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THE STUDY OF DISASTER MOVIES: RESEARCH
PROBLEMS, FINDINGS AND IMPLICATIONS*

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This paper deals primarily with the problems and opportunities intrinsic in a social scientific study of disaster films. In the introductory section, we note the importance of popular culture in affecting the beliefs of people and discuss the possible role of movies in shaping the conceptions and ideas held by the public at large about the physical and human features of disastrous events. In the second section we outline the pilot study of disaster films we undertook and attempt to show the lessons learned as a result of the gap between our intent and our achievements. This is followed by a discussion of the major substantive observations and impressions derived from the content of the disaster movies we viewed. The paper concludes with suggestions for future and more systematic research into all aspects of popular culture and disasters and presents specific recommendations for studies into all phases of the production and consumption of disaster movies.

Disasters and Popular Culture

Relatively few people in American society have directly experienced a major disaster. Different population surveys, providing no definition of disaster experience for respondents and making no distinctions as to the degree of victimization, report figures in the range of 15-22 percent.[1] Some of these same surveys also indicate that even in instances of direct exposure to a disastrous kind of stress situation, the experience has almost always been limited to only one kind of damaging agent, such as a tornado or a fire.

Despite this lack of direct and major exposure to various disaster events, it is clear that people in general have images of disaster phenomena. They act and react as if they "know" about both the physical and social aspects of disasters. There is even a historical dimension to this. References to the San Francisco earthquake, the great Chicago fire, the supposed "panic" in response to the "Invasion from Mars" broadcast,[2] and the panic and high death tolls in the Cocoanut Grove night club fire in Boston, will often evoke a high degree of recognition by average Americans. Thus, unlike many other areas of life in which only specialists would claim knowledge and understanding, most persons seem to think they can say meaningful things about the nature of unexperienced disasters and the behavior of humans in such events. This fact is also documented in another way. When people are asked about individual and organizational response to disasters, they show little hesitancy in expressing opinions.

Another important, related matter has also been found through empirical studies. Some systematic pieces of research show that the public's general conception of human and group behavior in disasters often reflects mythological notions and misinformation (Wenger, et al, 1975). An even more recent study indicates that public officials tend to have the same misperceptions and incorrect views as the general public. In fact, this latest research indicates that even experience in disasters has relatively little effect upon erroneous beliefs (Wenger, James and Faupel, 1980). Still other work suggests that accurate knowledge about the physical aspects of disasters does not appear to be very extensive.[3] If valid information is deemed important for disaster preparedness and response, this is an unfortunate state of affairs.

In view of all this, it seems worthwhile to ask the following questions: where do people receive inaccurate information about disasters and from whom do they acquire their mythological beliefs about disaster behavior?

Undoubtedly, the general answer to this question is that learning comes from many direct and indirect sources. However, more specific explanations are needed if something is to be done to correct these misconceptions. There is a tendency to assume that journalistic accounts, i.e., news stories and documentaries, are a major source of the public's knowledge about disasters. While the actual evidence for this is far from substantial, a strong logical case can be made for this position. Similarly, it can be logically argued that another major source of beliefs about disasters is derived from popular culture. We use the term popular culture to denote films, novels, comic books, advertisements, songs, television and radio entertainment shows and programs, and other nonjournalistic products disseminated via the mass media. Such popular culture products frequently highlight disasters. In fact, a recent article in the "Behavior" section of Time magazine entitled, "The Deluge of Disastermania" states that recent production in the popular culture sector dealing with disasters and catastrophes "is something of a growth industry." (March 5, 1979, p. 84).

Nondisaster studies in the mass communication area have clearly shown that the American population, as a result of exposure to popular culture, holds beliefs that sometimes vary with, replace, or add to the consistent findings of empirical social and behavioral scientific studies (e.g., Breed, 1958; Klapper, 1960; McQuail, 1969; Bower, 1973; Manning and Pendleton, 1977). It would seem reasonable, therefore, to hypothesize that the same process might be generally operative in the disaster area. That is, the general population probably has learned some of the things it "knows" about disasters and disaster behavior from popular culture. This may seem a foregone conclusion, except that there does not exist a single social scientific study which presents any direct evidence to bear upon the matter.

While there is no empirical research, there is a small body of literature which deals with the presentation of disasters in popular culture. Almost all of these works are written as essays from a humanistic or artistic perspective, are dependent upon personal chance observations,[4] and very rarely show awareness of social and behavioral scientific studies in the disaster area (for a notable exception on the last point, see Conrad, 1978). Many of the discussions are focused on the popularity of disaster works, especially the apparent upsurgence of public interest during the 1970's (e.g., Sarris, 1974; Geduld, 1975; Kaplan, 1975; Westerbeck, 1975). Common to many of these recent essays is the theme that somehow popular culture's treatment of disasters, whether the works be novels (e.g., Woodcock, 1979) or films (e.g., Goldstein, 1974; Schechter and Molesworth, 1978), reflects a negative public reaction to the advanced technology of modern societies. In fact, some argue that present-day disaster epics are characterized by their pessimistic outlook compared with those of an earlier time (e.g., Paul, 1974; Altshuler, 1975). Another theme which has been discussed, is that subconsciously the fictitious stories about catastrophes "reinforce our cultural belief in individualism and individualistic solutions to social problems" (Meisenhelder, 1979:2). (For somewhat similar views, see Gans, 1975 and Shutzkin, 1975). Still others have identified a third theme, popular culture disaster works serve a psychological escapist function for the individual reader or viewer (e.g., Annan, 1975; Andrews, 1980). Sometimes this analysis focuses on supposedly very latent cultural myths and meanings which are mirrored in these films. (e.g., Jewett and Lawrence, 1977).

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In general, this body of speculative literature is unsystematic and unsophisticated, although a few of the better pieces do present implicit hypotheses that could be tested (see especially Gans, 1975; Shatzkin, 1975; and Conrad, 1978). Actually, some of the more idea-generating presentations are in the form of anecdotal personal satires of the whole genre of disaster works (e.g., Whelton, 1975; Rivers, 1979), but considerable effort would have to be made to turn them into research questions. In the main, therefore, other than suggesting that there is some kind of relationship between the content of popular culture products on disasters and the public's perception and response to disasters, the speculative literature as a whole gives us few specific clues and no real knowledge about the nature of the relationship.

Our Pilot Study

To bring some evidence to bear upon the matter, we attempted to conduct a small scale, pilot study into the relationship between popular culture content and the beliefs of people about disasters and disaster behavior. Our focus was on disaster films, and our methodology was content analysis.[5] The effort, while not especially successful in terms of the specifics of the original research design, was nonetheless otherwise worthwhile. As will be detailed shortly, we learned important methodological lessons and obtained useful substantive impressions valuable for any future research work on disaster films.

Our initial intent was to conduct a systematic content analysis of English-speaking disaster films screened in the United States in the last decade. The focus on movies was based on the assumption that films, compared with most other popular culture genre, reach the greatest number of people and because of their visual aspect,[6] are likely to have the greatest impact on viewers. Supporting this reasoning is the observation that recent movies with clear-cut disaster themes such as Earthquake, The Towering Inferno and Airport have been among the biggest box office draws in cinema history. In fact, The Poseidon Adventure was the highest grossing film in the world in 1973. Disaster films shown on national television in recent years have also attracted large audiences.

