

# An Epidemic in the Works



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By WRAY HERBERT

On the morning of May 21, 1979, in an elementary school in Norwood, Mass., a sixth-grade boy became ill and fainted. The entire student body had gathered for the final general assembly of the year, and within a few minutes the illness spread to a few other children in the vicinity of the sick boy. Within a short time one-third of the students in the school became ill, and it became apparent to school officials that they were dealing with an epidemic: in the end, 34 severely ill children were hospitalized, and another 40 to 50 were treated on the school grounds.

Despite the rapid and general spread of the illness, the symptoms disappeared

fairly quickly, and in the end everyone recovered fully. Public health officials began their routine investigation, looking for sources of contagion in the water supply, the food, the ventilation system.

As they did, two psychiatrists began an investigation of their own, looking for the source of contagion in the minds of the stricken children.

While the health officials came up empty handed, psychiatrists Gary W. Small and Armand M. Nicholi Jr. of Harvard University Medical School were intrigued by certain features of the epidemic. Most of the victims were girls. The predominant symptoms were dizziness and hyperventilation, accompanied in many cases by headaches, chills, nausea and stomach pain. And the epidemic was completely

benign. In short, the incident had all the characteristics of epidemic hysteria.

Epidemic or mass hysteria is a medical anomaly. According to the scant medical literature, the victims of mass hysteria — mostly females — suffer from no known organic illness, yet they show the physical symptoms of illness. The symptoms, presumably psychological in origin, spread in epidemic fashion throughout the social group — usually accompanied by highly charged emotions. Although the symptoms generally pass quickly, relapses are common.

Although epidemics of hysteria seem to be rare, they have an ancient history. The word *hysteria* derives from the Greek for uterus, reflecting the once popular medical notion that emotional disturbances were caused by a "wandering womb." According to Small (now at the University of California at Los Angeles), the earliest known occurrences of epidemic hysteria were in medieval Italy, where outbreaks of "tarantism" — or dancing mania — were fairly common. Particularly in the summer, people would flock into the streets, dancing maniacally until, exhausted, they collapsed. Dancing manias were reported in other European cities as well, and it has been suggested that such hysterical outbreaks were related to apprehension about the plague, which at the time was threatening all of Europe.

The diagnosis of individual hysteria was quite common during the 19th century, and although the latest diagnostic manual has renamed it "conversion disorder," the meaning remains fundamentally the same: the expression of psychological conflict or need through physical symptoms — hysterical blindness, paralysis or pregnancy, for example.

Mass hysteria, though clearly akin to individual hysteria, is something more than a concatenation of individual pathologies, experts say; it is instead a social phenomenon involving functioning and otherwise psychologically normal people. If the concept is resisted by many in the medical and psychiatric fields, it is at least in part because of its extreme cases, which have all the trappings of demonic possession.

Periodically an epidemic illness occurs for which health officials cannot pinpoint a guilty germ or toxin. Perhaps they are dealing with an unknown agent or with a low and undetectable level of toxin. Or it may be that they are looking for contagion in the wrong places.

Symptoms may be dictated by culture. In the 1970s there was a case reported in Malaysia in which women working in an electronics plant — using microscopes to work on semiconductors — began seeing demons. Generally, however, the cases reported in the 20th century are much more conventional, although they are nevertheless perplexing to clinicians. Almost without exception, the reported cases have taken place in one of two settings — schools or factories. And the symptoms are generally like those found in Norwood, though there have also been outbreaks of hysterical gonorrhoea and pruritis—a rash. In the 20th century English language literature, according to a review by Small, 41 cases of mass hysteria have been reported, but most researchers in the field believe that the phenomenon is not rare. Estimates range from one or two to several cases each year.

Small and Nicholi, based on their research in Norwood and their study of other reported cases, suggest that these outbreaks have enough common features that they should be identified as psychological epidemics. And as they reported in a recent issue of the *ARCHIVES OF GENERAL PSYCHIATRY*, the Norwood case may shed some light on the origins and workings of mass contagion. “When we went down to Norwood,” Small recalls, “we were struck by the number of impending losses the children faced. The school principal, who was well liked, was about to leave; there was the sixth graders’ upcoming graduation and departure from school; and the sixth graders had planned a trip away from home, for many their first.” These anticipated losses, coming at the same time, may have caused an unusual level of emotional stress among the students — perhaps enough to trigger hysterical illness, Small and Nicholi suggest.

