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ANALYSIS OF UFO-LIKE DATA BEFORE 1947

PART

Investigator: Louis Winkler
Louis Winkler, Ph.D.

Address: Department of Astronomy
The Pennsylvania State University
University Park, PA 16802

Telephones: 814-863-0733 (W)
814-238-3628 (H)

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ABSTRACT

A catalog of several hundred descriptions of ufo-like phenomena occurring before 1947 has been constructed. Entry headings include time and place of occurrence, classification, and sources for the data. One portion of the catalog consists of chronological data from varied sources, while another portion consists of data grouped by ufologists. The luminous atmospheric phenomenon class and Martian accounts allow some definitive conclusions which appear under separate cover as PART II of this report.

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1. INTRODUCTION

1.1 Data Sources

The earliest collections of unusual phenomena are found in the scientific journals of the 18th and 19th centuries within listings of auroras, fireballs, meteors, and earthquakes. These early periodicals include the Philosophical Transactions of the Royal Society of London, American Journal of Science, and Report of the British Association for the Advancement of Science, and contain much of the best data used in analysis here.

As scientists became more specialized, collections of unusual phenomena tended to disappear from the journals and the minds of nearly everyone, only to be resurrected by the pioneer of systematic collection of unusual phenomena, Charles Fort. His works first appeared in four publications over the years 1919 to 1932 and then were collected in 1941. It wasn't until after World War II that others collected ufo-like accounts, and the first ufo organizations were formed. Among the early data the most pertinent here are the collections of NICAP, formed in 1956, and individuals Wilkins and Jessup.

During the wave of appearances of publications in the late 1960s the authors whose works were employed most were those of Vallee, David, Michell, Lore and Deneault, and Hervey. Works by these authors were followed by the more specialized studies of Sanderson, Drake, and Gross. The most useful periodicals proved to be Fate, Flying Saucer Review, and UFO Register. Of considerable value also were the unpublished, privately communicated, collections of Neeley and Bullard.

Most sources employed were examined at the libraries of The Pennsylvania State University, Library of Congress, and New York Public Library. Publications and microforms from many other institutions across the nation were also made available through the Interlibrary Division of The Pennsylvania State University. Reference librarians at the various institutions were also of enormous help over the years.

1.2 Catalog Format

The main body of the catalog, section 2, is a chronological listing of entries which as yet has not been specifically grouped by ufologists according to their characteristics. A second part of the catalog, section 3, consists of five relatively organized groups of subjects; namely, Vulcan, Mars, airships, foo fighters, and ghost rockets. Each catalog entry is headed by a line which includes: year, date, hour/classification of data/geographic location/abbreviated source.

Year, date, hour: calendar notations before 1752 are presumed to be Julian. Hour designations are given as numbers between 0:00 and 12:00 for a.m. times, and 12:00 and 24:00 for p.m. times.

Classification of data: the vast majority of entries are classified as "luminous atmospheric phenomena" (laps) to reflect their apparent nature. When reports include structured features, such as windows or propulsion systems, it is classified as an "unidentified flying object" (ufo). At times there are accounts of humanoids, apparently of extra-terrestrial origin, and they are given the classification "alien."

Since there is a great variety of data represented in the catalog a number of other classes have been employed. Often in the earliest entries, beings are reported in the sky without providing enough data to determine whether it was a mirage, cloud formation, or the actual aliens in the sky.

So, these are, unfortunately, ambiguously classified as "animated atmospheric phenomena" (aap). When objects or materials fall from the sky, often in connection with laps, they are also reported as a "strange fall." In a number of instances technologies are exhibited for the time period which apparently were or still are today, unexplainable and are referred to as "technology." Some miscellaneous categories are disappearances of people or very large objects, and events so different they are simply called "strange events."

In a number of instances the reports appear to be laps except that their origin is apparently below the surface of the earth. For these relatively few cases they have the special category of "unidentified sea phenomena" (usp) when they are thought to emerge from the water, and "unidentified geological phenomena" (ugp) when apparently issuing from the earth. These last two categories, of course, relate to the "hollow earth" theories of ufologists.] ?

