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The paper demonstrates the conceptual meaning and utility of a sociological model for identifying correlates of the fear of AIDS and its consequent changes on peoples' behaviors. A sociological notion of levels of analysis is employed for classifying correlates of AIDS' fears under structural and individual categories. A tentative list of these correlates and their projected relationship with peoples' fears is suggested to illustrate the model.

The fear of contracting an infectious disease, such as Acquired Immune Deficiency Syndrome (AIDS), often generates a number of changes in individual and social behavior. The major objective of this paper is to propose a sociological model that may aid in the research and analysis of the impact of such fear. The model demonstrates the usefulness of identifying factors, at various analytical levels, that affect individual behavior and orientations in relation to the fear of AIDS.

AIDS infection, which causes devastation in every major organ system of the body (Saxton, 1985), or an "immunological anarchy" (Fetter & Check, 1984), is presumed to be largely transmitted through semen, blood, or to fetuses in the uterus (Batchelor, 1984). Recent statistics from the U.S. Centers for Disease Control indicate that AIDS' victims have largely been homosexual or bisexual men, relatively young (90% are 20–49 years of

age), white (60%, versus 25% black, 14% Hispanic), and mainly urban dwellers (Centers for Disease Control [CDC], 1986).

Overall, reports from six European countries (Denmark, France, Netherlands, Federal Republic of Germany, Switzerland, and the United Kingdom) reveal a "constant increase in number of AIDS cases" (CDC, 1986). Recent estimates also indicate that due to a stigma of homosexuality attached to AIDS disease, there are actually 50% more cases of AIDS than are reported (Feldman & Johnson, 1986). With the long-hoped-for "flattening of the epidemiological curve" still elusive, some have suggested that AIDS cases are likely to multiply very rapidly in the future (Bayer, 1985; Clark, 1985). As far as exposure to the AIDS virus is concerned, recent estimates in the U.S. range from one million people (Fetter & Check, 1984) to two million (Adler, 1985), along with a trend indicating that the number of cases is increasing steadily (Clarke, 1985).

A phenomenon with such widespread social impact should attract the attention of a variety of disciplines. Research delineating the etiological chain of events and factors leading up to the disease, as well as analyzing the consequent social changes, needs to be carried out (Institute of Medicine, 1986). Reviews of the literature on AIDS indicate that, so far, mainly medical scientists, along with a few psychologists and journalists, have rigorously studied the phenomenon. In 1984, for example, Simpkins and Eberhage maintained that their search of the literature did not yield any systematic social science research on AIDS and, therefore, related policy decisions seemed to have been based upon anecdotal evidence or polls conducted by the media. Martin and Vance (1985) point out that the social sciences have been slow in researching AIDS because of the lack of awareness of the role psychosocial factors play in the spread of the disease. A recent commentary on the sociological study of AIDS (Kaplan, Johnson, Bailey, and Simon, 1987) acknowledges that studies that explicitly address research questions relating to the onset and course of AIDS frequently consider too narrow a scope of explanatory factors. Feldman and Johnson (1986, p. 36) point out that, "only recently has there been a grudging acceptance on the part of some biomedical researchers that AIDS cannot fully be understood solely from a biomedical perspective; understanding requires additional input from social and behavioral

scientists." Other authors have urged social and behavioral scientists to get involved in AIDS research as their studies "would be translatable into intervention" (Kaplan et al., 1987), and "could be the only hope for stopping the spread of AIDs through prevention" (Batchelor, 1984). This research gap is even more noticeable with regard to the impact of AIDS on society, particularly the widespread fear it appears to have generated.

