this excitement and symbolism that TISP seemed to embody which overshadowed the political motivations behind its creation, and likewise motivating over 11,000 people to take the time to apply for McAuliffe's job. But this is precisely the way which social power, according to Foucault, manifests itself: one complex group of relations (the negative) obscured by another (the positive).

Looking back from a position privileged by historical hindsight, the role of Christa McAuliffe—while complex and contradictory—seems almost self evident. Here, the superior vantage point of the historian would allow a disinterested or objective view from which to disentangle the various

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[21] Michel Foucault, *The Archaeology of Knowledge*. p. 45 (emphasis added).

discourses set in motion by TISP. But the fact remains that Christa McAuliffe was, right from the beginning, subject to differing interpretations. More importantly, McAuliffe's role depended upon discursive elements which preceded her, making her an historical object even when she first appeared on the scene.

There are times when Foucault's analysis can become too unwieldy; discourse, it seems, is everywhere: everything is constructed by discourse and its unwritten rules. This would hold true for the analysis itself: the privileging of an historical interpretation as somehow superior to any interpretation which took place at the time. If we take an object, an object of discourse, we see that within every fold and in every recess discursive formations have attached themselves. The discursive object is not, simply, a spherical surface or otherwise pristine; it is composed of material doubled over and parts turned back, pleats and tucks which provide the necessary folds for discourse to embed itself. What is more, these discursive elements help, as Foucault points out, to make it possible for the object to come into existence in the first place. The standard procedure is to investigate the object and then work backwards; therein uncovering the various discursive threads which brought the object into existence. But we could also expect that the object, during the time before its specific presence is noticed, could be anticipated; growing from the diverse mass of elements and relations only to be realized at some future date and in some coherent form.

Like an object of discourse, any material object loses detail and gains simplicity when viewed from a great distance. Discourse, then, may rely on distance for its success and smooth, unnoticed operation. Foucault begins from a distance and moves backward, an archaeology of the past, and asks: "... how is it that one particular statement appeared rather than another?"[22] The statement whose appearance Foucault wants us to question precedes the analysis, but what of the analysis itself? Surely, it would be wise to consider the discursive formations which not only construct objects *in the past* or *at the time* but construct them retrospectively—in the present and looking

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[22] Michel Foucault, *The Archaeology of Knowledge*. p. 27.

backwards—and ask: "... why is it that this particular statement appears rather than another... and what ties, if any, are there between these kinds of statements and those which appeared at the time?"

Again, as with Durkheim, our analysis turns to circularity just as the Indo-European root (*kers*) and the Latinate form (dis-, 'in different directions,' and *currere*, 'to run') of the term itself would necessitate. But this move was anticipated by Foucault himself when he stated that his analysis was, and could not otherwise be, "a discourse about discourses:

> ... but it [Foucault's own discourse] is not trying to find in them [traditional discourses] a hidden law, a concealed origin that it only remains to free; nor is it trying to establish by itself, taking itself as a starting-point, the general theory of which they would be the concrete models. It is trying to deploy a dispersion that can never be reduced to a single system of differences, a scattering that is not related to absolute axes of reference; it is trying to operate *a decentring that leaves no privilege to any centre*.[23]

Thus, while acknowledging that his work *is* a discourse, Foucault believes that his abandons one of the fundamental aspects of discourse in general: the reliance of authority upon a transcendental origin or truth. "This supreme antiteleologist," as Hayden White describes him, "resists the lure of any definitive ending, just as he delights in beginnings that open in 'free play,' discoveries of paradoxes, and intimations of the folly underlying any 'will to know.'"[24] Knowledge, or 'the will to know,' is for Foucault intimately tied to power and the attempt by discourse to conceal that power. Resistance to closure is perhaps one of the defining elements of Foucault's own discourse and, I believe, one of the defining elements of the many interrelated objects (of which Christa McAuliffe is just one) of the *Challenger* disaster.

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[23] Michel Foucault, *The Archaeology of Knowledge*. p. 205 (emphasis added). As Hayden White points out, Foucault, in his conclusion to *The Archaeology of Knowledge* adopts the voice of his 'imagined' detractors and analyses his own discourse: "*Discourse* is the term under which (Foucault) gathers all of the forms and categories of cultural life, including, apparently, his own efforts to submit this life to criticism." (105) My use of the etymological roots of the term 'discourse' come from White and this same page. See Hayden White, "Foucault's Discourse: The Historiography of Anti-Humanism," in *The Content of the Form: Narrative Discourse and Historical Representation*. Baltimore and London: The Johns Hopkins University Press, 1987; pp. 105-141.

[24] Hayden White, "Foucault's Discourse," p. 107.

It would be simplistic, however, to think that Foucault does not make any claim to authority or that the resistance to closure or any definitive ending is also a denial of authority. In the conclusion to *The Archaeology of Knowledge* Foucault assumes a counter persona or the role of his imagined detractors and interrogates himself and his own authority: "... what then is the title of your discourse? Where does it come from and from where does it derive its right to speak? How could it be legitimated?"[25] While Foucault admits that this line of questioning "embarrasses" him more that their (or his own) earlier questions, he does not provide a specific or detailed answer. The questions are posed in such a way that they seek the very things which Foucault is trying to distance himself—and his discourse—from. Foucault cares little if his interpretations of the past are valid, whether his statements of fact are either true or false, or if his reconstructions of the historical record are indeed plausible. Seeking a 'title' or an 'origin' from which to derive authority goes against Foucault's intentions:

> ... [he] denies the concreteness of the referent and rejects the notion that there is a reality that precedes discourse and reveals its face to a prediscursive "perception." ... Foucault sets the free play of his own discourse over against all authority. He aspires to a discourse that is free in a radical sense, a discourse that is self-dissolving of its own authority, a discourse that opens upon a "silence" in which only "things" exist in their irreducible difference, resisting every impulse to find a sameness uniting them all in any order whatsoever.[26]

The silence which for Wittgenstein signified the end of logical language and the beginning of the mystical—which is beyond speech but not beyond experience—is the beginning for Foucault's discursive utterance: "It is an attempt... to show that to speak is to do something—something other than to express what one thinks; to translate what one knows, and something other than to play with the structures of language (*langue*)."[27] By denying the "concreteness of the referent" Foucault is rebelling against that form of discourse which "hide[s] its origin in a play of signifiers that are their own signifieds."[28] That is, they do not so much point out their claim for 'truth' as

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[25] Michel Foucault, *The Archaeology of Knowledge*. p. 205.
[26] Hayden White, "Foucault's Discourse," pp. 108-109.
[27] Michel Foucault, *The Archaeology of Knowledge*. p. 209.
[28] Hayden White, "Foucault's Discourse," p. 109.

they *point out themselves pointing out* their claim for truth. Like Wittgenstein's "eye and the visual field," where the eye is a necessary condition for there being a visual field but the eye itself cannot be deduced from the field's existence, authority cannot be claimed simply because it can see itself making that claim.

From whence does Foucault's authority finally come? According to White the authority for Foucault's discourse comes from its (or his) rhetorical style; specifically the literary trope of catachresis: "his own discourse stands as an abuse of everything which 'normal' or 'proper' discourse stands. It looks like history, like philosophy, like criticism, but it stands over against these discourses as ironic antithesis."[29] Foucault's early work is littered with devices—paradox, oxymoron, irony, neologism—that stand in direct contrast to the clarity of argument and necessity for closure which marks more traditional scholarship. White's understanding of Foucault's rhetorical style as catachretic (in Latin, *abusio*; in English, *misuse*) is appropriate since catachresis depends upon distinctions between the literal and figurative meaning of words or, more generally, the distinction between 'proper' and 'improper' usage; a notion which is, I would add, context-dependent. It is not that Foucault single-handedly created something new, rather catachresis was there all along but was something which traditional discourses of power tried to keep hidden:

> Since for Foucault all words have their origin in a "tropological space" in which the "sign" enjoys a "freedom ... to alight" upon any aspect of the entity it is meant to signify, then the distinction between literal and figurative meanings goes by the board—except as an indication of the power of discourse to constitute "literality" through the application of a consistent rule of signification. This means that all verbal constructions are basically catachretic, inasmuch as no union of any signifier with any signified is "natural" or given by "necessity." Literal meaning, like "proper" usage, is the product of the application of a norm, social in nature, hence arbitrary, rather than a result of the operation of a law.[30]

Interestingly, Foucault's style is not a negation of earlier discursive methods which, based on "a consistent rule of signification," could see themselves standing alone upon a firm foundation of "truth." Foucault's style, hence his authority, is dependent upon that which he is rebelling against;

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[29] Hayden White, "Foucault's Discourse," p. 115.

[30] Hayden White, "Foucault's Discourse," p. 115.

both of which must be visible and in tension. Catachresis or misuse implies a "proper" usage which must be present (or at least understood) if the "improper" is to make sense; to which the "bracketing" of certain words in quotation marks (in the passage from White quoted above and, of course, in *this* paragraph) inevitably points.[31]

Foucault himself defines style as "a certain constant manner of utterance."[32] This is not a style peculiar to Foucault, but belongs to an age or an *épistème* and, as such, is noticeable elsewhere. Catachresis is, as White has called it, "the *ironic* trope par excellence."[33] And irony, as both "a rhetorical trope or a way of seeing the world," has become a widespread and "problematic mode of expression at the end of the twentieth century."[34] Likewise, irony can be seen to play a significant role in the interpretations of Christa McAuliffe and, more generally, in the destruction of *Challenger*. Irony, as a way of simultaneously holding two or more meanings, is a recurrent theme in the *Challenger* disaster or, more specifically, in the way people 'find' meanings in the various objects and symbols associated with the explosion.

As Constance Penley and Patricia Mellencamp argue in their articles on the *Challenger* explosion, Christa McAuliffe was a symbol, a 'vamp in the machine' (to borrow the play on Huyssen's phrase), caught up in the larger world of male bravado which conflates the fear of feminine equality and emerging power with masculine technology. Despite the relevant arguments made by both Penley and Mellencamp we must not forget that their writings also form one of the competing discourses over the body and interpretation of Christa McAuliffe. A discourse which constructs *and* reconstructs its object from/against varied sources and references but this time in the spirit of, for

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[31] Hence the bracketing of the quotation marks in the title of this chapter: (")Objects of Discourse("). The object and its range of possible meanings is, of course, not always so directly 'marked' in the various places where it can be seen.

[32] Michel Foucault, *The Archaeology of Knowledge*. p. 33. In the English translation, this phrase is "a certain constant manner of statement [*énoncé*]." White (p. 109), however, modifies the translation of *énoncé* to 'utterance' because he prefers "the technically more specific, or at least philosophically more familiar, 'utterance,' with its conotative connotations." (See White, "Foucault's Discourse," footnote 1, p. 233.)

[33] Hayden White, *Tropics of Discourse: Essays in Cultural Criticism*. Baltimore: Johns Hopkins University Press; 1978. p. 281.

[34] Linda Hutcheon, *Irony's Edge: The Theory and Politics of Irony*. London: Routledge; 1994. p. 1.

a lack of a better phrase, feminist Cultural Studies. But implicit in both is the room made for other competing interpretations, as is evident in the acknowledgments of Penley's essay:

> I am also grateful to my brother, Hal Penley, who works at Cape Canaveral in the commercial space industry launching god knows what into space on top of Titan rockets. He vehemently objects to everything I have said here. He didn't change my mind on anything but he taught me which buttons are the most interesting ones to push.[35]

The "buttons" which Penley mentions refers to one of the many "sick" jokes which circulated after the *Challenger* explosion (*What were Christa McAuliffe's last words? / "Hey, guys, what's this button?*). Penley's interpretation of the joke and, especially, her reversal of the "buttons" metaphor is dependent upon the tension between her discourse and the patriarchal discourse (most notably as it exists at NASA) which she examines.

From the beginning, Christa McAuliffe was constructed from various viewpoints and perspectives and, remarkably, even before she was selected to participate as the first teacher in space two of her roles were already set into motion by both NASA and the Reagan administration. McAuliffe herself seemed particularly comfortable and adept in recognizing these various discursive formations which would eventually congeal around the role of citizen/teacher in space. In her application for TISP she touched on various, pertinent issues and historical meanings:

> I remember the excitement in my home when the first satellites were launched. My parents were amazed and I was caught up with their wonder. In school my classes would gather around the TV and try to follow the rocket as it seemed to jump all over the screen. John Kennedy inspired me with his words about placing a man on the moon, and I still remember a cloudy, rainy night driving through Pennsylvania and hearing the news that the astronauts had landed safely....
>
> As a woman I have been envious of those men who could participate in the space program and who were encouraged to excel in the areas of math and science. I felt that women had indeed been left outside of one of the most exciting careers available. When Sally Ride and other women began to train as astronauts, I could look among my students and see ahead of them an ever-increasing list of opportunities....

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[35] Constance Penley, "Spaced Out," p. 209.

> Much information about the social history of the United States has been found in diaries, travel accounts and personal letters. This social history of the common people, joined with our military, political and economic history, gives my students an awareness of what the whole society was doing at a particular time in history. Just as the pioneer travelers of the Conestoga wagon days kept personal journals, I, as a pioneer space traveler, would do the same...
>
> My perceptions as a nonastronaut would help complete and humanize the technology of the Space Age. Future historians would use my eyewitness accounts to help in their studies of the impact of the Space Age on the general population.[36]

McAuliffe's application to NASA is traversed with discursive references that, while not in conflict, remain in competition while they settle, almost comfortably, into a cogent argument: the women of the pioneer treks across America, the recent ascent of female astronauts who made it into NASA's elite (while subtly pointing to the system which had earlier restricted them), the pinnacle of NASA's space program under the guidance of John F. Kennedy and the height of the Cold War, the elision of notions of progress with the US space program, and the idea that personal accounts of common people do indeed have a part to play in the greater stories of history. These are themes which later resurface in various ways throughout the story of the *Challenger* explosion and can be detected in many of the responses left at the FAS website. Here, it is interesting to note that these themes, these related forms of discourse which seem to emerge only later, were there from the beginning and are brought together under the general rubric of the individual's role within historical events:

> Christa McAuliffe wanted her spaceflight to show that ordinary people had their part to play in great historical events. She hoped that her pupils would get the message and be seized by enthusiasm for American history, because they themselves would have a hand in it. History was not something beyond them, or above them. They *were* history and could determine which course it should take.[37]

The irony here is that notions of historical participation and eye-witness accounts are problematic. McAuliffe's belief in her role as a pioneer whose journal would some day be studied by future historians—alluding to the diaries, travel accounts, and personal letters of the early US settlers—does not quite fit. She was neither common nor anonymous and the pressure to produce a very

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[36] Quotes from McAuliffe's NASA application originally come from *The New York Times*, January 29, 1986 as quoted in *No Downlink* by Claus Jensen, pp. 216-217.

[37] Claus Jensen, *No Downlink*. p. 218.

'public' journal documenting the "impact of the Space Age on the general population" seemed to have been too great: "After her death it was found that she had made almost no journal entries during her months of training. This should not have been surprising since McAuliffe, by her own admission, was not a good writer, and had writer's block to boot."[38] It could be asked if her journal—whether finished or not—would have been the inheritor of this legacy of historical eyewitness accounts or if the answers to "Where were you when...?" questions properly fit this category. For the event which McAuliffe has most commonly been associated with is one which she herself could not "witness."[39]

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[38] Constance Penley, "Spaced Out," p. 182.

[39] Another of the sick jokes which circulated after the explosion was: *What were the colour of Christa McAuliffe's eyes? / Blue, one blew this way and one blew that way.* Jokes such as this one depend on double meanings not unlike irony and catachresis. 'Blue/blew' is one such doubling but these jokes, especially the "sick" ones, play further on the distinction between proper and improper utterances. I was hesitant to make the association between the 'eyes' joke and the fact that McAuliffe could not be witness to the explosion. I did so, despite the fact that it is distasteful, because I felt it was not only obvious but shows the 'blurring' of the category of the 'witness.' As well, the jokes are, I think, an important counterpart to the "Where were you when...?" replies and cannot be ignored. Another of the jokes points to the issue as to whether McAuliffe would have been as famous if the explosion never occurred: *What subject does Christa McAuliffe teach? / English, but she's History now.* The joke acknowledges that it was her very public death (*she's history*) which made her *into* 'History.' Double meanings or the ironic interpretation is a recurring theme of this entire thesis and the *Challenger* joke cycle will be discussed in Chapter 5.

Chapter 3

Tuesday, January 28, 1986; Part II (Flashbulb Memories)

The term 'eyewitness' implies that a person was present at the scene of an event and could, if pressed, testify that the event took place based on their personal observation. This, of course, would exclude Christa McAuliffe and the other astronauts of the *Challenger*. But the issue is further complicated since the range of eyewitnesses is broad and complex. Many people were there at the launch site the day the *Challenger* exploded due to the historical importance of that particular flight. But because the first ordinary citizen was to be included among the crew, many more were watching the launch on television and saw the explosion 'live.' In practice, there seems to be little differentiation between those who where there and those who were watching on television. But if we look at the question—"Where were you when you heard the news of the *Challenger* explosion?"—both physical presence and watching in 'real time' appear to be irrelevant. And if we look at the responses themselves, those made by people who were not there and did not see it live seem as persuasive and believable as any eyewitness testimony.

Even if we include all the responses as eyewitness accounts, the motivation behind the question does not seem to be a verification of the event. Everyone knows the *Challenger* exploded. Instead, the motive appears to be to find out what was happening elsewhere at that moment in time. Our question then is why should this 'elsewhere' be so important and why has the emphasis shifted from the event of the *Challenger* explosion to the multiple places where the news of the event was heard?

Since the questions exist, so too should the answers. In an attempt to find them, it is necessary to examine the various responses to the "Where were you when...?" questions concerning the

Challenger explosion as they were recorded at the FAS website. In addition, since both the question and the memory concerning the explosion can be thought of as a social or cultural phenomenon, we could expect that it, as well, has a history. Therefore, this chapter will also look at how these types of personal memories have been examined from the standpoint of another discipline—cognitive psychology and the study of autobiographical memory—and how these memories have been constructed as an object of discourse within this discipline.

...

Aside from a few 'false' responses (those which appear because of some sort of computer or input error) and a few which mock or are critical of the project itself, the greater majority of the stories left behind by visitors to the FAS website are distinguished only in their similarity and banality. In fact, the most startling aspect of these stories is their remarkable consistency from one to another. As such, the responses seem to follow a general pattern which could be characterized as follows:

A. *Establishment of the setting,* either geographically (in terms of a different city or country than they are living now) or quite specific (office, home or a specific room).

B. *The age of the respondent* or, as in a great many cases, the educational grade-level of the questionee at the time of the explosion.

C. *Establishment of the meaning of the event,* either in the form of how the individual was or was not interested in the US Space Program or space flight in general. This usually involves general sentiments (that are followed up later in the response) of the importance of 'manned' exploration of space, or the importance of risk-taking in the general progression of human endeavors, technology and education. The general topic of education plays a prominent role, and for many reasons: a majority of respondents were in some educational setting at the time of the explosion, Christa McAuliffe's role created a heightened awareness amongst teachers and school-children of that particular shuttle flight, as well as the generally held view that the space program contributes to the expansion of science and the gathering of scientific data.

D. *Description of the initial shock*; the shock is not only limited to their personal response but many of the responses describe how there was a general feeling of confusion and disorientation; including descriptions of what they thought, alternately, was the cause of the confusion. This

characteristic is most closely aligned with the broadcast of the event over various media and how, upon initial exposure to the media coverage, the details of the event are not entirely clear. Usually, an atmosphere of disbelief is also described (the blank expressions of those around them, shock, or the brief silence in the room).

E. *The proliferation and repetition of symbols* closely aligned with media broadcasts. Many responses usually indicate a sometimes well-known image or sound-bite that they associate with the explosion (the Y-shaped cloud, or the words of a NASA commentator just seconds after the explosion stating: "*Obviously, a major malfunction*").

F. *Meta-commentary*: what the explosion of the space shuttle means and meant in a broader historical sense and how this particular event relates to similar events (such as the assassination of John F. Kennedy). Some give comments on the general characteristics of personal memory during traumatic events; "*...girls always remember what they were wearing when something big happened....*"

These accounts left by visitors to the FAS website can only provide highly specific examples of answers to the question, "Where were you when you heard of the *Challenger* explosion?" From a methodological perspective they are problematic and for many reasons. First, there is no control over who responds; there is no way to control or segregate the respondents into racial, gender, or economic categories. Second, the responses are voluntarily provided and provided exclusively by those with access to a computer and the Internet. This would likely skew the results by excluding those parts of the population who do not possess the necessary computer resources and, since these are voluntary responses, they are likely given by people who already possess an interest in the subject matter. Thirdly, and this may help explain the general consistency of the responses, an account is given after reading those of previous visitors, which provides those who have yet to leave their response with a general framework through which they can tell their own version of the story.

A final problem with the FAS responses is rather straightforward: that is, they are written responses. An assumption about answers to "Where were you when...?" questions and the questions themselves is that their primary form is oral. Unlike their oral counterparts—which can

be thought of as continuous and malleable—the FAS responses are recorded and static. Such problems would normally exclude the FAS responses from inclusion in an empirical study. We could ask, however, if these problems are really that important or if the written forms of response should be conceived as very different from the oral forms. It could be argued that the oral responses are themselves problematic from a position of methodology.

When these answers are given in everyday settings they are sometimes provided to a group of gathered individuals—such as at school or in the office. They will follow previous answers and can sometimes be influenced by them. They are oral and therefore in flux; changeable from setting to setting and may alter over time. In addition, they themselves are in some sense voluntary and, in a way similar to the forum in which the FAS question was posed, take place in an informal and unofficial setting.

If we are concerned with how and why a highly visible and public event enters into both public consciousness and public discourse through the experience and recollection of individuals then, it seems, an important factor is time. Even though the *Challenger* explosion was a major public event which generated an explosion of interest on the part of the media and its audiences, it is also an event which unfolds over time. The FAS responses were collected over a decade after the broadcast of the original event. The question—"Where were you when you heard of the news of the *Challenger* explosion?"—is itself based on the passage of time. That is, implicit in the question itself is that time has passed and that there is the possibility of forgetting.

The explosion of the shuttle was a catalyst around which the memories of individuals collectively form, and then enters and re-enters into discussion. But if we look at the event itself, then we could expect to find that various discourses precede, run through, and follow upon that event, just as with the discussion which surrounded Christa McAuliffe. And if we look closely at the FAS responses, numerous discursive threads become evident: the tragedy of losing seven of 'America's finest' (including Christa McAuliffe), education and scientific exploration, the importance of

progress and the necessary risks which accompany that endeavor, the similarity between the *Challenger* disaster and other catastrophic events (such as the Kennedy assassination), debate over how the seven astronauts actually died, religious sentiments associated with both the explosion and the astronauts, conflicting interpretations as to the cause, and sometimes the expression of anger that the accident could have been prevented.

The FAS responses not only contain details or personal memories of where the respondents were at the time, but also include interpretative and discursive elements given from a personal point of view. We should expect that the oral counterparts of these answers also play a similar role; acting as a catalyst around which various discursive elements come to light, where the event can be remembered, and where interpretations of the event can be shared and discussed. However, the event itself is only the catalyst for what comes after and while it can become the focus of intense scrutiny and debate it can be seen as a symbolic site where various public and private discourses intersect and sometimes conflict.

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Flashbulb Memories

The answers to "Where were you when...?" questions often combine memories of a volatile public event with detailed memories of personal circumstances. These personal memories, often recorded in minute detail, consist of a number of idiosyncratic memories of the type which are usually rapidly and completely forgotten. *I remember how cold the concrete felt on my bare feet. I was just entering a guest room with a plate full of breakfast food.... I was sitting in my literature class (I think I was wearing something green...).*

This detailed personal history has attracted academics concerned with the psychological aspects of memory to such events as the *Challenger* explosion and the Kennedy assassination. In 1977, Roger Brown and James Kulik published what is considered to be a seminal but highly controversial paper

on the subject.[1] Their paper was influenced by a 1973 article in *Esquire* magazine that published the memories of various American celebrities who recalled where they were and what they were doing when they heard the news of Kennedy's assassination. What interested Brown and Kulik in these celebrities' stories was what set these memories apart from the usual manner of memory retention:

> "Hardly a man is now alive" who cannot recall the circumstances in which he first heard that John Kennedy had been shot in Dallas. Not just the *fact* that John Kennedy was shot and died; we remember that too, of course, but we really do not need to since it is recorded in countless places and in many forms. It is not the memory of the tragic news that invites inquiry, but the memory of one's own circumstances on first hearing the news. There is no obvious utility in such memories.[2]

Historical events can be remembered simply as facts. This is not surprising in itself, as much of the information surrounding historical events is recorded, as Brown and Kulik point out, in countless places and in a variety of forms. However, along with the basic information there is a vivid and unintentional recording of the circumstances surrounding millions of people at the time of hearing about the news of Kennedy's death. Believing there to be "no obvious utility" in such memory retention, Brown and Kulik were struck by the surreal qualities of such memories:

> Probably everyone... is primed with an account of his own, which he would rather like to tell, perhaps because there is something strange about this recall. John Kennedy was shot thirteen years ago. What else can one remember from 1963? Almost everyone testifies that his recall of his circumstances is not an inference from a regular routine. It has a primary, 'live' quality that is almost perceptual. Indeed, it is very like a photograph that indiscriminately preserves the scene in which each of us found himself when the flashbulb was fired. But why should the human species have such a flashbulb potentiality? Where is the use in carrying certain scenes in permanent store?[3]

As Martin Conway suggests, these accounts are unusual in three distinct ways.[4] First, they preserve knowledge of personal circumstances when learning of a public event. Second, they are highly detailed and feature knowledge of minutiae not present in most autobiographical memory

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[1] Roger Brown and James Kulik, "Flashbulb Memories," *Cognition*, 5, (1977) pp. 73-99.

[2] Roger Brown and James Kulik, "Flashbulb Memories," p. 74.

[3] Roger Brown and James Kulik, "Flashbulb Memories," p. 74.

[4] Martin A. Conway, *Flashbulb Memories*. Hove, East Sussex: Lawrence Erlbaum Associates (1995): p. 3.

associated with news events. And third, the memories endure in apparently unchanged form for many years and are especially vivid. It is the long-term vividness of these memories which seems the most surprising; as is made clear from the following accounts—given thirty years after Kennedy's assassination—taken from Conway's own research on subjects in the United Kingdom:

> Terry Lancaster, journalist:
>
> I got to the foreign desk and found a scene of amazing confusion and tension. Now I'd given up smoking that day—I gave up smoking fairly frequently—so the moment that I heard that Kennedy was dead I took off my coat and sent my secretary out for three packets of cigarettes.
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> Gerry Anderson, film producer:
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> I was with my ex-wife in a West End cinema when I became aware of something going on behind me and I turned round and I could see people in the back row of the balcony chatting busily to each other and even talking to people in the row in front of them and I guessed that something pretty dreadful had happened—and you know the way today at football matches people create the "human wave" which moves across the stadium? Well in the same way the ripple came down the balcony and eventually I said to the man behind me "What's happened?", and he said "Kennedy's been assassinated."
>
> Derek Waken, teacher:
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> I finished teaching about 4 o'clock and I thought between 4 and 6 I would take some cadets shooting on the range. So we went up with at least 4 if not 8 cadets and a captain of shooting, a young chap called Cameron Kennedy, and against all the rules I asked him if he'd lock up so I gave him the armoury keys, the magazine keys, and the ammunition and I left because the next day was Saturday and there was going to be a film so I thought I'll thread up the first spool now. Suddenly one of the auditorium doors opened, light flooded in and a small boy standing there in silhouette shouted "Sir, Sir, Kennedy's been shot!" With that he disappeared. Then I switched off the light and set off rather slowly, could have been thinking about alibis I suppose, set off slowly for the sort of Matron's area of the school, and I didn't like to ask her directly and so I said "Matron, is there anything I should know?", and she said "Yes, President Kennedy's been shot." Whereupon the weight was off me, I'd got my job back, and I was extremely happy.[5]

Due to the vividness of recollections like these, Brown and Kulik called the memories associated with traumatic events *flashbulb memories* (FMs). Brown and Kulik based their own research on memories of Kennedy's assassination; the assassination, attempted assassination, or otherwise noteworthy events involving eight other political figures; and one surprising personal event.[6] They

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[5] Martin A. Conway, *Flashbulb Memories*. pp. 2-3.

[6] These include Medgar Evers (assassinated June 12, 1963), Malcolm X (assassinated Feb. 21, 1965), Martin Luther King (assassinated April 1, 1968), Robert F. Kennedy (assassinated June 6, 1968), Ted Kennedy (involvement in the Chappaquiddick drowning, July 19, 1969), George Wallace (assassination attempt, May 15, 1972), Gerald Ford (assassination attempt, Sept. 5, 1975), and General Franco (died of natural causes,

theorized that whenever a surprising and consequential event occurs, an imagistic record of personal circumstance is retained. If the episode is rehearsed, that is, if the event is of a nature and import that the individual subsequently relives the moment of occurrence, then a narrative account of personal circumstance is constructed that can later be accessed and shared with others.

From the beginning, Brown and Kulik believed that, from a functional point of view, FMs were irrelevant. They theorized that since there was no utility in FMs, they must have a neurological basis in an ancient encoding mechanism; a mechanism that would have, at one time, played a role in survival:

> Flashbulb memories would have had survival value for our early ancestors because, unlike presidential assassinations, surprising and consequential events were often experienced *directly*. By recording information about concomitant circumstances, including where the event occurred, what activities were ongoing, what emotions were expressed, and what ensued, similar situations could be anticipated and quickly identified, and appropriate actions could be taken.[7]

Brown and Kulik's flashbulb memory hypothesis (FMH) was influenced by Robert B. Livingston's "Now Print" theory; a neuro-physiological theory they "came upon" when about half of their own data had been collected.[8] Livingston's theoretical model proposed that in certain situations the brain followed a process of neuroanatomical steps whereby a complete and indiscriminate memory would be recorded. Livingston's theory, however, was attractive to Brown and Kulik for another reason. One of Livingston's own suggestions for a possible application of the theory was the very subject they were investigating at the time. In what must have seemed an uncanny coincidence to Brown and Kulik, Livingston proposed the following in his paper: "I suggest that almost all of you will remember exactly where you were on November 22, 1963, when you heard the news that President Kennedy had been assassinated. You can probably tell us where you were, with whom,

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Nov. 20, 1975). The 'personal event' could include any unexpected shock such as the death of a friend or relative, serious accident, diagnosis of a deadly disease, etc.

[7] David P. Pillemer, "Remembering Personal Circumstances: A Functional Analysis," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories*. Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press; 1992. p. 241.

[8] Roger Brown and James Kulik, "Flashbulb Memories," pp. 75-76.

and very likely whether you were sitting, standing, or walking—almost which foot was forward when your awareness became manifest."[9]

Livingston's work provided Brown and Kulik with a framework which helped them explain FMs by a process with a neuroanatomical basis. In essence, a surprising or consequential event (measured internally by structures in the brain's limbic system to be "biologically" significant) would trigger the "Now Print" command whereby all previous and contemporaneous brain events would be instantaneously recorded. The final result was a detailed and permanent imagistic recording of the moment when the flashbulb was "fired." The FMH proposes that this is a new type of memory since it is produced under unique circumstances (of surprise and consequentiality), has unique properties (little or no forgetting), and is produced by a specialized biological mechanism.

The Primacy of Evolutionary Time

Brown and Kulik were careful to distinguish between the FM and an *account* derived from a FM. The flashbulb memory, if the event met the requirements for surprise and biological significance, was encoded first. If the event was of such a great importance it would lead to further elaboration and rehearsal—all non-verbal and limited to the individual—and then may be subject to further, verbal elaboration in the form of a narrative account. This verbal account, according to Brown and Kulik's theory, did not alter the imagistic record that was recorded at the time of encoding. Instead, the account would itself be committed to long-term memory and would act as an additional cue by which the unchanging and durable FM could be accessed.