Thus, we took for our universe of study all English speaking nondocumentary disaster films produced and distributed for movie houses and/or network television which were shown in the United States during the decade of 1970-1979. We assumed we could easily obtain a list of all such films from some basic source, perhaps the nondocumentary movie and television review section of Variety, the specialized weekly and so-called Bible of the entertainment world. On the basis of a general inspection, it appeared as though this periodical attempts to review every movie and every national network television program screened in the United States as soon as it is publicaly available. In addition to critically evaluating a work, every review almost always presents a synopsis or straightforward descriptive summary of the plot or story line of each movie or television show examined. From the reviews we were going to compile a master list of all movie and television films with a disaster theme. Although there are many movies with disaster themes prior to 1970, such as San Francisco, Hurricane, The Last Days of Pompeii, Zeppelin, The Good Earth, A Night to Remember (about the Titanic), and Krakatoa, East of Java, our universe of study was going to be limited to films of 1970 or later. We assumed

the more recent films would be more readily available for actual viewing.

A film was to be classified as a disaster film if any aspect of disaster was mentioned in a relevant way in a review. For our purpose, disaster included any collective emergency resulting from the kind of natural and/or techno-logical agents listed in the U. S. Federal Disaster Law of 1974. Not included in our definition of disaster were war-created catastrophes (e.g., the burning of Atlanta in Gone With the Wind), deliberate attempts such as sabotage or terrorism to create mass emergencies (e.g., as in Black Sunday), and all other kinds of happenings which might be collective stress situations (a la Barton, 1970) but not disasters as the term is generally used in the social and be-havioral scientific literature. Similarly, we excluded clear-cut science fic-tion films (e.g., Beginning of the End in which radioactive-generated giant cannibalistic grasshoppers from Illinois take over the world), and very ex-plicit comedies (e.g., the movie Where Were You When the Lights Went Out? which was based on the 1965 power blackout in the northeastern United States). In general, our aim was to include in our study, only those movies which seemed to deliberately try to depict true-to-life situations.[7]

From the master list of films, we were going to draw a sample, obtain copies of those chosen for actual screening, and attempt to do a systematic, possibly quantitative analysis of their content. The basic dimensions of the coding scheme were to be derived from an examination of the social and behavioral scientific disaster literature in particular (e.g., Dynes, 1975), but not confined solely to it. It seemed at least two general topical areas needed to be examined: (1) the nature of the social behavior of individuals and groups depicted in the films, and (2) the physical nature of disasters as pre-sented in the films. The former was to include an examination of the pre-, trans-, and post-disaster behaviors depicted, whether responses were shown as homogeneous or heterogeneous, the indicated capabilities of communities and societies to handle the crisis, etc. The latter included looking at such matters as the supposed cause of the disaster, whether mitigation or preven-tion measures were indicated as being possible, what the physical effects of the disaster agent were, etc.

We proceded with the hypothesis that film portrayals of the physical nature of disasters and of social behaviors in disasters are different from that set forth in the scientific literature on the topic. In general, we assumed that movies depict incorrect views of disaster phenomena, and that these films form the core of movie audiences' perceptions and mold their thinking about disas-ters. However, it is these very matters for which we lack empirical evidence one way or the other. Therefore, in an effort to move towards some definitive conclusions, we intended to establish by content analysis what films portrayed, and then to analytically match these findings with those gathered through em-pirical research on the same phenomona so that similarities and differences between them could be identified.

Relatively little of what we specifically planned was actually done. Our lack of achievement was in itself very indicative of the practical and theoretical problems anyone would encounter in an attempt to systematically analyze the content of disaster films. Future work on this subject will have to address the same problems that stymied our efforts. We now turn to a discussion of the major difficulties we encountered and offer some suggestions on how they might be resolved.

1. Our inability to comprise a master list of all disaster films was the
initial and fundamental problem. No one source or multiple sources of in-
formation can be readily used to develop such a list. There is no subject
index to _Variety_, the entertainment paper, which we had intended to use as
our prime source of information. This meant any attempt to derive a list
from _Variety_ would have entailed obtaining hundreds of issues of the news-
paper and reading thousands of reviews which would have been published over
the period of a decade or more.[8] The time and labor required would have been
substantial and the quest would not have been helped by the fact that except
for relatively current issues, back issues of the newspaper are normally only
available on microfilm.

The Library of Congress does periodically issue a master list of all movies
copyrighted in this country, including films made primarily for network tele-
vision (see U. S. Library of Congress 1977). However, the listing is by
title, which in the majority of cases, does not provide even a hint as to
whether the film content deals with disasters. It would be the unusual re-
searcher who might guess, for example, that the movie, _Flipper_, contains
spectacular scenes of a hurricane.

There are two subject matter indici of films. Even though we used them for
our study, they have limited value for most research purposes. _Halliwell's
Film Guide_ (1977) does have a brief synopsis of all films it covers, with a
subject index in the back of the volume which allows one to locate all ab-
stracts in which disaster phenomena is mentioned. Although the _Guide_ does
list 90-or-more minute movies produced for television, it covers only about
8,000 English language films issues up to August, 1976. In addition, the
synopses and references to disaster phenomena are usually very brief. For
example, the total synopsis of the 1939 movie, _The Rains Came_, reads: "High
class parasites in India during the Raj redeem themselves when a flood di-
saster strikes. Wholly absorbing disaster spectacular in which the character-
ization and personal plot development are at least as interesting as the spec-
tacle, and all are encased in a glowingly professional production" (1977:
237).

The American Film Institute does issue a _Catalog of Feature Films_ which has
a rather extensive subject index divided into a variety of categories including
most major disaster agents such as earthquake, fire, flood, plague, famine,
etc. But, this source excludes films created originally for television and
simply lists the name and year of issue of the film under each category with-
out any abstract or synopsis. Also, only two volumes have been published so
far, covering movies made in 1921-1930 and 1961-1970. It should likewise be
noted that for our research purposes the categories were too inclusive. For
example, when reviews were checked, almost all the films listed under "explo-
sions" and "explosives," dealt with bombs and the use of dynamite rather than
natural or technological disaster agents.

With lists and indici of movies it is possible to find film reviews. As already
indicated, _Variety_ reviews almost all productions that are screened, but
searching for a review in that newspaper can be extremely time consuming. Al-
though nowhere near as complete and requiring two separate searches, the re-
views in _Film Daily_ are all indexed by date of review in the annual _Film
Daily Yearbook of Motion Pictures_. In addition, all the film reviews which
have ever been published in the _New York Times_ are collected into a few vol-
umes; however, this is a somewhat selective sample.

But even when relevant film reviews can be located, the information provided
is often not enough to make even a general judgment that disaster footage
is involved. The film Sodom and Gomorrah, for example, includes an exten-
sive and photographically impressive earthquake scene rather central to the
movie plot. However, the New York Times review of the movie does not men-
tion an earthquake being depicted in the film. At other times, references
to disaster content in a review are so vague that it is difficult to judge
whether it would fit a researcher's criteria for inclusion. For example, the
phrase "there's the shipwreck in a storm" is the sole reference to disaster
phenomena in the New York Times review of Doctor Doolittle (December 20,
1967: 55). Even when different reviews of the same film are synthesized,
sufficient information for research purposes may be lacking. In its review
of Ferry To Hong Kong, Halliwell's Guide notes that the major protagonist
proves his true worth "when a typhoon strikes" (1977: 239); however, the New
York Times fails to mention this disaster agent in its review of the same
film. Overall, the disaster content of movies cannot be solely determined
by film reviews unless disaster phenomena, as we shall discuss later, is the
major theme of the movie.