The Impact of AIDS

Epidemic diseases are terrifying both in the suddenness with which they can sweep through a community and in the apparent arbitrariness with which they strike their victims. Diseases like AIDS have "stigma potential" driving their victims into "closets" and the general public into mass hysteria (Schneider & Conrad, 1985) through the contagion of hysteria and anxieties (Gehlen, 1977) as well as epidemics of "exaggerated fears" (Kapp, 1972). Several recent studies have declared AIDS to be a unique lethal disease "becoming a source of terror throughout every segment of society" (Batchelor, 1984, p. 1279). In Britain, AIDS has been reported by the media as the new "plague" and a "terrible tragedy" in today's world (Fisher, 1985). Various scientists have labeled AIDS as an "epidemic" in the U.S. in spite of relatively few known cases (Altman, 1984; Morin, Charles, and Mayon, 1984). A *Newsweek* Poll in August 1985 reported that 41% of Americans feared AIDS (Adler, 1985), and the *Texas Poll* of 1000 adults in October, 1985 reported that 45% of the respondents had fears or worries of AIDS infections (Dyer, 1986). Schmidt (1984) considers the disease as an epidemic with public fears comparable to fears of leprosy in the Middle Ages. Batchelor (1984) feels that AIDS is creating a psychological emergency in the Western World, and Clarke (1985) states it is causing irrational fear, paranoia, and apocalyptic statements among the public. The media have been criticized for sensationalistic reporting that promoted widespread fear and panic (Feldman & Johnson, 1986). Some have favored a quarantine of AIDS patients in order to stop them from spreading the disease (Albert, 1984), and there have been other threats to homosexual civil rights (Rubinow & Joffe, 1987) as well as social shunning (Christ & Wiener, 1985).

The study of how diseases affect human groups and the ways

in which groups react to disease have been important concerns in history (Cartwright, 1980), anthropology (Malinowski, 1944; Rothschild, 1981), epidemiology (Dever, 1984; Morris, 1970; Vogt, 1983) and sociology (Fabrega, 1974; Suchman, 1963). While several studies in the past have examined the impact of a disease in general (Dever, 1984), more recent ones have made efforts toward specifying and even quantifying these impacts (Kleinbaum, Lawrence, and Morgenstern, 1982; Cleary & Kessler, 1982; Finney, Mitchell, Cronkite, and Moose, 1984). Some studies have also focused on various behavioral consequencces of epidemics. Schofield (1970) for example, studied behavioral changes among hermit monks in Ethiopia due to leprosy and tuberculosis. Since the 1960's, several sociologists have explored the preventive health behaviors of people as related to the prevalence of various illnesses (Langlie, 1977). Overall, studies of the impact of AIDS on individuals and their behavior may be grouped under the following categories. First, many popular media accounts and commentaries have talked about the effects of AIDS on society in general (Adler, 1985; Fisher, 1985; Seligmann & Grosnell, 1985). Second, a few writers have chosen to focus on the problem of AIDS epidemic in specific urban communities (Brown, 1985; Perlman, 1984). Third, some studies have assessed the impact of AIDS on special populations, particularly homosexual males (Ebbeson, Melbye, and Biggar, 1984; Kotarba & Lang, 1986; Klovdahl, 1985; Geis, Fuller, and Rush, 1987). Fourth, other psychological studies have recently been concerned with the impact of AIDS on its victims (Dilley, 1985; Hess, Markson, and Stein, 1985; Lessor & Katarin, 1984; Lopez & Getzel, 1984; Rubinow & Joffe, 1987). Fifth, a few studies have begun to report behavioral changes (such as precautions related to "safe sex") in the general population that may have been prompted by AIDs (Riesenberg, 1986; Callero, Baker, Carpenter, and Margarigal, 1986; Silin, 1987; Leukefeld & Fimbres, 1987). From these diverse sources, it may be implied that a variety of changes are taking place in specific areas of behavior due to an underlying fear of exposure to AIDS and/or contact with those who could be touched by the disease (i.e. the 'at risk' groups).

It should be noted, however, that the existing literature on

the impact of AIDS appears to have been largely descriptive, selective and limited. While more studies are needed to delineate the nature and extent of AIDS-related problems, important questions, such as which social groups and institutional areas are more or less susceptible to behavioral changes and the modes by which fear of this disease is transmitted in the public, also need to be investigated.

Sociologists have long questioned the validity of etiological analyses (Graham, 1964; Kurtz & Chalfant, 1984) utilized by various epidemiologists in attempting to identify the causes and consequences of diseases. The natural and social sciences have traditionally been deterministic and reductionistic in their approaches, concerned more with the "isolation of independent relationships than with the understanding and predicting of behavior" (Yinger, 1965, p. 19). It has been recently stated that a significant limitation of the literature is that all the known or suspected predictors of risk for HIV infection and/or immune deficiency states have not been considered simultaneously within an overarching theoretical framework; nor has there been sufficient consideration of the factors that influence the experience of AIDS-related stress or the modes of response to such stress (Kaplan et al., 1987). There is a need to consider a complex phenomenon such as the fear of AIDS and its consequences beyond the etiological chain of events. Ideally, explanatory variables at various analytical levels should be used to study the impacts of AIDS on peoples' behaviors.

