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WAVES

UFOs seldom appear at a steady rate. An ebb and flow characterizes UFO activity over the years, most visibly where sudden onrushes of reports punctuate UFO history like a series of waves. UFO writers of the 1950s termed this increase a "flap," borrowing military slang for a situation of uncontrolled confusion and excitement, but this colorful term has faded into obscurity, and when applied at all, a flap now designates a localized and publicized surge of reports rather than a large-scale disturbance. Yet the wave metaphor is apt in its own right. It duly suggests that the number of reports rises from a base level to a crest, then subsides again. Most waves last from two weeks to four months and range from local to international in geographic scope.

The great waves of 1947, 1952, 1954, and 1957 marked the most exciting periods of the modern UFO phenomenon in its first decade, while the mid-1960s passed at a constant flood-tide of UFOs, a wave of waves. After the Condon Committee (formally known as the **University of Colorado UFO Project**) concluded in 1969 that UFOs did not exist, they

returned to thumb their noses at their critics with a classic wave in the fall of 1973. Popular enthusiasm and the membership rolls of UFO organizations flourished under the stimulus of waves, only to wither in their absence. No large-scale wave has swept over the United States since 1973, breaking a pattern that once seemed dependable and lending further mystery to the wave phenomenon itself.

A UFO wave in the broadest sense is any notable and temporary rise in UFO reports above the usual rate. For purposes of recognition, a wave is an increase in reports and not necessarily an increase in sightings. For purposes of understanding, this distinction amounts to more than quibbling over words. It bears on the important question of whether waves mean heightened UFO activity or just heightened publicity and public awareness without more UFOs; an assumption either way is unwarranted for now. Richard Hall distinguished both situations as intertwining parts of the wave phenomenon in *The UFO Evidence* (1964), when he identified a flap as an increase in sightings combined with media attention, in contrast to a concentration, where sightings increase without the accompanying attention.

Quantity alone does not create a wave in any case. The 670 reports for 1956 stand in third place for the 1950s, ranking the year a busy one (Gillmor, 1969); yet 1956 never went down in UFO history as a wave year. Its activity was widespread and amorphous, while a proper wave requires some sort of cohesiveness for recognition. This cohesion may lie in a unity of time, if the reports concentrate into a few weeks or months; or from a unity of place, if UFO activity centers on a limited geographic area over time; or from a unity of type, if one sort of UFO reappears frequently, like the green fireballs of 1948 and 1949 or the Hudson Valley flying wings in 1983-84. Numbers are relative. The concentration of a few sightings in one small area stands out as genuine wavelike activity, whereas the diffusion of many sightings over a large area may not. A recurrent warm-weather increase, common in the 1950s when home air-conditioning was rare, owes more to people's spending time out-of-doors than to genuine UFO activity. Most UFO writers recognized this difference and separated these summer surges from true waves.

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A sizable literature devoted to individual waves has grown up over the years. Aimé Michel's classic *Flying Saucers and the Straight-Line Mystery* (1958) treated the great French wave of 1954, while Ted Bloecher contributed one of the best works of ufological scholarship with his *Report on the UFO Wave of 1947* (1967). Early waves have attracted extensive research, most notably Robert G. Neeley, Jr.'s, exhaustive survey of the 1896-97 wave, *The Airship Chronicle and UFOs of 1896/97* (1986); *The 1912-1913 British Phantom Airship Scare* (1987) by Nigel Watson, Granville Oldroyd, and David Clarke; John A. Keel's survey of ghost fliers of the 1930s (in 1971 issues of *Flying Saucer Review*); Loren E. Gross's *UFOs: A History—1946: The Ghost Rockets* (1988); and Erland Sandqvist's *Spokflygarna -46* (1987).

Several studies treat local and regional waves: Exeter, New Hampshire (John G. Fuller, *Incident at Exeter*, 1966); the Uintah Basin (Frank B. Salisbury, *The Utah UFO Display*, 1974); western Wales (Randall Jones Pugh and F. W. Holiday, *The Dyfed Enigma*, 1979); Piedmont, Missouri (Harley D. Rutledge, *Project Identification*, 1981); the Pennine Mountains (Jenny Randles, *The Pennine UFO Mystery*, 1983); the Hessdalen Valley of Norway (Leif Havik, *UFO-Fenomenet*, 1987; see also *UFOs in the 1980s*, pp. 131-34); Westchester, New York (J. Allen Hynek, Philip J. Imbrogno, and Bob Pratt, *The Hudson Valley UFO Sightings*, 1987); the Yakima Indian Reservation in Washington (Greg Long, *Examining the Earthlight Theory*, 1990); and Belgium (SOBEPS, *Vague d'OVNI sur la Belgique*, 1991). These sources represent only a fraction of the total literature on waves but provide a useful starting point for a descriptive exploration of the phenomenon.

Types of waves. Contributors to the UFO literature have identified a great many waves (Table 1). They are too numerous and the collection of reports too haphazard to make possible anything approaching an exhaustive list. This table serves mainly an illustrative purpose, including the largest and most famous waves, along with examples of the various phenomena ufologists have designated as waves over the years. When classified according to variables of time and space, these examples fit into four categories:

(1) Short term, narrow distribution. Some jumps in the number of UFO reports may last a short time and

cover a small area. This sort of wave with sightings of large, spectacular UFOs clustered around Exeter, New Hampshire, during September and October 1965 became the subject, as already noted, of a book by John Fuller. The Welsh "revival lights" of early 1905, small luminous globes and other mysterious light phenomena, seemed to follow certain revivalists from place to place over the period of a month or so (McClure, 1980). Areas as limited as a single community may become temporary hot spots for sightings:

1949, January-May. Camp Hood, Texas. Formations of small lights overflowed this atomic facility, at first once every four days or so, then nightly, sometimes three or four formations a night (Ruppelt, 1956; Gross, 1988; see also *The Emergence of a Phenomenon*, pp. 186-91).

1955, summer and fall. Plattsburgh, New York (Jessup, 1956).

1973, February-July. Piedmont, Missouri. Mostly night lights (Rutledge, 1981).

1987, winter-spring. Objects with distinctive forms around Belleville, Wisconsin (Schmitt, 1987, 1988).

1989, February. Fyffe, Alabama (Baker, 1990).

1994, March. Western Michigan (Coyne, 1994).

These brief, localized spates of UFO reports seldom involve large numbers of sightings, though popular interest may become intense. This type is probably the most common form of wave but also the least often recognized, recorded, or celebrated example of the phenomenon.

(2) Long term, narrow distribution. One type of mysterious aerial activity that recurs over a long period of time but stays confined to a specific geographic home is the ghost light. These apparitions haunt many localities (Brandon, 1978), but perhaps the most famous examples are the Hornet, Missouri, ghost light, the Marfa Lights of Texas, and the Brown Mountain and Maco Station lights of North Carolina (Loftin, 1967; Stacy, 1987; Walser, 1980). These lights have a history of a century or more and remain rooted to one place, even taking their name from the location.

If ghost lights can claim only marginal status as UFOs, the notion of a "haunted" area or UFO "window"

Table 1. UFO Waves, 1880-Present.

Year	Broad Distribution		Narrow Distribution	
	Long-Term	Short-Term	Long-Term	Short-Term
19th cent.+			Brown Mtn. (NC) Maco (NC) Marfa (TX) Hornet (MO)	
1880				KY, NY, MO
1892		Russian Poland		
1896	North America	Canada, U.S.		CA
1897	North America	U.S., Can., Siberia		NE, KS, Midwest
1905				Wales, CA, France
<i>Pandemic 1908-1916</i>				
1908			New England	WA, Denmark
1909	Russia	UK, NZ, Australia	New England	CA, NJ, Sweden
1910	Russia	Canada	New England	Southern U.S.
1911				Canada
1912		UK, Russia		
1913		UK, Russia, Belgium		Germany, MI
1914	Canada, Norway	South Africa, UK		
1915	Can., Norway, Sweden			
1916	Can., Norway, Sweden			DE, AK, MN
1933-37	Nordic countries		UK	
1944-45	European and Pacific			
1946		Europe, Sweden, USSR		
1947		US		
1949		Southwestern US		Camp Hood (TX)
1950		North America		
1952		N. America & others		
1954		Eur., Aus., S. America		

Table 1. UFO Waves, 1880-Present (continued).