It seems clear that developing a master list of disaster films would be best
done by doing a current, ongoing study. That is, it is possible to develop
a list of all possible disaster movies by starting at a particular point in
time, reading Variety regularly and noting all network television shows as
they are listed in TV Guide.[9] The problem of trying to ascertain which rele-
vant movies had appeared and were possible candidates for inclusion in a list,
which is the major difficulty in looking at what has already happened, is
basically circumvented by taking a future rather than past time period for
study.[10] Working on future appearances would, in fact, seem to be the only
way to insure inclusion of disaster films shown on television.

2. Even if it were possible to derive a complete list of disaster films,
locating and obtaining them for research purposes poses another obstacle.
As is well known, the national television networks have done a poor job of
developing morgues or archives of what they have shown in the past. Only in
recent years have there been systematic recording and storage of television
network news programs; copies or tapes of most other kinds of programs do not
exist or are of a very selective nature (Ward, 1979). This is not only true
of the past, but is still generally true of the current situation, meaning
that anyone interested in disaster films produced for network television would
probably need to see them at the time of their screening, which usually occurs
only once.

The problem with non-television disaster movies is less one of establishing
the existence of copies than it is of locating and gaining access to copies
for viewing. While copies of a number of films produced in the early days of
the movie making industry have not survived, copies of many non-current movies
can be bought or rented from different film collections. The Movie Collector's
Catalog by Ken Weiss (1977) is a particularly valuable source of information
on what movie prints are still available, what collections exist, where films
can be bought and rented, and what other publications are presently being pro-
duced for film collectors. A quick scanning of some of these publications
uncovered no identifiable collection of disaster films or disaster film "buffs",
but, given the specialized and sometimes exotic interests around which col-
lections have been formed or "buffs" have concentrated, a systematic search
could conceivably surface something of great value to students of disaster

films. (Other good sources for reference works, locating collections, etc. are contained in articles by Alley, 1978 and Armour, 1978).

More current films can generally be bought and/or rented; sometimes, they can be borrowed for educational/research purposes from different studios or distributors. The last alternative, often involving some prior agreement as to non-commercial use and limitations in regard to audiences, is by far the least costly and can be arranged relatively easily by college and university teachers. However, arrangements for borrowing copies of film prints usually have to be made substantially ahead of time to insure availability at specific times.

3. There are sampling problems in the study of disaster films. For reasons indicated earlier, non-current films pose more serious problems. Yet, even if the researcher is focusing upon current movies, problems arise. Unless resources are unlimited, it will be necessary in almost all instances to draw a sample from whatever universe of films exists and is available to the researcher. At one level this is a practical problem of resources and, as is always the case, their availability will dictate the outer limits of what can be done in a study.

At another level the sampling problem involves substantive judgments rather than methodological decisions. To randomly sample in the statistical sense, for example, assumes that all disaster films are of equal weight with respect to what is being studied. There are at least two difficulties with this assumption; they appeared even in our pilot study. For one, the function of the disaster theme can vary rather markedly in degree from one movie to another; even when our criteria for inclusion as a disaster film are met. In some movies such as Earthquake or The Towering Inferno, the disaster, itself, is the core of the film's plot, and much of the film footage deals with depicting disaster phenomena. In other films, the disaster plays an inconsequential role in terms of the movie's major themes and plot. The massive train wreck in The Greatest Show on Earth primarily serves as background setting. In still other movies, the disaster phenomena which is shown is rather minor in its relationship to the plot or story line and in terms of the proportion of total film time devoted to its depiction. Many films which involve fires or explosions fall in this category. In Benjamin, a fire brought about by stray fireworks forces the major protagonist in the story, to go to his room to change his clothes; there, he finds his girlfriend awaiting him. A multitude of other dramatic devices could, of course, have been used to account for the protagonist's action. Thus, disasters can be central to the plot, provide background, or serve as incidental factors in movies. For research purposes, a sample drawn on the assumption that all disaster movies are of equal weight seems rather indefensible, especially if the intent is to quantitatively analyze content.

Of course, those movies in which disasters play a major part are the ones used as examples in the speculative literature on disaster films. However, this seems a narrow conception of film content. It appears to be based on an implicit notion that the impact of film content is almost exclusively dependent on the predominance of its subject matter. This can be disputed on a number of logical and empirical grounds. From a more anecdotal viewpoint, some specific classical examples of famous and noted movie scenes can be seen as being relatively independent of the overall plot of the particular film involved; for example, the eating scene in Tom Jones, the fireworks during the love scene in To Catch a Thief, and the scene in the restaurant between the customer and

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waitress in Five Easy Pieces. Conversely, there are also cases of close rela-
tionships as in the climax showdown scene in High Noon or the camera following
the supposedly poisoned glass of milk in Suspicion. Although not falling
within our definition of a disaster film, it is also possible to cite the
earthquake scene in Superman which many viewers remember; actually, the scene
perpetuates a myth that the earth typically opens up during an earthquake and
creates holes and widens crevices into which people and cars fall and are
swallowed up. At any rate, our point as noted in the previous paragraph, is
that a case might be made for assigning different categories or weights for
sampling purposes to the full range of movies which have some disaster content.

Another problem with random sampling of all disaster movies becomes apparent
when we consider the drastically different kinds of exposure rates which films
have. If the number of people which view a particular movie is a relevant
matter, those films with the greatest box office popularity or the highest TV
ratings should be given the highest priority for screening. Unfortunately,
really relevant numerical information is very difficult, if not impossible,
to obtain. On the surface, the opposite would seem to be true because certain
large-scale quantitative data is available. For example, it was reported that
in mid-1975 alone, just five recently released disaster films grossed $395
million dollars (Kaplan, 1975: 38) with The Towering Inferno ranking number
one and Earthquake ranking number three on the top grossing movie list by the
end of the year (Shatzkin, 1975: 77). But box office dollar figures do not
really indicate the number of viewers, due to widely varying charges for ad-
mission, as well as an inflation factor over time. In fact, there are no
completely accurate figures for the total number of people who have seen a
given film in movie theaters. Television rating figures can be more easily
translated into the number of persons actually exposed to a program, although
the spread of cable systems and satellite transmissions are making rating re-
ports increasingly less reliable than before. Nevertheless, it would seem that
any systematic study of disaster films ought to attempt, in some way, to in-
troduce some weighting into whatever sampling frame is used in selecting movies
for study.

4. Some very complicated problems arise when doing content analyses of disas-
ter films. For example, how is a researcher to treat things which are not
visually depicted but are described in the conversation of the movie characters?
Nevertheless, a great majority of the problems, such as the choice of the unit
of analysis, plague all systematic analysis of any content. The issues are
not peculiar or unique to the kind of study we undertook or that anyone else
might attempt on the content of disaster films. Many questions about the va-
lidity and reliability of coding schemes and related issues are examined in
depth in much of the literature on content analysis (cited in footnote five).
Because this and similar matters regarding content analysis are addressed
elsewhere, we will not discuss these standard problems in this paper any fur-
ther.