This paper is a first attempt in this direction. We use traditional sociological notions of levels of analysis and associated structural and individual factors to propose a model of the antecedents and consequences of the fear of AIDS.

Explaining the Fear and Its Impact

The fear of AIDS should not be assumed to have caused a uniform set of social and behavioral changes. Fear, rational or irrational, may result in complex responses. Kotarba and Lang (1986, p. 128) contend that the prototypical model in this regard is the "smoking-and-cancer" phenomenon, and that "the turnaround associated with the Surgeon General's report and the

decrease in cigarette smoking has been gradual and has varied according to gender, age, and other factors." Further, the well-known health belief model (Becker, 1974; Janz & Becker, 1984) suggests that service utilization is based on the (a) perceived susceptibility of the individual to the disease, (b) perceived seriousness of the disease, (c) perceived benefits and barriers of taking action against the disease, and (d) the cues that motivate the action process in the individual. Wolinsky (1980) adds that the individual's perceptions are modified and developed as a result of his or her sociocultural background. Thus, depending on numerous structural and individual factors, behavioral changes due to the fear of AIDS, can vary widely. It would appear that fear of AIDS can result in behavior that attempts to reduce the risk of exposure as well as to behavior that is essentially reckless and fatalistic. Our purpose here is to provide a heuristic model for analyzing the factors affecting the fear of AIDS and the resulting behavioral changes. The specific direction of these changes needs to be established empirically.

Explanations of a phenomenon may be sought at either macro or micro levels of study. The issue is whether the study should be focused on the micro actions and interactions of individuals or the macro social structures that such actions and interactions create. Macrosociology looks at the total size, shape, structures, and processes involved *at large*, studying the character of the forest, independently of the trees which compose it. Microsociology, on the other hand, deals with small-scale social phenomena, the *social atoms* of experience, seeing "social structure as nothing more than the processes of action and interaction among individuals" (Turner, 1986, pp. 436–437). Actually, there need not be differences or contradictions between macrosociology and microsociology—it is simply a matter of the starting point that one wishes to take. While macro-holistic theories such as the Parsonsian model of the social system start with "society in general" and then come down to the "units-subsystem of society", the micro-atomistic perspective starts with the "individual-group in particular" and from there draws implications for the total society (Cohen, 1968).

A number of conceptual approaches identifying phenomena

at various analytical levels have been advanced in the literature. One such approach is to divide a study into several categories or areas of focus. For example, Durkheim's classical study (1965) attempted to analyze various components of primitive religion at three levels: (1) societal beliefs, (b) institutional rites, and (c) individual actions. A systematic treatment using a similar approach was given by Parsons (1951) who analytically divided the study of the "system of social action" into (a) the personality system, comprising the actor's motives and goals, (b) the cultural system, consisting of the values, beliefs, and symbols which pervade a society, and (c) the social system, involving a network of social interaction. In order to explain an individual's behavior, Wallace (1983) considers two categories of sociological explanatory variables, the first consisting of the individual's ""internal strains" exerted mainly by his/her own body or own mind, and the second consisting of "external constraints" exerted mainly by people or things in their environment. Lewin (1951) recommends a relatively comprehensive and gestaltic approach in which a "field" of study is viewed as a "holistic interaction nexus," meaning that the parts influence one another and include both causes and consequences of focal objects or events. Following that logic in the "field theory of behavior," Yinger (1965) suggests that the study of human behavior be carried out at four levels—biological, individual, cultural, and social. Kaufman's (1959) analysis of social phenomena includes four levels: (1) ecological or demographic, (b) cultural or institutional, (c) social or interactional, and (d) individual or psychological. Johnson (1981) has proposed an appealing model consisting of the following levels for the study of social reality: (a) the individual level subdivided into the behavioral versus the subjective levels, focusing in either case not so much on the individual as such but on units of behaviors, motives and attitudes; (b) the interpersonal level, involving interaction between individuals with all that this means in terms of symbolic communication, mutual adjustment, negotiations, interpersonal cooperation or conflict, and joint or interlocking patterns of adaptation to the larger environment; (c) the social structural level, in which the focus is not the individual but the patterns of the action and networks of interaction that

are inferred from observation of regularities and uniformities over time and space; and (d) the cultural level represented by meanings, values, symbols, artifacts, and norms.