Geographic location: this is often designated with a town or city and state in the U.S., or a town or city of a foreign country. Further details are often available from the sources.

Abbreviated sources: Authors' names are spelled out while periodicals are designated with initials. Expanded versions of the sources are found at the end of each of the two parts of the catalog. When the primary source is obscure or unknown, more readily available secondary sources are listed. While page numbers are not specified, the catalog information can always be located in the source with the index or chronological arrangement in the source.

1.3 Nature of Accounts

The accounts considered for inclusion were only those which are relatively complete for their era or especially interesting, and include a wide variety of subjects. Entries were selected from a pool of several thousand accounts and limited to less than a thousand in number for analysis. Accounts are presented in the spirit with which they are reported, often paraphrasing the reporter. The accounts which have been omitted most often are those which vaguely refer to unusual lights or forms in the sky, often in the vicinity of the direction of the moon, sun, or planet Venus.

In general it is difficult to establish the reliability of the people making the reports because little is known of them. However, many of the accounts are based on the observations of more than one person or on people who are trained to make observations, such as astronomers and crews of ships or planes. Fortunately an important part of the analysis turns out to be simply the date of the account removing the key objection often made by scientists, that ufo-like reports are anecdotal in foundation. Also, there are a sufficiently large number of accounts found in the scientific journals to allow some important conclusions to be drawn.

Winkler's analysis

Abbreviations adopted for quantitative designations among the accounts include:

- | | | |
|--------------|----------------|-------------------------|
| d. - days | k. - kilo | m.p.h. - miles per hour |
| ft. - feet | lb. - pounds | mts. - mountains |
| hr. - hours | m. - meters | R. - river |
| in. - inches | mi. - miles | yd. - yards |
| | min. - minutes | yr. - years |

An interpretation of many catalog entries does not fit into the general analyses of PART II, so annotations are made within the catalog entry itself. Other annotations involve certain entries which are similar to others, but differ in date or place of occurrence and do not seem to be resolvable.

2. CHRONOLOGICAL DATA

The largest and most important group of data is the laps which constitute the majority of the entries. They were first observed systematically by astronomers, and most often called "slow meteors" by the English, and "bradytes" by the French. The laps were noteworthy in the early scientific era for the same reasons that they are noteworthy now. Their behaviour was very unusual compared to ordinary meteors, whose dynamics and luminosity are governed by the gravity and atmosphere of earth. Their speed could be great or small and they could at times hover or even retrace their flight path. These objects could change speed or direction, gradually or with great abruptness. They would frequently change brightness and color, sometimes flash periodically or explode one or more times outside the one that could terminate their existence. The trail of these objects were at times described as serpentine, zig-zag, or contorted and could appear without the main meteor being noticed.

Selecting these objects for inclusion here required that meteorological phenomena be screened out. Those phenomena considered were ball lightning, occurring during thunder storms, St. Elmo's fire, occurring at the tip of objects, and Will-o'-the-Wisp, occurring in low level diffuse patches. Each account was also evaluated for possible misidentification with a bright planet or star. Comparisons with astronomical ephemerises or catalogs was seldom possible because of the unavailability of precise information on zenith, elevation, and time. In a number of cases, however, identifications were made with specific comets or annual meteor showers.

2.1 Before Christ to 1947

5,000,000 B.C./alien, technology/Lake Titicaca, South America/Goran

A female with a conical head, huge ears, and four webbed fingers per hand, landed in a spaceship.

30,000 B.C. to 10,000 B.C./ufos/France, Spain/Michel

Paleolithic cave paintings suggest ufos.

10,000 B.C./aliens, ufo/Maldives, Indian O./Goran

Baavians of Proxima Centauri left Mars 12,000 yr. ago and established a base.

10,000 B.C./aliens, ufo/Baian Kara Ula, Sino-Tibet/von Daniken (1973)

Stone plates with spiral grooves give an account of aliens landing and unable to take off again.