However, we should note that in terms of being a research tool, content analy-
sis was primarily derived from and has been, for the greater part, used with
print media content. One basic assumption, therefore, has been that the con-
tent is normally available for reexamination and reanalysis an indefinite
number of times by a researcher. In principle, a copy of a movie, if it were
initially available, could be shown over and over again for study purposes.
However, there are limits to indefinitely reshowing a film, and in any case

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it is mechanically and physically much easier to handle a printed page or a
book. From a practical viewpoint, in the majority of research designs which
can be visualized, a researcher doing content analysis of movies will, in a
given time period, have far fewer opportunities to resereen film content than
someone working on print media content. One implication of this is that coding
categories to be used with films might have to be broader and less concerned
with subtleties than a coding scheme developed for use with printed or written
material.[11]

As already indicated, we were not able to implement most of our original re-
search design due to the just discussed set of problems. While we were able
to generate a list of disaster films, it was not only incomplete but mostly
covered a somewhat earlier and different time period (i.e., 1960-1973) than
was originally envisioned. More importantly, as will be discussed in the last
section of this paper, the exercise raised some basic questions about the very
conceptualization of "disaster film." We had considerable difficulty in get-
ting, in any systematic way, movies for screening, partly because of time
limitations to the study but also for the reasons discussed earlier in connec-
tion with finding and acquiring copies of disaster films. Thus, our coverage
depended on what happened to be available on either cable television or in
movie houses in the Columbus, Ohio area. As fortune would have it, we were
able to view (usually for a second time) most of the films typically named in
the literature as major examples of disaster movies. In other words, in our
terminology, we did obtain a rather good sample of the recent and current films
in which disasters were a major theme; however, our coverage of those movies
in which disasters were primarily used as background or incidental items was
considerably scantier and uneven. Our content analysis primarily was of a
holistic and qualitative kind. Exeept for purposes of experimentation in a
few cases, we did not use the systematic coding scheme implied earlier. How-
ever, to the extent that it was implemented, it led to a reformulation of the
analytical categories and the development of the data-organizing framework
described in the following section.

Some Substantive Observations and Impressions

In the several dozen films we watched for research purposes, what did we
observe?[12] (See appendix for list of movies viewed.) Before answering this
question, it is necessary to qualify our observations in two respects. First,
without making any pretense at quantification, we shall attempt to report the
typical pattern, rather than the atypical or numerically infrequent ones.
For example, in one film, Avalanche, an extraordinarily systematic, orderly,
large-scale post-impact search-and-rescue effort for victims buried under
the snow is depicted. However, this was the only example of this kind of
search-and-rescue attempt we ever saw presented; in almost all other cases the
phenomenon was not portrayed or, if shown, focused typically on only one, two
or a handful of people usually engaged in rather frantic and disorganized ac-
tivity. The latter is the kind of impression we report since it is the more
typical depiction. Second, our observations are based, in the great majority
of cases, on only one deliberate viewing of each movie for research purposes
and solely from our own personal perspective. In those instances when we were
able to screen a film two or more times, we always perceived more of what we
were interested in during the second deliberate viewing. To be sure, later

viewings almost never evoked preceptions which were contradictory to or con-
flicting with initial ones. Generally, more relevant material was observed
upon each successive viewing of a particular film. In part, of course, this
reflects the limitation inherent in the fact that only one researcher was
viewing the films; the observations were not the consensus of multiple viewers
or the double coding of data frequently done in the better kinds of content
analysés.

Given these qualifications with the limitations they impose, what were our
substantive impressions? For purposes of exposition, and also because we be-
lieve future research should use a similar strategy, we present our tentative
observations within a particular organizing framework. To try to suggest in
what ways the contents of disaster films are similar to and different from
what has been found in empirical research on catastrophic events, we use an
amalgam of several data-organizing and analytical frameworks available in the
social and behavioral scientific disaster literature (e.g., Carr, 1932; Powell,
1954; Barton, 1970; Dynes, 1975; Burton, Kates and White, 1978; Committee on
International Disaster Assistance, 1978, Dynes, Quarantelli and Kreps, 1980).[13]
In our study, we group our substantive but tentative impressions into three
major categories or time phases through which disasters pass, namely pre-impact,
trans-impact, and post-impact periods. Cutting across each impact-related
time period is a physical/social dimension, reflecting the physical nature of
disasters and the social activities in response to them. Each cell obtained
through a cross-classification of the time periods and the physical/social di-
mensions could be subdivided into more specific categories, but for our pur-
poses we only suggest two possible topics for attention in each cell.[14] This
overall organizing framework using temporal, physical and social dimensions
can be graphically depicted as follows:

	Physical	Social
Pre-Impact	Nature of Hazard Forewarning Cues	Preparedness Warning
Trans-Impact	Magnitude of Impact Scope of Damage	Inventory Emergency Response
Post-Impact	Residual Effects Controllability	Restoration Recovery

Pre-Impact

Overall, disaster films devote more time to the pre-impact period than they
do to the two other time phases. In part, this is related to the fact that
the threat of a disaster rather than its actual occurrence is frequently the
subject matter of a film. Planes do not crash, ships do not sink, nuclear
plants do not melt-down, epidemics do not spread, etc., but the possibility
is often graphically depicted in many movies.

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Physical aspects

The kinds and numbers of disaster agents in the "reel" world do not seem to correspond closely to the real world. For one, the disaster agents which are portrayed in movies are either extremely unlikely or probably impossible, e.g., the massive missiles from outer space in Meteor, a comet hitting Phoenix, Arizona in Fire in the Sky, or various kinds of animal-carried hazards or threats as in Savage Bees or Nightwing. While many of the more frequent natural disaster agents are the subject of cinema attention, tornadoes, for example, are conspicuously absent in movies despite the fact that they rank number one among all natural disaster agents in American society at least. (A tornado is depicted in the fantasy, The Wizard of Oz.) Similarly, diffuse and creeping types of disaster agents such as those involved in pollutions of various kinds, chemical poisonings, energy shortages, or even famines and droughts seldom appear in films. On the other hand, certain disasters involving human error, breakdowns or accidents in technology or transportation systems loom large when compared with presentations of natural disasters. A few kinds of very localized types of disasters, such as mine catastrophes, as shown in the pre-World War II film, How Green Was My Valley, rarely appear in movies of the last several decades; yet, major mine disasters have occurred relatively recently in Korea, Japan and South Africa. Just as the news accounts of the mass media agencies only partly mirror the actual disasters that occur so, similarly, the fictional disaster films only partly reflect reality.

Disaster agents rarely appear unexpectedly in movies. Often, a few of the characters in the film observe various kinds of forewarning cues and feel something is amiss. Frequently, the characters interpret ambiguous cues as signs of danger, instead of assimilating them into the normal pattern of everyday life as empirical research shows about such perceptions (e.g., McLuckie, 1970). Nonetheless, this dramatic device increases the viewer's tension. Even if danger is unknown to the protagonists in the movie, the information is usually provided for viewers of the film. This is true whether the disaster agent is a natural or a technological one. Thus, viewers alone may be shown scenes of gathering storm clouds and rising waters, or in the case of The Towering Inferno, the omnipotent camera penetrates concrete and steel to show shorting wires and smouldering fuse boxes. Interestingly, the general position taken in disaster films is the same as that of the British disaster researcher, Turner, who states that insofar as technological disasters are concerned, there are almost always physical cues which forewarn something is going wrong (1978).