Year	Broad Distribution		Narrow Distribution	
	Long-Term	Short-Term	Long-Term	Short-Term
1955		U.S. (Midwest)		Plattsburgh (NY)
1957		Eur., U.S., Aus., S. Am.		
1959		Papua New Guinea		
1960		Brazil		Tasmania, northern CA
1962		Argentina		NJ
<i>Pandemic 1964-1968</i>				
1964	U.S.	South America		
1965	U.S.	S.Amer., Australia, Mex.		VA, NH
1966	U.S.	Australia	UT, WV, OH	AK, MI, MN, NJ
1967	U.S.	UK, USSR, S. Am.	UT, WV, OH	
1968	U.S.	S. Amer., Romania		
1969		Australia, Brazil		
1970		Malaysia		
1971				Kempsey, NSW
1972		South Africa	Yakima, Graz, Austria	Australia
1973	U.S.	Italy	Piedmont (MO)	Australia
1974	U.S.	Tasmania, Italy, France		NH
1975		S. Africa, Australia	Yakima	
1976			Yakima	
1977		USSR, Chile, UK	Wales, Brazil, Pennines	Australia
1978		Italy, Australia, S. Amer.	Pennines (UK)	WV
1979		Philippines, S. America	Pennines (UK)	CA
1980		France, China, UK	Lucky Pt. (IN)	Australia
1981		South America	Brazil; Hessdalen	CA
1982		South America	Brazil	PA
1983			Hudson Valley (NY)	Australia

Table 1. UFO Waves, 1880-Present (continued).

Year	Broad Distribution		Narrow Distribution	
	Long-Term	Short-Term	Long-Term	Short-Term
1984			Hudson Valley (NY)	
1985		Chile		
1986			Corydon (IN)	
1987			Corydon (IN), PR	Belleville (WI)
1988			Corydon (IN), PR	Gulf Breeze (FL)
1989		USSR, Canada	Corydon (IN), PR	Fyffe (AL)
1990		Belgium	PR	Northern IN
1991			Corydon (IN), PR	
1992			PR	
1994				MI

offers a more appropriate example of long-term sightings in a geographically restricted locale. John Keel described the area around Point Pleasant, West Virginia, as a window zone in his book *The Mothman Prophecies* (1975). The phenomena he records exemplify the window at its bizarre best: Over a period of many months UFO activity is frequent, sometimes so frequent that people go UFO-hunting on a nightly basis with reasonable expectation of sighting something. The sightings include events ranging from distant observations to close encounters. Paranormal activity of other sorts often amplifies as well; the Point Pleasant area was also a hotbed for encounters with **men in black** (MIB) and a monstrous creature known as **Mothman**. This full panoply of phenomena accompanies some long-term, narrow-distribution waves; in others the window opens wide enough to admit only UFOs.

(1944-)1981-1982(-1985). Hessdalen, Norway. Nocturnal lights (Stacy, 1988).

1950-1977. Tujunga Canyon, California. An area rich in sightings, abductions, and **hairy biped** reports (Druffel and Rogo, 1980).

1964-1967+. Warminster, England, a popular location throughout the 1960s for UFO skywatches (Shuttlewood, 1967).

1965-1968. Uintah Basin, Utah. Sightings of diverse types of structured objects (Salisbury, 1974).

1966-1968. Point Pleasant, West Virginia. A complex paranormal milieu of UFOs, MIB, and creature sightings (Keel, 1975).

(1971-)1977-1979+. Pennine Mountains, England; many sightings and abductions (Randles, 1983).

(1973-)1987-1992. Puerto Rico. UFOs, landings, observations of occupants, and abductions (Randles, 1992; Martin, 1993).

(1975-)1977(-1978+). West Wales. Complex UFO, close encounter, and apparition activity (Pugh and Holiday, 1979).

1986+. Corydon, Indiana. An area with many sightings of dark, complex objects bearing lights, also abductions (Ridge, 1994).

These areas not only generate more reports in the long run but reproduce in a microcosm the full dynamics of UFO activity. This activity includes waves as the numbers of reports surge from time to time—in the spring of 1977 for the Pennines and in the winter of 1981-1982 for Hessdalen, for example. Other areas with long but not necessarily spectacular histories sometimes become major activity sites over a period of months, a full year, or even longer. Reports from the Uintah Basin of Utah rose to wave

level in late 1966 and again in late 1967 (Salisbury, 1974). A steady stream of sightings from the Yakima Indian Reservation in Washington increased markedly during 1972 and 1975-76 (Long, 1990). The Hudson Valley region of New York was not a notable area for sightings prior to 1983, but during the late winter and spring of that year and the summer of 1984, flying-wing sightings became epidemic and continued for some time thereafter in more modest numbers (Hynek, Imbrogno, and Pratt, 1987). A wave of reports came from Gulf Breeze, Florida, in late 1987 and early 1988, with a steady if lesser stream of reports continuing from this same limited area (Walters and Walters, 1990; see *UFOs in the 1980s*, pp. 121-28).

(3) Short term, broad distribution. This category encompasses the usual notion of a UFO wave, those sudden, overwhelming upsurges of reports that infect the whole nation or even the world for a few weeks to a few months at a time, attracting extensive media attention and leaving ufologists bewildered with a mass of cases. Any well-read UFO buff recognizes several examples as major landmarks in UFO history:

1896, autumn-1897, autumn. Phantom airships over the United States, Canada, Siberia (Neeley, 1986).

1946, July-August. Ghost rockets over Nordic countries, worldwide activity (Gross, 1988).

1952, April-August. Worldwide flying-saucer reports, with North America the primary focus (Jacobs, 1975; Gross, 1982-1986).

1954, September-November. Worldwide reports, with Europe (especially France and Italy) and South America as the primary foci (Michel, 1958; Smith, 1987).

1957, November. Intense activity in the United States and South America (Hall, 1964; Smith, *op. cit.*).

1973, October. Last extensive wave in the United States, with wave activity in Australia and Europe extending into 1974 (Jacobs, *op. cit.*; Chalker, 1987; Pinotti, 1987).

1978, autumn. Italy, Australia, South America (Pinotti, *op. cit.*; Chalker, *op. cit.*; Huneus, 1987).

1989, autumn, winter. Waves in Canada and the Soviet Union; Belgian wave begins (Vallee, 1992; Mesnard, 1990).

A bias toward North American activity is commonplace in American UFO literature, but most classic waves unfold on an international scale. Even 50 years before the first flying saucer, the 1897 phantom airships and phantom balloons generated between 2000 and 2500 reports in three countries (see *Emergence*, pp. 17-39). Though 1946 is best known for some 1000 ghost-rocket sightings in Sweden (*Emergence*, pp. 168-76), UFOs also appeared throughout Europe and in the United States. The 1947 and 1950 waves were limited mostly to the United States, but subsequent classic waves had broader scope, and 1954 assumed wave proportions only in Europe and South America. The widespread activity of 1978 and 1989 qualifies them as international wave years and proves that large-scale wave activity still goes on, though foreign focus has denied them due recognition in the United States.

National waves unfold within narrower confines to involve one nation or a few adjacent nations at most. Except for 1947 and 1950, the most noteworthy national waves occur outside North America and for that reason are generally less familiar to American readers. The following selection includes only representative examples of a long list:

1892, March. Phantom airships over Russian Poland (Bullard, 1984).

1946, May. Sightings and landings in the U.S.S.R. (Vallee, 1992).

1947, late June-early July. The first flying-saucer wave, following Kenneth Arnold's sighting on June 24 (Bloecher, 1967).

1950, March-April. International flying-saucer wave, though most reports from North America (Gross, 1982, 1983).

1957, spring-summer. Western Europe (Michel, 1958).

1959, June-August. Papua New Guinea (Cruttwell, 1971).

1960, May. Brazil (Smith, *op. cit.*).

1962, May-September. Argentina (Hall, 1964).

1977, September-November. U.S.S.R. (Creighton, 1978).

1980, summer-fall. People's Republic of China (Stevens and Dong, 1986).

1989, summer-fall. U.S.S.R., with landings (Huneus, 1990).

1989, November-1990, April; October-1991 April. Appearances of triangular UFOs over Belgium in wave proportions (Vidal and Rozenchwajg, 1991).

A third distinction recognizes regional waves, those covering less than a nation but more than a limited locality. The green fireballs of 1949 frequented the American Southwest over a period of years but achieved wave status during late 1948 and early 1949 (see *Emergence*, pp. 182-91). A region of northeastern Brazil centering on Belem has provided some of the strangest UFO stories of all time, with claims that UFOs attack local hunters and fishermen with dangerous beams of light. Wave activity covering a whole state or some part of a state is common:

1948, November-1949, spring. Southwestern United States. Green fireballs (Ruppelt, 1956).

1960, August. Northern California (Hall, *op. cit.*).

1962, September. Northwestern New Jersey (*ibid.*).

1963, August. Southern Illinois (*ibid.*).

1977, 1981-1982 (especially April-May). Northeast Brazil. Many reports of persons burned or killed by rays from flying objects called *chupas* (Vallee, 1990).

1978, October. West Virginia (Spickler, 1978).

1979, July-August. San Fernando Valley, California (Greenawald, 1980).

1985-1986. Pennsylvania (Gordon, 1986).