3,000 B.C./technology/Egypt, Syria/von Daniken (1970)

Megaliths exist, such as Cheop's pyramid near the Nile and the great terrace near Baalbek. (Modern cranes can not move the Baalbek stone slabs.)?

2258 B.C. to 2208 B.C./ufo/China/Hervey (1969)

An emperor employed an aerial machine and parachuted from it.

1800 B.C./ufo/China/Hervey (1969)

A flying chariot made several flights.

1515 B.C. to 1461 B.C./lap/Egypt/Hervey (1969)

Shining objects, brighter than the sun, flew south and left a foul odor. Diam. 172 ft.

- 1,000 B.C./ufos/India/David (1970), Sanderson (1970)
Sanskrit writings describe a variety of flying machines. One had a long distance capability and a mercury engine with an iron heating apparatus beneath that set a driving whirlwind into motion. There was also a missile that discharged smokeless fire, left a wake of scorching heat, spun, radiated light that was operated by a circular reflecting device. Also, discs descended vertically, hovered and had great agility with a range of thousands mi.
- 852 B.C./ufo/London, England/Michell (1967)
A Druid airship crashed into the temple of Apollo and King Bladud was killed.
- 500 B.C./ufo/Jessup (1956)
Hindu writings describe a two story flying machine with many chambers and windows, that moved with a melodious sound.
- 1st millenium B.C./ufos, lap, technology/mid East/Blumrich, Downing, Jessup (1956)
Old Testament accounts. Ezekiel 1:4-5. Ezekiel was lifted up and taken away, and he had an encounter with a whirlwind, fire, and strange creatures. Exodus 13:21-22, 14:24. People were guided by a ufo and references are made to a pillar of cloud and fire. Zechariah 5:1-2. Reference is made to a flying roll, 20 x 10 cubits in size.

 The following four entries are those with the greatest uncertainty in reported date and have been placed here arbitrarily since they seemed very old from the available data.

- /ufos, technology/Tibet/David (1970)
Religious participants used ufos between the planets.
- /aliens/Honshu Is., Japan/von Daniken (1973)
Dogu figurines are like space suited astronauts.
- /alien/Uzbekistan, Sino-Soviet border/von Daniken (1973)
A cave wall depiction is of a space suited figure from another planet.
- /alien, technology/Amazon, Brazil/von Daniken (1973)
The Kayapos straw suit ceremony commemorates the visit of Bep Korotroti from space. He wore a gleaming suit and had an unusual weapon and powers.
- 480 B.C./lap or aap/Greece/Drake (1976)
A great light accompanied by tumultuous sounds, moved out to sea. Some saw apparitions of armed men with outstretched hands.
- 468 or 467 B.C./lap/---/Drake (1976)
An immense fiery body moved erratically in the heavens for 75 d., then crashed in flames.
- 400 B.C./lap/---/Pereira
A flying wheel was seen, 6.5m. in diam.