Social aspects

Disaster films very seldom portray or allude to direct hazard or risk analyses or preparedness measures prior to impact. To the extent there is any depiction, it usually focuses on an isolated individual like the person in Avalanche who attempts personally to assess the probability of an avalanche by various informal means. In fact, while not often shown, disaster experts tend to be portrayed as unreliable. In Earthquake, for example, the top officials in the Seismology Institute minimize cues pointing to the likelihood of a severe earthquake even though a graduate research assistant says he has uncovered evidence of such a possibility. A subordinate, usually ineffectively challenging the complacency, scepticism or denial of danger by presumably better informed higher echelon officials, is a minor theme depicted in various ways in some disaster movies. In almost all disaster movies, there is very

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little conveyed about the existing knowledge of dangers and hazards or the protective and preparedness stance that actually exists in American society, particularly at the local community level.

However, there is a tendency to try to depict the human flaws or weaknesses involved in the generation of a disaster although at times this is done retroactively after impact—natural or otherwise. In Earthquake, for example, the leading protagonist argues against building structures with insufficient resistance to earthquake stresses which is overruled by his superiors and chides himself afterward for continuing to build. In The Towering Inferno, there is an explicit and clear indication that the fire was occasioned by substandard wiring used for cost-cutting purposes by the electrical contractor of the building. The owners' need to maintain speed for business reasons even in dangerous weather and seas is noted in both The Poseidon Adventure and A Night to Remember. The major protagonist in Avalanche overrides someone who objects to cutting down trees to make room for a resort because such action may trigger snow slides. However, almost consistently, what are singled out as the problems are asocial motives of individuals or the personality quirks of specific persons. Very little attention is ever given to prevailing socio-economic values (e.g., the priority of property rights) or existing social structures (e.g., inadequate inspection systems). Disaster movies, to the extent that they seek to assign "causes" for catastrophic events beyond technical reasons, usually portray the problem as resulting from the human beings involved rather than the social systems in which they operate. In this respect, of course, the approach in disaster films is quite similar to the general American approach to most social problems (Mauss, 1975).

Warning activities in disaster films are permeated by a concern for creating "panic." The word panic is used in almost all such films and in connection with the idea that if people are warned of the impending danger, they will react inappropriately, a view quite contrary to the findings of empirical research (e.g., Quarantelli and Dynes, 1973). The movies Cassandra Crossing, Jaws, Avalanche, and Swarm include the following dialogue respectively: "can't take a chance of starting a panic;" "you yell shark and you got a panic on our hands;" "you would panic the whole population;" and, "panic time from coast to coast." Such an attitude, mistaken though it may be, is certainly reflective of the view held by many people, including officials with responsibilities in emergency organizations as empirical studies have long shown (Quarantelli, 1954, 1976).

Rarely are existing local warning systems shown as available or in operation. In some rare cases (e.g., Fire in the Sky), there are allusions to the community civil defense organization as well as aspects of its monitoring and warning capabilities. But otherwise, sources of warning in disaster films are left unspecified, or police and/or military forces are rather vaguely depicted as doing something which seems to be associated with warning a threatened community population. If disaster movies were the only information available, film viewers would have little idea of the various potential crisis monitoring systems, such as the National Weather Service, or of the different protective agencies and emergency plans which are activated in real life when danger threatens American communities.

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Physical aspects

When disasters impact in movies, they are usually of substantial magnitude in a least two senses. Frequently, multiple hazards are depicted, and the agents are or threaten to be pervasive in their scope. Although films focusing on single disaster agents do exist, there are many which show multiple threats. In fact, this has been standard content for disaster films for a long time. For example, in the old movie, When the Rains Came, initial torrential rains of almost cyclone force are accompanied by an earthquake, which causes the breaking of a great dam, whose flood waters inundate a city bringing about cholera among the survivors. In a much more recent film, Swarm, there is a major train wreck; the flaming destruction of several helicopters; a nuclear plant explosion; and numerous tanker, truck and car crashes, not to mention the deliberate burning of the city of Houston, the semi-suicide poisoning of a key character, and, of course, the numerous deaths caused by the sting of the killer bees. In the world of the cinema, the impact of a disaster often triggers chains and sequences of dangerous events.

By any criteria, the graphic depiction of physical destruction in most disaster movies is quantitatively large. Whether a high-rise building would burn as in The Towering Inferno, or Los Angeles could be impacted as in Earthquake, or a modern ship might be capsized as in the Poseidon Adventure has been technically questioned. Whatever the reality of the possibilities of physical destruction, disaster films certainly portray massive damages and give very little indication that the catastrophic events depicted would, in the real world, represent the extreme end of the continuum rather than the typical disaster—especially in American society. In other words, disaster films in one sense of the term portray catastrophes rather than the kind of destructive damage the usual fire, flood, earthquake, etc. would create in the United States.

Victims in disaster movies often do not simply or directly die from the major disaster agent involved. For example, in both of the Poseidon movies in which a ship is capsized by a tidal wave, many victims do not just drown. A number are hurled through space, smashed against objects, crushed by falling debris or electrocuted. In Avalanche, those who are directly shown being killed are depicted as being scalded in cooking vats of boiling water, crushed in an overturned bus, smashed in a plane crash, catapulted over a cliff in an ambulance losing control on an icy road, etc.; relatively few people are actually and directly depicted as being buried under the avalanche of snow.[15] Contrary to Shatzkin's remark that, "the camera turns away from showing actual moments of pain and death at close range" (1975: 78), many disaster movies do portray many ways of being killed and injured. They do, it is true, almost always avoid explicit dismemberment, disfiguring and physically scarring scenes even though these bodily wounds would often be necessarily involved in the kinds of deaths and injuries being portrayed in the film. Thus, while victims may be shown as being burned and on fire, camera shots seldom closely depict what massive burns really do to the human body and skin.

Apart from the way people are killed, there are two other notable observations about the presentation of casualties in disaster films. First, in many of

what might be called transportation disaster films there are none or very few dead or injured (e.g., the Airport series, Juggernaut, Shipwreck). As already remarked, there are more threatened than actual disasters depicted in movies. Second, while the number of those killed may range from almost all present (e.g., apparently only two survivors from the whole island in Hurricane) or massive (e.g., explicitly tens of thousands in Swarm) to none, casualty figures on the whole seem relatively light for the amount of physical destruction often depicted. In The Towering Inferno, for example, almost contrary to the many visual images of falling bodies,[16] etc., the fire chief at the end states the "body count" was kept under 200, which would seem a remarkably low figure for the kind of event and situation depicted.

Social aspects

There is considerable variation, but in the main, the social aspects of the emergency-time period of disaster movies focuses on the white, middle class population, with a fair balance of the sexes and almost always a wide age range including children. The poor and minorities, who are more vulnerable to disaster impacts in actuality, are not conspicuous in disaster films. Even when the geographic locus would seem to suggest the presence of different ethnic groups, they are often not represented (e.g., the general absence in Swarm of blacks and Chicanos in what supposedly is the Houston, Texas area). Sometimes, portrayals verge on the stereotype as in Fire in the Sky in which a group of rural American Indians on foot are shown as silent and stoic in the face of death, in contrast to the disorderly and screaming flight behavior of city people in cars.