(4) Long term, broad distribution. Several well-known wave years are conspicuous by their absence from every list above. They belong to a distinctive category in which UFO activity reaches an even higher pitch than the major waves. If the classic wave is an epidemic, some periods qualify as pandemics because wave-level activity continues unabated for several years on an international scale, adding up to a high tide of reports or a wave of waves, so to speak. Two periods richly deserve this status: the 1908-1916 era of phan-

tom airships and airplanes and the worldwide UFO deluge of 1964-1968.

The chief characteristics of a pandemic are a prolonged overall increase in sightings and almost continuous wave activity in all the previously noted forms. UFOs never rested during the 1908-1916 pandemic. They appeared somewhere in the world almost all the time, either in sporadic sightings, in slow recurrent activity in a given area, or in intensive waves on a local or national scale. Though 1911-1912 appears to be a weak link, these two years have received the least research. The constituent minor waves of this pandemic make up an extensive list. (An extensive literature and my own research into newspaper files provide the sources for pre-1947 waves.)

1908-1916

1908: February-March. Phantom airship reported in Puget Sound area.

June. Airships reported throughout Denmark.

July-December. Phantom balloons and airships over New England.

1909: March-May. Extensive airship reports in Britain and Ireland.

May-June. The "Flying Dutchman of the Salton Sea" (airship in California).

June. Mysterious airplane in central Russia.

July. Major airship wave in New Zealand.

August. Minor airship wave in Australia.

August. Recurrent mystery airplane over Montclair, New Jersey.

August-October. Airships over western Russia.

August-December. Airships and airplanes return to New England, with few reports until mid-December; then the number rose to a climax in the days preceding Christmas.

September. Several airships over Indiana.

September, December. Airship over Sweden.

1910: January. Airplane reports from New England in diminishing numbers; wave shifts southward to West Virginia, various airship reports from Tennessee, Alabama, Arkansas.

April. Airship lights in western Russia.

August-October. Sporadic airship, airplane, and balloon activity in New York and New England.

October. Airship crosses Canada from Quebec to Saskatchewan.

1911: March. Phantom airplane in Ontario.

1912: November-December. Onset of major British-Irish airship wave.

December. Phantom aircraft at Russian and Austrian borders.

1913: January-April. British wave continues.

January-March. Airship and airplane activity in Belgium, Holland, Russia, Austria, Germany.

June. Airship in Michigan.

1914: August-September. Many airplane reports from South Africa.

August-December. Phantom airplanes reported across Canada, in Alaska, Australia, and Norway. Phantom dirigibles reported in Britain.

1915: January-March, June-August. Aircraft reported in various parts of Canada and Norway.

1916: January-February. Airplane over Delaware, Maryland, eastern Pennsylvania.

January, March-April, June. Airplanes and airships over Norway.

February-April. Airplane over Minnesota and Wisconsin.

February-May. Mysterious aircraft sighted around Juneau, Alaska.

February, July. Airplane over Canada.

UFOs cavorted through the skies during 1964-1968 with a complexity of activity defying description. Localized waves rippled here and there around the country and about the world almost continuously; tidal waves swept the country in July-December 1965 and March-April 1966. Many incidents from this period became classics of UFO history, such as the 1964 **Socorro CE2/CE3** in New Mexico, the 1965 **Exeter CE1** in New Hampshire, the Dexter-Hillsdale sightings in Michigan, the Wanaque reservoir sightings in New Jersey, and the Ohio patrolmen's UFO chase (see **Portage County Sightings**), all in 1966. On an international scale, UFOs invaded the Soviet Union, and Warminster became a mecca for British UFO spotters in 1967, while South America prospered in activity during 1964 and 1967-1968. This attempt to

summarize the highlights of the 1960s pandemic cannot pretend to do it justice.

1964-1968

1964: Heavy activity in Argentina and other South American countries throughout the year (Creighton, 1966).

April-June. U.S. Southwest; UFO activity widespread throughout United States in July-August (Hanlon, 1966).

1965: Yearlong reports from Warminster (England) and Australia.

January. Northern Virginia (*ibid.*).

July-September, November-December. Nationwide and worldwide UFO activity (Clark, 1966).

August-September. Chile (Huneeus, 1987).

September. Wave in Mexico (Clark, *op. cit.*); close encounters around Exeter, New Hampshire (Fuller, *op. cit.*).

1966: Yearlong reports from Warminster and Australia.

January-Fall. Wanaque Reservoir, New Jersey (Keel, 1967).

March. Michigan. Many sightings include a landing at Dexter and the Hillsdale object, attributed to swamp gas (Sherwood, 1967).

April. Nationwide reports. Chase of UFO across Ohio (Story, 1981), wave in Victoria, Australia (Chalker, *op. cit.*).

August. Car chases in Wisconsin, Minnesota; UFOs in Arkansas (Keel, *op. cit.*).

September-October. Uintah Basin, Utah (Salisbury, *op. cit.*).

November-December. UFOs in the Ohio Valley, Mothman in West Virginia (Keel, 1975).

1967: Ohio Valley activity continued throughout the year (*ibid.*).

February-April. Extensive U.S. activity (Hall, 1978).

July-December. Extensive sightings in the U.S.S.R. (Gindilis, et al., 1980).

Summer-Fall. Britain (Bowen, 1967).

October. Uintah Basin, Utah (Salisbury, *op. cit.*).

1968: June-July. Argentina and neighbors (Creighton, 1968).

August-September. Romania (Hobana and Weverbergh, 1975).

The great pandemics of 1908-1916 and 1964-1968 deserve special recognition as unitary episodes. Though the quantity of reports in the earlier pandemic cannot rival the second, an unparalleled number of reports within the context of their respective eras characterizes both periods. The sheer mass of reports combined with their frequent concentration into waves and the widespread distribution of UFO activity sets apart these pandemics as the highest level of wave activity.

Three periods possibly deserving the status of lesser pandemics are the 1930s, 1973-1974, and 1978 to 1982. UFOs resurged after a dull decade as the 1930s began, with scattered reports of mystery airplanes coming from the United States and Europe. The most persistent activity centered in Scandinavia, with "ghost fliers" appearing from December 1933 till March 1934, again in November of that year, then in the fall of 1935 and 1936, and winter of 1937. Mysterious airplanes flew over Britain during the middle years of the decade, especially during the summer of 1937. The classic U.S. wave of October 1973 comprised only the best-remembered episode of two busy years, when Europe and Australia also hosted wave activity. Europe, Australia, and South America claimed most of the action during the 1978-1982 period, when Italy underwent a major wave in 1978 and the disappearance of pilot Fred Valentich climaxed a wave that same year in Australia (*see Valentich Disappearance*). These three periods lack the quantity of sightings, length of duration, or breadth of distribution of the major pandemics; yet they stand out in their own right as times of unusually intensive activity.

Alternating eras of feast and famine trace a broader periodicity across UFO history. Air Force records show UFO activity at a low level of 200 cases or fewer per year from 1947 through 1951, in contrast to 500 up to 1500 reports between 1952 and 1958. If former low levels never returned, the years 1959 through 1963 were lean years nevertheless, having only 400-600 annual reports and little wave activity. Measurements are more subjective without the Blue Book file to depend on, but reports became relatively few in the years after the Condon report of 1969, only to surge again in 1973 and remain numerous for several years thereafter. The 1980s brought a new slowdown

in the United States. This slowdown has persisted into the 1990s, corresponding to a notable absence of major waves. The only other decade-long period devoid of wave activity in the past hundred years was the 1920s, when UFO reports of all sorts seem scarce (though they are by no means nonexistent).

Waves in early times. Table 1 includes many waves prior to 1947. They are characteristic of UFO activity for at least a hundred years, a time dominated by a mechanical conception of UFOs, whether airship, airplane, rocket, or spaceship. Of course UFOs have been around much longer than a hundred years, taking the term to mean any sort of aerial object regarded as anomalous according to concepts of the time. Waves also enjoy a lengthy past. They have accompanied the UFO phenomenon in all its ages and in whatever form UFOs have taken.

Clusters of strange phenomena often signal a crisis in the life of the state or society from ancient times right up to this century. Sightings in the sky are traditional announcements for an outbreak of war or the death of a great man. The Roman historian Livy wrote of lights and ships in the sky during the Punic Wars (Livy, 1965), and a book entitled *The Warnings of Germany* (1638) recorded a long list of aerial portents associated with the Thirty Years' War. Shakespeare reminds us that "the heavens themselves blaze forth the death of princes," and prodigies accompanied the assassination of Julius Caesar as well as the execution of King Charles I. These aerial rumors of war presaged the American Civil War and entered the folklore surrounding the Franco-Prussian War of 1870 and both world wars (Pohl, 1975).

Religious manifestations have given rise to recurrent aerial activity for centuries. Apparitions of the Virgin Mary often include lights or objects in the sky, the most famous example being the appearances at Fátima, Portugal, in 1917 (*see Emergence*, pp. 142-44). Marian apparitions and celestial visions of the saints have a much longer history. For one example, they reached epidemic level in Spain a number of times between the fifteenth and eighteenth centuries (Christian, 1981).