The reason for this, Brown and Kulik argued, was that the special biological mechanism would have had to evolve with the human species. That is, its time was evolutionary time; in order for a mechanism such as this to have evolved, it would have to be subject to Darwin's hypothesis and to

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[9] Quoted in Roger Brown and James Kulik, "Flashbulb Memories," p. 76.

a time interval in the hundreds of thousands of years. Therefore, Brown and Kulik proposed that this special mechanism predated the emergence of human society and the development of skills such as writing or even complex linguistic functions. This was an element which, Brown and Kulik believed, Livingston failed to recognize:

> There is, in the name Livingston had given to his theory, a wonderful and revealing paradox which he, himself, does not seem to have noticed. The theory is named "Now Print!" and it is the nervous system that is supposed, metaphorically, to print. But in fact, of course, printing is done by presses and for newspapers and books. What they print is the central newsworthy event, the assassination or its like. There is no actual need for the human nervous system today to print, or remember, on the basis of one trial, major political assassinations. They are all in the printed record; they are part of history....
>
> What is not anywhere printed is the individual circumstances in which each person first receives the news. Each is, in the concrete, unique and not newsworthy. They cannot be looked up in any book or paper. If they are not remembered, they are lost. But, then, what of that? What need is there today to remember them?[10]

For Brown and Kulik, there was no need to remember individual circumstances as they were just a by-product of this ancient encoding mechanism which, today, has been replaced by technological methods for recording events:

> What surely had to be printed neurologically and put into permanent store was not the circumstances of an unexpected and biologically significant event, but the event itself.... It seems to be an irony of evolution that it is just the central newsworthy events that no longer need to be retained because cultural devices have taken over the job. And today the automatic recording of the circumstances, concomitant to the main event, is what captures our interest and calls for explanation.[11]

For Brown and Kulik, the fact that their empirical research involved accounts of major news events was more the result of methodological practicality rather than an essential aspect of FM formation. By using a widely covered and broadcast event, they could ensure their experiment remained consistent in terms of content for their subjects, while providing a means by which to qualitatively measure the degree of personal consequentiality. No consideration was given to the fact that these events were both social events and mediated events. FMs associated with events happening

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[10] Roger Brown and James Kulik, "Flashbulb Memories," p. 97.

[11] Roger Brown and James Kulik, "Flashbulb Memories," p. 97.

elsewhere and to other people was merely this ancient encoding mechanism acting in an automatic and indiscriminate way. For Brown and Kulik, studying the narrative accounts of an event such as the assassination of John Kennedy was simply a way of seeing this ancient encoding mechanism at work, and provided a means by which they could document, or at least theorize, the underlying neurological mechanisms. Obviously, there was no real use in studying the accounts themselves, because the accounts had no obvious function.

The thesis that flashbulb memories were associated with a specific neurological mechanism proved to be one of the most controversial aspects of their paper. Despite the fact that their research was based within an empirical frame, the ensuing controversy remained essentially within a theoretical sphere. Brown and Kulik's research took place nearly 12 years[12] after the death of John Kennedy and there was no way of providing an accurate measure of the memories collected as there were no groups who were sampled directly after the assassination. In order to verify the results of Brown and Kulik's speculations, those academics studying various aspects of the FMH needed a 'fresh' event; one that could be approached anew, from various perspectives, and in a more controlled fashion. This event came on Tuesday, January 28, 1986.

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Challenger Memories

The *Challenger* explosion seemed specifically tailored for researchers interested in Brown and Kulik's FMH as it possessed many of the critical features required for research into the memory of traumatic events: it was sudden and unexpected, viewed by a large and captive audience (especially the young) and had the possibility to cause a tremendous amount of affect in its witnesses. The research on FMs which followed the explosion was "designed to approach many of

[12] The process of collecting data for their study was completed in 1975.

the questions raised by Brown and Kulik and by their critics,"[13] sometimes using questionnaires which, if not specifically, were generally structured in advance. Unlike earlier studies of the Kennedy assassination, those which came out of the *Challenger* explosion were undertaken within a short time after the event and then, in most cases, repeated several months or years later.

Some of the research on FMs relating to the *Challenger* explosion was gathered together under the *Emory Symposia in Cognition* series at Emory University in February of 1990.[14] The theoretical and empirical focus of the conference looked upon two general areas: accuracy of these memories and their source. The study of accuracy would provide a critical method for verifying the claims alluded to by the flashbulb metaphor; that the memory was retained instantaneously and was highly detailed and precise.

While accuracy was a major topic at the Emory Symposium, the role accuracy played in Brown and Kulik's FMH was a subject of controversy and perhaps misunderstanding. As one researcher sympathetic to the FMH has pointed out, the word 'accuracy' was never used in their original paper.[15] Brown and Kulik invoked the flashbulb analogy to convey how these memories preserved knowledge of an event in a *partially indiscriminate* way, and were careful to note where this analogy was deficient:

> "Flashbulb memory" is a good name for the phenomenon inasmuch as it suggests surprise, and indiscriminate illumination, and brevity. But the name is inappropriate in one respect that had better be brought forward at once. An actual photograph, taken by flashbulb, preserves everything within its scope; it is altogether indiscriminate. Our flashbulb memories are not.[16]

They argued that while FMs did record highly detailed information of personal surroundings and emotions they were incomplete records of experienced events; that is, FMs did not preserve

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[13] Eugene Winograd, "Introduction," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories.* Cambridge University Press, 1992. p. 1.

[14] The proceedings of this conference were reproduced in the volume, *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories.* Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press, 1992.

[15] Martin A. Conway, *Flashbulb Memories.* p. 14.

[16] Roger Brown and James Kulik, "Flashbulb Memories," pp. 74-75.

everything in the perceptual environment, but only selected aspects.

It was already generally known by researchers that memory could not be relied upon for accuracy but the topic of accuracy remained a specific focus of the critical activity surrounding flashbulb memories. The words of two researchers express surprise at this fact: "Why did we make this assumption so readily? As memory psychologists, we were certainly aware of the fallibility of episodic recall in other contexts. All of us know that story recall is richly constructive, that eyewitness testimony is often confabulated, and that there is at best a low correlation between confidence and accuracy on the witness stand."[17]

Accuracy was taken "more or less for granted"[18] in the discussion following Brown and Kulik's publication. Still, the investigation into accuracy was important, if not necessary, for some researchers to dispel Brown and Kulik's special mechanism hypothesis. For if the memories were accurate months and especially years after the time of encoding (during the trauma of the initial event) then the special mechanism proposed by Brown and Kulik would seem plausible. The two general aspects of the research from the Emory Symposium are related: with the investigation of accuracy being used as a benchmark for the tenability of the presence of a special mechanism.

...

I was 6 when it happened. OK, OK, I know what you're all thinking. 'How could you possibly remember something like that?! You were an infant!' I think that this proves just what a momentous event this was. This was MY Kennedy assasination. I can remember excaltly where I was when I heard about it. My mom told me when I woke up to go to school. When I got to school, the atmosphere was completely changed from the day before. Yesterday it had been a place for frolicking kindergarteners. Now, all of us munchkins began to realize that there was an outside world, not everything goes right. The Challenger Explosion was the first event I can clearly remember, because it was the first one that made me think. Greg Pendzick <pendzick@execpc.com> Milwaukee

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[17] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs: False Recollections of Hearing the News About Challenger," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories.* Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press, 1992. p. 10.

[18] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 10.

The line of investigation positing the existence of a special mechanism seems to have been a contentious issue because it is concerned with the highly 'individualistic' and reductionist functions of memory. For Brown and Kulik, as with others, the existence of a special neurological mechanism, and the discovery of its function as an instrument for either coping or survival, is a way to make judgments from the observation of individual subjects and extrapolate the data to explain larger, species-wide questions. As Brown and Kulik state in their paper: "Our collection of informants cannot be considered a random sample of any definable population. We, ourselves, think that the population for which the major results, in abstract form, hold true, may be the human species."[19] When the special mechanism of FMs is discussed, the use of the phrase 'ancient' is meant to convey the belief that this mechanism was a holdover from our early ancestors; a mechanism which at one time was present and is now rendered useless by our highly mediated and artificial environment. It is a sort or reverse evoluntionism—an attempt to recover a pure or innocent state of the human species long lost to modernity and cultural artificiality—and resonates with many other seemingly outdated values: the belief in scientific reductionism, the belief that societal processes are merely the aggregate of many individual phenomena, and a belief that takes as its beginning, *the* beginning, the functioning and importance of the brain of the individual. Looked at in this way, it is not difficult to see why the special mechanism theory was contested by many other researchers; it possesses a certain questionable, if not antiquated, epistemological basis.

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Phantom Flashbulbs

It was my last year in the USAF, on vacation. I remember how cold it was on Coco Beach that morning, and the frustration we had with all the delays. I had to return to duty in a few days and would have been dissapointed if I missed this one. My friend Steve brought along his

[19] Roger Brown and James Kulik, "Flashbulb Memories," p. 78.

video camera. I simply brought along my flight jacket, but I was still shivering, and a portable radio. When the count reached to 0, I remember hearing the voice of Houston control on the portable radio we had. I remember the cheers of the other spectators on the beach, and Steve's comment "Man, there really movin'!" It was a beautiful launch. I saw about 3 others in the past and it looked very much like the others. I remember the contrails turn into a large cloud. I looked again, I just could not believe what I had seen. For an instant I realized, even before the ominious words from Houston "Obviously a major malfunction" billow over the radio, that something went horribly wrong. When I saw the smaller contrails of the SRBs fly out of the cloud, I knew that the space shuttle either exploded or broke apart and the external tank exploded. Regardless of what happened, I had a sinking feeling that those astronauts aboard were finished. Steve continued to film, unaware of what happed. For all he knew, it was a normal part of the launch. I remember him saying "Wooh, look at that! I didn't know it does that!" I looked at him and said "No, the damned thing exploded!" He looked at me and just couldn't believe me. I think it was just the shock of it all. We all had a hard time believeing it. I remember the other spectators, some still smiling, others gasping, I remember hearing someone scream, and still others stood there in stunned disbelief. It is hard to believe that 12 years passed and you can remember these things in such detail. James S. Williams <j_s_will@ici.net> Woonsocket, RI USA - Thursday, July 17, 1997 at 11:41:16 (EDT)

Two researchers at the Emory Symposium, Ulric Neisser and Nicole Harsch, presented the following excerpts from recollections of FMs concerned with the *Challenger* disaster:

> When I first heard about the explosion I was sitting in my freshman dorm room with my roommate and we were watching TV. It came on a news flash and we were both totally shocked. I was really upset and I went upstairs to talk to a friend of mine and then I called my parents.
>
> I was in my religion class and some people walked in and started talking about [it]. I didn't know any details except that it had exploded and the schoolteacher's students had all been watching which I thought was so sad. Then after class I went to my room and watched the TV program talking about it and I got all the details from that.[20]

The first account was given by university senior, known as RT, in the fall of 1988—two and a half years after the explosion. As Neisser and Harsch point out, this recollection meets all the standard tests of a flashbulb memory; most significantly, in relation to confidence ratings and the degree of detail for a series of canonical information categories outlined by Brown and Kulik (some of these categories are 'place,' 'ongoing event,' 'informant,' 'affect in others,' 'own affect'). But despite RT's confidence, she was mistaken. Two and a half years earlier, she had answered the same

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[20] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 9.

question only 24 hours after the explosion—an excerpt from which is the second response transcribed above.

The difference between RT's two FM accounts was fairly typical for the subjects in Neisser and Harsch's study. They found that only 7% of respondents were able to recall their memories of hearing the news of the *Challenger* explosion with no significant error, and 25% were completely wrong and had scores of zero.[21] Because the results posed a serious challenge to current FM theories, Neisser and Harsch administered a third test to investigate a number of their own questions: "In such cases, has the incorrect 'memory' completely obliterated all traces of the original event, or could the earlier memory be retrieved by more adequate cueing? Where do the incorrect recalls come from [and w]hy are the subjects so confident of them?"[22]

Neisser and Harsch interviewed their subjects again, this time three years after the initial event and six months after the last questionnaire was administered. In these interviews, Neisser and Harsch tried to help the subjects recover their 'original' memories through standardized means of facilitating eyewitness recall. In some cases, the subjects were presented with their earliest questionnaire in an attempt to jog their memories of their original recollection.

"As it turned out," Neisser and Harsch comment, "none of these procedures had any effect at all."[23] Many of their subjects expressed surprise at the discrepancy between their recollections and found it hard to believe their memory of the original event could be so varied, especially so because they still had complete confidence in their memories as representing 'what actually happened.' This in itself is not surprising as many researchers had suspected that FMs would not be as complete and unchanging as Brown and Kulik predicted. What was surprising for Neisser and Harsch was that the original memories seemed completely lost:

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[21] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 18.
[22] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 10.
[23] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 13.

> In initially designing the interviews, we had anticipated a methodological problem that never materialized. How would we distinguish between (a) genuine remindings and (b) false impressions of being reminded that subjects might try to present? We need not have worried. No one who had given an incorrect account in the interview even pretended that they now recalled what was stated on the original record. On the contrary, they kept saying, "I mean, like I told you, I have no recollection of it at all" or "I still think of it as the other way around." As far as we can tell, the original memories are just gone.[24]

Neisser and Harsch's findings were by no means an isolated case as other researchers at the Emory Symposium devoted to flashbulb memories revealed similar results. Accuracy was not the only issue related to FMs explored at the conference but it was the only issue where the participants came close to a consensus; as two of the organizers noted: "The classical examples of flashbulb memory... may very well be *less* reliable than other kinds of emotional memories. This point... is perhaps our most interesting conclusion."[25]

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The World as Subject and the Individual as Camera

One of the participants in the Emory conference was William Brewer, who is a long-time contributor to the study of autobiographical memory but has remained outside of the research into FMs. He was invited—as a sort of objective observer—to write a summary of the flashbulb memory theory in light of the varied research which followed Brown and Kulik's original paper. "There is, of course, a certain irony," Brewer writes, "that flashbulb memories may be *less* accurate than other forms of memory, given that many researchers in this area have favored copy theories for flashbulb memories and have therefore implied that flashbulb memories are likely to be *more* accurate than other forms of memory."[26] More importantly, Brewer's analysis of the flashbulb memory hypothesis and especially the sometimes wide array of results, showed that in almost all

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[24] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 21.

[25] Eugene Winograd and Ulric Neisser, "Preface," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories.* Cambridge University Press, 1992. p. viii.

[26] William F. Brewer, "The Theoretical and Empirical Status of the Flashbulb Memory Hypothesis," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories.* Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press, 1992. p. 293.

areas of the FMH the "experimental definitions" used by researchers suffered because they were often vague and contradictory. The problem, it seems, began in Brown and Kulik's original findings: "it seems clear that a careful analysis of this paper shows that the theory is inconsistent, that the data presented in the paper are not appropriate for testing the theory, and that for the few instances where there is relevant data it sometimes goes against the theory."[27] Brewer continued with his analysis and found that the problems usually resurfaced in later studies, leading him to call for researchers to clearly define their definitions and theoretical models.

Brewer also asked another question which many other researchers had already been asking themselves:

> Given the severe problems found with many aspects of Brown and Kulik's (1977) study an obvious question arises—why has this paper been so influential?
>
> (...)
>
> One clear reason for the impact of this paper is that it dealt with a phenomenon that had rarely been studied, and that tapped the shared intuitions of almost every reader. They caught the attention of the scientific community to such a degree that 13 years later this chapter is part of a volume that is entirely devoted to the topic of flashbulb memory![28]

The fascination which followed Brown and Kulik's paper is perhaps striking from a rational or scientific point of view, considering the many problems which Brewer and others identified in Brown and Kulik's original hypothesis and the research which followed. Brewer's observation that the FMH "tapped the shared intuitions of every reader" is perhaps understated. Even the name—'flashbulb memory'—carries a fascination that is difficult to define. But there are also many instances in their paper when their theory seems to resonate with meaning or significance that is itself hard to articulate. In later research, one sentence from Brown and Kulik's paper is quoted numerous times, not, it seems, because it contains any 'scientific' value, rather because it carries a certain poetic quality: "For an instant, the entire nation and perhaps much of the world stopped

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[27] William F. Brewer, "The Theoretical and Empirical Status of the Flashbulb Memory Hypothesis," p. 282.
[28] William F. Brewer, "The Theoretical and Empirical Status of the Flashbulb Memory Hypothesis," pp. 282-283.

still to have its picture taken."[29] It is chilling to stop and think, as many FM researchers seemed to have done, that for a single moment in the past an imagistic record exists of much of the world's whereabouts at the time of Kennedy's assassination; even though this record is 'dispersed' around the world in millions of separate individuals and could never be seen in its entirety. This portrait of the world is only an imaginary or conceptual photograph and the fact that it doesn't exist, and can never be seen, makes it all the more fascinating. There is also another irony in Brown and Kulik's reversal of the photographic metaphor. The photograph—despite the fact we now know that it could be false—does not in fact include the subject in the image. To return to Wittgenstein's "eye and the visual field" metaphor, those people who stopped still to have their picture taken are not included *in* the image but are the apparatus by which that image was recorded.

...

"TV Priority"

> When the Challenger crashed I was only in Kindergarten. The first thing that our teacher told us that morning was that the first teacher was going up in space that day. I thought that was cool. The rest of the day I could not wait to get home and watch the lift-off. Somehow I missed the live footage, but when I walked in the door of my house my mother already had the TV on and I immediately saw a huge flash of white flicker across the screen where I had been gazing at a space shuttle just seconds before. I don't think that I left the televsion the rest of the day. I was so intrigued and scared by this drastic change in events that I couldn't move. I must have seen the Challenger blow up a hundred times that day. Scott Barbee <sbarbee@middlesex.mec.edu> Middlesex School (prep) Concord, MA USA - Saturday, April 26, 1997 at 21:48:04 (EDT)

Brown and Kulik's paper is still described as 'important' and 'innovative' even though it caused many researchers in the area of autobiographical memory to temporarily forget much of what they already knew. In Brewer's summary essay on the state of the FMH, it is hard not to get the feeling that Brewer himself feels that Brown and Kulik's paper caused just as many, if not more, problems than it solved. But it also relates to the problems associated with Durkheim at the beginning of

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[29] Roger Brown and James Kulik, "Flashbulb Memories," p. 80.

this thesis; whereby attaching a name to a phenomenon irretrievably alters the very thing it is trying to describe.[30]

The initiating conditions for the FMH—the influence of the "Now Print" hypothesis on Brown and Kulik's resulting theory, their privileging of neuro-anatomical explanations while completely ignoring possibilities of the mediated and social nature of the phenomenon—had set FM research down a certain complex path. After the Emory conference, many researchers began to have severe reservations about many other aspects of the original FMH, such as its basis in a special neurological mechanism and Brown and Kulik's claim that this was a new form of memory. The flashbulb memory phenomenon came to be seen not as a new or special type of memory but as a form of autobiographical or personal memory. The problem, it seems, is that the 'events' which Brown and Kulik used as the catalysts for FM formation were of a nature that did not lend themselves to a controlled and scientific study. Events such as the Kennedy assassination are not only recorded in individual memory but are also subjected to the conditions of collective memory and discourse. This would mean that the conditions for categories such as 'Consequentiality' and 'Rehearsal,' would not only be determined by the individual but would also be influenced from the outside. Brown and Kulik's evolutionary model for FM formation assumes that the outside environment is stable and unchanging, ignoring the possibility that asking "Where were you...?" questions has itself become a cultural phenomenon. Many responses from the FAS website indicate that the *Challenger* explosion was, for this generation, what John Kennedy's assassination was for the previous generation. In a sense, these phenomena are increasingly recognized as cultural phenomena, and we could expect that this might have effects which would be difficult to control in an experimental environment.

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[30] An interesting (and sarcastic?) remark about the naming of 'flashbulb memories' was made by David C. Rubin, another of the participants at the Emory Symposium: "Roger Brown is good at naming and describing such fertile phenomena; the tip-of-the-tongue phenomenon is another well known terms [sic] of his." David C. Rubin, "Constraints on Memory," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories*. Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press, 1992. p. 266.

Many of the researchers at the Emory Symposium did recognize the social nature of these events. Neisser and Harsch, in addition to finding that FMs are not always accurate, also found that there was a significant bias toward the mediated nature of these events—what they called "TV Priority." While only 21% of their subjects actually learned of the *Challenger* explosion via television, two and a half years later 45% *believed* that they first heard of it in this manner.[31] For Neisser and Harsch, 'TV Priority' was "one of the clearest trends in the data" and attributed this trend to a combination of factors. First, many of the subjects watched a great deal of television the evening of the explosion and that this television coverage was an "extended, repeated, and easily remembered event." Second, most television channels showed repeated replays of the explosion itself which seemed to provide a vivid and persistent visual image; an image which many subjects 'could still see' over two years later. Third, Neisser and Harsch identified that while there is no necessary "script" for hearing disaster news, there does seem to be a "culturally familiar one"—namely, learning of them through television or the media.

A final factor, one which Neisser and Harsch identify as a "possibility," goes against Brown and Kulik's belief that 'consequentiality' or 'biological significance' is determined at the time of encoding (or the instant news of the explosion was learned):

> In some individuals, affective response to the shuttle explosion may have developed only slowly. The popular concept of an instantaneous shock reaction, in which people are "stunned" by their first exposure to the news, may not be appropriate for everyone. The full import of such a disaster may not sink in for some time—time during which the subject talks to other people, watches television, and ruminates on the human consequences and social implications of the tragedy. According to the emotional strengthening hypothesis, it would be these later experiences (rather than the moment of first hearing the news) that should be most clearly remembered. This would easily explain the mislocations in our data.[32]

Despite Neisser and Harsch's skepticism of this last possibility, it is entirely consistent with a majority of the FAS responses. Dispersed amongst the descriptions of shock of first learning the

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[31] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 25.

[32] Ulric Neisser and Nicole Harsch, "Phantom Flashbulbs," p. 29.

news of the *Challenger* explosion, many of the respondents to the FAS website include information that could only have been learned months or even years after the event. The most notable examples of this 'secondary' information was the controversy over the cause of death and the official explanation of the cause as the failure of the O-rings. While these two issues will be treated at length in later chapters, it is important to note that while they are inextricably linked to the *Challenger* explosion, they are, at the same time, examples of how information emerges only gradually and with it, how various discourses become attached to the original event.

Brown and Kulik made it clear that narrative accounts of FMs did not have any effect on the FM itself, except in that the accounts helped to strengthen the original memory. Neisser and Harsch's data challenge this view, not only because FMs do not seem to remain intact over long time intervals but also because the consequentiality attributed to the original event may appear only gradually. This is undoubtedly problematic from the standpoint of the original flashbulb memory hypothesis, but as David Rubin points out: "Peoples memories are their memories whether or not they accurately reflect an actual event. The stability of those memories is a valid and theoretically informative question independent of the issue of accuracy."[33]

Researchers like Rubin concentrated less on the accuracy of the flashbulb memory (or how well it reflected the actual event) and more on the constraints which affect the narrative accounts of these memories. By doing this, the starting point is not the original event but the accounts themselves; by focusing on the role played by narrative, the constraints on memory would also include those imposed by societal norms and rules. According to Elizabeth Loftus and Leah Kaufman: "our memories are not simply a passive storehouse for representations of past experience, but these memories serve various social functions, and they satisfy needs and desires."[34] Here, emphasis

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[33] David C. Rubin, "Constraints on Memory," p. 267.

[34] Elizabeth F. Loftus and Leah Kaufman, "Why Do Traumatic Experiences Sometimes Produce Good Memory (Flashbulbs) and Sometimes No Memory (Repression)," in *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories*. Eds. Eugene Winograd and Ulric Neisser. Cambridge University Press, 1992. p. 215.

shifts from how memory functions within an individual to how an individual can make use of autobiographical memory for social interaction and interpersonal communication.

Flashbulb memories, or the accounts of flashbulb memories, are essentially stories which are passed from one person to the next. In order to facilitate this function, FMs must exist in good narrative form and follow a number of unconscious rules or conventions which are culturally determined. The events which trigger FMs are widely known and since one narrative convention dictates that accounts should present new and interesting information it is perhaps obvious that the account will include personal experience. In addition, recounting detailed memories of personal circumstances can make an account *appear* more truthful, accurate, or believable, and therefore, more persuasive. But as David Pillemer notes: "In addition to enhancing the persuasiveness of a communication, sharing detailed memories of personal circumstances signals *emotionality, intimacy,* and *immediacy*. Personal memories can draw in the listener and evoke empathic responses more readily than can general, scripted accounts."[35]

Pillemer also believes that narrative accounts of flashbulb memories serve a "psychodynamic function" in that the traumatic nature of the original event may have a continuing psychological impact and that recounting flashbulbs might actually help people to master the emotions they feel and thereby lessen any negative effects.[36] That the retelling of FMs should have a value which extends beyond the inherent "biological" value for an individual organism is a provocative thesis and may help explain why flashbulb memories are not always accurate with respect to the original experience:

> [This] analysis leads us to support the rather provocative suggestion... that flashbulb memories might be especially prone to distortion. When we repeatedly recount the flashbulb, we do so in an everchanging environment. Our specific listeners change, and thus the type of information we include also changes. Our needs to impress people, or to gain their empathy, or to reduce tension is not the

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[35] David B. Pillemer, "Remembering Personal Circumstances," p. 245.

[36] David B. Pillemer, "Remembering Personal Circumstances," pp. 247-249.

same from one occasion of retelling to the next. As the story changes, does the memory change with it?[37]

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White Gloves

I'm not real sure what grade I was in, but I remember that I was at home glued to my television set that morning. I had always been interested in the NASA space program. When the Challenger exploded, I couldn't believe it. From that time on I decided that I would join the military, work towards being an astronaut and giving my all, and everything I do would be for them. They're gone now, but but not forgotten, and can't participate in any more space missions, so I pledged to myself that everything I did I would do it for them, since they can't do it anymore. Well, now I'm in the military, United States Navy, and I am still working my hardest trying to obtain that goal of NASA astronaut. Challenger crew, we miss you and you will never be forgotten. Your mission was one for the history books. Timothy D. Kisor, USN <cadre1@hotmail.com> Ironton, OH USA - Wednesday, April 30, 1997 at 08:48:01 (EDT)

Some of the researchers into FMs also believe that they are constrained in another way. Memories are constructed in an active effort to construct a consistent and coherent sense of self. Therefore, another possible condition for flashbulb memories is that at certain moments the timeline for public history is momentarily brought into alignment with an individual's personal timeline:

> We are aware of this link at the time and aware that others are forging similar links. We discuss 'how we heard the news' with our friends and listen eagerly to how *they* heard. We rehearse the occasion often in our minds and our conversations, seeking some meaning in it.[38]

In this sense, the consequentiality of the event would not necessarily have to be recognized immediately or at the time of occurrence of the initial event, instead the 'meaning' of the event for one's life could be attributed retrospectively after a suitable amount of time has passed and the links between the public and the private seem more clear.

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[37] Elizabeth F. Loftus and Leah Kaufman, "Why Do Traumatic Experiences," p. 216.

[38] Ulric Neisser, "Snapshots or Benchmarks," in *Memory Observed*. Ed. U. Neisser. San Francisco: Freeman Press, 1982. p. 48.

John Kotre, another psychologist interested in the construction of autobiographical memory, describes one of his own memories:

> There's a pair of white gloves that live in my memory. I can see them now, lying on top of some old clarinets in the cramped, dusty attic of my grandmother's house, back in the niche where the roof meets the floor. Nearby is a black clarinet case with a cracked skin. The case itself is open, and you can smell the must of its lining. Everything in the memory is gray, save for the light from a small window at the end of the attic. Although I see the gloves only in memory—I have never done so in actuality—I know they are spotlessly white.[39]

The gloves belonged to Kotre's grandfather who used them when playing the clarinet which was how he made his living in his native Hungary. When Kotre's grandfather emigrated to the US in 1912 and found he could no longer work as a musician, he found various jobs as a manual labourer and promptly gave up his clarinets. Kotre never met his grandfather either, as he died not too long before Kotre was born. The 'memory' of the gloves was provided to Kotre by his father in a story that Kotre tape-recorded many years before.

The reason why the memory of the gloves is so vivid, Kotre thinks, is because the story came at a particularly hectic time in his life; his children moved away, his marriage had recently fell apart, and he received a major grant which turned his work life upside down. The idle clarinets were a symbol of the sacrifice his grandfather made many years before; the image of which contrasted sharply with the guilt and loneliness that Kotre was feeling in his own life. But the gloves, spotlessly white, also contrasted with another image, for Kotre also learned that his grandfather died of a lung ailment from the many years he shoveled coal in order to make a living.

For some reason the image of the gloves made sense to Kotre even though it took many years to understand why. And even though he never saw them, they exist in his memory like any other.

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[39] John Kotre, *White Gloves: How We Create Ourselves Through Memory*. New York: Free Press, 1995. p. 1.

Chapter 4

S-Y Crisis: The Narrativization and Representation of Historical Events

In the last chapter, the study of flashbulb memories revealed that narrative has an important role as a condition or constraint—either individually or culturally determined—on the development of personal memory. It should not be surprising, then, that these same conditions of narrativization act upon such societal activities as cultural memory and the writing of history. As Andreas Huyssen points out, many of the events of the latter part of this century are, to a great extent, still held in individual memory, but as "generational memory begins to fade and ever later decades of this modern century par excellence are becoming history or myth to ever more people, such looking back and remembering has to confront some difficult problems of representation in its relationship to temporality and memory.... Memory and representation, then, figure as key concerns at this fin de siècle when the twilight settles around the memories of this century and their carriers, with the memories of the Holocaust survivors only being the most salient example in the public mind."[1]

Inherent in Huyssen's remarks is the notion that history is not limited to the past but is also a social activity, and, as such, is also about the present and the future. As we surrender to the inevitable passage of time, we demand that the transfer from memory to history is recorded and recorded properly. This makes the form and content of the representation of particular interest and importance, and, of course, presents certain problems—especially with regard to notions of accuracy and objectivity. It is issues such as these—memory, narrative, representation—which are important to the "Where were you when...?" questions and any relationship between the 'personal'

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[1] Andreas Huyssen, "Introduction: Time and Cultural Memory At Our Fin de Siecle," in *Twilight Memories: Marking Time in a Culture of Amnesia*, London: Routledge; 1995. p. 2.

of individual lives and the 'public' of history. It is for this reason, then, that it will be fruitful to explore some of the issues which are currently being debated in the discipline of historiography and compare them with issues of the previous chapters.

Narrative has come to be a particularly important issue within historiography. The belief that history has less to do with delivering objective truth and more about constructing and arranging narratives has gained popularity among some academics—especially those sympathetic to recent postmodern or post-structuralist theory. Applying narrative forms to a work of history is a necessity because the historiographical process relies on interpretation. Hayden White believes that it is possible to locate "at least two levels of interpretation in every historical work: one in which the historian constitutes a story out of the chronicle of events and another in which, by a more fundamental narrative technique, [the historian] progressively identifies the *kind of story* he [or she] is telling—comedy, tragedy, romance, epic, or satire, as the case may be."[2]

The first level of interpretation and narration arises simply because the historian must work with a broad and often deficient set of materials and records. Because the historical record is "both too full and too sparse" the historian must 'interpret' his or her data by "excluding certain facts... as irrelevant to [the] narrative purpose" at hand and "reconstruct... materials by filling in the gaps in [the] information on inferential or speculative grounds."[3]

The second level of interpretation and narritivization which White identifies, "operates... according to well-known, if frequently violated, literary conventions, conventions which the historian, like the poet, begins to assimilate from the first moment he [or she] is told a story as a child. There are, then, 'rules' if not 'laws' of historical narration."[4] These rules or, as White calls them, tropes, are a condition of historical narration simply because they constitute the ways any given culture tells

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[2] Hayden White, *Tropics of Discourse*. p. 59. Quotations from this work have been slightly modified in order to provide a more gender-inclusive language which does not appear in the original.