A Proposed Model

An etiological model identifying a series of variables in order to explain the fear of AIDS and its behavioral consequences is not likely to be a simple one. Epidemiologists are increasingly recognizing the complexity of health disorders, their sources, as well as consequences (Cockerham, 1986). The suggestions made below are examples of efforts that are needed toward developing an understanding of the sources and impacts of the fear of AIDS.

First, two types of etiological factors in the fear of AIDS may be differentiated at the levels of analysis identified earlier. The first set include social structural variables such as environmental and demographic characteristics, institutional arrangements, and social groupings and relationships relevant to the AIDS' epidemic. The second set includes biological, psychological, and social behavior characteristics of the individual involved.

Second, the epidemic and the consequences it brings about, including fear, have to be conceptualized as a social process. A social process may be defined as "a sequence of interactions through time, with general continuity of goal or direction, and with step-by-step emergence of one state or stage of social relationship from another" (Wilkinson, 1970, p. 312). Thus the phenomenon of fear of AIDS, its correlates, and consequences have to be viewed in terms of a temporal sequence of various events, activities, and relationships involving environmental and institutional structures as well as individuals. An ideal design for the investigation of an epidemic as a process would consist of a longitudinal study identifying various causes and consequences of the disease, or fear of it, over a period of time.

A model based upon the principles stated above postulating the relationships among different sets of variables is sketched in Figure 1. The structural and the individual variables are considered here as initial antecedent factors affecting the growth of AIDS' fears. The antecedent (structural and individual) variables are shown as interacting with each other. (The double arrows are used to suggest interactional effects.) This reflects the as-

sumption that for many forms of social behavior and attitudes, instead of assuming causal priority of either structural or individual factors, these could more usefully be conceptualized as reciprocal and mutually interdependent. The fear of contracting AIDS is considered to be an intervening variable and the behavioral consequences of that fear constitute the dependent variables. Though not shown in Figure 1, the intervening and dependent variables in turn would also affect the structural and individual variables in the long run bringing about changes in them. We are thereby implying not only a sequential and interactive causal model, but also a circular one. However, the model illustrated in Figure 1 is neither meant to be exhaustive nor final. It merely represents an example of possible relationships whose value depends on future empirical tests. It is thus tentative, and needs to be operationalized, studied and revised if necessary.

The dependent variables consist of changes in peoples' own behaviors caused by their concern for contracting AIDS. However, the model's focus is on those behavioral impacts which relate to reducing risks of infection rather than the full range of private and public responses to the fear of AIDS. Changes in behavior as a result of the fear of AIDS should also be conceptualized as a continuum. In other words, individuals may position themselves differently in modifying behaviors in various areas of their lives, or deciding not to do so. Examples of various areas of their lives in the context of which their behaviors may be examined include: (a) sexuality (involving modifications of sexual behaviors such as kissing, touching, number of sex partners, using condoms); (b) physical and mental health related behaviors (utilizing health services by getting frequent checkups and antibody tests, creating private blood bank sources, developing emotional stress); (c) family and marriage related behaviors (deciding to stay married or get married, feeling strains in marital adjustment or in relationships with growing children and their socialization and schooling); (d) job-related behaviors (making adjustments in business or the work place, changing jobs, having problems of hirings and firings); and (e) social interaction behaviors (feeling increased social distance with people, curtailing leisure and recreation activities such as eating out