The Reformation Era of the sixteenth and seventeenth centuries was a period of almost continuous aerial phenomena. No age before modern times

hosted so many strange sights, and an extensive literature developed as collectors tried to gather together the numerous accounts. Perhaps the most famous of these collections is the *Prodigiorum ac Ostentorum Chronicon* (1557) of Conrad Lycosthenes, an effort to present a chronological record of all the wonders that occurred since the creation of the world. Their number increased dramatically as Lycosthenes approached his own time. Signs like armies in the sky, flying coffins, or aerial swords were almost literally daily occurrences, according to the *Mirabilis Annus* (1661-1662), another prodigy collection.

The two-century epidemic of aerial portents waned as religious fervor cooled and strange sights in the sky fell under scientific purview. Even in this climate a few instances of wave activity turn up from time to time. During the War of 1812, American sailors reported blue lights, supposedly hoisted by British spies to warn the Royal Navy when an American ship set sail. Several epidemics of "false lights" lured ships onto the rocks along the British coast in the 1860s, and luminous globes visited western Wales in the 1870s. Thomas Edison's experiments led to sightings of the "Edison Star," usually the planet Venus taken to be an arc light hoisted nightly to a height several miles above the earth by a captive balloon. Edison received reports of his "Star" from 1886 till 1910. Whatever the reigning conception of proper sights to see in the sky, people have always reported anomalies and bunched them into waves.

The structure of UFO waves. Waves are like snowflakes: no two are identical. How waves originate, build, climax, and decline are secrets most often lost or obscured in the difficulties of collecting and correlating UFO records. If the fine details escape discovery, the broad outline is plain to see. Waves of all scales and ranges share some characteristics in common. The events of the most familiar and best-researched waves, those of broad distribution and short duration, follow two distinct courses. One is explosive, where UFO activity suddenly breaks out, quickly peaks, and soon subsides. A graph of report numbers would show steep and precipitous contours. This is the pattern of the waves of 1896, 1947, 1957, and 1973. The alternative is gradual, where activity builds up slowly, reaches a crest after some weeks or months, and then diminishes little by little to former low

levels. In this case the graph would show a "bell" curve of smooth and rounded contours. The waves of 1897, 1909 (New England), 1913 (Britain), 1946, 1952, 1954, and 1965 follow this course, as do such smaller-scale events as the Uintah Basin and Hudson Valley waves.

The 1896-1897 waves, ancestors to all the rest, have the distinction of being better known than any other major waves. Near-complete records of reports are now available and offer a chance to study the structure of a wave episode in considerable depth. In 1896 the explosive pattern is clearly valid. When Sacramento residents reported an airship light on November 17 and newspapers trumpeted the event the next day, no antecedent airship reports had skulked through the back pages of the local press during the preceding days or weeks. True, a few phantom balloons were reported in Canada during the summer and fall, a triple-headed meteor had crossed northern California in late October, and another announcement about a flying machine newly invented in the East had just soared as far as the printed page; but the fact remains that no one else had been reporting airships. In the wake of publicity, some people laid claims to earlier sightings, but the Sacramento airship burst onto the scene unheralded and unrivaled.

Publicity alone without help from additional sightings kept the airship story afloat for the next two days. Then on November 20 the ship reappeared in Sacramento, and on the twenty-first it moved to Oakland. On this same day a few other towns in northern California printed local reports. Even more publicity, in the form of a lawyer's assertion that he knew the inventor, boosted credibility of the reports. When they came from both Sacramento and Oakland on the twenty-second, the wave truly began to soar. San Franciscans began to report strange lights, and newspapers issued on the twenty-fourth and twenty-fifth began to print numerous sightings from residents of surrounding towns.

November 24-26 provided the most reports, but they remained common through the end of the month. Accounts spread outward at this time, north to Red Bluff and Arcata, south through the San Joaquin Valley and to Los Angeles. Nevada entered the wave, and one report came from as far north as Tacoma,

Washington. Activity slowed during the first week of December, though the publication of many weekly newspapers made known a number of sightings from the preceding week. Tall tales and clever **hoaxes** added a new attraction to this later phase. One man claimed he flew by airship to Honolulu, one report claimed an encounter with featherweight Martians, and two practical jokers dumped a steel tank made up to look like an airship into a mudhole. Ridicule and humorous treatment dogged the airship story from the start but increased in volume and bite as the story progressed. Newspaper writers clearly wearied of airships by early December. By midmonth a few last reports straggled in, mostly from Nevada. Even as late as January came one last California report and two from Arizona.

Soon begun and soon finished, the 1896 airship enjoyed about two weeks of prominence. The explosion had subsided, but not all was quiet on the airship front. Along the Platte River in Nebraska at the start of February 1897, a new and bigger wave began to gather strength for a four-month run. People in several towns reported lights, the form of a winged ship, and even voices in the air. Throughout February the airship light haunted southeastern Nebraska. Early in February a fake report from Ellinwood, Kansas, received considerable publicity within the state, and later that month people in northeastern Kansas joined their Nebraska neighbors in seeing the mysterious light.

In mid-March a few people in south Omaha saw the airship light, and this event lent a new publicity impetus to the story. For the next several weeks the airship visited Omaha each Sunday evening, and increased publicity commemorated each return. These Omaha visits became noteworthy outside Nebraska as Chicago papers also reported the events. The airship as well as airship news entered new territory during the third week of March with sightings in Sioux City, Iowa, and the wave took wing in earnest during the final weeks of the month as a dozen towns in eastern Kansas hosted visits. The sightings in Topeka on the twenty-seventh became national news when the governor also witnessed the light.

Even while causing a sensation in Kansas, the airship struck out for new territory in Missouri, Michigan,

Iowa, Illinois, and Oklahoma during the first week of April. Kansas and Nebraska remained the center of activity until the night of April 8-9 when the ship went on an odyssey through Iowa, southern Minnesota, and South Dakota. The airship followed railroad lines, and nearly every town along the way announced a sighting. People at many other places in Iowa and Illinois added their voices at the same time to the growing chorus of witnesses.

Hard on the heels of this odyssey followed an even more spectacular series of sightings. Between Friday, April 9, and Monday, April 12, the airship spent a weekend on the town, or rather on four of the largest cities of the Midwest, where thousands of people in Chicago, Milwaukee, Minneapolis, and St. Louis watched the visitor. Newspapers headlined these sightings and devoted extensive attention to them. These performances before mass audiences marked the pinnacle of airship credibility for the press and many citizens.

The airship wave reached its high tide of reports and publicity during the middle week of the month. This mystery became a nine days' wonder throughout the nation during mid-April, with reports spreading in earnest to states little or never touched before. Wisconsin, Indiana, Michigan, Ohio, Kentucky, Tennessee, Texas, and Colorado entered the ever-widening ripple of airship excitement. This very prevalence of reports began the downfall of credibility for the airship, since the validating idea of an inventor testing his craft at night no longer worked when the same supposed ship appeared in a dozen places hundreds of miles apart at the same time. Too much of a good thing transformed wonder into suspicion.

Newspaper coverage as well as sightings tapered off during the latter third of the month. Once again ridicule, humor, and satire grew common, and once again sensational hoaxes drew the attention of a jaded press. The first crash report came out of Missouri during early April, but the famous Aurora, Texas, crash appeared in print on the nineteenth. That same day a St. Louis newspaper told of a man who met Adam and Eve from Mars as they picnicked naked beside their landed airship. Then on the twenty-seventh the *Kansas City Times* reported farmer

Alexander Hamilton's yarn about a calfnapping airship (see **Animal Mutilations and UFOs**).

Sightings continued until the middle of May, though usually in diminishing numbers. Nebraska started early and stayed late in the airship business, with sightings ranging from February to late May. For this state the peak period was the same week in mid-April, so the bell-curve of a gradual wave fits well. Each state had its own unique profile of activity. Kansas sightings lasted till mid-May, but the curve of activity is less smooth in this state where both late March-early April and mid-April were peak periods. For Illinois, Iowa, Wisconsin, and Minnesota the wave got off to an explosive start early in April, quickly peaked between the ninth and fourteenth, then diminished quickly thereafter. By the end of the third week, activity here was all but extinct. Like a literal wave, airships washed over these states, then left them dry, only to flood places further along to the east, west, or south. Just as reports died out in Illinois, they commenced in Ohio and Kentucky, began in earnest in Texas and Colorado. Late in April when sightings were dying out in the Midwest, the wave washed into Pennsylvania, New York, New Jersey, the Deep South, and the West. In late April and early May the airship reached as far as Nevada and Washington, returning to areas that figured in the 1896 festivities.