- 332 B.C./technology, lap/Troy, Asia Minor/Drake (1976)
Arrows and projectiles were intercepted in the air. Lightning from the largest shield in a formation of five struck a 50 ft. high fortress and crumbled it.
- 218 B.C./ufos, aap/Italy/Drake (1976)
Phantom ships were seen in the sky. Apparitions of men in shiny raiment appeared in the distance.
- 216 B.C./lap/Italy/Wilkins (1955)
Figures like ships were seen in a sky of fire.
- 214 B.C./aliens/Hadria, Italy/Drake (1976)
An altar with men in white garments about it was seen in the sky.
- 213 B.C./aap/Italy/Drake (1976)
Nonexistent warships were seen on a river. (?)
- 170 B.C./aap/Lanupium, Italy/Wilkins (1954)
A fleet of ships outside a city was seen in the sky.
- 154 B.C./technology/Italy/Drake (1976)
Weapons were seen flying through the air.
- 129 B.C./lap/Italy/Wilkins (1954)
Fire from the sky reached down to a ship's sail, capsized the vessel and burned all aboard.
- 106 B.C./strange event/Rome, Italy/Wilkins (1954)
A flying bird set houses on fire. (Similar to the 1194 entry)
- 106 B.C./lap/---/Drake (1976)
An uproar was heard in the sky, javelins fell and there was a rain of blood.
- 103 B.C./aap, lap/Italy/Drake (1976)
Flaming spears and shields were seen in the heavens which assumed formations of men in battle, some giving way. Eventually they moved westward.
- 100 B.C. or 99 B.C.; dusk/lap/Tarquina, Italy/Wilkins (1954)
A burning shield scattered sparks and crossed the sky, going eastward.
- 93 B.C.; dawn/lap/Italy/Drake (1976)
Flames were seen where the sky divided.
- 90 B.C./lap/Spoleta, Italy/Wilkins (1954)
A golden globe of fire fell, gyrated, ascended and obscured the sun.
- 88 B.C./lap/Italy/Drake (1976)
A great star plunged from heaven and attacked a siege engine with a thunderbolt.

- 82 B.C./strange event/Italy/Drake
 Sounds of armies in combat were heard, but none were nearby. Fresh horse tracks and trampled grass were found days later.
- 66 B.C./lap/---/Drake (1976)
 A spark from a star fell, increased in size to that of the moon, diffused into cloudy daylight and returned to the sky turning into a torch.
- 58 B.C./lap, strange fall/Rome, Italy/Wilkins (1954)
 Lights were seen in the sky and strange noises were heard. There was a rain of flesh.
- 12 B.C./lap/Rome, Italy/Wilkins (1954)
 A comet hovered several days and split into flashes resembling torches. (Apparently Halley's comet undergoing brightness variations.)
- 9 A.D./ugp or lap/Rome, Italy/Drake (1976)
 The peaks of the Alps seemed to collapse on one another, and sent up three columns of fire. The sky blazed, numerous comets appeared and spears darted from the north. (An aurora included?)
- 14/lap/Italy/Drake (1976)
 During a solar eclipse the sky was afire, glowing embers fell and blood-red comets appeared.
- 60/aap/Scotland/Vallee (1965)
 Ships speeded across the sky many times.
- 98/lap/Campania, Italy/Wilkins (1954)
 A burning shield sparked as it passed and a torch fell.
- 268-312/lap, strange fall/Palmyra, Greece/Drake (1976)
 Two rotating spheres were close enough to criss-cross flashes. One sphere passed over the city with lightning speed causing the temperature to rise and palm trees to wither. Eventually one globe transformed into a cloud, stones fell from it and it sank to the ground. The other globe disappeared high in the sky.
- 393; midnight/lap/Italy/Wilkins (1954)
 Smaller globes swarmed about a larger one and blended together to form a two-edged sword. It burned for 40 d.
- 398/lap/Byzantium, Turkey/Hervey (1969)
 A fiery sword flew over.
- 436-523/lap/---/Clark-Coleman
 A pillar of fire settled on the head of St. Brigit, restoring sight to a blind eye.
- 457/lap/Brittany, France/Wilkins (1954)
 A large blazing object like a dragon was seen with two beams issuing from its mouth.