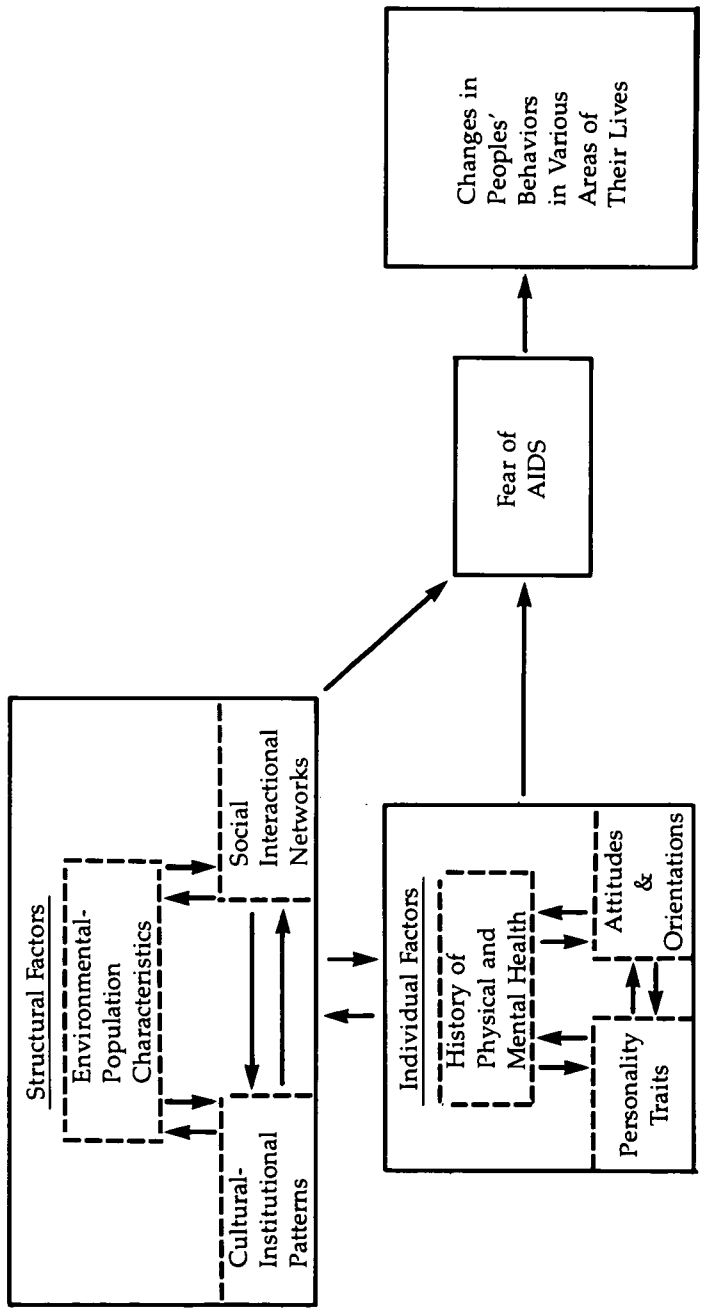

Figure 1. A model showing the fear of AIDS and its correlates affecting behavioral changes.

and travelling, having to move from one place to another). In addition, there may be other private and public behavioral responses to the fear of AIDS such as social shunning of, and attacks on, gays, support of AIDS testing and quarantining of people with AIDS.

The intervening variable consists of the fear of contracting AIDS. A scale measuring it should be indicative of both degrees of intensity as well as the substantive nature of the fear, e.g., in which areas of social life the individual feels most threatened by AIDS, and which individuals or groups are identified as most likely to evoke such fear.

Examples of explanatory variables at the structural level would include: (a) population composition, density of population, type of community, incidence of AIDS in the immediate environment; (b) nature and types of existing institutional structures (health care, mass media, norms for sexual preferences); and (c) social interactions (social support, networkings among homosexual groups). Examples of individual-level variables would include peoples' attitudes, perceptions, activities, and socioeconomic characteristics relevant to selected areas of their lives. These are: (a) own and partners' sexual preference (heterosexual, homosexual, or bisexual); (b) attitude toward homosexuals and bisexuals (e.g., homophobia); (c) degree to which one is sexually active; (d) level and nature of drug use intravenous or not; (e) perception of own health/well-being as well as of those known to him/her personally (particularly if anyone has AIDS infection/exposure); (f) knowledge of the AIDS problem, including access to and sources of information used; (g) use of unknown sources of blood donations in the past; (h) whether an individual has tested positive for AIDS or AIDS-related complex; and (i) social background, such as socio-economic status (in terms of occupation, education, and income), measures of class mobility, age, gender, race/ethnic identity, and marital status.