Disaster movies usually depict a certain amount of antisocial behavior in the trans-impact period. Evacuation from the endangered locality, whether on water or land, very often but not always involves at least some scenes of wild or disorderly flight. People are depicted, in such films as Amusement Park, the Poseidon Adventure or in The Towering Inferno, as knocking one another down or engaging in panic behavior. Contrary to empirical studies which indicate people do not run aimlessly (Quarantelli, 1976), the picture presented in some disaster films such as Sodom and Gomorrah is of seemingly total random movement. Often disaster films also imply or show looting behavior shortly after disaster impact. Other drastic antisocial behavior, such as attempted rapes and murders in Day of the Animals and Earthquake are, however, almost always portrayed as only the actions of a very few.

On balance though, while some kinds of graphic antisocial behavior are frequently shown in disaster films, it is often counterposed and mixed in with scenes of considerable prosocial behavior. People are shown helping one another and small groups are often presented in the movies as working together on immediate emergency-time problems. In fact, it would be difficult to cite any disaster film which does not have such scenes. Dramatic conventions and continuity of story line, of course, almost dictate some such behavior on the part of the major protagonists in the movie, but such behavior is usually not only confined to the main characters. Put another way, far more people are shown as behaving calmly and orderly and appropriately than they are as acting badly and inappropriately. Human beings are generally portrayed in films as trying to rise to the challenge of the disaster, which is the actual way they generally respond to mass emergencies according to research findings. Interestingly, role conflict between work and family is seldom shown as a problem, which is also

similar to real life situations. Studies suggest this is another of the many disaster myths which prevail in the thinking of many people (Quarantelli, 1978).

Mass emergency personnel, to the extent they make an appearance in disaster films, are overwhelmingly presented as usually working efficiently and effectively. The fictional emergency groups have very few problems with communication, coordination and control which the empirical disaster literature says they have in real disasters (Dynes, 1975). This rather positive image of emergency organizations, however, is generally confined to fire, police and military units (as in Airport, 1975, City on Fire, Juggernaut and The Towering Inferno) because they are typically the only clearly identifiable emergency entities during the trans-impact period in disaster films. Civil defense at any level is rarely shown as a salient agency, and governmental officials are usually only represented by very high executive officials making announcements. Emergency personnel, while unsummoned by anyone in the movie, often arrive remarkably quickly after impact; yet their presence at the disaster site is never depicted in the film as stemming from any kind of disaster planning. In fact, to the degree emergency organizations are shown in operation, they are typically depicted as having to deal with the managerial problems they encounter on a rather ad hoc, although usually successful, basis.

The problems both individuals and organizations face in disaster films are usually those described in the disaster literature and are agent demands rather than response demands (Dynes, Quarantelli and Kreps, 1980). That is, people and groups are putting out fires, helping the injured, transporting supplies, etc. In disaster movies these activities are rarely directed by a command post or EOC (Emergency Operations Center), which is in line with the ad hoc nature of the activities just mentioned. If conflicts between different emergency personnel arise, they are usually indicated as resulting from personal rather than organizational differences. Likewise, in disaster movies, extra-community groups typically have little difficulty in meshing their behavior with local groups; however, the empirical disaster literature suggests this is not prevalent in actual mass emergencies (Barton, 1970).

In part, the leadership exercised in disaster films takes the place of plans. Disaster movies often show charismatic although not emergent leadership. That is, leadership in the crisis is usually assumed by persons with pre-impact legal authority and/or pre-impact positions of responsibility and influence who are also dominant personalities (e.g., the combination of the fire chief and the building architect in The Towering Inferno). What such persons do not command or do not know, is compensated for by their forceful presence and personal involvement in many often minute disaster-related tasks, (e.g., the hospital administration surgeon in City on Fire), even though the latter is not only unlikely but probably dysfunctional, as some empirical literature suggests, in actual disaster situations.

Post-Impact

Many disaster films do not show a post-impact period. They frequently end somewhere near the end of the trans-impact stage. Thus, the physical and social aspects of the post-impact period are the cells in our organizing framework which are emptiest of all insofar as the content of disaster movies is concerned.

The residual effects of a disaster in the post-impact period is very seldom de-
picted in any way, even if the disaster movie extends into that time period.
The idea that there might be hazard-reducing technologies for getting some de-
gree of future control is rarely mentioned in films. In fact, if the notion of
possible recurrence is suggested, as it is at the end of Swarm, it is implied
that the new crisis will be the same as the old. There are occasional hints in
some movies of assessing blame, but usually it is of a personal nature--"I
caused this, I am responsible". At best, the idea that lessons may have been
learned from the disaster is almost always left implicit. At most there may be
a comment at the end such as the one made by the fire chief in The Towering In-
ferno who says something to the architect to the effect that there are going to
continue to be problems "until someone asks us how to build them".

Disaster movies likewise deal very little with matters of social restoration or
recovery. Our analysis of disaster films would not support the Conrad thesis
that, "they focus on isolated events in which attractive and technically adept
heroes intervene effectively to prevent recurrence," (1978: 208). The films
often end on a closing shot of survivors starting again to pick up their normal
routines, but with no indication that there is going to be much difference in
the future either in terms of preventing a recurrence or in regard to the ways
in which the disaster threat will be handled if it does recur.

In concluding the presentation of our rather tentative substantive impressions,
we might make three general statements as to the overall content of disaster
movies:

1. Along some lines, disaster films simply do not mirror disaster reality.
Whole arenas and areas of activities and actions are overlooked in the movie
versions. In fact, most of the important aspects involved in actual disaster
planning, emergency response management, and long term recovery are not present-
ed, e.g., little attention to organizational preparations and mobilization is
ever given, the post-impact period as a whole is largely ignored, the role and
responsibility of government in disaster is mostly left implicit, disaster plan-
ning and training is almost never alluded to, hazard vulnerability analysis is
rarely implied, etc.

2. Along other lines, disaster movies either perpetuate the wrong ideas accord-
ing to scientific studies or present empirically incorrect facts. Many of
these, as already implied or stated, have to do with what empirical disaster re-
search has characterized as the "myths" of disaster behavior (Quarantelli and
Dynes, 1973).

Other misconceptions which are conveyed deal with appropriate or even possible
behavior in certain crisis situations. For example, in many movies involving
fire scenes, characters walk or run through the fires around them, when in real
life they would have to crawl or even might face entrapment due to heat and
smoke. In City on Fire, hundreds of people are shown escaping fire situations
which in reality would kill anyone by asphyxiation.

The disaster movies also present distorted versions of non-disaster phenomena.
For example, sex role stereotypes abound in disaster films. Women, as in the
Day of the Animals, are characterized as, if not hysterical, generally deferring
to men's physical strength or coolness in the face of the crisis. In Swarm, it

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is particularly ironic that the major female protagonist is portrayed not only as a physician but also as an army captain; yet, she too plays a very subordinate and deferential role to men despite her two prestigious occupational statuses with their usually-attributed concomitant leadership qualities.

3. Along a few lines, disaster movies do capture actual disaster reality. Basically, victims in these films generally rise to the challenge of the disaster, particularly in the emergency period. They do what has to be done, and do it relatively well given the circumstances. This is true in actual disaster situations.