[3] Hayden White, *Tropics of Discourse*. p. 51.

[4] Hayden White, *Tropics of Discourse*. p. 51.

stories; they are, in some ways, both consciously and unconsciously learned and used and, more importantly, help carry the meaning of the historical text:

> A historical interpretation, like a poetic fiction, can be said to appeal to its readers as a plausible representation of the world by virtue of its implicit appeal to those "pre-generic plot-structures" or archetypal story-forms that define the modalities of a given culture's literary endowment. Historians, no less than poets, can be said to gain an "explanatory effect"—over and above whatever formal explanations they may offer of specific historical events—by building into their narratives patterns of meaning similar to those more explicitly provided by the literary art of their cultures to which they belong.[5]

The necessity of interpretation for the craft or profession of history is not a recent idea. As the historian Gertrude Himmelfarb remarks:

> Historians, ancient and modern, have always known what postmodernism professes to have just discovered—that any work of history is vulnerable.... As long as historians have reflected on their craft, they have known that the past cannot be recaptured in its totality, if only because the remains of the past are incomplete and are themselves part of the present.... They have also known that the writing of history necessarily entails selection and interpretation, that there is inevitable distortion in the very attempt to present a coherent account of an often inchoate past, that, therefore, every historical work is necessarily imperfect, tentative, and partial (in both senses of the word).[6]

It is because of these vulnerabilities, Himmelfarb continues, that "modernism... created a discipline of checks and controls" designed to expose the biases of the historian and allow the process of creating a historical work to be accessible and exposed to criticism: "Critical history put a premium on archival research and primary sources, the authenticity of documents and reliability of witnesses, the need for substantiating and countervailing evidence; and, at a more mundane level, on accuracy of quotations and citations, prescribed forms of documentation in footnotes and bibliography, and all the rest of the 'methodology' that went into the 'canon of evidence.'"[7] Himmelfarb believes that it is the rigor of this methodology which—while not totally eradicating

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[5] Hayden White, *Tropics of Discourse*. p. 58.

[6] Gertrude Himmelfarb, "Telling It As You Like It: Postmodernist History and the Flight From Fact," in *The Postmodern History Reader*. Keith Jenkins, ed. London: Routledge; 1997. p. 158.

[7] Gertrude Himmelfarb, "Telling It As You Like It," p. 160.

the problems associated with bias and objectivity—will "encourage the historian to a maximum exertion of objectivity in spite of all the temptation to the contrary."[8]

To move back, for the moment, to the question "Where were you when you heard the news of the *Challenger* disaster?" it is possible to find certain similarities between the individual to whom the question is posed and the professional historian. At a very basic level, questions such as "Where were you when...?" suggest a spatial and temporal distance between an individual and some sort of remembered historical event. This distance implies that a certain but ambiguous dialogue exists between the individuals observing the event and the event itself; a dialogue which, if carried further, points to a correspondence between an event in history and personal lives. Both the individual and the historian are presented with a historical event, but each is separated from that event by a distance. There is, for both the individual and the historian, a complex interplay between the past and the present, a relation that could be, however, seen as reversed. For the historian, the event exists in a distant past and his or her interpretation of the event is influenced by the present. For the individual, the event was witnessed in the present, but—as was the case with the studies of flashbulb memories or even with the discourse surrounding Christa McAuliffe—an individual's desire to find meaning or 'to interpret' is constrained by pre-existing social discourse and narrative; that is, it is dependent on the past.

What is the role of the individual in relation to history? It would seem doubtful that individuals actually take part in an event simply through witnessing it or by remembering where they were when they heard the news that the space shuttle *Challenger* exploded. Indeed, the issue of a distanced observer's role has been a problematic one for historiography and the issue has important implications which are useful in explaining the existence and persistence of a question like "Where were you when...?" and the belief that on some level the historical events are

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[8] Gertrude Himmelfarb, "Telling It As You Like It," p. 160.

available to its witnesses. In the discussion to follow, issues about the historian's ability to know, the nature of events, and the category of the historical fact, will be investigated.

History, according to Hegel, follows the logic of the Absolute Idea. Under this rubric, History is a dialectical process whereby the historical will eventually come to an end when the Absolute, or total freedom, is finally realized. Marx, rejecting the notion of the Absolute but continuing with the dialectical method, conceives of History as a conflict between opposing economic forces as they develop toward ever-greater freedom and economic equality. For Hegel, individuals caught up in the play of historic events are neither aware of its logic nor conscious of its workings—they are simply actors on the stage of History and possess no agency to determine its outcome. Marx was more lenient however and granted that individuals could gain knowledge of the dialectical process and actively engage in the world as it progresses toward its ultimate goal: the abolishment of private property and all economic and political distinctions.

For both Hegel and Marx, History, as an academic or professional practice, is teleological and ideological—it constructs the past through the objective sorting of empirical facts and documentary evidence and (which gives rise to the use of 'History' with a capital H) classifies this evidence according to the belief that History follows a pre-determined and progressive path. This conception of History as both progressive and pre-determined has been virtually abandoned due to theoretical critiques (which here I will generalize and call postmodernist) and, what Jean-François Lyotard has called, a general attitude of "incredulity towards metanarratives."[9] This view of history is usually associated with post-structuralists such as Foucault, Derrida and Lyotard and is one that has challenged the claim that history is a verifiable science. They would conclude that history is mediated by discourse and social power and that historical writings are narrativized 'stories' or 'texts' that can only claim to represent historical truths.

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[9] Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*. Trans. Geoff Bennington and Brian Massumi. Minneapolis: University of Minnesota Press; 1984. p. xxiv.

The repercussions from the postmodern challenge to historical metanarrative and its now transparent ideological base have also been felt in what has been called small-h or 'traditional' history. While not specifically teleological at its core, as was Hegel's or Marx's conception of History, we still believe that history can retain its claim to realist, empirical, and objective methodology; resulting in a 'true' representation of the past and an account of 'what actually happened.' This 'traditional' or 'proper' history has been challenged for its reliance upon facts, source documents, and archival research as a method for getting as close to a historical event as objectively possible. Notwithstanding the tenuous foundation which the word 'objective' rests upon (a problem which Himmelfarb showed was always known by historians), postmodernist theory challenges the notion that historical facts and primary sources are neutral and can exist independently of the historian. Not only are facts and sources subject to the interpretation (which itself includes an ideological framework) of the historian, but they are ideologically and discursively constructed in advance into hierarchies—hierarchies that determine what constitutes a 'historical document' in the first place. As Keith Jenkins remarks: "[in order] to demolish the possibility of speculative theorizing, all sources tend to be treated in 'documentary' terms as if there was a real hierarchy of sources whereby those which seemed to be direct information documents—bureaucratic reports, state papers, wills, eye-witness accounts—are valorized."[10]

This 'documentarist' approach suffers from what Dominick LaCapra calls a "technicist fallacy." In an attempt to circumvent the many pressing issues relating to methodology, epistemology, interpretation and objectivity, this approach takes one of the "necessary conditions" of historiography (the need to consult primary sources) and treats it as its essence; thereby reducing those complex issues in the belief that they can be solved "technically."[11]

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[10] Keith Jenkins, "Introduction," in *The Postmodern History Reader*. Keith Jenkins, ed. London: Routledge; 1997. p. 12.

[11] Dominick LaCapra, *History and Criticism*. New York: Cornell University Press; 1985. p. 17.

Even one of history's most basic elements—the historical fact—has been submitted to careful questioning. In *The Savage Mind,* Claude Lévi-Strauss stresses that at even on the most basic level, a historical fact is subject to the interpretation of the historian because of "a twofold antimony" in the ways it must be both constituted and selected:

> ... a historical fact is what really took place, but where did anything take place? Each episode in a revolution or a war resolves itself into a multitude of individual psychic movements. Each of these movements is the translation of unconscious development, and these resolve themselves into cerebral, hormornal or nervous phenomena, which themselves have reference to the physical or chemical order. Consequently, historical facts are no more *given* than any other. It is the historian, or the agent of history, who constitutes them by abstraction and as though under the threat of an infinite regress.[12]

For Lévi-Strauss, neither the historian nor the agent of history is ever presented with a *given* historical fact, but must infer, through abstraction, from a sea of psychic and physical movements what should properly stand as a historical fact. On a secondary level, these facts must be submitted to a process of selection: "the historian and the agent of history choose, sever and carve them up, for a truly total history would confront them with chaos. Every corner of space conceals a multitude of individuals each of whom totalizes the trend of history in a manner which cannot be compared to the others; for any one of these individuals, each moment of time is inexhaustibly rich in physical and psychical incidents which all play their part in his [or her] totalization."[13]

For my purposes, it is significant that within his discussion of the constitution and selection of historical facts, Lévi-Strauss not only includes 'the historian' but also mentions the 'agent of history.' This historical agent *is* the individual confronted with "Where were you when...?" questions; an individual confronted with a sea of movements and a chaotic collection of facts from which they must interpret an event. Moreover, as Lévi-Strauss points out, the agent or individual exists in the plural—it is a multitude of individuals involved—and, therefore, we should expect

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[12] Claude Lévi-Strauss, *The Savage Mind.* University of Chicago Press; 1966. p. 257.

[13] Claude Lévi-Strauss, *The Savage Mind.* p. 257.

that over time the narrative accounts which these individuals construct will influence one another, as well as influencing the historian who happens upon the scene sometime later.

Conceivably, there is a further similarity between the categories of the individual agent and the historian (categories which, perhaps because they themselves are abstractions, are not always easily maintained) which has to do with time. The individual faced with a historical event is witnessing an event as it unfolds in time; if we include in the event the multiple discourses which take it as its object, this *time* could, conceivably, be infinite. On the other hand, the professional historian is faced with a similar problem. Because history is, as most historians would agree, just as much about the present as it is about the past, and has the potential to include individual bias and an ideological perspective, the historian is also affected by time even when the event in question is from a distant past. That is, an event—if it is of such importance and consequence that it is still an object of concern—unfolds with almost infinite duration. This notion of duration is an important one, for if an event—from the point of view of the individual—can be conceived as a collection of historical facts which must be constituted rather than given, and governed by a process of selection and interpretation, then an important aspect of an event is the various discourses and interpretations (including, by necessity, any historical analysis of the event) which follow. This process of abstraction and selection would not, as might be inferred from the passage by Lévi-Strauss, be an isolated or one-time occurrence but would be continual and on-going. Moreover, the system of checks and controls which Himmelfarb believes constitutes the discipline of history, may be an impossible system for an individual to consistently adhere to, even if he or she had the professional training. Events and discourse do not always come with footnotes and accurate citations and are not always submitted to a careful and rigorous analysis. And since an event has duration it should not be surprising to find that it is marked by an individual's capacity to not only forget but to be distracted.

Challenges from the Outside

> I was only 6, and I was in first grade. I was a student at Rumford Elementary in Concord NH, and we were all excited because we were witnessing history!!! A teacher from our hometown going into space! We were all shouting CHRISTA CHRISTA CHRISTA!!!! Then when the explosion actually happened our smiles turned to frowns, our shouts to tears. That was also the first time I remember having to face death and tragedy. I remember hugging my teacher Mrs. Poggio and we were both crying. I will never forget that day. I will also never forget the joys and fun we had preparing for the launch and the sadness following the launch. I will also never forget firstnight 86 because I had met Christa. Now I am a senior in highschool and I do not live in Concord anymore, and I am doing a senior essay on the explosion. jen <theshort1@hotmail.com> USA - Saturday, October 18, 1997 at 18:42:30 (EDT)

As is evident in my discussion above, the challenges to historiography are not just limited to the internal realm of academe but also come, as it were, from 'the outside.' As we approach the new millennium a changing attitude toward the past appears dominant amongst the general population, an attitude which Vivian Sobchack has described as "a very real and consequential 'readiness' for history."[14] This 'readiness' is, however, a historical consciousness with a new twist and one dependent upon individuals "who have been immersed in questions about the boundaries, meanings, and place of history in their daily lives, as well as about their own possible place in history."[15]

History, it seems, is everywhere, existing even in the most banal and everyday objects in our daily lives. Not only have the smallest towns on our continent erected museums to document the past of their communities but corporations have done the same, allowing the public to ponder the history of our own commodities and service industries. From Zippo lighters to our postal service, we have realized that even our consumer culture has a history; a history that is itself worth consuming.[16]

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[14] Vivian Sobchack, "Introduction: History Happens," p. 5.

[15] Vivian Sobchack, "Introduction: History Happens," p. 3.

[16] Of course, many scholars have pointed out that the 'historical' has been turned into just another referent for consumerism in North America or in the case of Baudrillard and his followers, just another form of simulation. For an interesting and important interpretation on the positive aspects of the mass consumerism of the historical see Andreas Huyssen, "Escape From Amnesia: The Museum as Mass Medium," in *Twilight Memories: Marking Time in a Culture of Amnesia*, London: Routledge; 1995. Zippo lighters celebrated their 65th

Fascination with the historical, however, has moved beyond such traditional spaces as the museum. Indeed, the historical has moved away from being solely the domain of the discipline of history with the proliferation of what White describes as: "new genres, in both written and visual forms, of *post-modernist*, para-historical representation, called variously 'docu-drama,' 'faction,' 'infotainment,' 'the fiction of fact,' 'historical metafiction,' and the like."[17] Examples of these genres would include such books as *In Cold Blood* (Capote, 1965), *The Executioner's Song* (Mailer, 1979), and *The World as I Found it* (Duffy, 1987); films such as *The Night Porter* (Visconti, 1969), *Our Hitler* (Syberberg, 1976-77), *The Return of Martin Guerre* (Vigne, 1982), *JFK* (Stone, 1991), *Schindler's List* (Spielberg, 1993), *Memphis Belle* (Caton-Jones, 1990), *Apollo 13* (Howard, 1995), *Nixon* (Stone, 1995), *Titanic* (Cameron, 1997), and even *Forrest Gump* (Zemeckis, 1994). However, we could also include such documentaries as *Culloden* (Watkins, 1964), *The Thin Blue Line* (Morris, 1988), and *The Valor and the Horror* (McKenna, 1992), as well as a host of "reality-based television" such as *Resuce: 911*, *Unsolved Mysteries*, *Cops*, and *America's Most Wanted*.

What is interesting here is that the move beyond the museum and the traditional historical text—two 'spaces' which bracket or separate themselves from such notions as fiction and non-scholarly endeavor—brings the historical into an everyday and popular setting. It should not be surprising that a consequence of this 'readiness' is that the subject matter pertaining to historical events circulates through forms of popular discourse. For as James Fentress and Chris Wickham argue: "no society is an entirely literate culture, including our own (and even including the heavily text-orientated microsocieties of academics); and shared memory, whatever its sources, tends to be

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anniversary in 1997 with "National Zippo Day" (July 18). The Zippo museum in located in Bradford, PA. The Canadian Postal Museum is located in Hull, QC.

[17] Hayden White, "The Modernist Event," in *The Persistence of History: Cinema, Television, and the Modern Event*. New York and London: Routledge, 1996. p. 18. White distinguishes between these 'new' genres and their "generic prototype"—the nineteenth-century historical novel—which White believes depended on a "distinctive contract" between the novel and its readers: "its intended effects depended upon the presumed capacity of the reader to distinguish between real and imaginary events, between 'fact' and 'fiction,' and therefore between 'life' and 'literature.'" (p. 18)

communicated above all in the arena of the oral, through anecdote and gossip, with narrative patterns that can owe as much to oral as to literate tradition."[18]

...

The Modernist Event and its Representations

While Sobchack believes that there is an undeniable 'readiness' for history among the general population, there are other significant changes peculiar to this century that affect both the historian and an individual remembering an event such as the *Challenger* explosion. These changes not only include the problems of representing an event but also include the status of the event itself.

Hayden White has offered the term, 'the modernist event,' to describe the transformations in the interpretation and representation of historical events which emerged at the beginning of this century—transformations which were affected by modernity and the thoroughly modern ways historical events could be both disseminated and recorded. As Thomas Elsaesser describes it, the twentieth century is marked by a "prevalence of events at once so apparently senseless and so predictably routine that neither narratives nor images seem able to encompass them."[19]

According to White, this century is marked by "the experience, memory, or awareness of events which not only could not possibly have occurred before the twentieth century but the nature, scope, scale, and implications of which no prior age could ever have imagined."[20] These events too, White contends, would have been unimaginable by previous historians, and the dismantling of the event, usually the preserve of historians, has ceased to be a "specifically scientific kind of

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[18] James Fentress and Chris Wickham, *Social Memory*. Cambridge: Blackwell, 1992. p. 97.

[19] Thomas Elsaesser, "Subject Positions, Speaking Positions: From *Holocaust*, *Our Hitler*, and *Heimat* to *Shoah* and *Schindler's List*," in *The Persistence of History: Cinema, Television, and the Modern Event*. Ed. Vivian Sobchack. New York and London: Routledge, 1996. p. 146.

[20] Hayden White, "The Modernist Event," p. 20.

knowledge."[21] It is arguable whether the events of this century, by definition, are without historical precedents; the black plague and Inquisition might challenge this view. But there is, as Elsaesser points out, a fundamental difference in the events of the nature and scope described by White as they seem to not only happen, but *happen regularly*, in the twentieth century. And these events are influenced both in scale and the regularity of occurrence due to the unprecedented role of technology.

Two World Wars, the Holocaust and other genocides, Hiroshima and Nagasaki, Three-Mile Island and Chernobyl, are a few examples of these technologized 'modernist events.' Furthermore, these events are paradoxical in the sense that they "function in the consciousness of certain social groups exactly as infantile traumas are conceived to function in the psyche of neurotic individuals. This means that they cannot be simply forgotten and put out of mind, but neither can they be adequately remembered."[22]

For White, this is the result of the insertion of modern media into the experience of the event which in itself has major repercussions: "we can consider the power of the modern media to represent events in such a way as to render them, not only impervious to every effort to explain them but also resistant to any attempt to represent them in a story form."[23] Not only do recent technologies of communication provide the event with an unimagined simultaneity and scope, but the technology of the mass media provides an overabundance of records of that event. White argues that the sheer weight of documentary materials and its subsequent availability through a range of narrativistic re-tellings, make it difficult for anyone to approach the event in the traditional manner:

> ...not only are modern post-industrial "accidents" more incomprehensible than anything earlier generations could possibly have imagined (think of Chernobyl),

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[21] Hayden White, "The Modernist Event," p. 22.
[22] Hayden White, "The Modernist Event," p. 20.
[23] Hayden White, "The Modernist Event," p. 23.

> the photo and video documentation is so full that it is difficult to work up the documentation of any one of them as elements of a *single* "objective" story.[24]

It this way, White sees the new genres of historical representations—the docu-drama or historical metafiction mentioned previously—as ways various people attempt to re-present, remember and understand events which are, seemingly, incomprehensible. What is unique about these examples is the blurring of boundaries between fact and fiction: "All deal with historical phenomena, and all of them appear to 'fictionalize' to a greater or lesser degree the historical events and characters which serve as their referents in history."[25]

History influenced by narrativistic re-telling and complicated by its own over-representation is a notion not without its critics. Relying on 'story' and the denial of objective truth connotes 'fiction' or the belief that what can actually be said about any given event is open and subject to speculation. As Himmelfarb argues:

> What the traditional historian sees as an event that actually occurred in the past, the postmodernist sees as a "text" that exists only in the present—a text to be parsed, glossed, construed, interpreted by the historian, much as a poem or novel is by the critic. And, like any literary text, the historical text is indeterminate and contradictory, paradoxical and ironic, so that it can be "textualized," "contextualized," "recontextualized" and "intertextualized" at will—the "text" being little more that a "pretext" for the creative historian.[26]

Two other critics of this position, Frank Tomasulo and Bill Nichols, also take issue with this claim, but from a slightly different perspective:

> It is one thing to say that the material world (reality) may exist subject to infinite perceptual mediation and conceptual interpretation; it is quite another however, to deny that "reality" and "facts" exist at all. Referentiality is not just a philosophical and artistic matter, but a spatial and social one as well. Reality *is* reality.[27]

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[24] Hayden White, "The Modernist Event," p. 23 (emphasis added).

[25] Hayden White, "The Modernist Event," p. 18.

[26] Gertrude Himmelfarb, "Telling It As You Like It," p. 162.

[27] Frank P. Tomasulo, "'I'll See It When I Believe It': Rodney King and the Prison-House of Video," in *The Persistence of History: Cinema, Television, and the Modern Event.* Ed. Vivian Sobchack. New York and London: Routledge, 1996. p. 73.

> The world... exceeds all representations. This is a brute reality.... The world, as the domain of the historically real, is neither text nor narrative.[28]

This may be true. There could be a world out there which, on a metaphysical level, exceeds all representations but in order for us to understand or make sense of this (or that) world it seems it must first enter into the representations or narratives constructed for it. Not only do we have to cope with the world but we also have to cope with the accumulation of its representations—its histories, its images, its discourses—which are never coherent or consistent one with another. It should be remembered that 'good' and 'bad' histories will be, and are, written whether they profess to be 'traditional' or 'postmodern' or base their claims on the existence of a world that is 'objective reality' or 'text.' Nor is it possible, I think, to deny the fact that people (not just historians or cultural critics) hold incompatible interpretations of the past or current events—people's beliefs are their beliefs whether or not we agree with them.

When Oliver Stone released *JFK* (1991) he was criticized for treating the Kennedy assassination as a 'text' by openly challenging the official history of the Warren Commission with a film which openly mixed archival and documentary footage with re-enacted, and of course speculative, footage. Those critics which chastised Stone most vehemently, were critical of his use of a postmodern, MTV-style of representation; criticism which, as Janet Staiger argues, depends "on the assumption that viewers have to be tricked... to accept the conspiracy thesis."[29] What Stone provided, Staiger contends, is not merely an unofficial version of the assassination but one that was, and is, a very popular version:

> ... adequate evidence exists that massive portions of the U.S. population already assume that Oswald was not the sole author of Kennedy's death. A Gallup poll in July 1991 indicated that only 16 percent of Americans thought that Oswald acted alone. Seventy-three percent "suspect others were involved." A *Washington Post* survey in May 1991 revealed that 56 percent of the population believed in a conspiracy; only 19 percent agreed with the official Warren Commission's thesis. Further, it is not only recently that significant numbers of Americans have believed in a conspiracy theory in regard to the assassination. Less than a year

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[28] Bill Nichols, *Representing Reality: Issues and Concepts in Documentary*. Bloomington: Indiana University Press, 1991. p. 110.

[29] Janet Staiger, "Cinematic Shots: The Narration of Violence," in *The Persistence of History: Cinema, Television, and the Modern Event*. New York and London: Routledge, 1996. p. 48.

> after Kennedy's death, "in the spring of 1964, one-third of Americans believed Lee Harvey Oswald acted in concert with others. Within two years the figure had doubled. Every poll taken over the last quarter century has shown between 60 percent and 80 percent of the public favoring a conspirational explanation."[30]

If Americans were somewhat slow to believe in a conspiracy thesis, Europeans were much quicker to pass judgement. Only weeks after the assassination—reacting to information such as a poll from December 9, 1963 which showed only 18 percent of Parisians believed Oswald was the sole assassin—US diplomats were warning Washington that such speculation was "bad for the US image" and that it would be essential to produce quickly "a final—and authoritative—report" on the killing.[31]

The final and authoritative report, of course, did little to swage people's beliefs, leading Staiger to ponder the thought that it might not be "the formal properties of the editing strategies that makes [Stone's] movie (post)modern; rather, it is the reading strategies of the viewers who recognize that the movie is a subjective version of the past, created through shots put together by some agent."[32]

Reality must be viewed from *somewhere* and 'History,' 'history,' or 'memory' may just be the record of the distance involved; a distance which provides ample space for the world to be replaced by its representations. And these representations are problematic; as Bill Nichols observes: "[an] image represents the visible event, not the motivation. Subjectivity eludes its grasp."[33] It is not surprising then that it is the motivation—or simply asking 'why?'—which fascinates the historian and individual bystander alike and for which the historical documents seem unable to provide clear and unambiguous answers.

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[30] Janet Staiger, "Cinematic Shots," p. 48. Staiger's references are: Tamer Vital, "Who Killed J.F.K.?" Jerusalem Post, 31 January 1992; "Twisted History," *Newsweek*, 23 December 1991, 46; Jefferson Morely, "The Political Rorschach Test," *Los Angeles Times*, 8 December 1991.

[31] Quoted in Frank C. Costigliola, "'Like Children in the Darkness': European Reaction to the Assassination of John F. Kennedy," in *Journal of Popular Culture*, Vol. 20 No. 3 (Winter 1986) p. 121. Costigliola quotes from, respectively, letters written by two US diplomats: Arthur A. Comptom (Antwerp) to Department of State, Dec. 4, 1963 and H. Daniel Brewster (Athens) to Secretary of State, Nov. 30, 1963. The poll comes from *US News and World Report*, 55 (December 9, 1963), p. 14.

[32] Janet Staiger, "Cinematic Shots," p. 52.

[33] Bill Nichols, *Representing Reality*. p. 153.

Those who criticize (postmodernist) filmmakers or historians for blurring the boundaries between 'fact' and 'fiction' by stating that these people treat either the event or the world as 'text' and deny the existence of 'reality' and 'fact,' are, I think, missing the point. If these events can be thought of as incomprehensible—either retrospectively or at the time of occurrence which, it should be pointed out, is *not* a denial of their existence—then it would seem plausible that they do not always lend themselves to commonsensical techniques used in conventional historical inquiry, or any understanding that takes as its foundation either logic or rationality. These are issues which Thomas Elsaesser, in a particularly poignant passage which I would like to quote at length, insists are of the utmost importance when it comes to events such as the Holocaust:

> Literary theorists have long discussed the paradoxical nature of an event such as the Holocaust that defies representation and yet demands it with equal finality. Even when agreed that conventional narrative "emplotments" are inappropriate to an experience so unique and extreme as Auschwitz, the question remains of whether its singularity is betrayed by any account *other* that one of uncompromising literalness, where only the survivors' testimony, only names, dates can be allowed to speak, along with the documentary records of numbers and chronology. Does not the very meaning defying dimension of these horrors and their place in history create a duty to find ways of speaking about them, new discourses? On one side are those who believe that in order to preserve the silence of respect, of honor to the dead, and in order to record the "permanent scar on the face of humanity," all forms of fictional narrative, dramatization, and figurative speech must be qualified as *mis*representations, not least because such forms imply a presence where there can only be an absence. On the other side, there is the fear that such literalness might itself be merely a mode of representation, a rhetoric which will confine the events to a fast receding point in time, thus preventing the possibility for invoking their actuality when similar barbarities of ethnic cleansing once more defy understanding and defeat the will to action.[34]

Staiger is right to point out that the assassination of John Kennedy does not belong to the same "category" of events and experiences as the Holocaust even though, she says, with Kennedy "we are still attempting to dramatize, master, and heal the breach of that traumatic event."[35] But Kennedy's assassination was traumatic for millions of people and not just those in the US. And this trauma exists not just because a popular and charismatic leader was killed; the trauma had

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[34] Thomas Elsaesser, "Subject Positions," pp. 148-149.

[35] Janet Staiger, "Cinematic Shots," p. 52.

real affect and effects, even for those who heard and remembered the news of his death as far away as Europe:

> The shocking images of the President's death encouraged Europeans, like Americans, to view Kennedy as a martyr, sacrificed for his pursuit of peace, racial equality, and modern rationality....
>
> Although assassination coverage accentuated European's feelings about Kennedy, those sentiments arose not in November 1963, but in the preceding thousand days, particularly during and after the Cuban missile crisis. The striking parallels in the ways the public on both sides of the Atlantic responded to Kennedy's loss demonstrated that he had become, in the hearts of Western and even some Eastern Europeans, their leader too. In a fundamental sense Kennedy *was* their leader because the American president, not the British prime minister or the German chancellor, made the basic decisions of life and nuclear death. That fact was brought home to Europeans during the missile crisis when they faced nuclear annihilation without representation. First Kennedy dramatically focused European attention on the threat of nuclear war, then resolved the tension with seemingly adept diplomacy, and finally offered catharsis of nuclear dread by moving toward detente with the Soviet Union.... Not surprisingly, Europeans interpreted his death as a loss of their own security and hope.[36]

It is significant that almost all of the events which are usually mentioned or brought to mind under the phrase 'modernist event' include death in both explicit and indirect ways. As the above passage makes clear, Kennedy's death was perceived as an ominous sign—where the fragility of the life of one of the most powerful men in the world was abstracted onto and into the lives of millions who watched around the globe—and it is in the shock and silence of the aftermath where the trauma of these events is the most acute.

...

S-Y Crisis

I was assigned to flight 51-L to perform the Life Support consumables calculations. This required calculating the on-board cryogenic hydrogen and oxygen as well as potable and waste water and nitrogen loads. Due to the length of the mission we had to "overload" slightly the cryogenic tanks. (The tanks now routinely carry the loads we specified were needed). During the ascent, we were consumed in watching the data stream coming down, not the video TVs. Our first indication of a problem was when the data "froze" and "S" appeared next to the data. As I looked up and saw the distorted contrail, I heard the now infamous words, "Obviously a majour malfunction," uttered by the Public Affairs Officer who narrates the missions for the public. Until the enhanced video showing the SRBs were at fault, I thought the cryo tanks had split from

[36] Frank C. Costigliola, "'Like Children in the Darkness'," pp. 116-117.

> the stress and vibration and had exploded. After a lengthy and emotional debrief, I returned to my office to the taunts, "nice job of life support you did," by some fresh college engineering graduates. A very compassionate family helped me bring closure to the ordeal. L. Eaton Brudders@hic.net Houston, TeTX USA - Friday, January 17, 1997 at 09:41:56 (EST)

> I remember I was in third grade at the time that it happened and it was like any other normal day in school. Everyone was excited because we all knew a teacher was going into space and a teacher at my school which was Lindbergh Elementary had submited an application to try and be on the shuttle. I remember walking to a classroom where a few classes were joining to watch the launch. The space shuttle launched and all of us were excited to watch. Then all of a sudden there was a big cloud of white smoke and a Y was made in the sky. I don't think anyone said a word for a while, we were all just stunned. Its amazing how I remember the whole event like it happened yesterday. Keith Wozniak bucky@buffnet.net Kenmore, NY USA - Thursday, January 09, 1997 at 17:20:18 (EST)

This chapter has dealt with the many ways that historical events are problematic for historians and individual bystanders and the myriad of ways that meaning or interpretation has to be both incorporated and re-incorporated back into the event. For both the flashbulb memories and historical accounts of these events, narrative is a way that these traumatic events can come to be retrospectively 'seen' and, as some believe, mastered and dealt with; although, narrative is not without its own range of problems when it comes to the accuracy of the representation or its effects. But as critics like White, Elsaesser, and Staiger insist, postmodern or 'fictionalized' narratives—either through historical recreation, the insertion of fictional characters, or dramatic re-creation—may be superior to conventional historical narrativization since it not only ensures that the event will be held in memory (through the retention of dates, figures, and other historical data) but held in *emotional* memory. This is not because the theory which deals with postmodern storytelling is more developed (it too has its problems), nor because conventional or rational narrativistic forms are outdated or properly belong to a previous century. I think that these postmodern forms of storytelling are special because they more closely approach the ways individuals remember these events and, to use a phrase from the memory psychologists, the ways these events are understood by individuals at 'the time of encoding.'