- 588/lap/France/Wilkins (1954)
Luminous rays or serpents appeared in the north, some falling from clouds. Some said a village perished as a result.
- 6th century/lap/---/FSM (1968 n. 61)
Fireballs from the heavens burned a castle, killing all.
- 637/lap/---/Drake (1974)
A great star floated westward, making noise like thunder.
- 680/alien, ufo/Palenque, Mexico/Stemman
Relief on a sarcophagus suggests an astronaut in a supine position operating spaceship controls.
- 684, 11th month, 21st day; dusk/lap/Japan/Drake (1974)
Seven stars drifted together to the northeast, then sank below the horizon.
- 700s/lap/---/Clark-Coleman
A pillar of fire led searchers to St. Gregory who fled into the mountains.
- 713/aap/Northumbria, Britain/Michell (1967)
Flying dragons were seen.
- 748/aap/---/Wilkins (1954)
Manned ships were seen in air.
- 774; sunset/lap/England/Wilkins (1954)
Red rays and horrid serpents were seen in the sky.
- 776/lap/England/Drake (1976)
Two large, reddish shields appeared above a church causing people to flee in panic.
- 840/ufo/Lyon, France/Vallee (1965)
Three men and a woman were accused of traveling to and from Magonia in a cloud ship. A mob tried to lynch the foursome. (Magonia is an unknown place.)
- 842 Mar/aap/Jerusalem/Vallee (1965)
Multicolored armies were seen marching in the sky.
- 919/lap/Hungary/Hobana-Weverbergh
A flaming torch with spheres gave off more light than the stars.
- 927/aap/Verdun, France/Vallee (1965)
Fiery armies were seen in the sky.
- 966 Jul 29 or 30/lap/---/Vallee (1965)
Luminous vertical cylinders were seen at sea.
- 1,000/technology/Columbia and Ecuador/Sanderson (1970)
Tiny models exist looking like modern delta wing fighters. (Aerodynamicists indicate that the vertical tail is not found in birds or insects and the wings droop at the ends as if designed for steep climbing. But, the wings should be more forward if the propulsion is in the tail, and the nose is unairplanish.)

- 1015 Aug 23/lap/---/AA (1977 v.3, n.3)
Two bright objects exchanged fire. At 10 widths separation they released tiny star like objects. They flew away at tremendous speed leaving the sky clouded with thick smoke.
- 1034/lap/Germany/Vallee (1965)
A drawing exists of a cigar-shaped object in a blue sky surrounded by flames. A strange sphere of fire was also seen changing its direction of motion.
- 1061/lap/Peking, China/US newspapers Sep 24, 1981
A pearl in the sky projected a shadow. It was witnessed by 200 people.
- 1067/lap/Northumberland, England/Bray
A fierce fire in the sky came near earth, illuminated and burned woods and plains. It descended into the sea and was seen for 2 seasons.
- 1104/lap/---/Jessup (1955)
Burning torches, fiery darts, and flying fires took light from the sun as if they were clouds.
- 1133 Aug 12/lap/Japan/Vallee (1965)
A large silvery disc was seen near the ground.
- 1161/ufos/Galway, Ireland/Michell-Rickard
Fantastic ships in the sky sailed against the wind.
- 1180 Oct 27; midnight/lap/Kii Province, Japan/Vallee (1969)
A luminous object like an earthenware vessel changed its direction of motion and left a luminous trail.
- 1186 Aug 9; 14:00-24:00/aap, strange event/Dunstable, England/Wilkins (1954)
Christ appeared on a very large cross in the sky. Blood flowed from his impaled wrists but not to the ground.
- 1194/strange event/France/Wilkins (1954)
Huge ravens carried coals in their bills and set houses afire. (Similar to 106 B.C. entry.)
- 1218 May/aap, strange event/Germany and Holland/Wilkins (1954)
Three white crosses were seen in the sky, one with Christ crucified on it.
- 1227/aap, strange event/Germany/FSM (1968 n. 61)
All saw a crucifixion in the sky.
- 1235 Sep 24/lap/Japan/Vallee (1969)
Mysterious lights swung, circled and looped.
- 1239 Jul 24/lap/England/Wilkins (1954)
A great light was seen around a star-like torch. It left behind smoke and sparks.
- 1250 or 1290 Oct/lap/Byland Abbey, England/Condon, Green-Smith, Vallee (1965)
Strange noises were heard and a large silver plate was seen. (Admitted to being a hoax.)