Future Work and Study

Since almost nothing of a systematic nature is known about disaster films, and our pilot study was only able to unevenly and selectively examine one part of the whole topic, almost any research that would be done in the future would be a contribution. However, as we indicated in an earlier paper on the study of the mass media in disasters (Quarantelli, 1980), we believe there would be greater practical and theoretical payoffs if a research prospectus or agenda was laid out and some priorities were assigned to the work to be done. The systematic setting forth of such a program of study is beyond the scope and intent of this paper, but a few suggestions useful for developing an agenda can be made. For purposes of exposition, we shall separately and briefly discuss conseptual and theoretical issues.

1. The conceptual question of what a disaster film is has to be reexamined. We are confronted with two interrelated problems. One stems from the simple fact that at both the operational and research levels, there are major difficulties in defining an actual incident as a disaster. This problem has plagued the disaster area for a long time. Given this uncertainty in dealing with "actual" disasters, there is, therefore, no easy way of conceptualizing a disaster film by just borrowing whatever legal or research definitions exist. One strategy for the future might be to elaborate on our earlier discussion of films, which differentiate between those that had disasters as major themes, background or incidental material. Another approach would be to deal exclusively with those movies in which disasters are very major themes, or in which catastrophies occur. The object here would be to take the extreme case for purposes of study. Still another possible strategy might be to focus on all depictions in films of human behavior under extreme stress and group responses during crises in which collective danger to life, well-being and property is involved. It would also be possible to take an even broader approach and in Barton's (1970) terminology deal with all collective stress situations as these are depicted in movies.

However, several of these strategies evoke the equally difficult problem of determining those aspects in a film which constitute a reality parallel to the real world. Prior to the Three Mile Island nuclear incident, many people would have classified The China Syndrome as science fiction. In fact, in a brochure issued by the Atomic Industrial Forum, a nuclear power trade association, the film was attacked as being unrealistic in its depiction of a potential disaster because "nuclear power plants are designed and built to withstand every conceivable act of God—and some inconceivable ones as well," (quoted in Green, 1979: 20). Thus, as this example points out, specifying when film content does or

does not go beyond reality is a difficult task. A very strict criteria of reality would probably exclude almost any movie from consideration since it is possible to identify elements of "unreality" in almost all of them. The issue is, in many respects, where the line is to be drawn. Thus, The Towering Inferno is an unreal movie in some ways, but it is not as unreal as Earthquake, which, however, is not as unreal as Meteor, if one judges reality solely in terms of physical and statistical probabilities on the basis of current scientific knowledge. This matter of content reality is intricately involved in conceptualizing any movie as a disaster film and has to be addressed in more systematic fashion before more studies are done.

2. In general, this paper has not looked into reasons why the content of disaster movies is the way it is. To say that these movies simply reflect conventions in the artistic or cinema world or these films are only intended to be entertaining, of course, just begs the question. It also indicates that a focus solely on content is perhaps defensible only as an initial step. What is involved in the production of disaster films, as well as the influences such movies wield upon their audiences, is in the long run more important.

Thus, the producers or, in the terminology of our earlier paper (1980), the C, the communicators in the mass communication system, should be examined. Who produces disaster films? What artistic, technical or other constraints are operative upon them? How do the producers involved determine the content of the films? Where do they get their ideas about disaster phenomena? Why is the disaster film genre selected over other possibilities? The lone discussion of these and similar questions which we by chance uncovered during this study was in a book called Earthquake: The Story of a Movie (1974) by George Fox. As the title indicates, it focuses on the production and filming of Earthquake and suggests, in a case-like fashion, some of the complexities involved in trying to explain what accounts for the content of disaster films. There are even scattered hypotheses which might be put to the test. For example, "most of a catastrophic film deals with the prolonged countdown to the debacle. Large-scale disaster is usually too expensive to keep up its run for ninety minutes," (Annan, 1975: 29).

However, ultimately, some important research needs to be conducted on the viewer or consumer of disaster films. Apparently, no study has looked at these audiences. Since many disaster films are watched by large numbers of people, there are audiences. But who are the audiences? Do they involve persons with a special interest in disaster films or are they regular movie-goers? Some commentators have suggested that the average disaster film viewer does not come primarily from the young, who constitute the majority of the present day moviegoing public but are an older category of persons (Kaplan, 1975: 39). Are there disaster film buffs? Do viewers of disaster films see these movies over and over again as science fiction movie fans and other cult groups are known to do?

Apart from whom the audiences are, what do disaster movie-goers see? That is, in what ways, if any, do they distinguish between different kinds of movies having disaster content? Is a film such as Earthquake seen as a more realistic depiction of that disaster phenomena[17] than Superman, which also has a lengthy and dramatic earthquake scene? In other words, the earlier questions we posed about the "reality" of disaster movies would also have to be asked from the perspective of film viewers.

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How do disaster film viewers respond to what they see in such movies? We know
people talk about some of the movies they see but not all. Are disaster movies
discussed more or less than other films? What do people think they learn, if
anything, from disaster films? Do viewers believe they have learned anything
about disaster phenomena and behavior?[18] Content analysis may show what is man-
ifestly exposed in certain films, but if viewers do not perceive and remember
such content, no learning occurs. How could a test be made of the hypothesis
that some very dramatic disaster scenes which a child sees in a film will hence-
forth color that person's expectations and perceptions of disasters? Why are
some disaster films liked more than others? Do audiences tire of the disaster
film genre in the same way they are known to lose interest in various kinds of
television programs? As a result of heavy exposure to disaster films could peo-
ple become desensitized to actual disasters?

These are but a few of the many questions which can and should be asked about
disaster film audiences. If some answers are obtained, it will then be possible
to start matching the producers' intent with the films' effects on viewers. Any
eventual theoretical understanding of disaster films requires that both produ-
cers and consumers of such movies be studied intensively.

To move to the study of producers and consumers of disaster movies does not pre-
clude the probability that a number of questions can best be addressed by look-
ing at film content. For example, is the disaster film genre cyclical as some
commentators have implied? It has been suggested that as we move into the 1980's,
the interest in disaster films will drop substantially when compared with their
popularity in the 1970's (Royce, 1980: 5). If there are such cycles, is there
a pattern to them, and with what might they be correlated? Also, content analy-
sis would enable us to identify similarities and differences between the content
of disaster films and other popular culture products such as disaster novels.
(Recent ones have included <u>Blizzard</u>, <u>Epidemic 9</u>, <u>Heat</u>, <u>Doomsday</u>, <u>Omega</u>, <u>Mayday</u>,
<u>The Great Los Angeles Fire</u>, <u>The Genesis</u>, <u>Helix</u>, <u>Rock</u>, <u>The Sixth Winter</u>).[19] When
the novels <u>The Glass Inferno</u> and <u>The Tower</u> were combined and turned into a movie
<u>The Towering Inferno</u>, what changes were made in content? If answered, this could
give us some clues. Also, only content analysis can indicate differences in con-
tent which are existent between movie-house and television versions of the same
film. Likewise, content analysis can enable us to ascertain in what ways films
dealing with the acute emergencies usually designated as disasters are similar
to those dealing with chronic or persistent hazards (such as depicted in <u>Pro-
phecy</u>, a fictional film dealing with biological and ecological consequences of
dumping poisonous mercury compounds into local stream waters). In a separate
category are satires or spoofs of disaster films. Two of the more recent ones
are <u>The Big Bus</u> and <u>Airplane</u>. Studies of such films might be instructive in that
they could indicate the central themes of disaster films as perceived by produ-
cers of these movies. Research using content analysis could also establish the
differences and similarities between educational, training and documentary films
on disasters--presumably closer to reality--and fictional or entertaining movies
about disasters.