Memory, as we have seen, is fallible and faulty; it is not so much a verifiable string of historical documents and facts, but a condensation of those facts in the form of an emotional text. A text that both can and cannot be interrogated, is intruded upon by the 'outside' in the form of discourse, desire, and, of course, narrative, and experienced, built, and erased over time. The "Where were you when...?" memories contain, for the most part, emotional traces and whether they are or are not accurate or even verifiable is probably beside the point.

In the work on flashbulb memories, many researchers commented on how most people retained some sort of visual or perceptual image of the *Challenger* explosion. These are not the idiosyncratic details which many people remember of their own personal surroundings, but images or details which come from the explosion itself. In the FAS responses, many such details emerge again and again: the blurred video image of the moment of explosion, the Y-shaped cloud which hung over the launch site, the S's which appeared on the computer screens at NASA, and the dry and calm words of a NASA commentator (broadcast over the launch site and over television networks) just moments after the explosion: "Obviously, a major malfunction."

These are all jarring and perplexing 'images.' And they resonate with a meaning that is difficult, if not impossible to articulate. Of course, they are not all visual images, but even those which are strictly textual or aural are not without an accompanying visual image that is imagined. What strikes me about all these images—other than the fact that they seem to be so prevalent in the memories of the explosion—is how similar they all are. They all seem to stand in stark contrast to the event which took place and what was supposed to happen. As information, they are all fairly banal in the sense they convey little, if any, real information about the explosion, but it is in this 'lack' where the horror of the explosion is most clearly abundant. At times, they seem to stand in direct opposition to what we know, retrospectively, to have happened; that is, their meaning is available in a completely ironic way.

The S's which are described above in a response by a NASA engineer to the FAS website, appeared on many NASA's computer screens. It is a symbol built into NASA's computers to indicate that the steady stream of data—millions of bits of information per second—downloaded from the Orbiter to mission control has stopped. 'S' is an abbreviation for silence, or more specifically, static. Of course, this was an image seen only by those internal to NASA but it, despite its banality, is mentioned time and again in various written accounts of the explosion. Of course, it is likely that few people have actually seen this image. I, myself, have not, even though I have constructed a mental image of S's quickly filling a computer screen in a manner such as if one was leaning on the 's' key. This image, however, was likely influenced by Claus Jensen's description: "All of the computer screens are showing nothing but long rows of s's. 'Static' —no data from *Challenger*."[37]

Ironically, one of the other major images from the explosion is also represented with an alphabetical letter—the Y-shaped cloud. As Jensen describes the moments after the explosion:

> Cameras from a host of television networks have all zoomed in on the big distorted Y in the heavens. In the frosty air, the trail of the exhaust forms a macabre imprint of the explosion and of the launch as a whole. The two branches of the Y can be traced back to the swell of the explosion, and below that, *Challenger*'s course—while it was still unwittingly heading for disaster—can be determined.[38]

While the networks were busy playing and replaying endlessly the close-up video clip of the explosion—a futile attempt to discern from the blurred and amorphous image a new and telling clue—the Y hung over the launch site as a silent and grim, if not slightly beautiful, reminder of the accident. And it is still there, if only in the minds of its witnesses.

Both the S and the Y are examples of what Norman Klein calls 'imagos' or 'phantom limbs.'[39] Images which make "poor evidence," in the normal sense of the word, but are, nevertheless, useful in that they show a different kind of reality. They are images which are inextricably linked to the

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[37] Claus Jensen, *No Downlink*. p. 11.

[38] Claus Jensen, *No Downlink*. p. 12.

[39] Norman M. Klein, *The History of Forgetting: Los Angeles and the Erasure of Memory*. London: Verso, 1997. pp. 3-5.

meanings and context of a particular event and reside in memory (as well as the public archive) as symbols. It is the reason why, Klein points out, "we see in our mind's eye the war in Vietnam primarily as two photographs: a general shooting a man in the head; a naked girl running toward the camera after being napalmed."[40]

However, these images are deceptive in that while they seem 'to speak volumes' about the traumatic and horrific qualities of an event, their silence or *inarticulatableness* acts to, as Lyotard says, "preserve the fact that the unpresentable exists."[41] If, as Barthes might have said, every narrative (and event) begins with an explosion then it seems that what is put back together from the silence and fragments is not so much the 'original' than its partial construction—one that is, as Hayden White says of the historical record, "both too full and too sparse."[42] The "reality" of the original—that is, *the* original—might exist somewhere but, as is implicit in the question, the 'witness' is always separated by a distance: "***Where*** were you?" And if the world does exceed all representations, the problem lies in the fact that we have to get to the world through its representations. As Wittgenstein said of language, the world lacks the intentional contribution, the willing of the metaphysical subject. Representation, like language, has an inside, a point of view, or a vanishing point at the centre, while the world does not. So that which is left out and always deferred—precisely because language and representation have a horizon that we provide—exists in a space that should be, and is, silent; a space that can be experienced but cannot be reduced to logical language. A crisis in the form of an 'S' and a 'Y': meaningful precisely because they are meaningless.

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[40] Norman M. Klein, *The History of Forgetting*. p. 4.

[41] Jean-François Lyotard, *The Postmodern Condition*. p. 78.

[42] Hayden White, *Tropics of Discourse*. p. 51.

Chapter 5

The Official and the Vulgar

Official Interpretation

They Fell Oh, we launched our Dream, at blast-off from the Cape and shook Earth with a joyous, shouting leap; Starward we stabbed our silver ship, and make a place in heaven, hopefully to keep within our hearts-shooting upward, Laughing, Gasping, Wonder, without breath, Disaster struck us flowering, quenching, falling to that death of Heros. Flashing faster than our will could hold it back, they Fell a painful moment, lasting longer than eternity, those souls that fell, to swells of an ocean, tearful to receive them. Nothing less accepted, but do all we can to make what follows after, High Flight's hymn. Mark L. Ferguson 1997.
High Flight: Oh! I have slipped the surly bonds of earth And danced the skies on laughter-silvered wings; Sunward I've climbed, and joined the tumbling mirth Of sun-split clouds-and done a hundred things You have not dreamed of-wheeled and soared and swung High in the sunlit silence. Hov'ring there I've chased the shouting wind along, and flung My eager craft through footless halls of air. Up, up the long, delirious, burning blue I've topped the wind-swept heights with easy grace, Where never the lark, nor even eagle flew- And, while with silent lifting mind I've trod The high, untrespassed sanctity of space, Put out my hand and touched the face of God. John Gillespie Magee (1922-1941) Mark L. Ferguson <marfer@msn.com> Austin, TX USA - Monday, April 21, 1997 at 07:55:59 (EDT)

These questions and the public and private discourse from which they arise inevitably lead back to what could be called the historical 'document.' For the questions and discourse themselves arise from the interpretation of the event and the residual evidence left behind. The documents in question—photographs, reports, historical analysis, video and film documentation, news commentary, songs and poetry, cultural criticism, oral histories, discussion and gossip, documents surfacing on the Internet—take as their beginning the event in question. But these documents comment upon discourse which both precedes and follow the event; it is simultaneously commentary upon the event and the discourse about the event.

One of the earliest such documents was the speech Ronald Reagan made to television audiences the evening of the disaster. Reagan was scheduled to give his annual State of the Union address but, under pressure from his aides, instead addressed a shocked and bewildered nation, and

especially its children, on the meaning of the disaster:[1]

> [The crew of 51-L] were daring and brave, and they had that special spirit that says, "Give me a challenge and I will meet it with joy." They had a hunger to explore the universe and discover its truths. They wished to serve, and they did. They served all of us.
>
> (...)
>
> And I want to say something to the schoolchildren of America.... I know it's hard to understand, but sometimes painful things like this happen. It's all part of the process of exploration and discovery. It's all part of taking a chance and expanding man's horizons. The future doesn't belong to the fainthearted; it belongs to the brave.

Of course, Reagan addressed schoolchildren directly as so many witnessed both the destruction of the *Challenger* and the death of Christa McAuliffe. And since so many of their parents were likely to be watching the extended coverage of the disaster and the address to the nation, it would not hurt for Reagan to show his awareness and compassion for the US education system.

Reagan's speech was also an act of containment for even at this time many people were already comparing the shock to that felt during Kennedy's assassination. But it was not just the shock, in the few short hours after the explosion, with journalists clamoring for any official word from NASA about the cause, there were also questions if the explosion was actually an act of sabotage.[2] Clearly, on the day of the explosion, NASA had no idea as to what caused the accident and was not, as so many others were, ready to speculate. Since some of the debris reached heights of 30 km (19 miles) or more, it would take a full hour for it all to land in the ocean; NASA, at the end of January 28, was still coordinating the salvage operation.

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[1] Claus Jensen, *No Downlink*. p. 14.

[2] These questions were originally raised at the NASA press conference on the day of the explosion by William Hines, the chief of the *Chicago Sun-Times* Washington Bureau. Hines continued with this line of questioning at another NASA press conference the next day by asking if some sort of "extraneous signal, either inadvertent or maliciously contrived" could have been responsible for the explosion, and if it would show up on NASA's telemetry. Jay Greene, flight director at Mission Control, answered that no evidence of anything abnormal was present. The solid rocket boosters of the Shuttle system have radio controlled detonators in case they stray over populated areas after they are jettisoned. After the Challenger explosion, both SRBs were detonated by NASA. See Richard S. Lewis, *Challenger: The Final Voyage*. New York: Columbia University Press, 1988. pp. 27, 33-34. The quote from Hines comes from p. 33. As well, in the days after the explosion, US Senator Jesse Helms insisted, not surprisingly, that the explosion was the result of a Communist plot and should be thoroughly investigated. Nothing ever came of Hines' questions or Helms' allegations.

With so many people asking 'why,' Reagan curiously changed his rhetoric about the role of the shuttle. Instead of providing 'safe and routine' access to space, space was once again a 'frontier' and the astronauts were explorers partaking in a risky and dangerous mission:

> There's a coincidence today. On this day 390 years ago, the great explorer Sir Francis Drake died aboard ship off the coast of Panama. In his lifetime the great frontiers were the oceans, and a historian later said, 'He lived by the sea, died on it, and was buried in it.' Well, today we can say of the Challenger crew: Their dedication was, like Drake's, complete.

For the closing line of Reagan's address, Claus Jensen notes that "speechwriter Peggy Noonan had unearthed a sonnet... , written by a young Canadian Spitfire pilot, John Gillespie Magee, shortly before he was killed, at the age of only nineteen, in a dogfight over England in December 1941." The poem was entitled *High Flight*[3] and its first and last lines, with slight modifications, were used to describe the *Challenger* crew:

> We will never forget them, nor the last time we saw them, this morning, as they prepared for the journey and waved goodbye and 'slipped the surly bonds of earth' to 'touch the face of God.'[4]

As Claus Jensen has also noted, this passage "established the theme that was to echo in the media channels as solace for a stunned world. Exploration craves its sacrifices, but these are martyrs, who die in the service of a higher cause."[5] But martyrdom for a higher cause has historically been associated with military endeavors, and the US space program—with its roots in the Pentagon and its use of military test pilots—carries with it sentiments of religious servitude and almost divine aspirations. Reagan's speech references not only Drake, "expanding man's horizons," and, of course, the "*Challenger* Seven," but also the three Apollo astronauts who died in a fire on the launch pad almost nineteen years before—all in an attempt to include the current tragedy in a long line of respectable, and almost necessary, deaths which accompany the technological growth and

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[3] The full text of the poem is reproduced in Appendix 3.

[4] President's Speech on the *Challanger* Disaster; Ronald Reagan, Oval Office of the White House, January 28, 1996. Transcript available at [http://www.dnaco.net/~bkottman/speeches/challenger.html]. The full transcript of this speech is included as Appendix 2.

[5] Claus Jensen, *No Downlink*, p. 14.

expansion of a world superpower. It is fitting, then, that Reagan would address the schoolchildren of America so directly, for it is upon their shoulders that this legacy of US prowess will eventually fall. And since a typical conservative trope always equates the young with prospective nationhood ('our children' = 'the country's future'), the economy of 'nationalistic' death necessitates that youth should know the sacrifices *they* will inevitably have to make.

It may be misleading to attribute to Reagan or his speech, the ability to set the tone for the mourning which most of the nation expressed. As, Benedict Anderson has suggested, nationalism, in a variety of forms, has an intrinsic dependence on death as a means of commanding and demanding a profound emotional legitimacy.[6] It is "through the work of mourning particular and exemplary deaths" that nationalist sentiment can be mobilized for use in either state or revolutionary power.[7]

In this sense, Reagan (or his speechwriter Peggy Noonan) was tapping into a discourse where the collusion of state nationalism with "exemplary" death is both prominent and well understood. In fact it would have been surprising if he didn't make such a statement seeing as this discourse is an almost 'natural' reaction to such public and surprising deaths. Nor should it be surprising that Reagan should use lines from a poem like *High Flight* and equate divine aspiration with national/technological progress; this too had its precedents, in the form of the Kennedy assassination which, in the minds of many, was being used as a way of understanding the loss of the *Challenger* crew. In Europe, at the time of Kennedy's death, mourners didn't need a speech by a US President to see, as it were, the religious implications:

> For Europeans Kennedy was a portent as well as a president, the leader in whom they invested hopes for their own future. Like Charles Lindbergh in 1927, John Kennedy was a hero because he symbolized the promise of a technological future firmly in human control. Some saw him as a Christ of the computer age, the "President of peace," "pure, great... just and good" who was "too shining a star to

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[6] Benedict Anderson, *Imagined Communities: Reflections on the Origins and Spread of Nationalism*. London: Verso, 1991. See especially pp. 10-11 and 204-206.

[7] Vincente L. Rafael, "'Your Grief is Our Gossip': Overseas Filipinos and Other Spectral Presences," in *Public Culture* 9 (1997) p. 267.

> remain for long on earth." For many the funeral was a televised version of Christ's death. The drama alone did not make Kennedy a martyr; rather, his tragic death heightened the meaning of life with which millions of Europeans personally identified.[8]

Reagan, "speaking from more or less a Christian background," was, by quoting from *High Flight*, referencing a long line of literary and biblical allusions that equated bodily or non-bodily 'flight' with posthumous "bliss" and religious transcendence.[9] The first and last lines from which Reagan quoted are:

> Oh! I have slipped the surly bonds of earth...
> Put out my hand and touched the face of God.

Magee's poem slightly updates, or reverses, the poetic images by suggesting that flight, now realized by human technology, allows one to 'touch the face of God' and safely return to earth. Magee was, of course, writing specifically about the ecstasy of flight as experienced by a World War II fighter pilot. As Charles Garton points out, Magee "does not mention nor, strictly speaking, hint at the nearness of death, but with the antecedence of Yeats and with our own retrospective knowledge that the young [poet] was so soon to lose his life, it does not seem an unwarrantable forcing of an 'unstable' text to sense death in the background."[10] While not specifically mentioning death, Magee does hint at the folly (touching the face of God?) of such endeavors in the second line: "And danced the skies on laughter-silvered wings." Nor would death *have* to be specifically mentioned, since the poem, written at the height of the air war over England, existed in a context where death was very much in the air.

Death was very much in the background of Reagan's speech, and many in the media pointed out the source of the President's allusion. Ironically, Magee was not a Canadian, as some believed, but an American who volunteered for service in the Royal Canadian Air Force. As well, Magee was not killed in a dogfight—an image which lent an air of noble sacrifice to the story—but, instead, lost his life in a training accident in Linconshire, England. Magee had written the poem shortly before

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[8] Frank C. Costigliola, "'Like Children in the Darkness,'" p. 119.
[9] Charles Garton, "Slipping the Surly Bonds," *ANQ* v. 7 (July, 1994) pp. 154, 157-159.
[10] Charles Garton, "Slipping the Surly Bonds," p. 161.

his death and sent it in a letter to his mother. It became, both during and after the war, a popular poem and was published in an anthology of war poetry in 1943. It has sometimes been called the 'pilot's creed' and plaques bearing it were sent to all stations of the RCAF. Reagan had encountered the poem before Noonan included it in his speech. He was present at a party celebrating the return from WWII of the actor Tyrone Power, who recited it from memory. Noonan, for her part, learned the poem at school.[11]

What Reagan and Noonan did by quoting *High Flight* was to officially establish and acknowledge an already exisiting interpretation of the explosion. If an event such as the *Challenger* explosion is catastrophic it does not so much offer a break in the seamless and continuous discourse that flows in and around it. Instead, it seems to focus the attention of those who come to view it and heighten certain discursive threads which are already present. This discourse, even when it explicitly takes on the *Challenger* as its subject, is never solely about that event. Events rarely, if ever, take place in a vacuum. If meaning is to be attributed to them and if they are to 'make sense' to individuals watching from afar they must relate in various ways to other events and other meanings which precede them.

The abruptness of the event is perhaps misleading in that it seems not to be a complete break with the past. Upon closer inspection the event is difficult to separate from its documents which become so important in the resulting discourse. The event, namable and placeable at a specific location and time (sometimes to the hundredth of a second), becomes hopelessly intertwined with its discourses and interpretations; so much so that when a historian comes to the event many years later the event can perhaps only be viewed as corrupt or contaminated. As a historical object the event is almost impossible to approach objectively—so heavily influenced by the preceding and resulting interpretations that it is almost inseparable from them.

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[11] Information about the circulation and details of the poem are taken from: Charles Garton, "Slipping the Surly Bonds," p. 154; and Nigel Rees (ed.), *Epitaphs: A Dictionary of Grave Epigrams and Memorial Eloquence*. London: Bloomsbury, 1993. p. 158-160.

Official Explanation

Just as with Kennedy's assassination, there was mounting pressure to produce a final and authoritative report on the cause, or causes, of the accident. NASA had already set up an investigative hierarchy to study the explosion, but on February 3, 1986, President Reagan announced that he intended to appoint his own commission of inquiry that would be answerable to him alone. Appointed to chair the commission was William P. Rogers, a former Secretary of State and Attorney General, and the Rogers Commission, as it came to be known, had 120 days to submit its findings to the President and the head of NASA.

In 1967, with the Apollo launch pad fire that claimed the lives of three astronauts, NASA had been able to conduct and remain in control of the official investigation of the accident. With the *Challenger* accident, the situation was much different:

> In 1967, NASA was a powerful agency with a powerful leader able to stave off an outside inquiry. In 1986, a weakened NASA, essentially leaderless, could not. A Presidential Commission was appointed because of the greater visibility and public attention this event attracted. Christa McAuliffe made this mission special. An explanation had to be found for the deaths of the Challenger crew and corrective actions implemented in order to restore the legitimacy of NASA and guarantee the survival of the space program.[12]

At this time, NASA was "leaderless" because the Head of NASA, James M. Beggs, had taken an unpaid leave of absence the previous December to defend himself against a grand jury indictment on charges that he tried to cover up cost overruns on a fixed-price Army contract when he was an executive at the General Dynamics Corporation.[13] In 1967, at the time of the Apollo accident, NASA was able to hold its own investigation because it was possible, at the height of the space race with the Soviet Union, to view the accident and the loss of life as a necessary risk. With NASA and the White House having cultivated the 'safe and routine' image of the shuttle, the political atmosphere surrounding the accident was much different.

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[12] Diane Vaughn, *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA*. University of Chicago Press, 1996. p. 388.

[13] Richard S. Lewis, *Challenger: The Final Voyage*. pp. 25-26.

On February 5, the day before the members of the Rogers Commission were officially sworn in, 28 US Coast Guard, Navy, and NASA ships had already picked up 12 tons of debris in an ocean area measuring 6,300 square nautical miles. This was the largest single salvage operation in world maritime history and began on the afternoon of the explosion.[14] By the time the Rogers Commission began its inquiry, speculation by both NASA and the press began to focus on the Solid Rocket Boosters (SRBs) as a possible cause.

After the explosion public sentiment rallied in support for NASA and the manned space program. A *Newsweek* poll from February 10, showed that 67 percent wanted to keep the manned space program despite the explosion, and that 76 percent were in favour of unaltered or increased grants to NASA, as compared with 69 percent two years previous.[15] This attitude gradually changed as the Rogers Commission began its investigation. As more and more evidence began to point at the possibility that the right-hand SRB appeared to have a burn-through in one of the joints of its metal casing, the investigation was presented with two major sources of information that not only pointed out that the SRBs were the likely cause, but that NASA and their contractors had been well aware of the problem. The first of these were NASA memos that were leaked to the press and published in the *New York Times* on February 9. The first of these memos, written by Richard Cook six months before the accident, had identified some engineers who believed that the O-rings in the field joints of the SRBs were "a potentially major problem affecting flight safety and program costs."[16] The second memo, also written by Cook but just days after the explosion on February 3, explained that many NASA engineers suspected that the accident had been caused by the field joint burning through. Cook continued:

> It is also the consensus of the engineers in the propulsion division, Office of Space Flight, that if such a burn-through occurred, it was probably preventable and that for well over a year, the [SRBs] have been flying in an unsafe condition. Even if it cannot be ascertained with absolute certainty that a burn-through precipitated the

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[14] Richard S. Lewis, *Challenger: The Final Voyage*. p. 31.

[15] *Newsweek*, February 10, 1986, pp. 19, 21.

[16] Quoted in Claus Jensen, *No Downlink*. p. 263.

> explosion, it is clear that the O-ring problem must be repaired before the shuttle can fly again.[17]

Because the SRBs were so large, their original design called for them to be manufactured in segments. Some of the segments were to be joined at the Morton Thiokol factory in Utah (factory joints) and others would have to be assembled at NASA's Vehicle Assembly Building in Florida (field joints). Since the SRBs were over 45 m (149 feet) in length they had to be shipped across the country in sections where final assembly of the field joints would take place. There were two large, synthetic rubber O-rings placed around the circumference of each joint and, along with puddy and insulation, were intended to seal the joints against the leakage of hot gas. It was the O-rings in the field joints assembled in Florida that worried the NASA engineers.

Just two days after the problem with the field joints and O-rings became public, a senior engineer from Morton Thiokol, the private contractor NASA hired in 1973 to construct the SRBs, came forward, and of his own volition, to the commission. The engineer was Allan J. McDonald and he presented himself before the commission saying he thought they should know that on January 27, the evening of the launch, engineers at Morton Thiokol had vetoed the launch of the *Challenger* because the temperature was expected to drop to - 6° C (22° F) during the night and, at the time of launch, was only expected to be around - 3°C (26° F). Thiokol engineers would not recommend a launch if conditions were below 12° C (53° F) but had been, after lengthy debate, overruled by management both at NASA and at their own company.[18]

It was not until April 13, when portions of the right-hand SRB were recovered from a depth of 171 m (560 feet) off the coast of Cape Canaveral that the commission and the investigation as a whole could be sure that blow-by of the field joint was what set off the explosion. Still, there were many questions as to what, exactly, happened *in* the joint. Florida had been experiencing unusually cold

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[17] Quoted in Claus Jensen, *No Downlink*. p. 263.

[18] Claus Jensen, *No Downlink*. pp. 266, 297.

weather that winter and that was likely a contributing factor, as the O-rings lost their resiliency and hence their ability to seal the joint—especially in the first 0.6 second of take-off.

Evidence surfaced showing Morton Thiokol knew, as early as 1977, that the joint as a whole was acting in an opposite way than its engineers had expected. Instead of 'closing' from the pressure of the ignited gas inside the SRB, the joint actually 'opened' making the first O-ring, or the primary O-ring, virtually useless except for the first fraction of a second after launch. Rather than having a redundancy in the joint—the secondary O-ring acting as support for the primary—the joint was acting in such a way that the secondary O-ring was now the critical component for the rest of its more than two minutes of flying time. Various alterations were implemented but on November 12, 1981, on just the second flight of the space shuttle, the problem was again discovered when the used boosters were recovered after splash-down. This meant that the joint could no longer be classified 'Criticality 1R' (R for redundant) but had to be moved to the Criticality 1 category—the integrity of the joint now depended upon a single O-ring, 0.711 cm (0.280 inch) thick.

The commission also learned that alterations in the method of testing the joints before launches may have inadvertently created holes in the insulating puddy, which first protect the joint and the O-rings. Still, neither NASA and Thiokol engineers working at the time nor the Rogers Commission could determine the exact workings of the failure. It could not be determined what combination of factors contributed to blow-by and at what stage or stages during the launch—not surprising when failure, in these instances, was measured in distances as small as 0.106 - 0.152 cm (0.042 - 0.060 inch).

Since most of the commissions proceedings were public and broadcast on television, many people found it surprising just how little was understood of these critical aspects of the SRBs. Many observers were also shocked to find just how much could go wrong with the shuttle as a whole:

> More than 700 individual components in the Orbiter system were designated Criticality 1—that is, if that particular component failed to function, the Orbiter and its crew were as good as lost. In 700 instances no backup system existed. Now, one could understand if the wings, for example, and the nose wheel were not

> covered by the fail-safe measures—but 700 parts? That was a bit steep. "They wouldn't let an experimental fighter plane fly with so many single-point failure nodes," one old hand in the aerospace business told *Newsweek.*[19]

The Orbiter system, however, is not such an anomaly. A culture, such as ours, of high-risk technologies has made, according to Charles Perrow, a "habit of courting disaster."[20] The decade of the 1980s witnessed an unprecedented number of media-fed disasters similar in kind to the *Challenger* explosion—the Bhopal Union Carbide Plant's emission of methyl isocyanate (December, 1984), the Chernobyl nuclear reactor core explosion (April, 1986), the Exxon Valdez oil spill (March, 1989)—causing the media to declare the 1980s the "age of limits."[21] In *Normal Accidents,* Perrow asserts that both uncertainty and error are normal occurrences in complex, "tightly coupled" systems.[22] In such systems, components are highly interdependent, so that failure in one component quickly escalates into total catastrophe. Not only, Perrow insists, are the unfolding of these catastrophes almost impossible to predict or prevent, but the tightly coupled systems which produce them are merging—producing an increase in unexpectibility:

> The notion of baffling interactions is increasingly familiar to all of us. It characterizes our social and political world as well as our technological and industrial world. As systems grow in size and in the number of diverse functions they serve, and are built to function in ever more hostile environments, increasing their ties to other systems, they experience more and more incomprehensible or unexpected interactions. They become more vulnerable to unavoidable system accidents.[23]

In an attempt to bring these 'systems' to a more quotidian level, Perrow offers a parable called a "Day in the Life."[24] Perrow describes "your" daily schedule with its encounters of overheated coffepots, lost keys, bus strikes, faulty automobile parts—all interacting in unpredictable but complexly integrated ways to undermine "your" everyday needs and desires. "A Day in the Life"

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[19] Claus Jensen, *No Downlink.* p. 247.

[20] Charles Perrow, "The Habit of Courting Disaster," *Nation* 11 (October 1986) p. 329.

[21] Ann Larabee, "Remembering the Shuttle, Forgetting the Loom: Interpreting the Challenger Disaster," *Postmodern Culture (PMC)* 4.3 (1994) paragraph 4.

[22] Charles Perrow, *Normal Accidents: Living with High-Risk Technologies.* New York: Basic Books, 1984. p. 4.

[23] Charles Perrow, *Normal Accidents.* p. 72.

[24] Charles Perrow, *Normal Accidents.* pp. 5-9.

implies that normal accidents comprise the very texture of everyday or post-industrial existence; a "component of the relentless, complex, uncertain technological composition of postmodern life."[25]

The 'normalization' of an accident was not, however, what the Rogers Commission construed as its mandate. And while they could not pinpoint the actual happenings within the joint, they presented, through the testimony of various NASA and Thiokol engineers, a number of scenarios in a convincing manner—if not in the technical jargon characteristic of NASA. It was concluded that a burn-through had occurred in a field joint of the right SRB and the escaping and extremely hot gases burned through a critical strut holding the Orbiter/SRB/External Tank ensemble together. The right SRB began to rotate, pointing the escaping gas in the direction of the External Tank which eventually ruptured and allowed the liquid hydrogen and oxygen fuel-mixtures to escape and, of course, ignite.

The other major factor, at least the simplified version that was concentrated on by the press and the Rogers Commission, was the failure on the part of middle management (at both NASA and Thiokol) to take any drastic measures to correct the problem with the joints on the SRBs—a problem which was known at least nine years before the explosion. But as Diane Vaughn argues: "This historically accepted explanation not only masked the complex structural causes of the disaster, it obscured the fact that individual responsibility spanned hierarchical levels."[26] Vaughn continues:

> Both for easy public digestion and for NASA's survival, the myth of production-orientated, success-blinded middle managers was the best of all possible worlds. It removed from public scrutiny the contributions to the disaster made by top NASA officials, Congress, and the White House; it minimized awareness of the difficulty of diagnosing the risky technology. Locating blame in the actions of powerful elites was not in NASA's interest. And focusing attention on the fact that, after all this time, the technology still could defy understanding would destroy the NASA cultivated image of routine, economical spaceflight and with it the Space Shuttle Program. The myth of managerial wrongdoing made the strategy for control straightforward: fix the technology and change the managerial

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[25] Ann Larabee, "Remembering the Shuttle," paragraph 4.

[26] Diane Vaughn, *The Challenger Launch Decision*. p. 389.

> cast of characters, implement decision controls, and proceed with shuttle launches.[27]

As Vaughn points out, the Rogers Commission was not given the mandate, if it found it necessary, to recommend the dissolution of the Shuttle program or NASA. Neither was the commission, in all likelihood, poised to condemn 'technology' and 'culture' as a space where the normalization of 'risk' and 'deviance' (as is the thesis of Perrow and Vaughn) occur on a regular basis. And while the commission itself found much that could support such claims, the evidence was eventually buried in a five-volume, 1700-page, published report submitted to the President.

After its 120 day investigation, the Rogers Commission made the conclusions of its report available to the President and the public. But this 1700 page, five-volume published report was just the tip of the iceberg:

> The commission examined 160 individuals, and these interviews alone had generated 12,000 pages of copy. The actual hearings, both public and private, had added another 2,800 pages. In addition, the investigators had examined 6,300 documents, amounting to 122,000 pages in all, and keyed them into the commission data bases. This vast store of material would henceforth be held for the nation in the National Archives in Washington.[28]

The published report contains numerous pages of testimony and commission findings, and the appendices amount to a mountain of charts, diagrams, lists of recovered debris, schematic drawings, as well as digitized and digitally enhanced photographs and video stills, all connected together with 'interpreted' data that attempt to reconstruct the disintegration of the *Challenger* down to a 1,000th of a second. The document as a whole could constitute an example of what Elaine Scarry calls the "mimesis of restorability" which is the "belief that catastrophes are themselves (not simply narratively but actually) reconstructable, the belief that the world can exist, usually does exist, should in this instance have existed, and may in this instance be 'remakable' to exist, without... slippage." [29]

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[27] Diane Vaughn, *The Challenger Launch Decision*. p. 392.

[28] Claus Jensen, *No Downlink*. p. 344.

[29] Elaine Scarry, *The Body in Pain*. New York: Oxford University Press, 1985. p. 304.

If slippage did exist in the commission's official findings, one would have to find it in the almost incomprehensible 1,700 or 122,000 page documents the commission produced. The official explanation which President Reagan commissioned was finally in, and even though NASA and its contractors had to undergo 36 months of reorganization and redesign and re-testing, the space shuttle *Discovery* launched once again on September 29, 1988.

...