A review of other cases of mass hysteria does indeed point to stress as one ingredient in such outbreaks. Richard J. Levine, who as a medical epidemiologist has investigated cases of mass hysteria for the Centers for Disease Control in Atlanta, says that he too has noticed an association with especially emotional situations. In one case that he investigated in 1973, 57



members of an Alabama high school marching band became ill with hyperventilation, headaches, nausea or dizziness; six girls fainted, and 36 students were taken to the hospital. Although the hot weather might have caused a few initial cases, Levine says, it could not explain the entire epidemic, which came in two waves and involved students who were not experiencing exceptional stress from the heat. A more likely explanation, Levine says, is that the disappointment of the band members — the team was losing a game it was supposed to win — combined with the stress of heat and uncomfortable clothing to trigger a hysterical reaction. Two other cases, almost identical and both involving high school bands, have been reported in the literature.

In another 1973 case that Levine investigated, 95 students and three teachers in a rural Alabama school became ill with pruritis and other symptoms. Although he was not able to identify any specific psychological stressors at work, Levine notes that (as in the Norwood case) the end of the school year was approaching; the same students experienced three relapses, ultimately forcing the school authorities to close the school, and there was no recurrence when school resumed in the fall.

In other school cases the sources of stress are more obvious. In a girls’ school in England, 118 students became ill following an outbreak of polio in the community, though none had polio. In a Louisiana high school, several girls became ill when the rumor of typhoid fever spread. An impending pregnancy test may have triggered the illness of 21 girls, most of them sexually

promiscuous, in another Louisiana high school. A single case of gonorrhoea was followed by 84 cases of hysterical gonorrhoea in a midwestern grade school.

The stress that triggers mass hysteria must be not only unusually high but also inescapable, behavioral scientists say. It is probably for this reason that most outbreaks take place in either schools or factories, according to psychologist Michael J. Colligan of the National Institute of Occupational Safety and Health. “Our interpretation,” Colligan says, “is that the child in school is very much like the individual stuck in a very regimented job with little flexibility. They have to go in every day; there is no escape. They are plugged into this unhappy environment, and one way to react is to become ill.” This is what psychologists call primary gain: without choosing consciously to do so, people become sick and are thus forced to escape a stressful situation.

If illness is an avenue of escape from stress, it is nevertheless a very real illness, according to Duke University psychologists Alan C. Kerckhoff and Kurt W. Back, authors of *The June Bug*, the most famous case study of mass hysteria. In that case, women working in a North Carolina textile plant were hit by an epidemic; they argued that they had been bitten by bugs, but no unusual bugs were found. Kerckhoff and Back concluded, after interviewing the employees and management, that it was the pressure of unwanted overtime work during June, the peak of the production season, that precipitated the outbreak.

Colligan, who has surveyed possible cases of mass hysteria for NIOSH, says that stress in industry can take a variety of

forms. In some cases it is the employees' concern about the potential health effects of pollution and industrial toxins. In other cases, it is dissatisfaction with an authoritarian style of management or dissatisfaction with the job itself; boredom, he notes, is a potent stressor, and assembly lines are an ideal setting for hysterical illness.

It is also likely, Colligan says, that physical stressors like air pollution, even at low levels, have a diffuse and nonspecific effect on mood over time; he calls this process the "psychology of dirt." And emotional stress, from whatever source, may correspondingly lower resistance to physical stressors, making some people sensitive even to mild levels of irritants in the environment.