If 1896 offers a typical example of an explosive wave and 1897 of a gradual wave, some empirical generalizations about each type are possible. Explosive waves are characterized by:

- (1) a triggering event of inherently spectacular nature and high publicity,
- (2) an outpouring of reports favored with extensive and generally positive media coverage during the next few days,
- (3) followed by the spread of sightings over a widening area,
- (4) an increase in hoaxes and unfavorable media attention, and
- (5) a rapid diminution of reports starting a few days after the peak.

The time scale for an explosive wave concentrates into about three weeks of intensive activity, with the peak period lasting less than a week.

The gradual wave is characterized by:

- (1) weeks or months of unpublicized but increasing activity,
- (2) the spread of sightings over a wide area,
- (3) initial publicity without any immediate upsurge in reports,
- (4) a period of intensive sighting activity accompanied by extensive and positive media coverage,
- (5) the spread of sightings into new areas while old hot spots cool down,
- (6) a rise in hoaxes and unfavorable media attention, and
- (7) a slow decline in reports to pre-wave levels.

The time scale for a gradual wave is prolonged over several months, four in the case of 1897. About two weeks of peak-level activity also distinguishes the gradual pattern.

An application of these schemes to other waves appears in Table 2. It shows that many waves roughly approximate one or the other of these formulations, judging insofar as available evidence permits. The patterns are idealized, and not every aspect of every wave follows true to type. Small and localized waves usually lack the spread and hoax elements, while the main waves of the mid-1960s blend into ongoing activity until any clear contours fade from sight. A smooth curve is often lacking—for example, airship activity ceased abruptly for two weeks in mid-February during the British wave of 1913. In another case, a Brazilian wave began to build during the summer and fall of 1968 but fell from an October peak during November and December, then climbed again to another peak with more landing and occupant reports in February 1969 before a gradual decline to base levels in the summer (Buhler, 1971). The overall shape of the wave is a curve, but the actual course is a roller-coaster ride when viewed in closer detail.

Understanding UFO waves. Ufologists appreciated the importance of waves from an early date. They provided accessible evidence for pattern, even purpose

Table 2. Stages in a UFO Wave.

Stages	Gradual							Explosive					
	1	2	3	4	5	6	7	1	2	3	4	5	
Gradual:								Explosive:					
1 = 1897								1 = 1896					
2 = 1909 (New England)								2 = 1947					
3 = 1913 (Britain)								3 = 1957					
4 = 1946								4 = 1973					
5 = 1952								5 = 1983 (Hudson Valley)					
6 = 1954													
7 = 1987 (Belleville, Wisconsin)													
I. Initial Activity (low publicity)													
A. Scattered reports or localized concentration	X	X		X	X	X	X			X	X	X	
B. Outbreaks in other areas	X	X	X	X	X	X	X						
II. Complication													
A. One report or group of reports makes news, but wave doesn't catch on	X	X	X	X	X	X	X	X	X		X		
B. Subsequent low-publicity reports	X	X		X	X	X	X	X	X		X		
III. Ascending Action													
A. Additional events attract widespread publicity	X	X	X	X		X	X	X	X	X	X	X	
B. Widespread or intensive activity follows immediately										X	X	X	
C. Widespread or intensive activity follows in about a week	X	X						X	X				
IV. Climax													
A. Many and widespread reports well publicized for a week or less		X						X	X	X		X	
B. Many and widespread reports well publicized over a longer period	X		*	X	X	X	X				X		
V. Descending Action													
A. Slow decline in reports	X		X	X	X	X	X				X	X	
B. Precipitous decline in reports		X						X	X	X			
C. Wave spreads into new territory	X	X		X		X		X					
D. Hoaxes, negative comments increase	X	X			X	X		X	X	X	X	X	
VI. Finish													
A. Reports and media interest slowly diminishing to previous low levels	X	X			X	X	X				X	X	
B. Reports and media interest quickly diminishing to previous low levels			X	X				X	X	X			

* A two-week hiatus of reports bisected the most active period.

behind UFO activity, and investigators wasted no time trying to predict when and where the next wave would strike. Periodicity, geography, and type of activity emerged as key variables in a search for meaning among the waves. Ufological scholarship into the wave phenomenon began in the 1950s, became most sophisticated in the 1960s and 1970s, then diminished in the literature thereafter by reason of frustration.

As early as 1953, French researchers Jimmy Guieu (Guieu, 1956) and Aimé Michel (Michel, *op. cit.*) noticed that UFOs increased when the planet Mars drew closest to the earth. Major waves in 1950 and 1952 corresponded to oppositions of Mars, and predictions of a wave for the 1954 opposition succeeded beyond all expectations. The Mars cycle of 26 months (with perhaps a one- or two-month delay) became widely cited as the interval to watch (Keyhoe, 1955). Another seeming significance was the growing size of waves as Mars oppositions became more favorable. The planet drew nearer in 1954 than in 1952, and 1956 marked the closest approach in 17 years. Was something climactic due to happen for this prime opposition?

In fact nothing much happened in 1956, neither mass landings nor even an outstanding wave. Not only did predictions for 1956 fall flat, but a major wave struck in 1957 when Mars was far from earth. Some researchers gave up on the Mars cycle and admitted that waves were unpredictable (Michel, *op. cit.*), but the Martian connection did not die so easily. Mars rose into favor again in the studies of Spanish ufologist Eduardo Buelta in the late 1950s (Ribera, 1959) and Jacques Vallee in the early 1960s (Vallee and Vallee, 1962). By the mid-1960s Vallee's sample included thousands of reports from worldwide sources, escaping the limitations of time span and geography that had handicapped almost all previous studies. The 26-month Mars cycle reemerged as a significant correlate of UFO activity between 1947 and 1962. By contrast, no relationship tied Venus or meteor showers with waves (Vallee and Vallee, 1966), lessening the credibility of a skeptical claim that UFO reports increased during the proximity of Mars or any other planet, but only because people mistake bright planets for spaceships.

Proposals for rival periodicities came to share attention with the Mars cycle. Not 26 months but 21 characterized the local Pennine waves of the 1970s (Randles, 1983), while heavy activity in Illinois followed a 15.4-month period (Anderson, 1976). One investigator connected wave activity to the 10-11-year sunspot cycle; another stated that waves occur yearly, and periodicity is illusory (Randles, *op. cit.*). An analysis of nearly 3000 Iberian reports from 1960 to 1977 turned up cyclical activity at 22 months, seven years eight months, 10 years 10 months, and 11 years three months (Fernandes and Ferreira, 1982). Brazilian ufologist Olavo Fontes first proposed the chief alternative to the Mars cycle in 1957. He noticed five-year intervals between the major waves of 1947, 1952, and 1957, while a later refinement increased the span slightly to 61 months (Lorenzen and Lorenzen, 1969; Saunders, 1976).

Where waves happen as well as when attracted the attention of ufologists. Michel noted in 1956 that waves seemed to shift eastward over time, from the United States in 1952 to France in 1954. The pattern gained plausibility from the observation that most sightings occurred in western states during 1947, then moved eastward across the country thereafter. Buelta hypothesized an alien satellite or space station orbiting earth and shifting its surveillance one degree eastward each day. David Saunders teamed period and shift to predict a 30-degree eastward displacement around the globe for each successive 61-month wave. This geographical invariant scheduled some waves over oceans or sparsely populated areas where observation was unlikely, leaving several unconfirmed blanks beside predicted dates; but available evidence indicates that waves have adhered to this predicted pattern into the 1980s (Johnson, 1988).

Michel introduced another geographical relationship closely tied with waves (Michel, *op. cit.*). He plotted UFOs of the 1954 wave on a map and found they often followed a straight-line track, with one line intersecting sometimes as many as half a dozen sightings for a given night over a distance of up to 200 miles (see *Emergence*, pp. 264-65). Keel proposed an alteration of these orthotenic alignments to encompass activity over a wider area after examining the extensive U.S. wave activity of 1966 (Keel, 1969). He drew a great circle through the activity sites in Ne-

braska through Illinois and Michigan, while the other side of the circle cut through Wyoming. In all these points the circle touched areas of intense UFO activity, with the local waves dated within a few weeks of one another.

Geography and geology unite in the one theory of waves still lively in current ufological literature. The "earthlights" solution for UFOs explains them as plasma discharges caused by seismic strain, more common versions of the earthquake lights associated with major tremors, and released by less intense or less manifest tectonic activity. Proponents argue that UFO activity clusters around fault lines, and windows correspond to areas of persistent tectonic strain. This theory cannot predict the timing of waves, though more UFOs should appear during a buildup of strain toward an earthquake or volcanic eruption, and sightings should diminish once the strain subsides (see *UFOs in the 1980s*, pp. 77-84). Other electromagnetic sources such as sunspot activity might contribute to cyclical variations in earthlight appearances (Persinger and Lafreniere, 1977; Devereux, 1982).