- 1254 Jan 1; midnight/aap/St. Albans' Abbey, France/Michell (1967)
A large elegantly shaped ship passed overhead. It was marvelously colored and well equipped.
- 1258/lap/Scotland/Wilkins (1954)
A flaming globe reduced 2 villas to ashes.
- 1322 Nov 4; 19:00/lap/Uxbridge, England/Bray
A pillar of fire, the size of a small boat, rose slowly and crossed the sky. Red flames with beams of light extended from the pillar and sounds of combat were heard. Eventually the pillar crashed.
- 1332-1414/lap/---/Clark-Coleman
A woman was encompassed by a globe of fire after praying for fire.
- 1387 Nov and Dec/lap/Leicester, England/Seagraves
A burning, revolving wheel and a fiery beam were seen.
- 1458 Mar 14/lap/Japan/Vallee (1969)
Five stars circled the moon, changed color 3 times and vanished.
- 1461 Nov 1/lap/Arras, France/Vallee (1965), Wilkins (1955)
A ship flew while emitting fire and a long bar hovered for 15 min. The bar rose slowly in spirals, twisted and writhed like an uncoiled spring.
- 1478/lap/Switzerland/Wilkins (1954)
Crosses and fiery bowls fell to the ground.
- 1479/lap/Arabia/Wilkins (1954)
A comet-like, sharp beam was seen with scythe protrusions.
- 1490/lap/Ireland/David (1970)
A disc skimmed over a church several times, trailing exhaust. The bell was dislodged from its mooring and some cows were singed.
- 1492 Oct 11; 22:00/lap/Carribbean/Lore-Deneault
A gleaming light bobbed up and down for 4 hr.
- 1500/lap/Roumania/UFONS (1974 n. 67)
Saucer-shaped objects hovered at 100 ft. altitude.
- 16th century/technology, advanced terrestrial maps/world wide/Hapgood
1513 Piri Reis-Coastal details of the eastern Atlantic were shown. 1531 Oronteus Finceus-R. and mts. were detailed in Antarctica. 1559 Hadji Ahmed-Bering Straight, land-bridge was depicted.
- 1518/lap/near Yucatan, Mexico/Thomas
A star appeared atop the mast of a ship. It receded, giving off flames, stopped over a village, shot a beam to earth and remained for 3 hr.
(Possibly related to St. Elmo's fire.)
- 1520/lap/Erfurt, Germany/Thomas
A round shape with a rotating light or beam was accompanied by 2 fiery suns.

- 1537 Jan/lap/Franconia, France/Vallee (1969)
A star descended, appeared as a cloud producing a whirlwind and patches of fire. It fell to earth, melting spear heads and iron works.
- 1548/lap, strange fall/Thuringen, Germany/Kolosimo
A fireball exploded and dropped a substance like congealed blood.
- 1551 Jan 3/lap, strange fall/Lisbon, Portugal/Wilkins (1954)
Red rods and fearful fires were seen. It also rained blood.
- 1554 Mar 10/lap/France/Hervey (1969), Wilkins (1954)
A fiery lance turned toward the moon, flamed from all sides and emitted a terrible noise.
- 1557 Mar 3/lap/France/Condon
An oscillating flame entered a window, went to the corner of a room, then to a bed and burned the hair and nightie of a girl.
- 1557/lap/Vienna, Austria/Kolosimo
A strange flying machine was seen shedding light.
- 1557/lap/Poland/Kolosimo
Green and red suns were seen along with flying dragons and burning discs.
- 1558/lap/Italy/Lorenzen (1969)
A disc with red fireballs beneath, changed from yellow to red.
- 1561 Apr 14; 4:00-5:00/lap/Nurenburg, Germany/AA (v.3, n.3)
Red and blue globes, black plates, red crosses and tubes were seen. They fought among themselves and fell to the ground. A black spear appeared, too. The phenomenon was sketched.
- 1566 Aug 7/lap/Basel, Switzerland/Vallee (1965)
Balls and circular discs seen in the direction of the rising sun. Colors included red, blue, and black. After 1 hr. they fell to the ground as if on fire.
- 1593 Oct 25/teleportation/Mexico City/Michell (1967)
A Spanish soldier went from Manila on Oct 24 to Mexico City on Oct 25, a distance of 9,000 mi. The story was corroborated.
- 1606 May/lap/Kyoto, Japan/Vallee (1969)
A whirling ball of fire, like a red wheel hovered near a castle. Many saw it.
- 1623 Nov 17; sunset/lap/Germany and Austria/Wilkins (1954)
A burning globe was seen which made a crackling sound.
- 1628 or 1639 Mar; 20:00/lap/Muddy and Charles R., Mass./Bergier (1974), Lore-Deneault
An illuminated object darted, zoomed, and hovered. Diam. 9 ft. It was seen 2 to 3 hr. It pushed a scow against the tide for 20 min.
- 1644 Jan 18; 20:00/lap/Boston waterfront, Mass./Hervey (1976)
Two lights played tag as they rose from the horizon. They shot sparks