Popular Laughter and the Challenger Joke Cycle

> I remember running home from school and flipping on the tv praying for reports that the crew was safe. I watched as Tom Brokaw talked about Judith Resnick and that they'd had a beer together a time or two. He was genuinely upset and I've listened to his news ever since. I remember the memorial service where (I think) Michael Smith's daughter was so devastated. The picture of her has been forever emblazoned in my memory. I'll NEVER forget that day. I utterly despise the cruel Challenger jokes that went around after the accident. c price liberty, sc USA - Monday, July 14, 1997 at 01:03:05 (EDT)
>
> I was eating my breakfast when I felt this jolt in my spine. I knew instantly that something had happened because the pysic feild had been disturbed. As a moderate telepath I knew right then that the Challenger was about to explode. However, Hoth, the Gray Agent (a race of superior alien beings) stopped me, sexually asaulted me and deprived me the privilige of saving the astronauts. I will now commit suicide. Bye. Ilene Dover <whoops.//hpp..com> Clover, Va USA - Thursday, April 10, 1997 at 08:36:29 (EDT)

Notably absent (or conspicuously buried) from the Rogers Commission's reconstruction of the accident was the fate of the crew. The official report does acknowledge that by all indications (photographic evidence and analysis of the debris) the crew compartment and forward fuselage remained intact after the explosion and remained so until it struck the surface of the Atlantic Ocean.[30] A lone exception, and one which the members of the Commission quickly changed the topic from, lies in the testimony of FBI special agent Stanley Klein: "... we do have human hair, Negro hair, Oriental hair, and hair from two different brown-haired Caucasians, and what is interesting, according to the labratory, is that there were no signs of heat damage to any of the

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[30] *Report to the President, U.S. Presidential Commission on the Space Shuttle Challenger Accident.* Washington D.C.: The Commission, 1986. Vol. III, pp. O-401, O-407.

hair, which was surprising. The hair came from face seals, fragments of helmets, and helmet liners, and headrests."[31]

The debris of the crew compartment and forward fuselage was raised from the sea floor during the first week of April. The crew's remains were also located at this time but were recovered under strict security and were secretly offloaded at night and taken by ambulance to the Life Sciences Support Facility in Hangar L on Cape Canaveral.[32]

While the Rogers Commission and NASA were hesitant to broach the subject of the fate of the crew, there was one arena wherein the bodies of the *Challenger* astronauts figured heavily—the jokes which circulated almost immediately after the explosion. The '*Challenger* joke cycle,' as it is known, is not dissimilar to other jokes cycles pertaining to a specific media event, but it stands in contrast to the rarefied and rational language of the Rogers Commission. Some of the jokes (along with variations) are reproduced below:

> What does NASA stand for?
> Need another seven astronauts.
>
> Where are the astronauts spending their next vacation?
> All over Florida.
>
> What colour were Christa McAuliffe's eyes?
> Blue, one blew this way and one blew that way.
>
> Why didn't they put showers aboard the Challenger?
> Because they new the everyone would wash up on shore.
>
> When is the next space shuttle to be launched?
> The fourth of July.
>
> How did they know Christa McAuliffe had dandruff?
> Her head and shoulders washed up on shore.
>
> What's worse than glass in baby food?
> Astronauts in tuna.
>
> What were Christa McAuliffe's last words to her husband?
> You feed the kids, I'll feed the fish.

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[31] Quoted in Ann Larabee, "Remembering the Shuttle," paragraph 9.

[32] Richard S. Lewis, *Challenger: The Final Voyage*. p. 161.

How do we know that Christa McAullife wasn't a good teacher?
Good teachers don't blow up in front of their class.

Variations:
How do we know she was a good teacher?
She only blew up once.

Why was Christa McAuliffe nominated for Mother of the Year?
She blew up only once in front of her kids.

What were Christa McAuliffe's last words?
What's this red button for?

What do sharks eat at Cape Canaveral?
Launch meat.

What subject does Christa McAuliffe teach?
English, but she's History now.

What was the last thing to go through Christa McAuliffe's mind?
A piece of fuselage. [Alternately: Her ass.]

What was the cause of the Challenger explosion?
The crew were freebasing Tang on the mid-deck.

What were the last words said on the Challenger?
I want a light... No, no—a Bud Light.

Why do they drink Coke at NASA?
They can't get 7-Up.

What replaced Tang as the official drink of the space program?
Ocean Spray.

How many astronauts can fit in a Volkswagen?
Eleven—two in front, two in back, and seven in the ashtray.

There are many compelling theories offered to explain the motivation of these jokes. Patrick Morrow insists they are instances of public mockery of the "depersonalized and inhuman" forces which killed McAuliffe and the astronauts, and can impinge upon any individual's life.[33] Patricia Mellencamp and Contance Penley both point to the jokes, specifically those that feature McAuliffe, as betraying North America's fear of women (especially an amateur) entering the masculine world

[33] Patrick D. Morrow, "Those Sick Challenger Jokes," *Journal of Popular Culture*, Vol. 20 (Spring 1987) no. 4, p. 181.

of high technology.[34] Others such as Roger Simon, writing in the *Los Angeles Times* shortly after the explosion, simply attributes it to human depravity:

> ... A colleague here at the paper has a whole list of the jokes. They had upset him greatly, and newsmen are very hard to upset. Black, sardonic, humor is common to newsrooms. These jokes, however, went beyond that.
> "How could people joke about a thing like this?" He asked.
> But people will joke about anything. Maybe that's the point. Maybe it is some people's way of saying that nothing is sacred....
> True, almost all jokes are based on someone else's misfortune. That is the basis for humor....
> Take any joke you can think of. Take one [by] my favorite comic, Henny Youngman: "Doctor gave a guy six months to live. Guy couldn't pay the bill; doctor gave him another six months!"
> Why is that joke funny? Why is it not cruel? Because the object of the joke is not real. We can joke about a guy having six months to live, because there is no such guy. It is harmless anonymous joking....
> The McAuliffe jokes are different, however. In them, the targets and the tragedy are only too real. Psychologists I have talked to tell me that is the point. They say we joke about the truly horrible as a way of distancing ourselves from it, as a way of isolating ourselves from tragedy. By joking about it we make it unreal.
> Well, maybe. But maybe we joke about such things for a different reason. Maybe we do it to satisfy some deep, dark urge within us to speak the unspeakable, to push against the limits of decency.
> I am not sure who makes these jokes up. I am not sure why they do it. I am not sure how they get the jokes spread around the country so fast.
> I'm only really sure of one thing. They are not doing it to be funny.[35]

Simon, while coming down against the *Challenger* jokes, touches upon many of the jokes' most salient points; which, in all likelihood, was probably not what Simon intended. It is, however, why this article was quoted at length in another essay, which treat the *Challenger* joke cycle in perhaps its truest form, by—in another irony—Elliott Oring.[36]

Oring argues that the *Challenger* jokes can be approached by looking at their "appropriate inconguities" in relation to the larger conventions of public discourse. As well, Oring stresses that because humour generally, and these jokes specifically, depend on double meanings—where a word or phrase has two or more possible meanings that are held in tension—it is sometimes impossible to discern a joke's specific meaning, as well as the motivation behind its telling, without

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[34] Patricia Mellencamp, "TV Time and Catastrophe, or *Beyond the Pleasure Principle* of Television," in *Logics of Television: Essays in Cultural Criticism*. ed. Patricia Mellencamp. Bloomington: Indiana, 1990. pp. 257-258. And Constance Penley, "Spaced Out," pp. 179-212.

[35] Roger Simon, "The Jokes that Speak the Unspeakable," *Los Angeles Times*, 23 February 1986, Pt. IV, p. 11.

[36] Elliott Oring, "Jokes and the Discourse on Disaster," *Journal of American Folklore* v. 100, no. 397 (July-Sept., 1987) pp. 276-286.

knowledge of the teller, audience, setting, and context.[37] This perhaps explains why Simon's colleague, so used to the black and sardonic humour characteristic of newsrooms, might have been appalled by these particular jokes at that particular time.

Oring points out that many of the jokes equate NASA with images of death and failure:

> In one sense they are simply recognizing that the privileged place held by the Space Administration in American consciousness was compromised. NASA was presented as one of the few American bureaucracies that worked—that got the job done. The jokes suggest that NASA was no longer unique among bureaucratic institutions.[38]

Here, as well, it is difficult to assign a particular motivation; "[a]lthough such jokes *may* be used as a criticism of NASA," Oring continues, "such criticism is not necessarily implied by the jokes."[39] The same difficulty arises with those jokes which specifically target McAuliffe. One commentator on the *Challenger* jokes shows disbelief, as Simon did, over the fact that people would want to laugh at McAuliffe's tragedy: "Christa McAullife was a victim, and she was killed. Who would want to attack her?"[40] But as Penley shows, it is not difficult to imagine why and for what reasons. Not only was McAuliffe a woman impinging on a traditional, and still to some extent an exclusive, male domain, but she was an amateur who had no business being there. On the other hand, she was a media 'darling' who, in the months previous to the launch, was constantly present in all kinds of media coverage. Not surprisingly, many in the audience not only reacted negatively to this, but may just have gotten sick or jealous of her presence.

A more general interpretation of the jokes and their function was identified by Simon himself: the jokes exist in an arena or space where the notions of "decency" and "unspeakability" are suspended. In this sense it is not surprising that he was a journalist writing for a major American newspaper and viewed these jokes as nothing more than distasteful. As Oring points out, the

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[37] Elliott Oring, "Jokes and the Discourse on Disaster," p. 278.
[38] Elliott Oring, "Jokes and the Discourse on Disaster," pp. 281-282.
[39] Elliott Oring, "Jokes and the Discourse on Disaster," p. 282.
[40] Patrick D. Morrow, "Those Sick Challenger Jokes," p. 181.

explosion of the *Challenger* is a type of event which is usually regarded as the sole domain of the mainstream media which, not only help create these events, but set the 'rules' for proper discourse about the event:

> ... it should be recognized that public disasters are media triumphs. They are what make the news. Indeed, our awareness of national or international disasters are dependent upon the media—particularly television news broadcasting. Furthermore, the frame for communication of information about a disaster is established by the media. In doing so, they establish canons of speakability and unspeakability (or viewability and unviewability)....
>
> The shuttle disaster was a photojournalistic coup. It happened "live on TV" and could be replayed countless times to viewing audiences. It could be replayed not only because it had been captured on magnetic tape, but because the view of that human disaster miles above the earth was shielded by flame and the opaque wall of the shuttle cabin. These images of the disaster were not only decided to be "speakable" but endlessly repeatable.[41]

This respectable and speakable discourse is not limited to the major media networks, but is also mobilized by the state, as is most evident in the very speakable document produced by the Rogers Commission. The 'unspeakable' discourse represented by the *Challenger* joke cycle stands in contrast to the clean and official discourse of the state and media. The jokes are vulgar. The jokes are obscene and grotesque, but are rightly the property of public speech as the Latin term *vulgus* refers to the crowd or collectivity.[42]

In this sense, the *Challenger* jokes are akin to what Achille Mbembe identifies as "popular laughter" or "verbal poaching."[43] Mbembe's analysis is concerned with the 'stylistics of power' as it functions in the postcolonial country of Cameroon but has particular relevancy for the ways the public discourse of the *Challenger* jokes are related to the official discourse of the Rogers Commission and the media.

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[41] Elliott Oring, "Jokes and the Discourse on Disaster," p. 282.

[42] Achille Mbembe, "Prosaics of Servitude and Authoritarian Civilities," *Public Culture*, vol. 5 no. 1 (Fall 1992) p. 129.

[43] Achille Mbembe, "The Banality of Power and the Aesthetics of Vulgarity in the Postcolony," *Public Culture*, vol. 4, no. 2 (Spring 1992) pp. 1-30.

As Mbembe points out, the postcolonial state is marked by opulence in the images and metaphors it produces and its self-celebration in the form of ceremonies and festivities. Verbal poaching is an example of the ways which ordinary people play with and manipulate representations that State power projects of itself and society. Of particular interest to Mbembe are examples which occur "not just well away from officialdom, out of earshot, out of sight of power but also within the actual arenas where they were gathered publicly to confirm the legitimacy of the State."[44]

Mbembe is interested in the similarity between the metaphors employed by the state and the those twisted and additional meanings created by the people. Many of the examples of verbal poaching produce metaphors associated with the body, its orifices, and both the consumption and excretion by that body. While many of the meanings and metaphors can be seen as examples of the vulgar and obscene (the "over-eating," "faecal matter," "loud fart," or "digital orgasm," performed by the president), Mbembe considers these metaphors and meanings to be the daily and banal images which are part of the stylistics that governs representations of power in the postcolony.

Mbembe does not consider these verbal travesties to be complete acts of resistance to state power, but are properly and intimately linked with the official discourse, and those images which the state uses to represent itself. As Mbembe describes it, the official and the vulgar are inscribed in the same "epistemological field;" they do not so much stand in direct opposition as they are part and parcel of the same discursive and 'stylistic' economy.

The *Challenger* accident, as recreated in both the Rogers Commission report and the media coverage, required completion which can only come from the realm of the popular or vulgar. It is not so much that the jokes 'create' something which was not in evidence in the media coverage or the official explanation. Even in the meticulous but technically disembodied recreation presented by the Rogers Commission, the bodies of the crew and their horrific death are *there*, if only because

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[44] Achille Mbembe, "The Banality of Power," p. 7.

they are never mentioned. They exist as an indescribable and invisible remainder that is quickly brought to the fore by the 'imagination' of the jokes.

Significantly, Oring points to the fact that the images of destruction within the jokes are often responses to some innocuous question about details—the colour of McAuliffe's eyes, her last words, the last thing said on the shuttle, or why there were no showers on board—which are "precisely the kinds of questions that are regularly entertained by television newscasters and commentators."[45]

Oring also points out that many of the jokes employ the names of familiar and amiable commercial products that are regularly seen on TV:

> This linking of the Challenger disaster with television commercials does not seem entirely coincidental. The juxtaposition of commercial products with images of disaster seems a particularly apt commentary on the television medium and the images it presents to viewers at home. Television news programs regularly conjoin images and stories of death, disease, and destruction with images of commercial products. Virtually every television report of a news disaster is preceded and followed by a commercial message (or each and every commercial message is preceded and followed by a report of a disaster).[46]

It is also significant to note that NASA and specifically the shuttle was increasingly seen as a commercial venture. Not only were commercial payloads an integral part of the shuttle's operating budget but, because financial restrictions and pressures from Congress were becoming so severe, NASA was forced to maintain an unrealistic and dangerous launch schedule—which was an indirect cause of the explosion as outlined in the Rogers report. This commercialism was most in evidence in July, 1985 when one of the 'experiments' taken aboard *Challenger* on flight 51-F was "a taste test of Coca-Cola and Pepsi packaged in zero-g dispensers."[47]

If, in his allegory "A Day in the Life," Chales Perrow is correct in implying that the danger and risk of 'normal accidents' comprise the very fabric of postmodern life, then I don't think it is a mere

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[45] Elliott Oring, "Jokes and the Discourse on Disaster," p. 283.
[46] Elliott Oring, "Jokes and the Discourse on Disaster," p. 284.
[47] Tim Furniss, *Space Shuttle Log*. p. 77.

coincidence that consumer products are so visible in the *Challenger* jokes. One aspect which Oring does not pick up on is the simple fact that all these products are 'soft drinks' or have some direct reference to the mouth. Tang, 7-Up, Coke, Ocean Spray, canned tuna, and even and especially the ashtray of the Volkswagen (cigarettes being the most pleasurable, addicting, and deadly object of consumption) are all consumed orally. Products which, if not taken in moderation—like so many other products TV tells us is bad for us (including TV itself)—might have serious side-effects and may even prove fatal.

It is ironic that the "unspeakable utterance" should reference so many consumer products that are destined for the mouth and to be ingested by the body; making the death and dismemberment in these jokes 'distasteful' in another way: one that is not only vulgar to the point of 'leaving a bad taste in one's mouth' but simultaneously not without its pleasure ("I still laughed; we all do" as Penley says).[48] The bodies of the crew both leave and enter the mouth of the joke-telling public in a repetitive cycle not unlike the visual but clean repetition of the video on network television. What could be imagined but not spoken about in the official discourse, is manifestly present in the mouth of the vulgar imagination. Barthes has said, "I hallucinate what I desire."[49] And so with the *Challenger* joke cycle: hallucinating/desiring the most unspeakable of desires—the moment of death (or the consciousness of that moment)—the unspeakable itself.

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[48] Constance Penley, "Spaced Out," p. 180.

[49] Roland Barthes, *A Lover's Discourse: Fragments.* Trans. Richard Howard. Farrar, Straus and Giroux, 1978. p. 187.

Chapter 6

"Take My Hand"

Dismemberment and the imaginary image of the crew's exploding bodies are significant aspects of the *Challenger* joke cycle, and, as we've seen, an important complement to the official discourse on the explosion. Another aspect of the accident which circulated in the 'vulgar' or popular imagination was not just the fragmented bodies of the crew, but the imagined moments before their death. Since the exact time of death either could not be officially determined or was simply withheld by NASA, the 'vulgar' imagination has focused either upon the moment just before the explosion or the two minute and forty-five-second interval between the moment of the explosion and the moment the crew compartment hit the water.[1]

Shortly after the explosion it was widely assumed that the crew of 51-L died instantly in the explosion 73 seconds after take-off. It seemed self-evident that no one could survive the extreme forces of the explosion. However, speculation in the both alternative and mainstream press, fueled by information contained within the Rogers Commission report, began to focus on evidence contrary to this belief. The crew cabin was, in various NASA and press photographs taken seconds after the explosion, visibly intact and rumours began to spread that some emergency oxygen units provided for each crew member were found engaged and with the oxygen supply partially depleted. When the crew cabin separated from the main fuselage during the explosion, the crew's oxygen supply was also severed. However, crew members could continue breathing air—not pure oxygen—from emergency personal egress packs connected to their helmets. The supply was

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[1] The term, 'vulgar' imagination, seems an appropriate one since it does not discriminate between either the media source or the position of the speaker—placing the capacity for this potential imagining in a broader context. The death of the crew has been 'spoken' in mainstream media sources but only briefly and in a 'tasteful' manner. Likewise, it is only mentioned a few times in the FAS responses which, while they could be considered a form of popular speech, tends to be more conservative. Speculation over the deaths of the crew is prevalent among other forms of popular discourse—even some discussion which, like the FAS responses, took place over the Internet—but is more irreverent and detailed.

intended to last for six minutes while the crew made an emergency exit from the cabin in the event there was an emergency on the pad.

These air packs had to be engaged manually and four of them were eventually recovered from the ocean; it was found that three had been activated. One, identified as Pilot Michael Smith's, was found to be three-fourths to seven-eighths depleted. Another, similarly depleted, could not be identified. Nor a third, which appeared to be activated but the extent of its depletion was never reported. The fourth air pack, belonging to the Commander Dick Scobee, was not activated. The activation switches for Commander Scobee and Pilot Smith were not reachable as these switches are located on the back of their seats. This indicated that either Judith Resnik or Ellison Onizuka must have been conscious as they would have been the ones to activate Smith's airpack.[2]

The internal investigation into the cause of death was headed by Dr. Joseph P. Kerwin, director of Life Sciences at the Johnson Space Centre. His report, submitted to Admiral Richard H. Truly and the Rogers Commission, was the document that originally suggested that the forces experienced at the time of the explosion were survivable and that the cause of death was either due to decompression in the crew cabin or impact with the water. In his report, Kerwin noted that it was almost impossible to determine what exactly took place after the explosion:

> The findings are inconclusive. The impact of the crew compartment with the ocean surface was so violent that evidence of damage occurring in the seconds which followed the explosion was masked. Our final conclusions are:
>
> --the cause of death of the Challenger astronauts cannot be positively determined;
>
> --the forces to which the crew were exposed during Orbiter breakup were probably not sufficient to cause death or serious injury; and
>
> --the crew possibly, but not certainly, lost consciousness in the seconds following Orbiter breakup due to in-flight loss of crew module pressure.[3]

According to Kerwin, some or all of the crew were certainly alive after the explosion but, as he

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[2] Richard S. Lewis, *Challenger: The Final Voyage*. p. 175.

[3] Joseph P. Kerwin, Report to Admiral Richard Truly, n.d (1986), [http://www.ksc.nasa.gov/shuttle/missions/51-l/docs/kerwin.txt]. Kerwin's full report is reproduced in Appendix 8.

tries to make clear even when he cannot be certain, were likely unconscious. Kerwin's report was not widely circulated as it was an internal document of the Rogers Commission. However, on August 4, 1986, two months after the publication of the Rogers report, *Aviation Week and Space Technology,* published the following headline on their cover: "Shuttle Crew Survived Breakup... Began Emergency Procedures."[4] *Aviation Week*'s former editor, until 1980, was Robert B. Hotz, who was a member of the Rogers Commission.[5] While the article in *Aviation Week* mostly reproduced the findings in the Rogers report and the report of Dr. Kerwin, it did establish very early on that the crew had been alive and breathing for the two minutes and forty-five seconds it took for the crew compartment to impact with the ocean at 328 km/h (204 mph), or a force of 200 g—at which time death would be instantaneous.

The image of the *Challenger* crew, still alive and possibly conscious of their impending fate, gradually surfaced in various forms of the press, the Internet, and in the public imagination. While it remained an unapproachable and unspeakable subject in much of the mainstream press, both the controversy and NASA's attempts to withhold information ignited debate and speculation as to how the astronauts finally died. Which, of course, is not surprising given that the subject of death and the reconstruction of the final moments of an accident is a common feature in these scenarios.

For events such as the *Challenger* explosion, the assassination of Kennedy, and the recent death of Princess Diana, the muted and silenced body becomes the site where public fascination and speculation takes hold in order to (re)construct the last thoughts, the terror, and possibly the words of the victims. In the case of Diana, much interest was given over to speculation about her awareness of the situation at the crash site; especially if she was aware of the presence of the paparazzi. *The National Enquirer,* riding on this public interest, published on its cover her alleged last words: "Leave Me Alone."

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[4] Claus Jensen, *No Downlink.* p. 351.

[5] *Report to the President,* Vol. I, p. 202.

In the case of the *Challenger,* the bodies of the victims had been rendered silent but still have the power to speak. As early as 1993, a document purporting to be a transcript of the crew's voice recordings surfaced on the Internet. This transcript contained information which took place in the interval between the explosion and the moment the crew's cabin plunged into the ocean. This transcript resembles, in its form, the transcript which NASA released soon after the disaster. This official crew transcript contains voice recordings from T-2:05 minutes up until the moment of the explosion.

The NASA or official crew transcript was itself an object of controversy as it was released in apparently 'edited' form. The final words of Pilot Michael Smith, recorded at T+1:13, were excluded from the original version:

(...)

T+41	CDR	**Going through nineteen thousand.** (NASA: Altitude report, 19,000 ft.)
T+43	CDR	**OK we're throttling down.** (NASA: Normal SSME thrust reduction during maximum dynamic pressure region.
T+57	CDR	**Throttling up.** (NASA: Throttle up to 104% after maximum dynamic pressure.
T+58	PLT	**Throttle up.**
T+59	CDR	**Roger.**
T+60	PLT	**Feel that mother go.**
T+60		**Woooohoooo.**
T+1:02	PLT	**Thirty-five thousand going through one point five** (NASA: Altitude and velocity report, 35,000 ft., 1.5 Mach).
T+1:05	CDR	**Reading four eighty six on mine.** (NASA: Routine airspeed indicator check.)
T+1:07	PLT	**Yep, that's what I've got, too.**
	MCC	**Go at throttle up.** (NASA: Continue at full throttle)
T+1:10	CDR	**Roger, go at throttle up.** (NASA: SSME at 104 percent.
T+1:13	PLT	**Uhoh.**
T+1:13		**.....LOSS OF ALL DATA.**[6]

The reason for NASA's omission of Smith's final utterance from T+1:13 was, and still is, the subject of controversy. Many believe that it was intentionally withheld because NASA did not want

[6] Transcripts exist in various versions depending on the sources from which they have been taken. This has been excerpted from the original and official crew transcript released by NASA with one exception: the comments of the Mission Control communicator at Houston (MCC) have been added at T+1:07. The MCC is usually an astronaut who speaks only to the crew. The public affairs commentator (not included here) speaks to the news media. Sometimes both can be heard by visitors at the launch over the NASA PA network. Crew chatter on the Orbiter intercom is not broadcast but is heard at Mission Control. The original NASA transcript (without MCC comments) is available at [http://www.hq.nasa.gov/office/pao/NewsRoom/transcript.txt] and is reprinted in Appendix 4.

to fuel speculation that the crew, or even the ground crew, knew something was wrong. Richard Lewis contends that while it was the last recorded utterance, it was not heard by Mission Control in Houston.[7] This scenario seems likely since the first transcript, with Smith's "Uhoh" missing, would have been made from tapes as they were recorded on the ground. It was not until March that the magnetic tapes of the crew's voice recordings were recovered, at which time they then had to undergo a lengthy process of 'cleaning' after spending 43 days at the bottom of the Atlantic. In any event, Smith's final words were publicly acknowledged by NASA when they released the full transcript on July 28, 1986.[8]

The presence of the word "Uhoh" fueled speculation as to just how much the crew was aware of any problems before the actual explosion, and the omission of Smith's final utterance from NASA's original version created the belief that NASA could also be withholding other pertinent information. In 1987, The New York Times Company took NASA to court to release the tapes of the original recordings, and on June 3 the Space Administration was ordered to hand over the recordings.[9] NASA, as expected, appealed the decision, arguing that the tape contains identifiable human voices, and therefore is 'related to' and 'personal to' particular individuals. The court, however, disagreed saying that to call the sound of a human voice 'personal information' distorts the plain meaning of the phrase. NASA appealed once again.

On December 12, 1991, NASA and *The New York Times* were once again listening to a court's ruling:

> NASA does not dispute that the substantive information contained in the tape is technical and non-personal. Rather, the 'intimate detail' that underlies the privacy interest in this tape is the sound of the astronauts' voices.... NASA... has, in fact, provided the public with a transcript of the tape's substantive contents. But how the astronauts said what they did, the very sound of the astronauts' words, does

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[7] Richard S. Lewis, *Challenger: The Final Voyage*. p. 16.

[8] Brian Welch, "Challenger transcript history," Letter to [sci.space.shuttle], 29 January 1986. (Reproduced in Appendix 7).

[9] Information and details of the case come from Rick Adams, "The Challenger's Final Minutes: Challenger astronaut's last words, or a tabloid hoax?" [http://www.winternet.com/~radams/chall/].

> constitute a privacy interest. This is the 'intimate detail' that the *Challenger* families seek to protect from disclosure....
>
> The Court finds that the *Challenger* families' privacy interest in the tape in question outweighs the public interest such that release of the tape would constitute a clearly unwarranted invasion of the families' personal privacy. Therefore, the Court hearby denies plaintiff's motion for summary judgement and grants defendant's motion for summary judgement.[10]

The 'intimate detail' can only refer to Simth's "Uhoh" since most of the transcript—other than the crew's excitement and an 'expletive,' uttered by Judith Resnik but removed from the transcript by NASA—is unremarkable and technical. This judgement was, this time, appealed by *The New York Times* in the US Supreme Court where, again, NASA and *The New York Times* fought over the recording of two humanly uttered syllables. In the end, NASA was able to retain possession of the tapes.

In a similar way, public access to the autopsy reports was denied to the American Medical Association in 1986 by NASA's citation of Exemption 6 in the 1977 Freedom of Information Act. Exemption 6, the one used throughout the trial with *The New York Times*, allows the US government to withhold information from personal and medical files that would constitute "a clearly unwarranted invasion of personal privacy."[11] This time, the request for information—while it would also serve the vulgar imagination—had a more serious motivation. Establishing the exact cause of death had important implications for some sort of escape system for the crew. Of course, the explosion occurred at one of the most critical stages of the launch—the solid-rocket-fuel SRBs can neither be disengaged nor turned off—making escape impossible. But if the crew survived the explosion and died only at the moment of impact it would seem prudent not to build some sort of parachutes into the design of the crew cabin. This, of course, would involve a substantial redesign—not to mention cost—as all of the other Orbiters would have to be rebuilt. Many suspected that NASA and Congress would be unwilling to take such drastic measures.

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[10] Quoted in Rick Adams, "The Challenger's Final Minutes," in the section titled "The New York Times v. NASA."
[11] Richard S. Lewis, *Challenger: The Final Voyage*. p. 178.

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"Take My Hand"

Before I ever began researching this topic, I had heard that one of the things said by a member of the crew after the explosion was: "Take my hand." That line stuck in my memory ever since, I suppose, because it just seemed such a generous thing to say in what must have been a horrific moment. I encountered the remark again, in slightly altered form, in Penley's article of Christa McAuliffe: "... a NASA investigator said that one astronaut can be heard saying to another, 'Give me your hand.'"[12] Penley's source for this remark is a brief 1990 *Time* column by David Ellis titled "Grapevine."

The next time I encountered "Take my hand/Give me your hand" was at a website titled "The Challenger's Final Minutes: Challenger astronaut's last words, or a tabloid hoax?" authored by Rick Adams.[13] The comment was contained in the T+1:13 transcript allegedly being the recording of the crew's final words after the explosion occurred. It was published by *The Weekly World News* but has also circulated widely on the Internet. An excerpt follows:

(...)

T+1:56 (M)	God. The water... we're dead! (screams)
T+2:00 (F)	Goodbye (sobs)... I love you, I love you...
T+2:03 (M)	Loosen up... loosen up...
T+2:07 (M)	It'll just be like a ditch landing...
T+2:09 (M)	That's right, think positive.
T+2:11 (M)	Ditch procedure...
T+2:14 (M)	No way!
T+2:17 (M)	Give me your hand...
T+2:19 (M)	You awake in there? I... I...
T+2:29 (M)	Our Father... (unintelligible)...

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[12] Constance Penley, "Spaced Out," p. 186.

[13] Adams is a computer technician and former journalist with an interest in media stories that get heavily circulated through popular discussion and other non-media channels. His website is available at [http://www.winternet.com/~radams/chall/]. Also, see my email interview with Adams as reproduced in Appendix 10.

T+2:42 (M) hallowed be Thy name... (unintelligible).

T+2:58 (M) The Lord is my shepherd, I shall...not want. He maketh me to lie down in green pastures... though I walk through the valley of the shadow of death, I will fear no evil... I will dwell in the house...

T+3:15 to end None. Static, silence. [14]

A final 'silence' then. But this document itself became the object of heated debate, much of which is the focus of Adams' website. Despite the widely held belief that it was fabricated or fake, the speculation continued—mostly on Usenet discussion groups. But rumours of the recording's existence had already been circulating before the transcript appeared sometime in 1993, and investigations as to the recording's possible existence and source (either from the crew cabin's own recording system or a personal recorder carried by a member of the crew) were undertaken by various people. Dennis Powell, a noted freelance journalist twice nominated for a Pulitzer prize for his coverage of the *Challenger* explosion, was one of those investigators. Ironically, Powell believes the he played a leading role in the creation of the transcript—that the transcript originated from a telephone conversation where he was asked by a tabloid reporter (purporting to be a filmmaker) to elaborate on a rumoured recording of the astronauts' last moments. Rumours which Powell, of course, had heard about but been unable to verify.[15]

While Powell believes that the 'fake' transcript is obviously fake, he does believe that there is a possibility that the crew's last words were recorded:

> However, crew members were and are issued little cassette recorders. i was assured by nasa that these were all stowed in lockers during launch. this struck me as odd, in that one figures the first teacher in space would be recording her sensations and so on throughout the launch, perhaps to play to her students later -- we've never really had a play-by-play, except from astronauts who are at work at the time, of a launch. moreover, it turns out that christa's recorder was found along with her helmet the morning after the disaster. it is certainly possible that the helmet left her head and the locker popped open and the helmet and recorder decided to swim together for shore, but to me it's far more likely that they were in close proximity to begin with, meaning that the recorder was not stowed but was instead on her person. what's more, the tape had been partly wound, strongly suggesting that it had been partly recorded.

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[14] The full version of the transcript is reproduced in Appendix 5.

[15] Powell's letter to Rick Adams explaining the details of this telephone conversation and Powell's belief that it was this conversation which eventually led to the transcript published in *The Weekly World News* is reproduced in Appendix 6.