A third important pattern cast up by the waves was a progression in UFO activity. From wave to wave the UFOs drew closer and varied their actions, with an escalation of strangeness apparent over time (Vallee and Vallee, 1966; Lorenzen and Lorenzen, 1969; Hall, 1988). In 1947 the UFOs kept their distance; by 1950 they showed an interest in military installations and in 1952 approached both aircraft and the nation's capital. Landings and occupant sightings became common in 1954, while close approaches and electromagnetic-interference cases multiplied in 1957. Activities of all sorts expanded during the 1960s, and the abduction phenomenon began. Two intriguing characteristics of high-strangeness reports came to light: (1) They came disproportionately from areas of low population density, whereas the distribution of low-strangeness reports corresponds directly with population density—the more people, the more reports (Vallee and Vallee, *op. cit.*; Poher and Vallee, 1975; Ballester Olmos, 1976; Hendry, 1979). (2) They cluster more than low-strangeness reports in time as well, though investigators differ over whether this clustering favors wave years (Vallee and Vallee, *op. cit.*; Pinotti, 1987) or happens independently of a recognized wave (Randles, 1986).

Ufologists built a circumstantial case that UFOs appear according to regular cycles at predictable locations in a progressive series of activities. This case proved far more tenuous than it seemed. It rested on faulty samples, layers of bias, and one investigator's ufological numerology that no other investigator was likely to duplicate. Jacques Vallee and **Allan Hendry** (Hendry, *op. cit.*) attacked the proposed patterns with systematic criticisms.

Periodic cycles multiplied with increased research—a bad sign for credible temporal patterns. It means that accidental relationships valid over brief spans may proliferate, while the likelihood of finding a persuasive and invariant key to wave activity diminishes. The Mars cycle held up rather well until the 1960s but then broke down, with the prime opposition years of 1971 and 1988 passing without any large-scale waves. The 61-month cycle also fails to make a convincing case. Saunders distinguishes between negatively and positively skewed waves, those that begin gradually and end rapidly in contrast to those that begin suddenly and taper off over time. Only the negatively skewed waves count as genuine; positively skewed waves result from publicity, such as Sputnik interest for 1957 or the "swamp gas" case for 1966. On these grounds the major waves of 1950, 1957, 1964-1966, and 1973 drop out of the picture; yet with some inconsistency 1947 remains as the starting point, despite publicity from the Arnold sighting. The scheme also relies on minor waves, such as the one in South Africa during November 1972, to satisfy the needs of prediction—and as Table 1 demonstrates, a wave of some sort is seldom hard to find.

The geographical predictions fare no better. Faith rather than observation must fill in a sizable percentage of those hypothesized shifts to the east. Vallee's analysis of orthoteny demonstrates that chance arrangements are compatible with Michel's alignments from the 1954 wave, and great circle extensions of the most complex of those alignments did not intersect other UFO activity around the world. UFOs by no means appear only over fault lines. A comparison of these lines in the Yakima reservation with UFO sightings shows that many UFOs appear at some distance from faults (Long, *op. cit.*), and while the 1980 eruption of Mount St. Helens might have eased

tectonic stress in the area, UFO activity diminished over the three preceding years while strain was presumably building up. Tectonic stress or earthlight explanations do not depend on rigid cause and effect to relate a fault or seismic activity to a UFO event. Their assumptions permit months and considerable mileage to separate possible cause from putative effect, and so much leeway diminishes the persuasiveness of any connection (Rutkowski, 1987). Long-term, geographically restricted waves such as the activity at Hessdalen or Piedmont, Missouri, might owe their existence to geological sources, but certainly not global waves.

An escalation of strangeness in reports is subjectively apparent but open to different interpretations. Are aliens changing their tactics over time, or are narrators becoming bolder with their tall tales? Researchers seem to agree that high-strangeness reports concentrate in low population areas; yet this fact also leaves room for interpretation. Instead of deliberate avoidance on the part of aliens, this pattern may have a social origin—urban dwellers could be more reluctant to report extraordinary experiences, or ufologists might sooner dismiss urban cases as hoaxes (Hendry, *op. cit.*).

Whether an omniscient eye would find UFO activity chaotic or see it dance to an unknown rhythm, the fallible human ufologist has failed to predict when and where UFOs will appear with any scheme that holds up as reliable across UFO history. Waves remain tantalizing in their ambiguity despite so many promising hints of pattern. UFOs do not travel according to a rigid timetable, thereby dashing those early high hopes of finding regularities intrinsic to the phenomenon. The skeptical alternative turns away from UFO behavior to search for the key to wave activity in human behavior.

The social dynamics of waves. Whatever else UFO waves may be, they are undeniably social events. They bear enough similarities to the scare following the *War of the Worlds* broadcast of 1938 to warrant comparison with a general scheme for collective behavior in social panics and crazes. Sociologist Neil J. Smelser identifies a value-added series of steps recurrent in these situations, a necessary ladder of antecedents and consequences that events must follow for panic be-

havior to result. Oddly enough, Smelser pronounces that UFO sightings do not cause a panic because witnesses are unable to communicate their experiences and excitement quickly enough to other people (Smelser, 1963). He seems unaware of the wave phenomenon. Waves accomplish what an isolated sighting here and there cannot. They stimulate widespread interest and catch the media ear, guaranteeing a period of rapid communication of UFO events, rumors, and speculations. His theory fits the wave pattern rather well:

A social panic is collective action by people attempting to avoid a perceived threat, while a craze is action to embrace a wish-fulfillment belief. These movements represent the negative and positive sides of the same coin and consist of similar stages. For this reason deciding whether people judge UFO experiences as threatening or desirable is unnecessary. The history of the phenomenon encompasses both possibilities, as German airships (1913), foo fighters (1944-1945; see *Emergence*, pp. 153-56), or kidnapping aliens (1973) provoked a fearful response, while new secret weapons (1947), countercultural proclivities (1960s), or a chance to participate in the dawning Space Age (1957) led to a positive reaction.

A conducive social structure establishes the necessary preconditions for a panic or craze. A system of communication, broad notions of what is possible or probable, and freedom to take action if the opportunity arises prepare the way for collective behavior. An element of social strain adds the next requisite step. Any ambiguous condition, whether threatening or enticing, provokes anxiety or desire and thereby sets up the emotional tensions for the excitement to come. A generalized belief arises to give meaning to the strain, identify it, and prescribe an appropriate course of action. Some crucial precipitating factor may then crystallize vague feelings into a sense of certainty, a concrete expectation with the power to stir people into action. Once spread, these beliefs and expectations mobilize the public to realize them, to pursue the hope they offer or flee their consequences. Appropriate social control at the right time may stem the tide, but if the agencies of control fail to act, or act too little too late, or become discredited and villainized by the motivating belief itself, all channels open wide for collective behavior to run its course. A panic or

craze spreads through contagion and imitation until resurgent social control, loss of interest, or disillusionment saps the emotional force from the movement (*ibid.*).

This mix of ingredients is easy to find in UFO waves. Whether a general belief that flying machines are possible or secret weapons are being tested or alien spaceships are visiting the earth, all waves have grown out of a milieu of contemporary belief and reflected its contents. If people report unusual objects in the sky, the media are in place to communicate those reports rapidly and take an interest in doing so—sometimes. A potential wave may become actual when anticipation adds strain to the situation. In 1897 people wanted the problem of aerial navigation solved before the turn of the century; in 1913 airships from Germany were a real threat; in 1957 Sputnik turned all eyes toward space; in the mid-1960s UFOs became common enough to seem inevitable. In these situations a local or well-publicized UFO report could precipitate additional reporting as people rushed to participate, submit their own sightings, convert anything ambiguous in the sky into fulfillment of UFO expectations. Nor should the anti-authoritarian appeal of UFO belief be underestimated. The experts deny UFOs; observing a UFO denies the wisdom of the wise men and earns the satisfaction of revenge for the common man against the stifling agents of social control.

Once a precipitating report triggers a chain reaction of sightings and reports throughout the populace, the result is a full-scale wave. An accepting atmosphere encourages witnesses to step forward with genuine observations of unusual phenomena, and hopefuls to convert conventional phenomena into UFOs as a way to participate or satisfy personal expectations. A rising chorus of skeptics, a press soon jaded by anything but humorous or outrageous reports, and public interest at last saturated with UFO stories begins to chill this hothouse climate. The emotional motor runs down and checks the progress of the wave. Loss of interest brings less observation and unwillingness to report, pulling the impression of UFO activity down again to its usual levels.