Suggested Hypotheses

Based on this model it is possible to state a few hypotheses predicting the relationships of the explanatory variables with the intervening and dependent variables. These hypotheses are meant to be illustrative and tentative, and their validity is to be

tested by social researchers. It should also be noted that these hypotheses have much in common with ideas implicit in the health belief model mentioned earlier although we conceive of health service utilization as only one possible behavioral outcome of the fears of AIDS. Our suggested hypotheses do imply that structural and individual factors act as a means of affecting "perceived susceptibility" to AIDS, of "perceived seriousness" to the disease, and as "perceived benefits of and barriers to taking action" against the disease, as well as "cues that motivate the action process" in the individual. They should thus be read in the context of whether or not the various factors cited serve to heighten or reduce the perception of being "at risk" and the motivation for some kind of consequent action.

The following are examples of hypotheses at the two levels of analysis.

Structural level. (a) Urban dwellers who live in high population density areas are more likely to have fears of AIDS as compared to people residing and working in open country sides. This is based on the assumption that metropolitan areas involve an extensity of social interactions that generate and spread epidemiological fears. (b) People who reside in communities that have a known or publicized "above-average" or frequent incidence of people with AIDS are more likely to experience a fear of that disease and attempt to change their behaviors as compared to those living in geographical regions and communities with fewer incidents of AIDS cases. (c) Similarly, people who live in an ecological area which has a preponderance of singles and relatively younger population are more likely to have AIDS' fears as compared to those who live in neighborhoods of married and middle-age to older people. Physical proximity to those who are generally believed to be "more susceptible" to AIDS virus may generate anxieties among people inhibiting social interactions and neighborhood ties. (d) People who live in communities whose health care systems are known to be inadequate in dealing with treatment and prevention of AIDS' epidemic are likely to have fears of that diseaase more than ones in those communities where special efforts have been made with regard to handling the epidemic. It is assumed that the poor quality health management leads to insecurities among people about their own vulnerability to diseases. (e) People who have been exposed to competitive and sensationalistic mass media sources of information on AIDS are more likely to have fears of the

disease as compared to those who are knowledgeable about AIDS through relatively scientific sources. (f) People who have adequate social support and sources of networking, including those who are "at risk" groups, tend to have fewer fears of AIDS as compared to those whose intimate group supports are lacking.

Individual level. (a) Homosexual and bisexual males (including females who think that they have been exposed to bisexual males) are likely to have greater fear of AIDS and consequently make changes in their behaviors than those who are strictly heterosexual. (b) Males and females who have been promiscuous in sexual encounters with others (including those who feel that they have been sexually interacting with persons whose other sexual partners are either unknown or might be suspected to be promiscuous as well) are likely to have greater fears of AIDS than those who are relatively monogamous in sexual relations. (c) Individuals who personally know someone/others who has/have contracted AIDS are more likely to have fears of the disease as compared to those who are impersonally aware of the problem. It is assumed that the knowledge of AIDS related problems experienced by someone personally known may generate fears about ones own well-being. (d) Persons who use IV drugs and share needles with others tend to have greater fears of AIDS as compared to others. (e)) Individuals who have received blood from unknown sources during the past eight years or so are more likely to be fearful of AIDS than others. (f) Individuals who have a history of illnesses during the past few years and are generally "worried well" or preoccupied with health are likely to experience fears of AIDS than those who have been feeling generally healthy. (g) Individuals in middle to upper socioeconomic strata tend to have a greater degree of AIDS' fear as compared to ones in lower strata. It is assumed that levels of knowledge of the epidemic and degrees of rationality in dealing with it are higher among people in middle and upper classes as compared to lower class.

It may also be speculated that the fear of AIDS and consequent behavioral changes will in turn have an impact on individual's psychological make-up and ultimately on social structural factors. For example, there may be increases in paranoia and prejudice leading to more spatial mobility (leaving areas perceived to be AIDS-prone, say from urban to rural areas), and segregation and institutional social control (e.g. requiring AIDS testing as a prerequisite for employment). Hypotheses suggest-

ing interactions among all sorts of factors will need to be carefully stated as the conceptual model stated above is tested and refined. Various research and policy implications of the model will also need to be delineated. For now it does appear that the identification of the etiological factors at various analytical levels assists in sorting them out, specifying their interconnectedness, and assessing their relative effects on people and their behaviors. The approach utilizing "levels of analysis", therefore, may be seen in this context as a heuristic device, enhancing our understanding in a relatively comprehensive manner.

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