> After refusing to admit that the tape had been found but then being confronted by the statements of the coast guard guys who found it, nasa said that it was impossible to read the tape. interestingly, the contractor that nasa uses to reconstruct magnetic media (who did successfully recover data from other magnetic devices aboard the shuttle, including the recorder containing the infamous "uh-oh" which had been at the bottom of the ocean for two months) was never given the cassette.[16]

At the same time, however, Powell believes that tape could have been destroyed or simply 'hidden' by NASA without its contents ever being heard:

> Given nasa's near-total panic at the time -- [Robert] Crippen, [George] Abbey, even [Admiral Richard] Truly were telling investigators to "lose" data about the fate of the crew -- it would be unsurprising to learn that no attempt was ever made to read the tape; somewhat but not terribly surprising to find that it was destroyed. but i know neither of these things to be a fact. they are merely possibilities and, in the first case perhaps a likelihood.[17]

Near the end of his letter, Powell categorically states his feelings about the transcript: "The stupid thing has resurfaced from time to time since then. It is bogus. I know it is bogus...."[18] This 'stupid thing,' however, masks a much more desirable object—the possible last words of the crew. Like the *Challenger* jokes, it is an 'imagining' of the 'unimaginable' which is, in itself, too strong to resist. In an earlier sentence from his letter to Adams, Powell makes an admission: "I have spent more time chasing the crew cabin tape than I like to admit," not because Powell thinks he is participating in 'tabloid' journalism but because of "the utter failure of my endeavors in that regard."[19]

...

"There can be no evolution of consciousness

without the misuse of language"[20]

In this regard, Powell is not alone in the amount of time he has spent 'chasing' the recordings. Discussion, as it itself is recorded on the various Internet Usenets and newsgroups, continues to

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[16] Dennis Powell, "shuttle transcript," Letter to R. Adams, 18 February 1996. Paragraphs 3, 4. (See Appendix 6.) Letters from the Internet have not been corrected for spelling or grammar.

[17] Dennis Powell, "shuttle transcript," Paragraph 5.

[18] Dennis Powell, "shuttle transcript," Paragraph. 11.

[19] Dennis Powell, "shuttle transcript," Paragraph. 6.

[20] Anonymous quote from the Internet.

the present.[21] An interesting aspect of this discussion is that it unfolds in an ever increasing scope with relatively little information. The 'facts' concerning the transcripts (either official or 'fake') is rather limited and self enclosed, but the discussion proceeds—in part fueled by 'newbies' who have just encountered either the rumour or the 'fake' transcript itself—dissecting and rehashing the issue while it alights upon other subjects and events.

What is most interesting about the discussion which took, and takes, place on the many Usenet discussion groups—if we, for a moment, put aside the validity of the transcript—is that much of this discussion is just that: a discussion. These are conversations between people who are, for the most part, familiar with one another and who have created their own jargon and points of reference. Reading a letter from the archives of these Usenet discussion groups is difficult as it is like entering a room in the middle of a conversation and trying to piece together what the discussants are talking about—this is evident in the following letter from 'Brian' who is replying to 'Markus' (quotations from Markus' previous letters are marked by '>>>' and '>') and another participant (signified by '>>'):

> >>>That was IIRC an american
> >>>news story which made it over into our program. So from that point of
> >>>view, NASA indeed has released the recording.
>
> >>I suppose you heard a reading of the transcript dubbed over the
> >>available video files.
>
> >
> >No, _absolutely_ not, that was in fact the real recording.
> >Trust me, my ears and other senses are in good shape...
>
> The cabin audio of the Challenger accident has never been played on an American news broadcast. The New York Times took NASA to the Supreme Court (I believe, maybe just a lower court) to get the audio tape released to the public. They failed.
>
> The transcript of the recording was released and most of the American news broadcast reported it at the time. None to my knowledge made any attempt to make the "re-creation" seem authentic, they were more along the lines of the reporter saying "and then Commander Scobee said..."
>
> It sounds as though you have been the victim of a hoax, Markus. Either that or you have some high-level connections that you aren't sharing with us!
>
> Or could you be misremembering the Apollo 1 audio for the Challenger accident audio?

[21] Most letters posted to Usenets, or newsgroups, are archived at DejaNews [http://www.dejanews.com].

> The Apollo 1 audio is officially unavailable, too, but it somehow leaked out. I heard it played on, I think CBS around the time of STS-1.
>
> Brian[22]

The discussion which takes place on the Usenets betrays the fact that this is a space unlike most official media channels. While almost anything can be said (or asked), participants know that their views and statements are likely to both be supported by some and come under harsh criticism by others. It is a space, however, which leaves no detail or seemingly innocuous piece of minutiae untouched, as one participant reveals when he asks about particular details within the official transcript:

> Do any of the experts in this group know what was the "Security blanket." Judy Resnik was referring to in the transcript?
>
> >>CDR.....Scobee
> >>PLT.....Smith
> >>MS 1....Onizuka
> >>MS 2....Resnik
>
> >>Time Crew Crew
> >>(Min:Sec).....Position Comment
> >>
> >>T-2:05.....MS 2 Would you give that back to me?
> >>T-2:03.....MS 2 Security blanket.
> >>T-2:02.....MS 2 Hmm.
>
> Was her Security blanket the cigarette lighter her lover gave her to take to space? Or, was it some other personal item?
>
> and also who was Scobee thinking of?
>
> >>T-1:33. .....MS 2 Got your harnesses locked?
> >>T-1:29.....PLT What for?
> >>T-1:28.....CDR I won't lock mine; I might have to reach
> >> something.
> >>T-1:24.....PLT Ooh kaaaay.
> >>T-1:04.....MS 1 Dick's thinking of somebody there.
> >>T-1:03.....CDR Unhuh.
>
> Was Scobee thinking of Resnik? I know she was interested in a couple of men in the astronaut corps. Who?[23]

Of course, everyone is an expert in these discussions—much like in informal conversation in everyday life—and even if they're not, that fact will not prevent anyone from making a case for their own beliefs. Still, these discussions are not without their own self imposed restraint, as many

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[22] Brian S. Thorn [bthorn@airmail.net], "Re: Challenger explosion (Do we need a Freedom of Information request?)," in [sci.space.shuttle]. 4 April 1998.

[23] John T. Forall [ao311@yfn.ysu.edu], "Re: Resnik's Security blanket (Was: TRANSCRIPT OF THE CHALLENGER CREW)," in [sci.space.shuttle], 13 February 1996.

of the participants are well aware of what they are doing, and the 'places' where this type of discussion leads:

> I've written about this BOGUS transcript before to this group (about 2 yrs ago) but here's the summary of how this mutant animal came to life... [A summary of the Powell episode].
>
> As to whether one of the crew (Christa is the rumour) kept a personal recorder and it was found with some tape having been "recorded" what does it matter? With the "motorcycle helmets" and certain other noises and questionable full consciouness there's little to have been recorded in any case. The MOST that one could possibly hope for is some ... no...skip that. I dont want to start another rumour!
>
> Keith[24]

Many of the problems associated with this discussion revolve around the 'lack' of information. Even when the facts are there, in full view, they are either conveniently ignored or simply forgotten. Like the report of the Rogers Commission, pertinent information is buried under the sheer weight of voluminous discussion, and when it is 'found' it undergoes an ever-so-slight metamorphosis each time it is passed—like in the old party game—from one mouth to the next. There is another problem which is certainly related to the lawsuit NASA faced over the transcript containing the 'intimate detail' of Smith's last word. The discussion on the Internet is a textual language and so intonation or inflection—the very sound of the voice—has been lost. Which means that meaningful tropes such as sarcasm and irony are all the more difficult to detect and, as often is the case, statements sometimes get taken in ways which they were never intended to be taken.

In this sense, the continual evolution of this discourse resembles Patricia Spacks discussion of gossip, especially for its often contradictory and paradoxical nature.[25] It is both serious and frivolous, paying close attention to detail yet distorting the facts; it has the ability to create a distinct community but can be exclusionary, and it can be both characterized as 'idle talk' and malicious in intent.

...

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[24] Keith E. McInnis [mcinnis@atlantic.net], "Re: challenger transcript," in [sci.space.shuttle], 14 February 1996.
[25] Patricia Meyer Spacks, *Gossip*. New York: Alfred A. Knopf, 1985.

Even when you tell the truth, no one believes you

Most people believe that the 'fake' transcript is indeed a hoax. Some tried to persuade the other participants in the Usenet groups that a voice recording of the time after the explosion was an impossibility. Steve Patlan, an engineer at NASA, outlined the technical reasons why the voice recorders would not function after the explosion. Despite the logical weight of his argument, Patlan seems to recognize the futility in providing such detailed information. The last two paragraphs of his letter show his frustration:

> I welcome any reasonable, verifiable objections to the technical arguments presented above. If you don't know diddly about Shuttle hardware, don't bother. If you can only offer paranoia and skepticism, that and a quarter will buy you a cup of jack-squat. If you want to argue that since my Handbook was revised in 1994 it is obviously a battery cover-up, I can only say: Get a life, you pathetic wanker. "Take my hand" is a rancid red herring, so dont' EVEN talk to me about that.
>
> Having said that, I offer the following comments on the supposed transcript: Why didn't anybody at least *try* to signal Mission Control? Why not more profanity? Why is it so dreadfully cliched and melodramatic? ("Not now, not like this"? Furrfu!) Why does somebody complain of being hot? Yeah, it's real hot 6 miles up.[26]

Patlan does, however, point to some of the most convincing evidence against the validity of the transcript—the fact that it just doesn't *seem* right or believable. In its dreadful clichés and melodrama it seems, as one discussant put it, like it is 'a third rate novel.' It is also flawed in that it does not fit the 2:45 minute time frame outlined in Kerwin's report. The transcript begins at T+1:15, two seconds after the NASA transcript ends, and "None, Static, silence" comes only two minutes later, at T+3:15. Also, some of the statements attributed to the crew do not seem in character. Judith Resnik, by all accounts the most outspoken of the crew—it's Resnik who exclaims, "(expletive) hot" at T+15—is rendered as a 'typical' female at T+2:00: "Goodbye (sobs)... I love you, I love you...."[27] However, the most convincing argument against the transcript's validity was made by Rick Adams:

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[26] Steve Patlan [spatlan@gp807.jsc.nasa.gov], "The 'Last Word' on that Challenger Transcript," in [alt.folklore.urban], 31 January 1996. Patlan's letter is reproduced in Appendix 9.

[27] The voice could not be that of McAuliffe, as McAuliffe, Ronald McNair, and Gregory Jarvis were seated in the middeck and could monitor all voice activity but did not make any voice reports or comments. Some have speculated that the transcript came from a personal voice recorder situated on McAuliffe's lap but the extent

> ...there's no jargon. One newspaper account of the accident described the reaction of one person close to the mission as muttering loudly, "RTLS! RTLS!" (Return to Launch Site, one of the contingency plans for an accident). That's how ingrained the jargon is.[28]

While the existence of the 'fake' transcript or the phrase "take my hand/give me your hand" will likely never be established as a 'historical fact' with any certainty, the point is probably irrelevant. "Take my hand/give me your hand" may not have been something uttered by a member of the *Challenger* crew but is, in a way, what is implied every time someone enters the community of discussion about those imagined last words—even when that discussion becomes heated, emotional and irreverent. If the crew did not utter them, there are many people who believe they should have and, therefore, it is these people who fill in the silence with words where none exist.

The rumours and the transcript persist... so much so that on January 29, 1996 (a day after the tenth anniversary of the explosion) Brian Welch, Chief of News and Information at NASA, wrote into the newsgroup *sci.space.shuttle* in another attempt to finally put the transcript to rest:

> I am posting this message in response to the continued interest in the Challenger transcripts, and in the hopes that a detailed listing of events will help quell a persistent myth. There are no 'partial' Challenger transcripts, and there are no voice tapes recorded after the break up of the vehicle. Even ten years after the accident, this continues to be the source of myth and speculation. It probably will continue to be for some years to come.[29]

Which, of course, it does. In yet another reply, this time a direct response to Welch's letter, there is no sign that the issue will ever dissipate or that, even if the truth is out there, it really matters:

> So let me get this right youre not going to release the part of tapes because Michael Smith says "uh-oh"? Basically under all your technojargon it still stinks like a coverup.
>
> If thats all he says and the tape stops, then release the tape. I sincerely do not believe that the families are going to be traumatized by hearing someone say "uh-oh" and if thats all that was said. Why bother fighting all the way to the supreme court to keep the tapes hidden?
>
> You government types dont understand everytime you do stupid stuff like this even when youre telling the truth people dont believe you.[30]

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of the damage to the interior of the crew cabin after impact, as it is contained in the Rogers report, makes the survival of a small, hand-held voice recorder extremely unlikely.

[28] Interview with the author. See Appendix 10.

[29] The full version of Brian Welch's letter to sci.space.shuttle is reproduced in Appendix 7.

[30] Stephen Voss [voss@icanect.net], "Re: Challenger transcript history," (response to Brian Welch) in [sci.space.shuttle], 5 February 1996.

Discourse and Death

There is of course the question as to why, in this instance, the imagined moments of death are so pervasive and alluring. Why does death figure so prominently in the vulgar imagination? Why is it ingrained to such an extent in these communal forms of popular speech? And why does it rely so much on the distinction between 'proper' and 'improper' discourse? There is, of course, no easy answer to this question but in my research I underlined some meaningful passages which I thought had some relevance. The first comes from Philippe Ariès and might explain why the imagined death of others is so important; the second comes from Michel Foucault who points out the very real link between the finality of an utterance and death:

> It is strange how the human sciences, so outspoken regarding family, work, politics, leisure, religion and sex, have been so reserved on the subject of death. Scholars have kept silent, acting like the men that they are and like the men that they study. Their silence is only a part of this great silence that has settled on the subject of death in the 20th Century....
>
> For thousands of years... [i]t used to be understood and accepted that a man knew when he was dying, whether he became spontaneously aware of the fact or whether he had to be told.... In those days death was rarely sudden, even in the case of an accident or a war, and sudden death was much feared, not only because there was no time for repentance, but because it deprived a man of the experience of death.[31]

> Is not discourse, in its most profound determination, a "trace"? And is its murmur not the place of insubstantial immortalities? ...Must I suppose that in my discourse I can have no survival? And that in speaking I am not banishing my death, but actually establishing it; or rather that I am abolishing all interiority in that exterior that is so indifferent to my life, and so neutral, that it makes no distinction between my life and my death?
>
> I understand the unease of all such people.... They cannot bear (and one cannot but sympathize) to hear someone saying: 'Discourse is not life: its time is not your time: in it, you will not be reconciled to death; you may have killed God beneath the weight of all that you have said; but don't imagine that, with all that you are saying, you will make a man that will live longer than he.'[32]

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[31] Philippe Aries, "The Reversal of Death: Changes in Attitudes Toward Death in Western Societies," in *Death in America*. David E. Stannard, ed. Philadelphia: University of Pennsylvania Press, 1975. pp. 135-136.

[32] Michel Foucault, *The Archaeology of Knowledge*. p. 210-211.

But, perhaps, a respondent from the University of Sydney to the FAS website articulates it best (if not, the most economically):

> I think it was very sad what happened to those people. I think really they should of checked the rocket before it was launched. I am happy to have said something thankyou John Smith <esloman@mail.usyd.edu.au> Sydney, nsw Australia - Sunday, September 28, 1997 at 18:36:40 (EDT)

Chapter 7

For No Particular Reason

If History is indeed changing in the late 20th century, so that, more and more, history is of the moment—played out in real time and, later, subject to and intertwined with personal interpretation and memory—history, then, could be thought of as a series of small histories whereby events and their motivation are the site of personal recollection and conflicting meanings. The concern with history seems to focus on conflicts; conflicts of ideologies, interests, authority and how history itself conflicts with personal lives. History hurts[1], but the ways in which history can inflict pain are certainly more generalized and exist on many levels; the personal being one of many. Events are becoming more and more intertwined with individual emotions and no longer seem confined to distant places of authority and importance; places where history was traditionally 'made.'

The 1994 release of *Forrest Gump* acted as a catalyst producing a range of commentary on the general role of the individual in the sweep of historic events. While the film was considered a box-office success many were critical of the film's unrealistic and overly-positive portrayal of chance and coincidence. The criticism focused on the life Forrest Gump led, a life blessed many times through chance and the sometimes absurd occurrence of events. Essentially, the film was regarded as a typical Hollywood 'feel-good' movie, portraying the contacts between history and an individual's life far too simplistically.

Debate was also carried out in academic circles concerning the film's play with general notions of history. To this end, *Forrest Gump* seems to present complex, conflicting and paradoxical views of

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[1] Fredric Jameson. *The Political Unconscious: Narrative as a Socially Symbolic Act.* Ithaca: Cornell University Press, 1981. p. 102.

the historical meaning of events and an individual's relationship to those meanings and those events. As Vivian Sobchack writes:

> On the one hand, then, Forrest Gump—the character, not the film—denies the hermeneutic necessity (perhaps even the hermeneutic possibility) of understanding the significance of the "larger" temporal spread we live and narrativize socially (rather than individually) as "History" or "histories." Since history can't happen without us, the film seems to say through its putative hero, we've played our part simply by "being there." We don't have to know or care what it means. On the other hand, *Forrest Gump*—the film, not the character—is historically conscious: ironic and playful, its thematics, mise-en-scène, and modes of representation make visible the breakdown of the segmentation that, in a previous age, secured for us the borders and value between "significant" and "trivial" events, between fact and fiction, between past and present, between experience and its representation.[2]

Surely, history *can* happen without us and that is precisely the point. For what logic is present in the realization that we, as individuals, may be concerned with events which take place so far away and involve people whom we have never met? Events which, when examined closely, are caused and could happen without our direct involvement. Perhaps it is precisely because of this 'distanciation' and lack of personal involvement, that these events can affect individuals personally.

Personal accounts and replies to the question "Where were you when you heard the news of the *Challenger* explosion?" from the FAS website focus on the shock and incomprehension of the initial event. Recalling that memory is not fixed but is fluid and open to pre-existing narratives and discourses, it remains to be questioned for what reasons the traces of shock remain and why 'incomprehension' seems to be the defining element of these event-memories. The shock and the incomprehension is, perhaps, the result of the positioning of the individual in relation to the event. A position, imaginable as a specific moment in time and one that is characterized by inadequate amounts of information, knowledge or closure. Essentially, when a person remembers where they were during the explosion of the *Challenger* they are recalling the experience of two different but simultaneous events. The first, is the *reported* event (or the explosion itself as it was broadcast by various media). But this reported event includes *within itself* an *experienced* event (the experience of watching the first or reported event from a distance). These memories, then, are the result of

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[2] Vivian Sobchack. "Introduction: History Happens," pp. 2-3.

watching the *Challenger* explosion combined with the experience of watching the explosion in the midst of others. And, if we look at the memories left at the FAS website an overwhelming majority contain information pertaining to this very situation—often describing the 'feeling in the room,' the silence, or the shocked expressions of those around them.

Major public events such as the explosion of the space shuttle *Challenger* are further complicated since they occur at a specific moment in time but have effects which continue well into the future. Reaction to the event, competing interpretations as to the cause, official inquiries, and even conspiracy theories, all surface over time—sometimes many years after the initial explosion. Within this prolonged 'duration' of the event—a period usually characterized by uncertainty and conflicting information—individuals continue with the course of daily existence. This space is neither mundane nor simple. It is an existence where the individual not only remembers and interprets the initial event but also views other events (some public, some private), may experience the death of a loved one or perhaps fall into or out of love. Conceived of in this way, an event can be seen as a space where 'the personal' and 'the quotidian,' 'the public' and 'the catastrophic,' interact and sometimes coalesce.

If one adopts, as the traditional historian does, the broad perspective of history, events can seem to make sense and can become understandable. From this *meta*-level, relations among discourses, objects, and documents can fall into coherent and plausible forms. However, it could be questioned whether an individual always and consistently operates on such a broad and 'historic' level. *Forrest Gump* operates on a much lower level, which could be seen as an individual or subjective state. Forrest narrates the happenings of his life as they are surrounded or interwoven with some of the major events of American and world history. Events, it seems, whose causes and consequences are less important to him than those people—his mother, Bubba, and especially Jenny—who have touched his life personally. However, it is precisely these relationships which brings Forrest into contact with the world even if he himself doesn't recognize it or is able to understand it. In the film, Forrest recounts just such an episode where one of his best friends,

Bubba, has been fatally wounded in Vietnam. As Bubba is dying, Forrest cradles him in his arms like a mother holding a child:

> F(nv) (Forrest, narrative voice): If Ida known this was gonna be the last time me and Bubba was gonna talk, Ida thought of something better to say:
>
> F(orrest): Hey Bubba.
>
> B(ubba): Hey Forrest.
>
> B: Forrest, why did this happen?
>
> F: (pause) you got shot.
>
> F(nv): Then Bubba said something I won't ever forget...
>
> B: I wanna go home...
>
> F(nv): (...) Bubba was gonna be a shrimpin' boat captain but instead he died right there by that river in Vietnam.

One of the most frequently occurring questions in *Forrest Gump* is 'why?' Throughout the film, Forrest never recognizes the implications of the larger events which happen around him. Upon describing these events—such as the assassination of John Kennedy—to the audience, Forrest only adds that they happen "for no particular reason." When Bubba asks "why'd this happen" Forrest can only reply with the most banal and straightforward answer even though the audience knows that Bubba's question has larger meanings and could be interpreted differently: *Why me? Why have we been sent to this place? Why is America involved in this war?*

On the dust jacket for the video release of *Forrest Gump*, Forrest is described as an "innocent at large in an America that is losing its innocence." But is it Forrest or the audience which possesses such a helpless innocence? For it is the viewers and not Forrest who understand the larger implications of Bubba's question and who may be, despite historical hindsight, at a loss to explain the larger motives or provide adequate answers.

It is within these types of questions (*why'd this happen*?) where the larger discourses touch the lives of individuals. And, most importantly, there are no easy answers even when they are provided—destiny, fate, God—answers which the various characters in *Forrest Gump* know so well but are never sure if they are final or correct. The film shows that even on the level of individual subjectivity—the naïve level which Forrest represents and lives—one cannot help but be touched

by discourse, history, events and the lives of others—all of which mingle and coalesce but rarely settle into a state that is comprehensible.

Even though his recollections are neither accurate nor consistent, it is Forrest's life which provides the structure for his story and the substance for what is meaningful to him. What matters most is not the historical events which happen 'for no particular reason,' but his intimate relationships: his promise to Bubba and his ongoing love for Jenny. It is his love for Jenny which occupies him most and, most significantly, which brings him into contact with the world and with 'history'.[3] Love, that ubiquitous but neglected discourse[4], is perhaps the most intimate and individual because it rarely gets collected onto a higher level. But this too is what makes Forrest's life so understandable to the audience. For who could not recognize themselves, amidst the cacophony of historical events, sitting silently and obsessed with another: an absent or unattainable lover. As Roland Barthes say about a 'lover': "The incident," any incident in a lover's life, "is trivial (it is always trivial) but it will attract to it whatever language I possess. I immediately transform it into an important event, *devised* by something which resembles fate."[5]

Jenny travels endlessly and for most of his life Forrest is never really sure where she is; only that she is out there somewhere and that he loves her. Amidst the confusion, Forrest continually asks his mother what his destiny is and even though she never gives a specific answer to his question she always puts it in a way that he can understand. Why this love for Jenny? Why, it could be asked, do we attach our emotions, intimacy and an imagined future on *this* particular person? Without providing a clear answer, Roland Barthes explores this question in his *A Lover's Discourse*:

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[3] The fact that Forrest and Jenny have a child, of course signifying unprotected sex, is one of the ironies of the film. Forrest Jr. may just seem like another of the happy coincidences of Forrest's life but the "some kind of new virus" which eventually claims Jenny's life is undoubtedly HIV. It is of course a possibility that Forrest (and Forrest Jr.) also has the virus but *Forrest Gump* ends before this aspect of the story can be resolved.

[4] This comes from an unreferenced dust-jacket blurb of Barthes' *A Lovers Discourse* and is attributed to Jonathan Culler. It comes from Jonathan Culler, *Barthes*. London: Fontana Press, 1983. pp. 107-113.

[5] Roland Barthes, *A Lover's Discourse: Fragments*. p. 69.

> I encounter millions of bodies in my life; of these millions, I may desire some hundreds; but of these hundreds, I love only one. The other with whom I am in love designates for me the speciality of my desire.... It has taken many accidents, many surprising coincidences (and perhaps many efforts), for me to find the Image which, out of a thousand, suits my desire. Hearin a great enigma, to which I shall never possess the key: Why is it that I desire So-and-so? Why is it that I desire So-and-so lastingly, longingly? Is it the whole of So-and-so I desire (a silhouette, a shape, a mood)? And, in that case, what is it in this loved body which has the the vocation of a fetish for me? What perhaps incredibly tenuous portion—what accident? (...) Yet the more I experience the specialty of my desire, the less I can give it a name; what is characteristic of desire, proper to desire, can produce only an impropriety of the utterance. Of this failure of language, there remains only one trace: the word "adorable"....[6]

Just previous to this section, Barthes, speaking in the third person and apparently about himself, says: "Not managing to name the specialty of his desire the amorous subject falls back on this rather stupid word: *adorable!*"[7] 'Adorable,' for Barthes, signifies the failure of language; or signifies the inability to adequately articulate the Image of desire but, at the same time, deriving a sort of pleasure from the failure. For Barthes, attempting to answer an unanswerable question is not a pointless process. Rather, the point may be that the process only becomes meaningful because it is *incomprehensible*.

It is significant that Barthes isolates the concept of the Image. It is this desired Image which Barthes is unable to put into words and is therefore unable to grasp. Later in *A Lover's Discourse*—within the section simply titled "*Why?*"—Barthes elaborates: "I hallucinate what I desire... (but a) delirium, however, does not exist unless one wakens from it (there are," he continues, "only retrospective deliriums)."[8] The Image is only approached in retrospect, or historically. Some of the most persistent images in the memories of the *Challenger* explosion were those which were repeated endlessly in the media. They are not limited solely to the *visual* (such as the video of the moment of the explosion or the Y-shaped cloud which hung over the launch site). They also include the textual (Smith's chilling, final word, "Uh-oh,") and also the aural: as in the dryly ironic phrase, "obviously, a major malfunction," uttered by NASA's public affairs officer.

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[6] Roland Barthes, *A Lover's Discourse: Fragments*. pp. 19-20.
[7] Roland Barthes, *A Lover's Discourse: Fragments*. p. 19.
[8] Roland Barthes, *A Lover's Discourse: Fragments*. p. 187.

Fredric Jameson has said, "History is what hurts,"[9] but Barthes shows that this pain contains within itself a sort of undeniable attraction. In his book, *Camera Lucida*, Barthes distinguished between what he called the "studium" and the "punctum" of a photographic image. The studium is the widely recognized or culturally connotated meaning which, because it is coded, can always be decoded with semiotic analysis. Whereas the studium provides only the limited pleasure of recognition, the punctum, as Martin Jay notes, is charged with:

> ...that unexpected prick, sting, or cut that disturb[s] the intelligibility of the culturally connotated meaning. Often a detail whose power [is] impossible to generalize for all viewers, it defie[s] reduction to code, serving as the analogon of something prior to codification [that can] produce a higher order of emotional intensity [and speaks] of irretrievable loss.[10]

The image of the explosion held viewers in front of television screens in a state of shock. And the repetition of these Images function as a moment of incomprehensibility that perhaps can only be revisited in a question like, *where were you when you heard the news of the Challenger explosion?*

The punctum can only be retrospective or historical. It requires prior knowledge of the outcome; it is what makes the phrase "Obviously, a major malfunction" so ironic and the video of the explosion itself so mesmerizing. Barthes elaborates on this aspect of the punctum in a discussion of a photograph of his deceased mother. It is from a passage in *Camera Lucida* which, perhaps ironically, was the last book he published before his own untimely death:

> What *pricks* me is the discovery of this equivalence. In front of the photograph of my mother as a child, I tell myself: she is going to die: I shudder, like Winnicott's psychotic patient, *over a catastrophe which has already occurred.* Whether or not the subject is already dead, every photograph is this catastrophe.[11]

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[9] Fredric Jameson, *The Political Unconscious.* p. 102.

[10] Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth-Century French Thought.* Berkeley: University of California Press, 1993; pp. 452-453 (the tense has been modified from the original).

[11] Roland Barthes, *Camera Lucida: Reflections on Photography.* Trans. Richard Howard. New York: Hill and Wang, 1981. p. 96

Conclusion

Barthes' notion of the photographic punctum is, perhaps, the best way to describe the ways in which the *Challenger* explosion has, and is, approached by a great many individuals. The disaster produced a highly visible event which at the same time kept many pressing details hidden. And it is the process of discovery—evident in the many examples provided in the space of this thesis—which motivates the need to understand, discuss, argue and even cry over, the details of the explosion. And, importantly, this is a process without a desire for closure, since for the individual (or lover) closure would necessarily mean the end of desire. As Jonathan Culler insists: "The lover lives in a universe of signs: nothing involving the beloved is without meaning, and he [or she] can spend hours classifying and interpreting the details of behaviour."[1] Perhaps the process ends only when it fades from, or is replaced in, memory.

The punctum, whether it comes from a gesture made by one's lover or a gesture made by a stranger as seen on television, is an extremely personal meaning. At the same time, because it enters through a process of discourse, it is mediated by language and representation and, hence, is social. The conundrum, as Wittgenstein points out, is that language or thought or representation, simultaneously mirrors the world but at the same time requires the centredness or the horizon which the individual gives it. What is senseless and should remain silent because it cannot be properly put into words, is precisely that part of experience where value comes into the world; and although it may seem inarticulatable or incomprehensible, it is ordinary enough. In the "Introduction" to her book, *Family Secrets,* Annette Kuhn makes a similar claim:

> Since my family secrets are no doubt shaped by the same kinds of amnesias and repressions as other people's, their substance will very likely seem familiar, commonplace even. Few of my secrets are likely to be particularly out-of-the-

[1] Jonathan Culler, *Barthes.* p. 110.

> ordinary. But if my family secrets are neither unique nor special, that is precisely the point. [2]

It is this commonness of the incomprehensible that is the point. The work of writers like Wittgenstein and Barthes show that the philosopher and the lover are not all that different from the individual who watches a disaster like the *Challenger* explosion from a great distance, because an important part of meaning can not always be put into logical language and rational thought.

In this sense, the explosion of the *Challenger* on Tuesday, January 28, 1986 was not just an explosion of a space shuttle but an explosion of signs. And since the debris was fragmentary, with many important parts missing, the signs that were left were interpreted in uncommon and surprisingly ironic ways. The slippage of meaning results from the fact that the fragments are perceived from different but similar perspectives, and reside, for a time, in memory. This is why Barthes use of the term 'the lover' can mean more than someone who is in love:

> What distinguishes the lover, obsessive interpreter and clear-sighted analyst of his interpretive predicament, from the semiologist or mythologist is the sentimentality of his discourse: he mistakes conventional signs for motivated signs, investing the trivial objects that surround him with special meaning seen as inherent, intrinsic. This sentimentality, 'discredited by modern opinion,' makes love unfashionable, even 'obscene,' a topic not to be discussed in polite company—unlike sex which is accepted as an important subject of current discourse. '(Historical reversal: it is no longer the *sexual* which is indecent, it is the *sentimental*—censured in the name of what is finally only *another morality*)'.[3]

Sentimentality, or whatever one wishes to call it, is the emotional intensity and the irretrievable loss felt over a catastrophe which has already occurred. Which is why, perhaps, I have taken such interest in other people's memories of this particular event—an event which I slept through.

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[2] Annette Kuhn, *Family Secrets: Acts of Memory and Imagination*. New York: Verso, 1995. p.3.

[3] Jonathan Culler, *Barthes*. p. 112.