If the primary gain derived from hysterical illness is an escape from stress, there is also what psychologists call "secondary gain": people attend to the sick, lend them support. There is some evidence, in fact, that lack of such social support plays an important part in precipitating the illness. In one case of mass hysteria in a university data processing plant, according to Colligan, excessive noise prevented workers from talking to one another; and outbreaks typically occur in work settings where employees are prevented, for whatever reason, from talking on the job. If people cannot communicate, Colligan says, they are not able to verify the actual sources of their discomfort, nor are they able to cope through sharing their plight with others.

Scientists have known for a long time, of course, that stress can cause physical disorders; the question about hysterical epidemics is how such physical symptoms spread and why they spread to some people and not to others. According to Colligan, there are probably two processes at work. First there is what he calls "convergence": a number of workers (or children) are experiencing anxiety and probably some physical symptoms of stress independently of one another. Then a new stimulus is introduced—a noxious odor, for example—and one person (the so-called "index case") gets sick; this triggers the second process of "contagion." When one person is seen to be ill, others begin reinterpreting their vague physical symptoms and connecting them to the new odor and their concern about toxins. And so the illness spreads. Typically, the illness is communicated by sight; the members of the marching band who became ill all marched near one another, and in several of the school outbreaks the illness spread only to children who were changing classes and had witnessed the index case in the corridor. But in at least one case, according to Colligan, an epidemic spread by way of the local newspapers, which reported that a "mystery gas" from a local factory was causing illness.

The index case may not be a victim of



stress at all; that person may be suffering from an actual case of influenza, for example, that nevertheless triggers hysterical illness in others. In fact, according to Back, there is probably a certain amount of hysterical contagion that accompanies every epidemic, which would help to explain why later cases—of Legionnaire's disease, for example—are generally less serious than the earlier cases.

Scientists are puzzled by the variability in response to hysterical contagion. While some people become severely ill at the first suggestion of a toxin or germ, others have much milder symptoms and still others are unaffected despite their presence in the midst of an outbreak. And according to Levine, when outbreaks of mass hysteria recur—as they often do—the same people are generally affected again and again. Scientists have been looking at individual differences in personality and social background for an explanation of this variability.

Kerckhoff and Back, when they interviewed the victims of the "june bug," found that many of them were mothers with young children at home, suggesting that the stress associated with conflicting roles might have played a part in the epidemic. But they also found that the victims tended to be women who would not fake an illness in order to stay home; they worked overtime even though they did not want to. In contrast, women who admitted to dishonestly calling in sick were generally untouched by the illness.

Colligan, using various psychological tests to study victims of mass hysteria, has found that those who become ill are generally more depressed and more introverted. Predictably, they also show behaviors associated with clinical hysteria: they are overly dramatic, dependent and suggestible.

Small and Nicholi also found some interesting differences among the children in the Norwood elementary school. Looking into the social backgrounds of the

children, they found that the most severely ill children—those who were hospitalized—differed from the other children in two ways: they had a significantly higher rate of both parental divorce and death in the family. Such early loss, the researchers suggest, may make children vulnerable to loss as a stressor and thus more susceptible to mass hysteria.

The most obvious difference in risk—apparent in both schools and factories—is the sex difference. Females are over-represented among the victims in every case on record; in some cases the victims are exclusively female. According to University of Virginia psychologist James Pennebaker, there are at least three explanations for the susceptibility of females—probably all true. First, he says, women are simply more likely to be in jobs where they are being exploited. Second, it has been suggested that physiologically females are more easily aroused; women who are menstruating, he notes, are at greater risk for hysterical illness. Finally, Pennebaker says, women are more attentive to their internal state than are men; they are more likely to notice signs of arousal and to seek an explanation for them.

Given the accumulating information about the risk of epidemic hysteria, the next step is to incorporate it into routine epidemiological investigations, Colligan says. When an epidemic occurs, investigators should collect data on psychosocial stress just as they do for germs and toxins. But there is still resistance to the notion of mass hysteria, and it has been suggested by some that a diagnosis of mass hysteria is really an excuse for conducting an inadequate evaluation of low-level contamination in the environment. Colligan and others believe the opposite. Limiting an epidemiological search to physical hazards, Colligan says, is an excuse for ignoring psychosocial and organizational stressors. As a result, he concludes, these stressors continue to go undetected. □