While this paper has focused upon disaster films, these same comments could be
made about other popular culture phenomena with a disaster orientation. They
present some of the same problems and opportunities if research is undertaken.
In fact, even though disaster films ought to be given research priority because
they may influence a greater number of people, similar studies might be more
easily launched on other popular culture items.[20] In the long run, of course,

all aspects of the relationship between popular culture and disasters ought to be intensively examined because, as the introduction to this paper pointed out, learning about disasters occurs in ways other than direct experience and news documentary accounts.

1. The question of direct experience in disasters does not appear to have ever been asked in a national survey, nor has the matter of disaster experience been the major object of attention in any disaster study. Our only information a-bout the matter comes from asking the question as a secondary or background item in disaster research dealing with other phenomena. For example, respondents, in community-wide surveys of populations undertaken in Wilkes Barre, Pennsylvania subsequent to the 1972 flood and in Xenia, Ohio after the 1974 tornado, were asked if they had experienced a prior disaster and to indicate the nature of their experience, at least insofar as the disaster agent. The figures cited in the text are taken from unpublished data in these two surveys conducted by the Disaster Research Center (DRC) at Ohio State University. Some surveys in hurricane-prone areas suggest 60-80 percent of the population has had experience with hurricanes, but some recent studies indicate that only "a very small proportion of the coastal population has had any life threatening experience with major hurricanes" (Clark and Carter,1979: 7).

2. As noted later, myths about disaster behavior abound. To this day, statements are made that millions of Americans "panicked" because of this broadcast, with hundreds of thousands fleeing (e.g. Koch, 1971). There is almost no evidence of such behavior, and even the study of the event cited as documentation (Cantril, Gaudet and Herzog, 1940) has been incorrectly interpreted (see Quarantelli, 1977).

3. In addition, population-wide data on this matter are lacking. However, certain studies on people's understanding of hurricanes indicate lack of knowledge (e.g., Wilkinson and Ross, 1970; Windham, et al, 1977), and the behavior of people in the face of certain kinds of chemical disasters currently being studied by DRC also suggests little, accurate grasp of the phenomena.

4. Without exception, the sources discussed below or otherwise examined are non-empirical in nature. There was not a single effort in the lot to obtain direct data from either producers or consumers of disaster popular-culture items or to undertake any systematic or even holistic content analysis of the written or filmed products discussed. All discussions and conclusions are derived from highly personal and unsystematic impressions.

5. While there are a number of sources which discuss content analysis generally (e.g., Holsti, 1969; Berelson, 1971; Carney,1972; Janowitz, 1976; Krippendorff, 1980), only a few deal with the use of the method in film analysis (e.g., Byrne, 1965; Fyock, 1962). However, one source dealing with content analysis of television news does have a number of ideas adaptable to a study of movie content (Adams and Schreibman, 1978).

6. The importance of visual imagery is discussed in Curry and Clarke, 1978.

7. As will be discussed in several contexts later, and especially in the last section of the paper, the issue of what is true-to-life, or "realistic" is very complex and heavily dependent on the perspective and knowledge of the observer.

8. A typical issue of _Variety_ will have about 104 pages of text and will include about 15-20 movie film and 5-10 television program reviews.

9. In principle, of course, films already issued could be similarly located. But, if an effort of this kind is to be made, there would appear to be a greater payoff for doing it in a future rather than past time-frame.

10. This assumes the film reviews in _Variety_ and the capsule summaries in _TV Guide_ will provide enough relevant information. A cursory examination of both publications suggests that _Variety_ is more likely to provide indications of disaster content in films.

11. It is true that some extremely refined content analyses have been made of video or film tapes, especially by ethnomethodologists. However, these have usually been instances in which the film material was relatively short in length and the film print was available for almost infinite reuse. The disaster films we are discussing would normally average close to two hours in length and, in any practical sense, could be rescreened only a relatively few number of times.

12. While the core of our observations are taken from our deliberate and holistic viewing of the listed disaster films, we also have taken into consideration memories and impressions of other disaster movies we had seen in the past, the comments of other viewers with whom we have discussed selected disaster movies, as well as the passing remarks of film reviewers and commentators.

13. Frameworks for organizing social data on disasters can be found in the indicated and other sources. However, there are almost no parallel, general frameworks for organizing physical data on disasters. In part, this is because most discussions of the physical aspects of disasters are agent-specific, whereas almost all general examinations of social aspects tend to cut across different kinds of agents. Thus, warnings are discussed as warnings, irrespective of whether they refer to a flood, a hurricane or a tornado.

14. For finer distinctions especially in the social dimensions, see Dynes, 1975.

15. Films are edited in different ways according to whether they are shown in movie houses, exhibited on regular network or local television outlets, or on cable systems. _Avalanche_ was seen twice and there were differences in the film content of the two versions—in one, some scenes in which people were being killed en masse were abbreviated.

16. It is interesting to note that 141 stunt people were employed to be "killed" or "injured" in various spectacular ways in this film (Altshuler, 1975: 52).

17. A few years ago, the Office of Emergency Preparedness developed a simulation of the worst probable earthquake which could hit Los Angeles. It projected less devastation and destruction than that implied in the film insofar as any impressionistic judgment can be made. (See Noah, 1973.)

18. For example, recently there has been a frequently-voiced belief that _The China Syndrome_ basically affected how people, in general, and mass media personnel, in particular, viewed the unfolding of the Three Mile Island nuclear plant incident. (See Rogovin and Frampton, 1980.)

19. At an impressionistic level, there appears to have been a surge of disaster novels in recent years. This could be systematically examined in addition to looking at whether or not there is any correlation between this phenomenon and the appearance of disaster films.

20. In fact, studies of other popular culture products such as disaster novels would not only be easier but would often be considerably less costly. Many of the studies which could be done on disaster film research topics would be relatively expensive. A question would have to be asked if there might not be far greater theoretical and practical payoffs, if equivalent time and money were spent on other popular culture disaster topics.

APPENDIX A

List of Films Specifically Viewed for
the Pilot Study Work*

Airport
Airport 75
Airport 77
Amusement Park
Avalanche
Beyond the Poseidon Adventure
Black Stallion
Cassandra Crossing
China Syndrome
City on Fire
Condominium
Day of the Animals
Earthquake
Flame of the Barbary Coast
Fire in the Sky
The Greatest Show on Earth
Hawaii
The Hindenburg
Hurricane (1979 version)
In Old Chicago
Jaws
Juggernaut
Killer on Board
Meteor
Nightwing
The Poseidon Adventure
Savage Bees
Shipwreck
Sodom and Gomorrah
Swarm
The Towering Inferno

* A few of the movies listed, such as Jaws and Juggernaut do not strictly fit the criteria for disaster films set forth early in the paper. They were consciously included, however, not only because many commentators on disaster films treat them as part of the genre of disaster movies but also to see in what ways they differed significantly from those more strictly defined. Also, some of the films predate 1970, which we originally intended as the starting year of the decade to be covered. However, when pre-1970 movies became available for screening, we included them in our study, especially since the original sampling frame could not be used.

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