'Image' Archive

Appendix 1: Challenger Memories

Excerpts from the Guestbook of the Space Policy Project of the Federation of American Scientists (FAS). The guestbook is available at: [http://www.fas.org/spp/civil/sts/guestbook.html] and was created Friday, December 27, 1996 and asks visitors:

> ***Where were you when you learned of the Challenger accident? What did you think or feel? How did it change your attitudes towards spaceflight, or did it? Please add your thoughts and memories.***

On that date I was setting on the #2 Rescue Helicopter for the space shuttle. I was the Flight Engineer for this plane. We flew back 15 minutes before the launch for a rotor blade problem. I was siting at the door of the Heilcopter doing paper work when it blew up. We jumped into action at that poiint. We had the blade changed in about 15 minutes and airborne in another 15. We could not go into the area right away because of the debries was still following. When we got in the area (or box what we called it) we serach all day and part of the night for survivors. We knew when we saw the white tiles that there was no survivors. We kept the hope up for the first couple of days that we would find survivors... Christopher Pugh ARS71ST@AOL.COM Southgate, MI USA - Monday, January 06, 1997 at 09:54:27 (EST)

i was just to board a plane in New Oleans, after the Super Bowl XX our Bears had won and evryone was in a great mood. we looked up at a tv in the boarding area an saw this massave explostion, when we were seated the pilot came on an said what had happened. Frank McClatchey fsm@mc.net mchenry, il USA - Monday, January 06, 1997 at 17:23:23 (EST)

My husband and I were in the car, sitting at the drive-up window to a fast food restaurant when the news came over the radio. (We would normally have been at our jobs as teachers, but schools were closed due to snow.) I felt shocked, and concerned for the families of those on board, and especially for Christa McAuliffe's students.

We went on to the mall, where we stood with other shoppers outside an appliance store and watched the news coverage on the display TV's. I think most school teachers had identified with Christa McAuliffe; certainly, my husband and I had; and that made the tragedy hit home with us a little more than it might have otherwise.

The accident did not change my feelings about space flight. I still believe that we need the new frontier of space, both for the knowledge we can gain and for the opportunity it gives future generations to be pioneers, to have adventures, to explore. I would love to go into space someday, and would be happy to accept the risks associated with any such adventure. Deb Waugh bla00174@wvnvm.wvnet.edu Princeton, WV USA - Thursday, January 09, 1997 at 08:26:03 (EST)

I was only 10 years old when my parents told me to watch the news. I didn't really realize, how tremendous this accident was, but those horrible pictures remained in my brain and they will stay there forever. Michael Ganser Michael.Ganser@uibk.ac.at Innsbruck, Austria - Friday, January 10, 1997 at 13:03:30 (EST)

I had arranged to have a TV in my classroom so my high school English classes could watch the prepartion and lift off. I had to leave the room for a minute, and when I returned, the students told me the Challenger had exploded. At first I did not believe them and thought it was a very bad joke. However, as I looked at their faces I could tell they were not joking. I turned to the television and watched the replay of the launch and subsequent events. For the rest of the day my classes and I watched the news, learning all we could. All my students were very quiet and thoughtful. I found myself wanted to yell, "Stop!" each time they showed the accident. For several days we talked about the incident, the astronauts, and their families. It has remained a part of my memory ever since. After a few weeks, I found myself hoping that this would not put an end to the space program. It was an event that affected our entire country, but I hoped it would bring to a halt what those astronauts for. I hope today the space program will continue. David Unsell

dunsell@edumaster.net Coalgate, OK USA - Friday, January 10, 1997 at 14:08:28 (EST)

..I was taking my deceased mother to the hospital since she had sustained a broken arm the previous night. She was in great pain but heroic. When we saw the Challenger accident coverage on the news (TV), she said, "That is one of the worse feelings a person can have,their families and all. She continued to talk about it until she was called by the doctor, despite her great pain. Robert Tirado RTeyes@aol.com Bronx, ny USA - Monday, January 13, 1997 at 07:42:10 (EST)

I was aboard USS John F Kennedy CV-67 down in the B-Division crew berthing just before lunch when I went to the TV to watch the lift off. I felt a cold chill race down my spine when the Challenger lifted off and watched in horror the explosion. The explosion footage was shown many times that afternoon. I wept for the crew of Challenger and their families left behind. December 1996 News media reports that two more Large chunks had washed ashore from the Challenger and taken away to be documented then to be entombed along with the other remains recovered 10+ years earlier to an abandoned Missle Silo and Sealed close. Locked away and forgotten as a Grim reminder of the force to be on schedule KILLED the 7 crew members of Challenger. Now with the new "USA" contract with NASA I sincerly hope no more deaths for the Space Program. Thank you Robert McConnell bobbi@dreamsoft.com Redlands, CA USA - Tuesday, January 21, 1997 at 04:00:55 (EST)

Even though I was with the US Air Force stationed in the Republic of Korea, we watched it live on television. It was absolutely the most horrifying thing I have ever seen in my life. Even the usually monotone Peter Jennings was broken up about it. A Korean that was with me at the time really couldn't fathom it - she acted like it was staged like a movie, and couldn't understand why I was crying. There will always be tragedy when exploring new frontiers, it's just that in this ultra safety consious society we live in, you just don't expect it to happen. God Bless you Challenger Crew!
Mark H. Albuquerque, NM USA - Tuesday, January 21, 1997 at 07:08:03 (EST)

I saw the explosion moments after it had happened. I just couldn't believe that it had blown up, I guess I thought that nothing could ever happen that drastic. And I remember the media talking about whether the shuttle would ever fly again because of the accident, and I was very angry to think that NASA would actually consider not sending the shuttle up again and I thought about the astronauts dying in vane. We needed to go up again and again to fulfill the mission they couldn't finish. Frank McGuire enforceit@aol.com Orlando, FL USA - Wednesday, January 22, 1997 at 22:17:53 (EST)

I find this very uncanny. I was "surfing" the web to look for the exact date for the Challenger explosion as I am writing a poem on it for a college poetry class. I thought my search would be futile, but to my amazement I came across this page, with such similar accounts of that horrible day in January.
I was in the 4th grade at a Prov, RI private school. We were VERY geared up for the launch, for only a few months earlier we were able to meet another teacher who was one of the "runner ups" to Christa. I vividly recall entering the classroom after our mid-morning break to the teacher's solemn face. The only words that came out of her mouth before she began weeping were, "It blew up..." I equate this experience to my parents' recollection of the Kennedy assassination. It is one of those times that will remain etched not only in the history books, but in the memories of those who were present to witness such a sad account. Mike Worcester, MA USA - Wednesday, January 22, 1997 at 23:51:22 (EST)

I was a junior in high school when the accident occurred. I purposely left school under the pretense of illness to watch the shuttle launch. I knew what happened immediatley even though it was some time before the media would confirm the disaster. It was one of the few times I wish I had stayed in school that day. Sincerely, Don Melrose M.S.
dmelrose@siucvmb.siu.edu Carbondale, Il USA - Friday, January 24, 1997 at 10:32:42 (EST)

I was 24 years old and at work at the Milwaukee airport in a service garage when a radio broadcast was interrupted with the news immediately. I felt that I had to tell someone else,so I jumped in an airport rental car and sped to my main office and burst in to tell the unsuspecting office management of the recent event. The staff in their disbelief almost fired me for making such an outlandish quiff. Their disbelief turned into grief in the following hours. I was not given an apology. I have had an immense interest in space exploration since I grew up during the Apollo moon missions. I felt the cold grip of morality settle in after returning home that day and watching several television replays throughout the folowing hours. Craig Stys STOSH@webtv.net Milwaukee, WI USA - Friday, January 24, 1997 at 20:06:08 (EST)

I was only eight years old, and I was really excited because my birthday was in two days. I was sitting in the dentist's office having my teeth cleaned and it came over the radio. I don't think I really understood what was going on until that night when my family was huddled around the television watching films of this brave schoolteacher who had died. My mother was sobbing and I was overwhelmed by the fact that I could actually see the moment when she died on the film. The news people just kept playing it over and over and over again and it was terrible. It was just so strange to me that one second she was there and then in a puff of smoke, she was gone. I went into school the next day and just hugged my teacher and told her that I loved her. Matt Hill Hill_m@denison.edu Granville, OH USA - Sunday, January 26, 1997 at 13:47:51 (EST)

I was a Sophomore in High School, and I was telling everyone about the upcoming launch. My entire family had been following the news accounts of Christa McAuliffe, because she was my cousin. I was in class, and the teacher didn't put the TV on, because we didn't think it would actually launch that day either, because of all the cold weather. At 9:40 MST, the Principal came in and asked if I could step out into the hall for a moment. Figuring I was again in trouble for something (I was a little prankster in high school) I walked into the hallway ready to lie about my latest prank. He tells me that my father had just called, and told me the news. My first reaction was that it was a pretty sick joke, because everyone knew how much I like the space program. I then went to his office, when I telephoned my folks and heard that it was indeed real. The principal excused me for the rest of the day, where I sat glued to CNN the rest of the day. I still couldn't believe that it really happened, space travel was getting routine! The following days were not good either, as I saw humanity stoop to the form of "shuttle jokes." Scott Kenney scottyk@relia.net U.S. Air Force Roy, , UT USA - Sunday, January 26, 1997 at 23:54:24 (EST)

I was in the fourth grade and my family had just moved to Orlando, FL about 3 weeks earlier. The teachers at my school would take up outside for shuttle launches. The Challenger launch would have been my first experience of seeing a shuttle go up. I remember standing outside that morning, watching in awe as history was made and wondering what was causing the Y formation of the smoke. We all knew that something horrible had happened. Then my teacher made us go back in and we turned on the TV to hear that there had been a major malfunction. We all sat around and talked about it for the rest of the day and we watched the news reports. Now, I work for NASA Lewis in Cleveland, OH and the last few weeks I have been reading all about the Challenger. I would like to convey my condolences to their families and hope that nothing like this ever happens again. Meg Howe MeGHowe@aol.com Cleveland, OH USA - Monday, January 27, 1997 at 11:16:47 (EST)

I was folding laundry, had only turned on the television because it was a boring, mundane task, when I saw that I was in time to view the takeoff of the Explorer. I watched with interest, space travel always seemed exciting to me, sort of hi-tech science fiction. I envied the schoolteacher and all the wonders she would get to see firsthand, then, it was lift-off time. It seemed to go the same as every other flight I had viewed before, but I wondered what the extra streams of exhaust meant, I was still unaware that an explosion took place. I turned the sound up and heard what had happened... I remember the feeling in the pit of my stomach..the denial in my brain that this couldn't be happening. Oh my God..... their families were watching this too, their wives and husbands and

children...Oh no....I stayed glued to that tv for 2 days finding out in horror that it could have been prevented. That people knew the O rings wouldn't expand properly to seal and those in charge did nothing about it. I was angry and upset...this didn't have to happen, should not have happened. With all the resources and wealth of this great country of ours, we let a crew of seven wonderful, intelligent people perish because of a small piece of plastic that cost pennies to make. The people responsible for this neglect should have been imprisoned for the murder of those seven astronauts. Sandra Mason satindol@ideasign.com none yet, expect to be committed anyday now... Sioux Falls, SD USA - Wednesday, January 29, 1997 at 06:42:07 (EST)

I was setting in a dentist chair with a big hole in my tooth. as we listen to the radio in the office, we were able to watch the shuttle from the window. As it came above the trees I noticed the ship had exploed, I had made the comment of it exploding & my dentist said, Know it's does this all the time. He was refering to the bosters falling. But, I new what was happing, & within moments the radio come on with the news. The smoke laid in the sky all day, leaving us all with a reminder of the shortness of life and what the cost for expoling or world is. Timothy M. Biggs tim_biggs@wceu.pbs.org Daytona Beach, Fl USA - Wednesday, January 29, 1997 at 12:47:16 (EST)

Well Here I am at work and reading other people memories. I start to think back. I can't remember much about that day except for the explosion. I was in 6 grade (I think) and was watching it on t.v. during art class. I don't think I knew what had happened when it did. I remember not bieliving it since I had never known anyone who had died or saw people die. Look how I write. "I've known", I never eally personally knew any one of them but isn't it funny how "we" all feel like we do. I guess that's one of the miracles that happened from it, everyoe was united in a way to support our country and it's fellow member that died for the better of man-kind. As I sit here going to a flight school, I think about all the possibities of something happening to me or my friends. As I continue to think about it, I know that I won't ever stop flying, simply becuase of my love for flight. I would risk life and limb for the dpure joy of being airborne. So when we all think about it, remember that they died not in vain but doing something that they all loved. In loving memory, yesenia Yesenia Cabeza cabezay@db.erau.edu Daytona Beach, Fl USA - Wednesday, January 29, 1997 at 20:42:37 (EST)

I was dicking my Swedish secretary while watching the lauch on CNN. Suddenly the whole fucking thing blew up and I had the best come in years. Thank you NASA. James J Tapkas 74563.36@compuserve.com Los Angeles, CA USA - Saturday, February 22, 1997 at 03:10:51 (EST)

As a few of the memories point out, I to will also remember the words "Obviously a major malfunction." I was in sixth grade and really interested in the space program. I will also remember the words of Hugh Harris the NASA PIO that did the naration of the count over the TV. I remember watching the TV for hours still hoping that the shuttle had some how made it to space and that they would be coming back and say that all was allright. To this day I, as a resident of Florida, I still go and watch the shuttle launch from KSC. I always countdown until the SRB's seperate and they announcer confirms a good SRB seperation. GOD SPEED to the crew of Challenger and their families. Brian White bwhite@winnie.fit.edu Melbourne, FL USA - Monday, February 24, 1997 at 19:49:08 (EST)

I think that man should not be exploring space in the first place If you have to struggle or even take human lives to gain mabye even neccesary information. If USA never would have shot a rocket into space, no lives would have been taken ike in the challenger accident. We have learned alot in our travels in space. But at what cost? The cost of even one human life. Those are my feelings on this matter. Aynonumus MCrooke564@aol.com Indianapolis, IN USA - Tuesday, February 25, 1997 at 07:56:22 (EST)

It is a shame that this happened, but get over it damn it. You all suck. Chuck K Karman <none> Cranbrook Blumfield Hills , MI USA - Thursday, March 13, 1997 at 20:03:47 (EST)

I was in Florida at the time, staying at an aunts house and watching the liftoff on television. I remember calling my parents to find out if they were watching also. Outside my aunt's living room window I could see the smoke trail of the shuttle going skyward. I remember thinking that I was surprised to be able to see this, being on the west coast of Florida. The next thing I knew was that the shuttle had blown up. I called my parents and said 'it just blew up'. I was aw-struck. I grabed my camera and took some pictures. I was so shocked that I didn't get outside to take the pictures until the twirling smoke plumes had almost dissipated. If anyone has a picture that they would send me, it would be appreciated. E-mail chibby@1st.net Nick Petracca Jr <chibby@1st.net> Belmont, OH USA - Sunday, March 16, 1997 at 16:11:17 (EST)

My son was nursing while I was watching television. The channels were showing the live launch of the space shuttle. I was telling my son that he was witnessing history and he would some day be an astronaut. Suddenly the most awful thing I had ever seen. The shuttle exploded. I thought for sure that everything would be alright, but they were all dead. That scared me to death. That could have been my son. The day seemed to drag and the depression was awful. I felt they had rushed the launch because the teacher was on it. It goes to show that human error and rush and the media demands on the space program proved to much and they launched when they shouldn't have. My son is now twelve and doing a space web site and the Challenger disaster will be part of his project. He feels that know one should have rushed into the launch and safety precautions should have made and double and tripled checked. All those talented and promising lives wasted and dreams lost. It was my birthday. Carol Grotsky <pgortsky@nishanet.com> Stafford, va USA - Wednesday, March 19, 1997 at 20:17:37 (EST)

I had just woke up after working a night shift. As I read an article in the news paper about the shuttle, I was still tired and didn't comprehend the magnitude of what I was reading. I quickly turned on CNN and was horrified by what I saw. I remember weeping for the crew, thier familys, and the tragic loos for our nation. Even today when I think of the accedent, I can still see the image of the Y shaped clouds and the heart break I felt on that day. Rick Gabiola <Rgabiola@lesbois.com> Boise, Id USA - Sunday, March 23, 1997 at 03:11:04 (EST)

I was in 8th grade at the time, but I was home sick from school that day. The launch was being broadcast on CNN I think. It was the first time I could remember a launch not being covered by the major networks. No one knew at first what had happened, but I remember thinking immediately that it had exploded. I watched the reports and replays of the footage all day long. It was sad, even for a 14-year old. All I could think of were the kids in Christa McAullife's class. My grandparents have a condominium on the beach in Flordia just miles from the Kennedy Space Center. Launches could be seen VERY easily. My grandfather said that the flash was like an incredibly powerful strobe light and the boom a few seconds later was sickening. He also knew what had happened immediately. The worst part of all was finding out later that the astronauts had not died instantly. God bless them and their families. Bob McCallister Waco, Tx USA - Tuesday, March 25, 1997 at 15:01:00 (EST)

Appendix 2: Official Interpretation

US President's Speech on The Challenger Disaster. **Ronald Reagan, Oval Office of the White House, Jan. 28, 1986. Transcript available at http://www.dnaco.net/~bkottman/speeches/challenger.html (this speech was given in lieu of the State of the Union Address which had been normally scheduled).**

Nineteen years ago, almost to the day, we lost three astronauts in a terrible accident on the ground. But, we've never lost an astronaut in flight; we've never had a tragedy like this. And perhaps we've forgotten the courage it took for the crew of the shuttle; but they, the Challenger Seven, were aware of the dangers, but overcame them and did their jobs brilliantly. We mourn seven heroes: Michael Smith, Dick Scobee, Judith Resnik, Ronald McNair, Ellison Onizuka, Gregory Jarvis, and Christa McAuliffe. We mourn their loss as a nation together.

For the families of the seven, we cannot bear, as you do, the full impact of this tragedy. But we feel the loss, and we're thinking about you so very much. Your loved ones were daring and brave, and they had that special grace, that special spirit that says, 'Give me a challenge and I'll meet it with joy.' They had a hunger to explore the universe and discover its truths. They wished to serve, and they did. They served all of us.

We've grown used to wonders in this century. It's hard to dazzle us. But for twenty-five years the United States space program has been doing just that. We've grown used to the idea of space, and perhaps we forget that we've only just begun. We're still pioneers. They, the members of the Challenger crew, were pioneers.

And I want to say something to the schoolchildren of America who were watching the live coverage of the shuttle's takeoff. I know it is hard to understand, but sometimes painful things like this happen. It's all part of the process of exploration and discovery. It's all part of taking a chance and expanding man's horizons. The future doesn't belong to the fainthearted; it belongs to the brave. The Challenger crew was pulling us into the future, and we'll continue to follow them...

There's a coincidence today. On this day 390 years ago, the great explorer Sir Francis Drake died aboard ship off the coast of Panama. In his lifetime the great frontiers were the oceans, and a historian later said, 'He lived by the sea, died on it, and was buried in it.' Well, today we can say of the Challenger crew: Their dedication was, like Drake's, complete.

The crew of the space shuttle Challenger honoured us by the manner in which they lived their lives. We will never forget them, nor the last time we saw them, this morning, as they prepared for the journey and waved goodbye and 'slipped the surly bonds of earth' to 'touch the face of God.'

Appendix 3: High Flight

This poem was written in 1941 by Royal Canadian Air Force Spitfire pilot John Gillespie Magee. Ronald Reagan's official speechwriter, Peggy Noonan, quoted from the first and last lines for Reagan's televised speech about the *Challenger* accident (see Appendix 2).

HIGH FLIGHT

Oh! I have slipped the surly bonds of earth
And danced skies on laughter-silvered wings;
Sunward I've climbed, and joined the tumbling mirth
Of sun-split cloud —and done a hundred things
You have not dreamed of—wheeled and soared and swung
High in the sunlit silence. Hov'ring there
I've chased the shouting wind along, and flung
My eager craft through footless halls of air.

Up, up the long, delirious burning blue
I've topped the windswept heights with easy grace
Where never lark, nor even eagle flew—
And, while with silent lifting mind I've trod
The high untrespassed sanctity of space
Put out my hand and touched the face of God.

JOHN GILLESPIE MAGEE JR.
412 Squadron, RCAF

Appendix 4: Official Crew Transcript

NASA had completed its analysis of the *Challenger* operational recorder voice tape and released the following transcript. The transcript reveals the comments of Commander Francis R. Scobee, Pilot Michael J. Smith, Mission Specialist 1 Ellison S. Onizuka, and Mission Specialist 2 Judith A. Resnik for the period of T-2:05 prior to launch through approximately T+73 seconds when loss of all data occurred. The operational recorder is automatically activated at T-2:05 and normally runs throughout the mission. During the period of the prelaunch and the launch phase covered by the voice tape, Mission Specialist 3 Ronald E. McNair, Payload Specialist 1 S. Christa McAuliffe, and Payload Specialist 2 Gregory B. Jarvis were seated in the middeck and could monitor all voice activity but did not make any voice reports or comments.

Transcript is available at [http://www.hq.nasa.gov/office/pao/NewsRoom/transcript.txt].

TRANSCRIPT OF THE CHALLENGER CREW COMMENTS FROM THE OPERATIONAL RECORDER

CDR.....Scobee **PLT**.....Smith **MS 1**....Onizuka **MS 2**....Resnik
(The references to "NASA" indicate explanatory references NASA provided to the Presidential Commission.)

Time (Min:Sec)	Crew Position	Crew Comment
T-2:05	MS 2	**Would you give that back to me?**
T-2:03	MS 2	**Security blanket.**
T-2:02	MS 2	**Hmm.**
T-1:58	CDR	**Two minutes downstairs; you gotta watch running down there?** (NASA: Two minutes till launch.)
T-1:47	PLT	**OK there goes the lox arm.** (NASA: Liquid oxygen supply arm to ET.)
T-1:46	CDR	**Goes the beanie cap.** (NASA: Liquid oxygen vent cap.)
T-1:44	MS 1	**Doesn't it go the other way?**
T-1:42		**Laughter.**
T-1:39	MS 1	**Now I see it; I see it.**
T-1:39	PLT	**God I hope not Ellison.**
T-1:38	MS 1	**I couldn't see it moving; it was behind the center screen.** (NASA: Obstructed view of liquid oxygen supply arm.)
T-1:33	MS 2	**Got your harnesses locked?** (NASA: Seat restraints.)
T-1:29	PLT	**What for?**
T-1:28	CDR	**I won't lock mine; I might have to reach something.**
T-1:24	PLT	**Ooh kaaaay.**
T-1:04	MS 1	**Dick's thinking of somebody there.**
T-1:03	CDR	**Unhuh.**
T-59	CDR	**One minute downstairs.** (NASA: One minute till launch.)
T-52	MS 2	**Cabin Pressure is probably going to give us an alarm.** (NASA: Caution and warning alarm. Routine occurrence during prelaunch).
T-50	CDR	**OK.**
T-47	CDR	**OK there.**
T-43	PLT	**Alarm looks good.** (NASA: Cabin pressure is acceptable.)
T-42	CDR	**OK.**
T-40	PLT	**Ullage pressures are up.** (NASA: External tank ullage pressure.)
T-34	PLT	**Right engine helium tank is just a little bit low.** (NASA: SSME supply helium pressure.)
T-32	CDR	**It was yesterday, too.**
T-31	PLT	**OK.**
T-30	CDR	**Thirty seconds down there.** (NASA: 30 seconds till launch.)
T-25	PLT	**Remember the red button when you make a roll call.** (NASA: Precautionary reminder for communications configuration.)
T-23	CDR	**I won't do that; thanks a lot.**
T-15	CDR	**Fifteen.** (NASA: 15 seconds till launch.)

T-6	CDR	**There they go guys.** (NASA: SSME Ignition.)
	MS 2	**All right.**
	CDR	**Three at a hundred.** (NASA: SSME thrust level at 100% for all 3 engines.)
T+0	MS 2	**Aaall riiight.**
T+1	PLT	**Here we go.** (NASA: Vehicle motion.)
T+7	CDR	**Houston, Challenger roll program.** (NASA: Initiation of vehicle roll program.)
T+11	PLT	**Go you Mother.**
T+14	MS	**LVLH.** (NASA: Reminder for cockpit switch configuration change. Local vertical/local horizontal).
T+15	MS 2	**(Expletive) hot.**
T+16	CDR	**Ooohh-kaaay.**
T+19	PLT	**Looks like we've got a lotta wind here today.**
T+20	CDR	**Yeah.**
T+22	CDR	**It's a little hard to see out my window here.**
T+28	PLT	**There's ten thousand feet and Mach point five.** (NASA: Altitude and velocity report.)
T+30		**Garble.**
T+35	CDR	**Point nine.** (NASA: Velocity report, 0.9 Mach).
T+40	PLT	**There's Mach one.** (NASA: Velocity report, 1.0 Mach).
T+41	CDR	**Going through nineteen thousand.** (NASA: Altitude report, 19,000 ft.)
T+43	CDR	**OK we're throttling down.** (NASA: Normal SSME thrust reduction during maximum dynamic pressure region.
T+57	CDR	**Throttling up.** (NASA: Throttle up to 104% after maximum dynamic pressure.
T+58	PLT	**Throttle up.**
T+59	CDR	**Roger.**
T+60	PLT	**Feel that mother go.**
T+60		**Woooohoooo.**
T+1:02	PLT	**Thirty-five thousand going through one point five** (NASA: Altitude and velocity report, 35,000 ft., 1.5 Mach).
T+1:05	CDR	**Reading four eighty six on mine.** (NASA: Routine airspeed indicator check.)
T+1:07	PLT	**Yep, that's what I've got, too.**
T+1:10	CDR	**Roger, go at throttle up.** (NASA: SSME at 104 percent.
T+1:13	PLT	**Uhoh.**
T+1:13		**.....LOSS OF ALL DATA.**

Appendix 5: Unofficial Crew Transcript

This transcript [http://www.winternet.com/~radams/chall/] surfaced on the Internet as early as 1993, and alleges to be additional material suppressed from NASA's official transcript, continuing at T+75 seconds. It was originally published in the tabloid newspaper *Weekly World News* and has also circulated on Usenet and a number of web sites. NASA states that this transcript is a fake and its authenticity is widely disbelieved.

The following transcript begins two seconds after NASA's official version ends, with pilot Michael Smith saying, "Uh-oh!" Times from the moment of takeoff are shown in minutes and seconds and are approximate. The sex of the speaker is indicated by M or F.

T+1:15 (M)	What happened? What happened? Oh God, no - no!
T+1:17 (F)	Oh dear God.
T+1:18 (M)	Turn on your air pack! Turn on your air...
T+1:20 (M)	Can't breathe... choking...
T+1:21 (M)	Lift up your visor!
T+1:22 (M/F)	(Screams.) It's hot. (Sobs.) I can't. Don't tell me...God! Do it...now...
T+1:24 (M)	I told them... I told them... Dammit! Resnik don't...
T+1:27 (M)	Take it easy! Move (unintelligible)...
T+1:28 (F)	Don't let me die like this. Not now. Not here...
T+1:31 (M)	Your arm... no... I (extended garble, static)
T+1:36 (F)	I'm... passing... out...
T+1:37 (M)	We're not dead yet.
T+1:40 (M)	If you ever wanted (unintelligible) me a miracle... (unintelligible)... (screams)
T+1:41 (M)	She's... she's... (garble) ... damn!
T+1:50 (M)	Can't breathe...
T+1:51 (M/F)	(screams) Jesus Christ! No!
T+1:54 (M)	She's out.
T+1:55 (M)	Lucky... (unintelligible).
T+1:56 (M)	God. The water... we're dead! (screams)
T+2:00 (F)	Goodbye (sobs)... I love you, I love you...
T+2:03 (M)	Loosen up... loosen up...
T+2:07 (M)	It'll just be like a ditch landing...
T+2:09 (M)	That's right, think positive.
T+2:11 (M)	Ditch procedure...
T+2:14 (M)	No way!
T+2:17 (M)	Give me your hand...
T+2:19 (M)	You awake in there? I... I...
T+2:29 (M)	Our Father... (unintelligible)...
T+2:42 (M)	hallowed be Thy name... (unintelligible).
T+2:58 (M)	The Lord is my shepherd, I shall...not want. He maketh me to lie down in green pastures... though I walk through the valley of the shadow of death, I will fear no evil... I will dwell in the house...
T+3:15 to end	None. Static, silence.

Appendix 6: Origins of the Unofficial Transcript?

Dennis Powell, a noted freelance journalist twice nominated for a Pulitzer prize for his Challenger coverage, explains in an e-mail letter to Rick Adams (author of the website, "The Challenger's Final Minutes: Challenger astronauts' last words, or a tabloid hoax?") how he was asked by a tabloid reporter to elaborate on a rumoured recording of the astronauts' last moments. Out of this phone conversation, Dennis alleges, the 'transcript' published in the *Weekly World News* was born.

This letter is available at [http://www.winternet.com/~radams/chall/powell.html].

From: [Dennis Powell]
Date: Sun, 18 Feb 1996 07:51:19 -0500 (EST)
Subject: shuttle transcript
To: radams@winternet.com

There being -- what's new? -- confusion about the alleged space shuttle challenger tape as the crew cabin fell from 65,000 feet, here's the story:

A few months after i wrote a long and widely carried article on the fact that the crew was not killed until the crew cabin hit the water and on nasa's attempt to obscure this fact, i received a telephone call from a woman who claimed to be making a movie about the challenger disaster and who wanted some information about it. in the course of the conversation the question arose, as it always does, as to whether there is some sort of secret tape recording that nasa isn't telling us about. it is presumed by many that there is no way for communications to be utterly lost, no matter the ferocity of the problem -- a presumption that i do not believe is true; remember, nasa didn't even put an epirb or a pinger on the thing.

However, crew members were and are issued little cassette recorders. i was assured by nasa that these were allstowed in lockers during launch. this struck me as odd, in that one figures the first teacher in space would be recording her sensations and so on throughout the launch, perhaps to play to her students later -- we've never really had a play-by-play, except from astronauts who are at work at the time, of a launch. moreover, it turns out that christa's recorder was found along with her helmet the morning after the disaster. it is certainly possible that the helmet left her head and the locker popped open and the helmet and recorder decided to swim together for shore, but to me it's far more likely that they were in close proximity to begin with, meaning that the recorder was not stowed but was instead on her person. what's more, the tape had been partly wound, strongly suggesting that it had been partly recorded.

After refusing to admit that the tape had been found but then being confronted by the statements of the coast guard guys who found it, nasa said that it was impossible to read the tape. interestingly, the contractor that nasa uses to reconstruct magnetic media (who did successfully recover data from other magnetic devices aboard the shuttle, including the recorder containing the infamous "uh-oh" which had been at the bottom of the ocean for two months) was never given the cassette.

Given nasa's near-total panic at the time -- Crippen, Abbey, even Truly were telling investigators to "lose" data about the fate of the crew -- it would be unsurprising to learn that no attempt was ever made to read the tape; somewhat but not terribly surprising to find that it was destroyed. but i know neither of these things to be a fact. they are merely possibilities and, in the first case perhaps a likelihood.

Yet the rumors continued. i have spent more time chasing the crew cabin tape than i like to admit, given the utter failure of my endeavbors in that regard. people who had allegedly heard the tape would, on closer questioning, merely "know someone who heard it." people who claimed to have a copy of it turned out not to have a copy of it. people who claimed

to have a transcript had no such thing. (i would enjoy a day or two looking whatever's behind the bank-type vault door in the library at nasa headquarters, though; this is not entirely in connection with the search for the tape, which is not an obsession of mine in that it would only be yet another confirmation of what i've already confirmed and written.)

So now the purported movie maker called and she asked about the tape. i told her pretty much the above. she asked me if i had heard from anyone what is supposed to have been on the tape. of course i had, but i had no reason to believe that any of it was genuine. she pressed on, and i said, okay, here's the stuff i've been told.