Both skeptics and the psychosocial school of ufological thought (see *UFOs in the 1980s*, pp. 172-85) borrow

elements of social causation to explain waves. One specific hypothesis relates them to periods of economic stress (Vieroudy, 1976; Boueyre and Vieroudy, 1977); a broader hypothesis links waves to national shame such as Sputnik, the Vietnam War, or Watergate provoked (Kottmeyer, 1991). A looser approach traces apparitions in the sky to times of diffuse anxiety and helpless frustration, when no structured social outlet is available (Billig, 1982), or to periods filled with any sort of political and social crisis. For example, the 1957 wave sprang out of a time wracked by school integration as well as Sputnik, the 1960s wave out of the distrustful, bitter climate of the era (Peebles, 1994). Pressing immediate fears may spark a wave, such as belief that Germans used Zeppelins to spy on Britain in 1913 or airplanes for the same purpose in South Africa at the outbreak of World War I, or the Soviets tested rockets over Scandinavia in 1946 (Watson, Oldroyd, and Clarke, 1987b; Bartholomew, 1989, 1993). Skeptics favor publicity as the significant trigger for a wave, either the effect of noteworthy cases like the Arnold sighting or the **Pascagoula abduction case**, or media attention such as Donald Keyhoe's writings in 1950, *Life* magazine's articles in 1952, and extensive favorable attention in newspapers, magazines, and books throughout the mid-1960s (Menzel and Boyd, 1963; Peebles, *op. cit.*).

The general notion of social causes sounds appealing enough, but the specifics run into as much trouble as wave cycles. Economic anxiety leads to serious problems of definition and the opportunity to find some economic indicator in decline whenever a wave occurs. Critics of economic correlates exposed the alleged statistical and temporal relationships as too weak to build a case (Poher, 1976; Greslou, 1980). Ideas of national shame or crises shroud the issue with a seductive vagueness. How often is the nation free of crisis, and where are the waves these crises ought to produce? How do we recognize national shame, and how soon does its causal role commence? Publicity, of course, is part and parcel of all classic waves—but is this publicity a cause or an effect? The search for social causes in UFO waves has seldom dipped below the surface and contended with the complexities of the phenomenon.

What emerges without doubt from even a superficial examination of waves is how favorably they compare

with sociological theory. Smelser's scheme is not the only theory of collective behavior, but familiar and well-respected—and sufficient to demonstrate that UFO waves are fully comparable with other panics and crazes. Whether UFOs create waves or not, the waves unfold as social phenomena. A similar pattern configures epidemics of sea-serpent reports in the nineteenth century, the 1933 "wave" of Loch Ness monster sightings, or visitations by the Mattoon gasser in 1944 (McEwan, 1978; Bauer, 1986; Johnson, 1945). In other words, content bears little on form. Human behavior during a UFO wave may differ little from human behavior during a stock-market panic or hula-hoop fad and depends on nothing unique to the UFO phenomenon. The question that remains is whether the UFO element in the waves is anything more than a side effect of social excitement. The role of the physical stimulus or supposed stimulus, the UFOs themselves, has yet to be examined. Do UFO reports increase because of social excitement, or does social excitement build around an increase in sightings?

Social, physical, or both? The six stages listed in Table 2 borrow their names from the parts of drama. UFO waves match those parts to a greater or lesser extent, but they always amount to an unsatisfactory play. All the action builds toward a climactic moment of truth that never comes, or collapses toward an end that brings no resolution. Questions are plentiful, answers scarce, enlightenment minimal. The show is exciting, but what did it all mean? UFOs confront their audience with a theater of the absurd, where understanding trails off into the distance along with the last stray reports. What substance, if any, underlies the sound and fury remains the greatest puzzle of all.

Gradual waves include all six stages and perhaps a low ratio of social to physical influences. Events develop considerable complexity before they become newsworthy, seemingly pursuing channels outside media propagation and nurture. When attention arrives, its consequences are unpredictable. In 1897 a week of intensive reporting in several Midwestern states followed the appearance of an airship over four large cities; yet activity died down in other states at the same time. The nationally headlined saucer invasion of Washington, D.C., in late July 1952 failed to pro-

voke any new outpouring of reports. In fact, the wave was subsiding, and publicity did nothing to reverse this trend. A dramatic increase in reports simply does not follow media attention as inevitably as day follows night. Gradual waves hold to the pattern of a slow rise, extended climax, and slow falling-off of reports with enough tenacity to suggest that social factors alone cannot explain the events.

Explosive waves operate on a tighter schedule and register more sensitively the influence of publicity. A quick rise, brief climax, and rapid fall in reports suggest that public excitement and media attention shape the apparent course of events. A major increase in reports often follows major publicity, further confirming the dependency of explosive waves on nonobservational factors. And yet the explosiveness may be more illusory than actual. The 1973 wave appears explosive when traced through its media history, the aftermath of attention to the Pascagoula abduction case; but a ufological history drawing on unpublicized or narrowly circulated sources shows an important difference. The 1973 wave had been underway for a long time and fulfilled the requirements for a gradual wave of exceptional proportions well before Pascagoula thrust UFOs into national attention. This wave also continued long after UFOs dropped out of the media spotlight. Reports from Levelland, Texas (see *Emergence*, pp. 228-29), launched the 1957 wave into the public eye, but the previous days and weeks led the way with abundant sightings. Genuine explosive waves exist, with 1896 and 1947 being the best examples, but this pattern seems rare. When all the facts are in, it is usually publicity that erupts rather than UFOs.

These two forms describe UFO waves as ufologists see them. Both forms mix social and physical aspects in uncertain proportions. Too many witnesses confirmed sightings over Washington in 1952 (see *Emergence*, pp. 396-403) to leave a reasonable doubt that an unusual observation underlies one report from a wave period, and the list could surely grow. Just as surely, physical and social parts are inseparable from the wave as a whole, and neither part can stand alone. Publicity, excitement, and expectations force an artificial shape onto the perceived image, submerging whatever physical reality there may be under a visible wave that rolls along with only a distorted and uncer-

tain resemblance to that hidden reality. Only waves of reports are certain. What proportion of those reports stems from genuine observations is less certain; what proportion of the observations derives from truly unusual objects is more uncertain still. If a magical methodology could clear away invalid reports, would waves remain intact in shape and reduced only in dimensions, or would a mere scattering of anomalous sightings remain and the wave dissipate into a mirage of social excitement? Good reasons exist to suspect that waves of reports mean waves of sightings, and quality of sightings as well as quantity also accompany waves. Even so, a morass of confusion makes those suspicions hard to justify.

High on any list of important but unwelcome social contributions to waves is human error, or the IFO—identified flying object—problem. A meaningful study requires a large sample of reports. Early studies rested on the tenuous support of small and geographically narrow data bases, but this basis enlarged greatly in the 1960s when such developments as UFOCAT solved the quantity problem. Data quality remained in trouble. Not even basic observation escapes the influence of expectation and error. Sincere, cautious, and qualified observers still mistake conventional sights for something unconventional, and these mistakes choke the data with up to 95% probable IFOs. They are capable of overwhelming any genuine wave signal with their own spurious patterns—for instance, many reports of Venus could leave the false impressions of a wave. Collection bias afflicts even the best samples, since ufologists can investigate only the reports they receive, while many others get away. Distribution favors the ufologist's locale and network of sources. The quality of the source, depth of investigation, and beliefs of investigators cloud the findings with further uncertainty (Hendry, *op. cit.*).

An accurate image of UFO activity depends on reports, but few witnesses risk that step. If only some 13% of UFO witnesses report their sightings, the resulting picture of activity during both normal and wave times consists of more gaps than substance. As testimony to the uncertainty of reporting behavior, several broadcast efforts to draw out witnesses failed; others met with a surprisingly large response. Allan Hendry (*ibid.*) proposed a reversal of the usual con-

ception of waves, asking if they would differ in appearance if UFO activity maintained a constant level and only the degree of reporting varied.

A wave in progress shakes up normal patterns of witness behavior by raising the incentive to report. With so many other witnesses going public and meeting favorable responses (at least for a while), fear of ridicule diminishes, and speaking up seems the proper thing to do. Not only is there safety in numbers, but so many sightings make the UFO problem seem all the more important. Witnesses can feel as if they contribute toward solving the mystery, or obey the urge to follow a fad. Waves in China during 1980 and the Soviet Union in 1989 gained impetus from liberalized treatment of speech and the press, making UFOs a pretext to celebrate newfound freedoms.

All this discussion of wave activity accepts media participation as an integral part of the phenomenon. This is not a judgment or conclusion, only an observation of an intimate association. Without doubt it is an important partnership. The media provide a channel of communication that spreads a UFO report over a wide area and shares a sense of excitement with an enormous audience. Collective behavior requires this channel, and the mass media serve the purpose at electronic speed.

On the negative side, this speed and excitement foster acceptance at the expense of judgment. More people watch the sky expecting to see a UFO, discover something they do not recognize, and take it as fulfillment of their expectations. More people feel emboldened to make public their observations, and IFOs wash in on the flood to win a hearing they would not enjoy during calmer, more critical times. The media aid and abet this confusion by circulating these low-quality reports as a way to prolong interest in the wave (Michel, *op. cit.*; Vallee and Vallee, *op. cit.*).