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and little flames. Some heard a dreadful voice repeat 20 times, "---
boy---boy---come away---come away---."

1644/lap/water/David (1970)

A formation of glowing objects blazed across the sky as they jumped about wildly. Eventually they resumed formation.

1646 May 21; afternoon/aap, lap/England/Hervey (1969)

Cambridge-Three men fought in the sky, one with a sword. A fireball fell and burned an acre of grain. Another fireball rolled around, went up and down, dissolved and produced a sulphur smell. Spires and swords were also seen. Norfolk-Lances descended and a fleet of ships with flags and streamers were seen. Thunder was heard. Suffolk-A pillar ascended, changed to a pyramid form and then a spire and descended as a lance. Duration 1 1/2 hr.

1646/aap/New Have, Conn./NYTr (Apr 29, 1897)

A ship under full sail was seen in the sky with a sailor steering it.

1648 Nov 16; 10:00/lap/St. Aubin, France/AA (v.3, n.3)

A light blue tear-drop shaped object as long as a hand, descended slowly and emitted sparks as it went out. Visible 7-8 min.

1661 Apr/lap/Essex, England/AA (v.3, n.3)

A green and white fiery light emitted flashing beams. It was seen traveling at great speed as it changed direction of motion. It excited some horses.

1663 Aug 15; mid day/lap/Rohozero, Russia/Hobana-Weverbergh

A great crash was heard from the heavens and a ball of fire appeared with 2 shining beams, diam. 45 m. It returned 1 hr. later above the lake where it disappeared. Men on the lake were burned. Water under the glow seemed to be covered with rust.

1668 Nov/lap/New England/Condon

A star was seen within the horns of the moon. (Perhaps a lunar volcanic eruption.)*

1676 Mar/lap/Italy/Stemman

A vast body larger than the moon appeared. It made hissing sounds and noises like a cart rolling over stones.

1686 Jul 9 or 19/lap/Leipzig, Germany/RBAAS (1860), AJS (v.26)

A fireball half the diam. of the moon with a tail, remained stationary for 7 min. It gradually vanished. Altitude 30 mi.

1689 Dec 20; 16:45/lap/---/Wilkins (1954)

A fiery object, like half a moon changed to a sword.

1693 Sep/lap/England/Lorenzen (1969)

An object appeared in the form of a "W" with a string of lights below. It was 1 1/2 yd. long.

1697/lap/Hamburg, Germany/Kolosimo

A very luminous, round machine with a sphere at its center was seen crossing the sky.