A few weeks later i was at a local store and saw a screaming headline to the effect that the tape had been found and a transcript was printed herein. knowing that the transcript was widely sought and therefore could have been sold to just about anybody, i was puzzled that someone would take it to the weekly world news, but stranger things have happened -- dan schorr, after all, took the pentagon papers to the village voice -- so i got the thing. and looking inside, i was fooled for a moment: it certainly looked genuine. it contained the things i had heard it contained. then i looked at the sidebar. it contained all manner of blind quotes lifted from my conversation with the "movie maker." of course it would look real to me -- it was made up from what i had told her!

I faxed the whole thing down to the miami herald, and we laughed over it and over the kind of journalism -- pure use of the word -- manifested by the gang in [atlanta], and that was the end of it. or so i thought.

Months later i heard from keith mcinnis, who had been contacted by a san francisco publication that had been offered a copy of a transcript of the tape made as the shuttle fell to its watery grave. they wanted to know if it was genuine. which inquiry keith passed on to me. the san francisco publication faxed me the "transcript." it was the same "transcript" published in the weekly world news. someone had simply copied it and tried to sell it -- perhaps the original author, i don't know, though i'd like to, because i'd like to find her and wring her neck.

The stupid thing has resurfaced from time to time since then. it is bogus. i know it is bogus because, as i've explained, i unintentionally had a leading role in making it up.

As i said several paragraphs ago, i don't think there's a transcript because i don't think any attempt was made to find out what was on the tape recovered the day after the disaster. nor is there likely ever to be, assuming the tape's continues existence; nasa is happy to have at least the vague doubt exist over whether the crew was alive and conscious all the way to the water, which they surely were. any irrefutable, easily understood proof of this would be an enormous embarrassment for nasa.

dep

Appendix 7: NASA's Answer to the Unofficial Transcript

Brian Welch, Chief, News and Information at NASA headquarters in Washington, offers an 'official' reply to the ongoing debate over the existence of partial or unofficial *Challenger* transcripts. This Usenet posting was posted on January 29, 1996; a decade and a day after the explosion took place.

A copy of this posting is available at [http://www.winternet.com/~radams/chall/nasa.html].

From: bwelch@hqops.hq.nasa.gov (BWelch)
Newsgroups: sci.space.shuttle
Subject: Challenger transcript history
Date: Mon, 29 Jan 1996 17:11:05 -0400
Organization: NASA Headquarters, Code Z

I am posting this message in response to the continued interest in the Challenger transcripts, and in the hopes that a detailed listing of events will help quell a persistent myth. There are no "partial" Challenger transcripts, and there are no voice tapes recorded after the breakup of the vehicle. Even ten years after the accident, this continues to be the source of myth and speculation. It probably will continue to be for some years to come. I hesitate to even revisit the topic, but the continued misinformation, including completely false stories appearing on many "news" radio stations around the country in recent months, suggest that perhaps a detailed accounting of what did and did not happen will at least arm some responsible souls out there with the real data. I hope some of you will save the following and pass it on in the weeks, months and years to come when someone on the 'net asks about it:

The Challenger onboard intercom was recorded on one of two operational recorders (hereafter, "ops" recorders) aboard the orbiter.

Shuttle orbiters have several onboard components with memory-saving capacity: the General Purpose Computers (GPC), Ops recorders, a payload recorder, and a Modular Auxiliary Data System (MADS) recorder. Personal cassette recorders are available to crews for note taking, but it is thought that they were not in use during Challenger's launch.

The ops recorders store Shuttle ascent telemetry data and air-ground voice channels. Ops recorder 1 records the 60 kilobits/second (KBPS) data stream from the three main engines; Ops recorder 2 records at 128 KBPS the Shuttle downlink/downlist data and the two air-ground channels. Circa 1986, the Ops recorders were played back after reaching orbit to bridge gaps in real-time telemetry to ground stations or through Tracking and Data Relay Satellite coverage.

On March 19, 1986, NASA announced that four of five Challenger General Purpose Computers (GPC) had been recovered from the Atlantic and moved to the IBM Federal Systems Division facility in Owego, NY. The GPCs were cleaned under controlled conditions and submerged in deionized water at Kennedy Space Center prior to air shipment March 16, 1986, to Owego. The GPC ferrite core memories were examined for any possible residual data -- a process that at the time was expected to take several months. This information was in the form of data--not onboard voice--and this path was pursued to add any possible additional information to the accident investigation. Many weeks later, it was found that the additional data frames did not measurably add to the information already gathered during the investigation.

Both Ops recorders and the MADS recorder were recovered and were taken to the Marshall Space Flight Center, Huntsville, AL, for cleaning in clear, cold water and for subsequent drying in a thermal vacuum chamber. The cleaning/drying of recorder tapes took about two weeks, after which the tapes were taken to the Johnson Space Center for extraction of any usable data.

On April 30, 1986, JSC announced that it had so far been unable to extract data from the tapes. "Because the long exposure to salt water

has deteriorated the tapes such that they cannot be unwound from the reels without total loss of the data, all attempts to date to recover information from then have been unsuccessful." JSC also reported that one of the personal cassette recorders available to crew members for note-taking had been recovered, but it was still in its stowage container, indicating it had not been used, and the recording tape was too severely damaged to be played back.

On July 16, 1986, JSC announced that additional efforts had been made to salvage the tapes from the Ops recorders. The tapes underwent treatment at IBM's facility in Tucson, Arizona, to remove magnesium oxide caused by seawater reaction with magnesium tape reels. The tapes were first treated with diluted nitric acid, and then rinsed in methanol. Earlier treatment immediately after recovery had included submersion in clear, chilled water until methods for salvaging the tape could be devised.

Through these types of intensive efforts, it ultimately was possible to listen to the tapes and provide a transcript of them to the media. The transcript was made available on July 28, 1986 at 4:30 p.m. EDT. Initially, NASA had concluded that the crew was unaware of the events preceeding the breakup of the Challenger. But detailed analysis revealed a final comment, providing "the first potential indication of awareness on their part at the moment when all data was lost at 73 seconds into the flight," NASA announced. That comment was "Uh oh," attributed to Pilot Michael Smith.

There is no transcript after the 73-second point because once the Challenger began to break up, power was lost and the recorders stopped running.

Out of respect for the families of the crew, NASA felt strongly that the voice tape audio should not be released. A transcript was released and the contents were widely reported for several days. Later, the New York Times sued NASA for release of the tape audio itself, a case which ultimately went to the Supreme Court, with the court ruling in NASA's favor.

In the July 28 news release announcing the transcript and the release of a report from astronaut Dr. Joseph Kerwin on the cause of death of the crew members, Rear Admiral Richard Truly, then head of NASA's Office of Space Flight, thanked all of the people involved in the massive salvage effort. "Their work deserves the admiration and thanks of the American people, and I believe their efforts have now closed this chapter of the Challenger loss," he said. "We have now turned our full efforts to the future, but we will never forget our seven friends who gave their lives to America's space frontier."

Brian Welch
Chief, News & Information
NASA Headquarters Washington, DC

Appendix 8: Official Cause of Death

The following is an official version of the cause of death and is available from NASA's website [http://www.ksc.nasa.gov/shuttle/missions/51-l/docs/kerwin.txt].

National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas
77058

RADM Richard H. Truly
Associate Administrator for Space Flight
NASA Headquarters
Code M
Washington, DC 20546

Dear Admiral Truly:

The search for wreckage of the Challenger crew cabin has been completed. A team of engineers and scientists has analyzed the wreckage and all other available evidence in an attempt to determine the cause of death of the Challenger crew. This letter is to report to you on the results of this effort.

The findings are inconclusive. The impact of the crew compartment with the ocean surface was so violent that evidence of damage occurring in the seconds which followed the explosion was masked. Our final conclusions are:

--the cause of death of the Challenger astronauts cannot be positively determined;

--the forces to which the crew were exposed during Orbiter breakup were probably not sufficient to cause death or serious injury; and

--the crew possibly, but not certainly, lost consciousness in the seconds following Orbiter breakup due to in-flight loss of crew module pressure.

Our inspection and analyses revealed certain facts which support the above conclusions, and these are related below:

The forces on the Orbiter at breakup were probably too low to cause death or serious injury to the crew but were sufficient to separate the crew compartment from the forward fuselage, cargo bay, nose cone, and forward reaction control compartment. The forces applied to the Orbiter to cause such destruction clearly exceed its design limits.

The data available to estimate the magnitude and direction of these forces included ground photographs and measurements from onboard accelerometers, which were lost two-tenths of a second after vehicle breakup.

Two independent assessments of these data produced very similar estimates. The largest acceleration pulse occurred as the Orbiter forward fuselage separated and was rapidly pushed away from the external tank. It then pitched nose-down and was decelerated rapidly by aerodynamic forces. There are uncertainties in our analysis; the actual breakup is not visible on photographs because the Orbiter was hidden by the gaseous cloud surrounding the external tank. The range of most probable maximum accelerations is from 12 to 20 G's in the vertical axis. These accelerations were quite brief. In two seconds, they were below four G's; in less than ten seconds, the crew compartment was essentially in free fall. Medical analysis indicates that these accelerations are survivable, and that the probability of major injury to crew members is low.

After vehicle breakup, the crew compartment continued its upward trajectory, peaking at an altitude of 65,000 feet approximately 25 seconds after breakup. It then descended striking the ocean surface about two minutes and forty-five seconds after breakup at a velocity of about 207 miles per hour. The forces imposed by this impact approximated 200 G's, far in excess of the structural limits of the crew compartment or crew survivability levels.

The separation of the crew compartment deprived the crew of Orbiter-supplied oxygen, except for a few seconds supply in the lines. Each crew member's helmet was also connected to a personal egress air pack (PEAP) containing an emergency supply of breathing air (not oxygen) for ground egress emergencies, which must be manually activated to be available. Four PEAP's were recovered, and there is evidence that three had been activated. The nonactivated PEAP was identified as the Commander's, one of the others as the Pilot's, and the remaining ones could not be associated with any crew member. The evidence indicates that the PEAP's were not activated due to water impact.

It is possible, but not certain, that the crew lost consciousness due to an in-flight loss of crew module pressure. Data to support this is:

- The accident happened at 48,000 feet, and the crew cabin was at that altitude or higher for almost a minute. At that altitude, without an oxygen supply, loss of cabin pressure would have caused rapid loss of consciousness and it would not have been regained before water impact.

- PEAP activation could have been an instinctive response to unexpected loss of cabin pressure.

- If a leak developed in the crew compartment as a result of structural damage during or after breakup (even if the PEAP's had been activated), the breathing air available would not have prevented rapid loss of consciousness.

- The crew seats and restraint harnesses showed patterns of failure which demonstrates that all the seats were in place and occupied at water impact with all harnesses locked. This would likely be the case had rapid loss of consciousness occurred, but it does not constitute proof.

Much of our effort was expended attempting to determine whether a loss of cabin pressure occurred. We examined the wreckage carefully, including the crew module attach points to the fuselage, the crew seats, the pressure shell, the flight deck and middeck floors, and feedthroughs for electrical and plumbing connections. The windows were examined and fragments of glass analyzed chemically and microscopically. Some items of equipment stowed in lockers showed damage that might have occurred due to decompression; we experimentally decompressed similar items without conclusive results.

Impact damage to the windows was so extreme that the presence or absence of in-flight breakage could not be determined. The estimated breakup forces would not in themselves have broken the windows. A broken window due to flying debris remains a possibility; there was a piece of debris imbedded in the frame between two of the forward windows. We could not positively identify the origin of the debris or establish whether the event occurred in flight or at water impact. The same statement is true of the other crew compartment structure. Impact damage was so severe that no positive evidence for or against in-flight pressure loss could be found.

Finally, the skilled and dedicated efforts of the team from the Armed Forces Institute of Pathology, and their expert consultants, could not determine whether in-flight lack of oxygen occurred, nor could they determine the cause of death.

Joseph P. Kerwin

Appendix 9: The 'Last Word' on that Challenger Transcript

Written just two days after Brian Welch's letter (see Appendix 7) to sci.space.shuttle, Steve Patlan wrote this letter explaining the technical reasons why a transcript of the final moments of the *Challenger* could not exist.

From: spatlan@gp807.jsc.nasa.gov (Steve Patlan)
Newsgroups: alt.folklore.urban
Subject: The 'Last Word' on that Challenger Transcript
Date: Wed, 31 Jan 1996 18:12:42 -0600
Organization: NASA JSC

Where does the Shuttle's power come from?

To believe that the transcript is valid assumes that it was receiving power after the explosion. The electrical system of the shuttle is designed to be fail-safe - i.e, doubly redundant. There are three Fuel Cell Powerplants (FCPs) which feed the three main electrical distribution buses - MNA, MNB, and MNC. Some equipment is powered by redundant feeds from two main buses. The FCPs are fed from multiple sets of cryogenic H2 and 02 tanks - at least three, and typically four. A failed fuel cell is shut down and taken off-line, and a leaking cryo line can be isolated from the rest of the system by closing valves (isolating the tank in the process). The design philosophy of the shuttle assumes that at most two FCPs could be lost before making an emergency landing, so there is no "need" for battery backup-power, which is also prohibited by weight considerations. (The shuttle uses 28V dc power. A typical on-orbit current level is 570 amps. That's an awfully big battery.)

How is the Ops-2 recorder powered?

I consulted the Space Shuttle Systems Handbook (publication JSC-11174, Revision E of October 28, 1994) Drawing 16.18, entitled "OPS RCDRS" shows that power is applied to Ops-2 by Switch 12 on Panel A1A3. The recorder has redundant feeds from the MNB and MNC buses, so at least one of FCPs 2 and 3 would need to be on-line after the accident.

So where are the FCP's located?

In the Rockwell shuttle body-axis coordinate system, the X axis is along the vehicle length, positive out the tail. It is measured in inches, with Xo236 at the nose and Xo1613 at the end of the bodyflap (aerosurface between the elevons and below the main engines.) The aft bulkhead of the crew compartment is at Xo576. So, here are the FCPs:

FCP1: Xo650 FCP2: Xo620 FCP3: Xo680

Here are the cryo tanks:

	H2	02
Tankset 1	Xo890	Xo780
Tankset 2	Xo830	Xo720
Tankset 3	Xo1010	Xo1100
Tankset 4	Xo890	Xo1070

All these are located beneath the payload bay. Tanksets 1 and 2 are used on Ascent. Now, in the explosion video that I have seen, the crew compartment can be unambiguously identified. It is clearly *not* attached to 22 feet of keel. In fact, it does not appear to be attached to much of anything. It is definitely *not* trailing a tangle of plumbing and cryo tanks. (FYI, the 02 tanks are 33 inches in diameter and hold 781 lbs. The H2 tanks are 41 inches and 92 lbs. I don't think I would have missed seeing them.) There are two cryo pressure regulators for each FCP. The first drops the line pressure from the tanks down to 120 psia, and the second drops that down to 60 psia. Since the lines

were severed during the explosion, there wouldn't have been an appreciable amount left between the regulators and the FCP. For reference, in the first 2 minutes and 30 seconds after liftoff, the shuttle uses 3.58 lbs of H2 (0.82 cubic feet) and 28.6 lbs of 02 (0.42 cubic feet). So, the FCPs were not receiving cryo after the vehicle broke up.

Yeah, but won't the FCP's "keep going"?

Well, this assumes that they were still attached. It's been a while since I saw the video, but I don't recall seeing an extra five feet of payload bay attached to the rear of the crew compartment. But I will address this issue for the sake of completeness. In a nominal, non-explosion scenario, an FCP will still operate if the flow of one of the reactants is shut off. If H2 is cut off, the FCP will fail within 20 seconds. That's "fail" as in zero power - it will begin to drop off immediately. If both H2 and 02 are cut off, I would expect it to drop to zero in less than 20 seconds.

Making the shaky assumption that the FCP survived the explosion intact, there is another consideration: Each FCP contains three substacks, each with 32 fuel cells. The walls within and between these small cells are rather thin. A regulator within the FCP keeps the coolant pressure the same as the 02 pressure - if the 02 pressure is much greater than the coolant, the walls will fail, destroying the internal structure. The coolant line between the FCP and the heat exchanger would have been severed in the explosion, so its pressure would have dropped to zero.

However, the 02 is still at 60 psia beyond the stage 2 regulator. Picture a bear swiping a paw through a honeycomb. The FCP's water lines would also have been severed in an explosion, causing another pressure differential. It is not really reasonable to assume that the FCPs produced electricity for more than a couple of seconds after the vehicle broke up. But they weren't attached to the cabin anymore anyway, so it matters not.

Hey, we all know flight recorders have batteries. Sheesh!

Well, the systems drawing I mentioned earlier did not show any external batteries. Besides, the Ops-2 recorder is not an airline-type "black box", although it records the same type of data. I consulted the Communications Systems Section head (who I've known for 15 years and is no government shill) and his Ops Recorder system expert. They confirmed that the recorder contains no internal batteries. Keep in mind that the shuttle was designed in the early 1970's and uses a lot of old technology. The Ops recorder is a large, heavy piece of equipment, and weight and space are both at a premium on the shuttle. Given that the shuttle's power system is assumed to be reliable, there is no reason to believe that the Ops-2 recorder contains a battery. If you don't believe that last sentence, re-read this article until you do. Thank you.

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I welcome any reasonable, verifiable objections to the technical arguments presented above. If you don't know diddly about Shuttle hardware, don't bother. If you can only offer paranoia and skepticism, that and a quarter will buy you a cup of jack-squat. If you want to argue that since my Handbook was revised in 1994 it is obviously a battery cover-up, I can only say: Get a life, you pathetic wanker. "Take my hand" is a rancid red herring, so dont' EVEN talk to me about that.

Having said that, I offer the following comments on the supposed transcript: Why didn't anybody at least *try* to signal Mission Control? Why not more profanity? Why is it so dreadfully cliched and melodramatic? ("Not now, not like this"? Furrfu!) Why does somebody complain of being hot? Yeah, it's real hot 6 miles up.

- Steve "furrfu" Patlan

Steve Patlan
NASA JSC/Electrical Power Systems
I speak only for myself. Like I had to tell you that.

Appendix 10: Interview with Rick Adams

Rick Adams is the author of the website, "The Challenger's Final Minutes: Challenger astronaut's last words, or a tabloid hoax?" Adams has a background as a journalist and now works as a web technician and a computer programmer. This interview was conducted by email between March 17 and May 7, 1998 and was edited into the following transcript.

DC= David Clearwater RA= Rick Adams

DC: When and how did you first learn of the controversy of the NASA transcripts? Was it through traditional media channels (print, television) or through the Internet (Usenet groups)?
RA: I found a page that contained the "transcript" while randomly surfing. When I first read it, I assumed it was real, and was emotionally shaken by it. It evoked a very vivid mental picture in my mind, including the shaking of the vehicle, the increasing sound outside, and the rising panic in the astronaut's voices. I had never really thought through what it must have been like for them. It seems obvious that I had suppressed all such thoughts until that moment. I began researching soon after that, and my pages on the transcript went up about a month later.
DC: You have a background as a journalist and most of the 'stories' on your website involve some sort of oral aspect; that is, stories which are reported in the media but are also heavily discussed by people through non-media channels. Why do these intersections of media stories and personal discussion interest you?
RA: That's a very perceptive observation. I've never thought of that before, but now that you've pointed it out, that theme seems obvious to me.

I am fascinated by controversies in which people argue conflicting facts and theories. I find that people typically don't make any attempt to objectively research such issues, but instead collect any rumors or comments that support their position and ignore any evidence to the contrary. It's difficult to be objective, and tedious to do the research. A lot of times you find the truth is quite different than ANY expressed viewpoint, and I know from my newspaper days that what you read in the news is often slanted in one direction or another and incompletely or misleadingly told. I like to do what I can to find out what's really going on.

Many times the evidence is so conflicting that a certain, objective account can't be found. But I like to try to get as close as I can.
DC: Do you feel that the 'story' or its important elements can get lost in this process?
RA: Certainly. "News" is really just "information we find interesting." You seldom read in the news that "two fire hydrants received a fresh coat of red paint yesterday," because nobody really cares. People care about information that directly affects them, entertains them, or stories that convey a moral that they agree or disagree with.

The "Stroudsburg Exam" incident on my site seems to be an example of the latter. It's a story with a high emotional response onto which people seem to project their own personal emotional "hot buttons." It's been variously described as child abuse by right wing pedophiles, child abuse by a liberal paternalistic state, bureaucratic arrogance, unwarranted criticism of health care professionals, prudish conservative right-wingers gone amuck, and so on. After awhile the discussion really isn't about 59 junior high girls at all, but about what the incident means at a higher level.

And also, the story has mutated considerably, from 59 girls given genital exams in one incident, into all girls in PA being given pelvic exams on a regular basis, etc.

Since I provide all source material on the incident, both pro and con, everyone unconsciously picks the bits of information that supports their viewpoint and ignore the rest.

When researching, I try to get as close as possible to the actual source documents themselves, instead of relying on opinion or summary articles that state conclusions and give citations to source documents as evidence. Usually at that point the reporter's unavoidable personal biases have resulted in inaccurate, misleading or selective references to the source documents. It's best to use their citations as a handy way to look up the original information so you can make your own conclusions.

Newspaper reporters have grown lazy, I think. They typically report on a controversy by summarizing press releases from opposing sides, providing

"balance" by devoting an equal number of column inches to each side. They don't bother to chase down the information in the press releases to see if they're accurate... they are interested in reporting what people are SAYING... finding out what's really going on is too much trouble. (Well, journalism has been described as "literature in a hurry...")
DC: Or that the story can just take on a life of its own?
RA: Absolutely. A story with a strong emotional or didactic "hook" (Pre-teens in Pennsylvania raped by school officials!") is what some people refer to as "talkers." Nobody has the time to research anything, so they pass on "sound bites" and a summary of the conclusions of the person who told them, and so on. A story is like a virus, in that it needs some element that compells people to tell it to others. In this way the story propagates. Along the way, it tends to mutate to add more dramatic elements that more starkly illustrate the "moral," and elements of "authentication" are added. ("I've heard that a lot of laptops are stolen from airports" mutates into "According to the FAA, a lot of laptops are stolen...") There's a sort of Darwinian "survival of the fittest" in which the versions of the tale that contain more effective elements of emotional response and authentication survive, and weaker strains die off.
DC: I understand that NASA released the original transcript (ending at +0.73 sec) without Michael Smith's utterance of "Uh-oh" and that the existence of this phrase was somehow leaked to the media. Do you know how this came to be known?
RA: NASA released that information. I wouldn't be surprised if the press learned of it in advance of their official announcement on that. Stuff like that usually leaks pretty fast. See below.
DC: Evidently, NASA did acknowledge that Smith's phrase was on the audio tape and re-released the transcript including his words. Do you think this had any bearing on people's belief that there indeed was a recording of the post-explosion dialogue of the astronauts? Do you think that people may have (hypothetically) asked: "Well, NASA tried to cover up this... might they not try to cover up a post-explosion transcript?"
RA: People have said this, yes. But NASA gave an explanation for this discrepency that I tend to believe. (The recordings were in such poor condition that further processing was necessary to recover that last line.)
DC: What is your personal or professional opinion of the authenticity of the post-explosion or 'fake' transcript?
RA: I strongly believe that the transcript is fake. I think it's remotely POSSIBLE it's authentic. I believe the government can and does falsify events on occasion, but I have no idea whether this is one of those times. It's clear there is an element of urban legend at work here, but also on the other hand I believe the government would want to (and probably has) concealed some aspects of the Challenger disaster (and perhaps for good reason). Dennis Powell indicated that a cassette recorder on McAuliff's lap might have been the source of the data on the "additional" transcript, but he doubts it. I'm not so sure. But my gut feel is that the evidence points strongly against authenticity.

As you can probably tell from the above, I believe it's very difficult to say with certainty that an event happened a certain way, as even direct eyewitnesses can give different observations and interpretations from the same experiences. I believe that objective truth EXISTS, but that knowing it with certainty is not always possible.

DC: Did you follow much of the discussion on various Usenet groups about the existence of the fake transcipt? What was your initial reaction to the discussion and did you participate? If you can recall, when did most of this discussion take place (i.e. what year)?
RA: I was not in on the original discussion, though I've heard it was quite heated. When I produced the web pages on the transcript, I was quite severely criticized for being a "ghoul" obsessively focused on the grisly details of the astronauts' death. After some discussion the consensus was that I had done a valuable thing, but many felt that any discussion of the issue at all was degrading to the memories of the astronauts.

One often expressed sentiment was that the astronauts should be allowed to "rest in peace," and people asked why anyone would obsess about the issue even at this late date. My answer to that was that we DO obsess about the astronauts because they are our heros, and important to us. We obsessed about them beforehand, with the press reporting all of their hobbies, backgrounds, cataloging the most amazing amount of minutia... so why wouldn't we do the same thing now? They're even more important to us now.

I am proud that a reference to the site is now included in the sci.space.shuttle FAQ.

DC: One thing that interests me is how all this discussion gets fragmented and dispersed. I can recall, a few years ago, someone telling me that one thing that the astronauts said, after the explosion, was "take my hand." At the time, I was struck by the poetical quality of that statement... it just resonated with me in some way. But then I came across the fake transcript at your website and the phrase, in slightly altered form, was there: "give me your hand..." Can you comment on this?
RA: The "take your hand" comment surfaced in persistent rumors of a suppressed transcript soon after the accident. Dennis Powell tried to chase down the validity of the rumors, but always found that a "friend of a friend of a friend" had passed along the information. In other words, it was a classic "urban legend" tale. To call something an "urban legend" is not the same as proving it false, tho urban legends frequently are. This just refers to the means of progagation.

The "hand" comment then appeared as one isolated line in a Time magazine story, and in the supposed "transcript." The one line in Time was NOT FOLLOWED UP ON, but just never referred to again. All this would suggest the validity of the transcript, since the transcript contains the same info as the rumor, and Time's lack of followup make it look like NASA "got to them" and silenced them.

But according to Dennis Powell, the order of propogation was the reverse of what you'd think... He heard the rumor, passed it to the tabloid reporter, who wrote it into the "transcript." This is a pretty convincing explanation of evidence that at first blush would seem to validate the transcript. If that's how it happened, Time's lack of followup might have been from embarrassment from being taken in.
DC: It seems to be such a cyclical process: stories are reported (some in the tabloid press), people discuss it, certain facts circulate, show up again elsewhere (sometimes in the press or even on websites).... How does this impact the writing of journalism or history? Especially when certain facts, even though they may or may not be true, seem to resonate with people.
RA: That's very true. Once it gets into print, "I read it in the paper, so it must be true!" It was such a revolutionary concept when my father first explained that reading something in a book doesn't always make it so!

It used to be that a newspaper that couldn't validate a story would spike it. Now they either run it, or wait till someone else does, and then run their own story. Now even if someone reports something on the internet, that's good enough for them to go ahead. When I was a reporter, there were countless times we had a really juicy story that we chose not to run because we couldn't adequately verify it. Often we even strongly believed the story was true ourselves, but it didn't run because it'd violate our own ethics to run it.

But now once a story is printed, no mattter how specious, it's fair game to print it on the basis that 'Newspaper XYZ today reported that...' Cause that's TRUE, they did report that.

There's certain science myths that show up in college lectures and in print again and again that ARE NOT TRUE. And people can say "What do you mean it's not true? Professor Smith taught me that in college, and I reed it in a magazine, too!"

Examples: Glass is a liquid that flows over long periods of time (it doesn't), and that water goes down drains counterclockwise in the northern hemishphere and clockwise in the southern hemisphere. Each of these "facts" comes with a very connvincing explanation but is not true. (There was a website that collected various people's results from trying the "water down the sink" experiment at their house... the results were 50-50 no matter the hemisphere.)
DC: I would like to return to Michael Smith's phrase. Why do you think that society or the media is so interested in a person's final words or thoughts? Even with the death of Princess Diana six months ago, there was intense speculation as to what her final words were (the National Enquirer reported she said "Leave Me Alone") and I know that many people wondered what Michael Smith might have noticed to make him say "Uh-oh".
RA: There's been entire books printed of the compiled "last words" of various famous people. I believe they are like "totems" or a symbolic capsulation of the person's entire life. Often they accurately reflect the person's essense, and other times they are ironic in their contradiction of their philosophy. People are just as interested in the "last" of things as the "firsts." First date, first kiss, first anniversary, and so on. (Oscar Wilde's last words, if I recall correctly, were "Either that wallpaper goes or I do.")

I was deeply moved when somene mentioned during the Usenet discussions on the "last words" that, in honor of the astronauts' memories, he had adopted the personal ritual of muttering "Roger, go at throttle up" just before launching

any risky personal endeavour. I sometimes now do the exact same thing. It isn't a supersititious attempt to avoid risk as it is a solemn acknowledgement of it: sometimes you have to face risk and failure in order to attempt something worthwhile enough that you chance it anyway. And if you fail, you'll take the consequences without whining, and knowing it was fair, because you chose to take the risk. "Roger, go at throttle up," given the context, expresses this admirably.

DC: On your website you reference a letter written by Steve Patlan to alt.folklore.urban who tries to explain the technical reasons why the transcript could not exist in the first place because no voice recording could have been possible. Do you recall if people believed him or if it affected the discussion?

RA: The discussion was on alt.space.shuttle, so most people believed him. Actually, they didn't even believe the explanation was necessary, as most believed the transcript was fake already.

DC: There is the fake trasnscipt itself which seems, to me at least, to be an obvious fake. Not so much for the technical reasons outlined by Steve Patlan (which are convincing) but just how the transcript was written. There are no profanities and the dialogue is, surprisingly, calm. Also, it seems so nostalgic and, in a way, cheesy (i.e. someone saying, "I told them... I told them" and another allegedly reciting the Lord's Prayer.) Was there any discussion of the transcript's authenticity on a more formal or literary level such as this?

RA: Well, Steve Patlan touches on this in the final lines of his article:

"Why didn't anybody at least *try* to signal Mission Control? Why not more profanity? Why is it so dreadfully cliched and melodramatic? ("Not now, not like this"? Furrfu!) Why does somebody complain of being hot? Yeah, it's real hot 6 miles up."

People have raised various similar discussions of the transcript's internal and external consistency. I agree with some of their reasoning, and don't agree with some also.

I don't see the transcript as "calm," for example. I would imagine that (if it was true) the lines would be shouted quite excitedly. It's not "hot 6 miles up," but the explosion would make the cabin quite hot.

On the other hand, there's no jargon. One newspaper account of the accident described the reaction of one person close to the mission as muttering loudly, "RTLS! RTLS!" (Return to Launch Site, one of the contingency plans for an accident). That's how ingrained the jargon is.

DC: On your website you also have a letter from Brian Welch, Chief of News and Information at NASA written to sci.space.shuttle where he says: "Even ten years after the accident, this continues to be the source of myth and speculation. It will probably continue to be for some years to come." Do you agree with him? Will this story ever be cleared-up?

RA: I agree with him. And there's always going to be that ambiguity. The JFK assassination, the Roswell UFO incident, Elvis, Tupac, Lincoln's assassination, and so forth... people are still arguing about all these issues. We speculate and obsess about them because they are important to us.

DC: Do you think this is inevitable process in twenthieth century journalism and history? There is so much conflicting information out there and everyone talks about it through all kinds of channels... tabloids, films (JFK, for example), and the Internet. It seems that almost everything has an element of gossip or hearsay... and more and more it seems impossible for any story to reach closure.

RA: News has become entertainment, objectivity is no longer a goal, and the telling of a good story usually takes precedence over its validity. But this has often been the case throughout history. A lot of ancient history sources are conflicting according to viewpoint, and often nothing more than speculations, rumors and lies. The more things change, the more they stay the same. Early US journalism was nothing more than entertaining rumors and often deliberate fabrications. "Yellow journalism" lead to a new insistence on reliable reporting, the use of three sources to confirm a story, and so on. That's largely been abandoned. The pendulum swings back and forth.

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