The voice of social control also speaks through the media, curbing the wave or publicity about it whether the wave has truly ended or not. Initial favorable treatment deteriorates later in favor of skeptical commentary. These comments may begin early, but increase in number and authority as the wave wears on. The longer people report strange objects but no one finds out what they are, the more credible these negative remarks become. Both the media and the

public suffer from a short attention span, limiting the time either of them treats UFOs as straight news. The media reach toward humor, ridicule, or the fantastic in a search for novelty. Coverage favors the more sensational stories as repetitions of ordinary reports grow stale, leading to promotion of the Flatwoods monster in 1952 (*Emergence*, pp. 144-46) or the Reinhold Schmidt contact in 1957 (*Emergence*, pp. 287-89). Some caution is in order here—landings and occupants appeared early as well as late during the 1954 French wave, electromagnetic-interference cases filled the first news accounts of the 1957 wave, and an abduction set off publicity in 1973. Fantastic reports may lead publicity as well as follow. Yet the general tendency of media treatment is to impose artificial contours on the wave and disguise underlying activities, whether behavioral or observational. The media perspective on a wave stands perhaps farthest of all from the truth.

So distorting can media influence be that two French investigators, Gerard Barthel and Jacques Brucker, dismissed the 1954 wave as a modern-day "Great Fear"—*la grande peur martienne*. They sought out the witnesses during the 1970s and concluded the wave was a fabric of misidentifications and hoaxes, sustained by a sensation-mongering press. The remainder left after removing hoaxes and poor observation or reporting also lay under a reasonable shadow of doubt (Barthel and Brucker, 1979). These authors dismissed the 1954 wave as a purely social phenomenon.

Are great waves mere illusions? A favorable case could be argued for one sense of this claim. Local and minor waves are common, but only a small notice in a local newspaper may ever reach print, and whole small waves may come and go unheralded (Keel, 1969). If media attention suddenly unified these isolated waves and promoted widespread reporting of UFOs, the result would be an apparent large-scale wave, legitimate in the sense that it derived from UFO activity, but due only to exceptional attention rather than to exceptional activity. Periods of dearth in wave activity may trace in part to lack of this attention. In the 1920s UFOs meant phantom airplanes, but airplanes had become too commonplace to inspire widespread amazement. UFOs from outer space may have become too familiar since 1973 to retain their former numinous charge, and once again

a sense of wonderment fatigue dulls the interest of both public and media.

Some evidence for genuine observations nevertheless peeps around the social corners of waves. Barthel and Brucker were satisfied that they explained a report if they found a neighbor who laughed at it, or learned that a witness drank a lot and died of cirrhosis two years after his sighting. They discredited the Marius Dewilde humanoid encounter without finding a serious flaw in the case. Their efforts to discredit both the French and Italian phases of the wave revealed a readiness to target the more trivial cases and to select the evidence easiest to refute in a given case while ignoring the more difficult points (Sanj, 1989; Pinotti, *op. cit.*). In short, Barthel and Brucker rediscovered that IFOs make up most reports, and newspaper accounts often omit basic facts or perpetuate inconsistencies. They also demonstrated, without acknowledging it, that many sound cases remain sound across the years.

Some newspaper reports from 1896-1897 were clearly hoaxes and humorous entertainment of a sort not only tolerated but enjoyed during that era. The newspaper correspondent from one town played a joke on a neighboring town by accusing its citizens of seeing an airship, and "nature fakes" or tall tales were a newspaper tradition. At the same time, many people really saw something. The circumstantial descriptions and care against exaggeration that characterize many reports leave a positive impression of honest people struggling to express a puzzling observation. The proof that they saw something lies in an understanding of what they saw. A bright "headlight" that slowly sinks in the west is readily recognizable as Venus, while more elaborate descriptions result from fire balloons or kites with a lantern attached to the tail—an identity proven by perpetrators' confessions or a farmer's discovery of a burned-out balloon in his field the next day.

All reports from the 1896-1897 wave seem to originate in misidentifications or hoaxes, with nothing unconventional left over. (Other students of the airship period, such as Jerome Clark, disagree with this conclusion.) This finding may seem like cold comfort for the claim that waves include some genuine observations. The important lesson is that reports are not

necessarily wild distortions. If the witnesses of 1897 failed at interpretation, they succeeded as observers and reporters. The ready recognition of the IFOs behind those reports underscores the need for some physical stimulus to support a wave, and how closely witness descriptions reflect the observational characteristics of that stimulus.

This same point applies to the Hudson Valley and Belgian waves. Both are especially rich in photographic evidence, including videotapes, to confirm that something strange was flying about and people once again gave creditable accounts. What they saw remains uncertain. The possibility of ultralight aircraft in the Hudson Valley and military planes in Belgium casts a shadow over understanding but reaffirms the unlikelihood that UFO waves spring out of nothing.

The question of whether more reports mean more sightings also deserves an affirmative answer. Skeptics say publicity and excitement tell the whole story, but three considerations point up limitations in this absolute social solution to waves. A look at the map of 1973 reports shows them sweeping from the Gulf Coast toward the Northeast. National publicity ought to generate nationwide excitement, but reporting traveled its own route irrespective of excitement and expectations.

A second concern is the narrow point of view that isolates U.S. waves from worldwide activity. A global perspective on 1957 shows South American activity winding down just as the wave became news in America, while in 1973 Australian and European waves preceded the U.S. phase. No news of these overseas waves called domestic attention to UFOs; no U.S. influence prompted the citizens of other countries to see UFOs. To all appearances each wave arose separately, inspired across thousands of miles by some unknown factor.

The third point also requires an enlarged perspective. Ufologists with their ears closer to the ground of UFO activity pick up an impression that differs considerably from the media version. As Deputy Director of the National Investigations Committee on Aerial Phenomena (NICAP) during the 1960s, Richard Hall received reports through a nationwide network of field investigators. These reports confirmed that waves

built up well before publicity began and often continued once the media lost interest (Hall, 1988). His experience reaffirms the independent existence of waves. The media overlay alters the shape and certainly the perception of wave activity but cannot change the fact that some other force shapes the wave behind the scenes of publicity.

Even if waves mean more sightings, do those sightings stem from unconventional objects? This of course is the key question. An unknown factor stimulating waves need not be spaceships, as the 1896-1897 example may warn. Collective behavior is complex and follows its own patterns irrespective of content, enabling a wave valid in all appearances to run its course with or without genuine UFOs. Yet UFO waves lead a life of their own over and above their social commitments. Waves start and grow and spread without slavish subservience to the media or publicity, cropping up from place to place without obvious social cause but from an often-heard refrain—people saw something strange. Excitement resulted from the sighting, but the witnesses saw something to get excited about.

Any case for genuine UFOs behind the waves depends first and foremost on the quality of individual cases. In this sense the problem of waves is simply the problem of all ufology writ large. The wave situation seems to bring out the best in high-strangeness reports, though even validation of this trend would not prove genuine UFOs. One counterargument might propose that while human observation is generally reliable, some witnesses are prone to wild distortions. This is a known effect in UFO reports and sometimes converts prosaic objects into spectacular pseudo-UFOs. Waves might enhance this tendency or collect this gaudy rubbish together in the same heap, so the leftovers after accounting for all IFOs would appear like a sizable body of unconventional reports, impressive but deceptive.

In fact the best unconventional reports hold up for the reasons that wild delusions do not: good reports offer more evidence than excited testimony and receive a close investigation that proves them remarkable. It is on the strength of such cases as the Marius Dewilde confrontation, the Levelland and Exeter sightings, or the Ohio police chase and Coyne heli-

copter encounter that the argument for a genuine UFO phenomenon must rest. For their sake as well the theatrical spectacle of waves is more than much ado about nothing.

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One of ufology's most respected investigators, Walter N. Webb, born in 1934, graduated in 1956 with honors from Mount Union College, Alliance, Ohio, with a B.S. in biology. Nonetheless he would spend all of his professional life in astronomy, first serving under J. Allen Hynek at the Smithsonian Astrophysical Observatory (SAO). He worked as a camera operator at the SAO's Maui, Hawaii, Satellite Tracking Station between 1957 and 1958. Webb spent the next 32 years of his working life at the Charles Hayden Planetarium, at Boston's Museum of Science, as senior lecturer, assistant director, and operations manager. Beginning in 1995, he served as full-time consultant and field investigator for a coalition of the three major ufology organizations (Fund for UFO Research, J. Allen Hynek Center for UFO Studies, and the Mutual UFO Network) in the United States.

As a scientific advisor to the National Investigations Committee on Aerial Phenomena (NICAP), Webb investigated the classic **Hill abduction case** (Fuller, 1966; Webb, 1965). He has also probed numerous other interesting UFO cases, including the **Conklin CE3** and the **Newark Valley CE3**. He is the author of *Encounter at Buff Ledge* (1994) and brother of Dave Webb, another respected scientifically oriented ufologist. He contributes a monthly astronomy column, "The Night Sky," to the *MUFON UFO Journal*.

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