- 1704/lap/Devon, England/Leslie-Adamski
A formation of tadpoles in a "V" was seen with fins or streaming exhaust.
- 1707 Dec 18; 20:00/lap England/AW (v.6, n.4)
A low black cloud arced light over to a cylindrical object which was accompanied by 3 stars.
- 1708 Jul 31; 21:00-22:00/lap/England/Wilkins (1954)
A very bright light was seen traveling at an incredible speed, leaving white light behind.
- 1709 Feb 5/lap/Rumania/Hobana-Weverbaugh
Two large columns of fire joined to form an "A" and then turned into a rainbow. Visible for 3 hr.
- 1710 May 18; 21:45/lap/Yorkshire, England/Arnold-Palmer
A trumpet-shaped object moved southward with its broad end forward emitting enough light to cast shadows at night.
- 1718 Mar 19/lap/England/Trench
A pear-shaped light, brighter than the moon, moved slowly in a line. It left a blue-white and red-yellow trail.
- 1718/lap, strange fall/India/Leslie-Adamski
A lump of gelatine fell from a globe of fire.
- 1721 Jan 16 or 17/lap/Bern,-Switzerland/AW (v.6, n.3)
Three globes of fire issued from a pillar of fire that moved little by little. Also seen in Frankfort, Germany on Feb 6.
- 1725 Oct 22; 14:00/lap/at sea near Petapsko/RBAAS (1860)
Flashes were seen in the zenith for 5 min. as a meteor produced a series of detonations.
- 1732 Jun 3/lap/---/Wilkins (1954)
An infinity of lights like sky rockets or drops of metal on fire fell from all parts of the sky. Thunderclaps were heard, cattle were killed, and buildings destroyed. (An unusual time of year for a spectacular meteor shower.)
- 1733 Dec 8/lap/Dorset, England/Arnold-Palmer/ F (1951 v.4, n.3)
A flashing, burnished object fell with the speed of a falling star, but its body and trail were much larger than the meteor's.
- 1737 Dec 5/lap/England/Wilkins (1954)
A luminous body sent out streamers, moved slowly, and hovered. It produced much heat and exploded.
- 1737 Dec 26/lap/Kilkenny, Ireland/ASA (17-6948)
A globe of fire appeared for 1 hr. during a reddish, luminous haze and then exploded.
- 1738 Aug 29/lap/England/Wilkins (1954)
A glowing cone burst with an explosion forming a jet flame.

1740 Feb 23/lap/Toulon, England/RBAAS (1860)
A bright fireball fell, rose by degrees, descended, bounced and exploded.

1741 Dec 11/lap/London, England/Trench
A ball of fire, 8 in. diam., expanded to a 1 1/2 yd. by 80 yd. configuration. It moved about, formed 2 heads, trailed smoke, and assumed different colors.

1742 Dec 16; 20:40/lap/London, England/PTRSL (1743)
A cage of burning coals made a sinuous flight after ascending. Duration 20 sec. Sketch available in source.

1743/ufos/Holyhead, Wales/FSR (v. 16, n.3), Keel (1971)
A 90-ton sailing vessel was seen in the sky at about 1,500 ft. Altitude as birds flow about. A ship was also seen 10 to 20 yr. earlier.

1744 May 27; 23:11/lap/London, England/Arnold-Palmer
A sulphurous white light was emitted from the head and body of an object traveling northwestward. This phenomenon was also reported on Jul 14, 1745, in Norfolk.

1745 Jul 14/lap/Stanlake Broad, England/PTRSL (Ab. v. 10)
A stream of fire the color of molten glass shot down 20° and then retraced its path, turning into the smoke or an aurora.

1749 Sep 15/lap/England/Wilkins (1954)
A fiery water spout whirled and roared, took up water from a river, spilt and smashed rocks and trees while shooting arrows of light to the ground.

1749 Nov 4/lap/42°48', 9°3'/PTRSL (Ab. v. 10)
A blue ball of fire the size of a large millstone rolled on the surface of the sea, rose perpendicularly when within 40 to 50 yds. of a ship and exploded. The top of the main mast was shattered and nails from the mast were hurled into the deck. Five men were knocked down and one burned. There was a smell of brimstone and the ship was covered with sulphur.

1750-1820/laps/Gould, New Hampshire/Hervey (1976)
Glowing balls were seen day and night moving slowly across the sky, sometimes descending to follow people.

1751 Jan 1; noon/lap/Newry, Ireland/Arnold-Palmer/F (1951 v.4, n.3)
A rolling cloud with a glowing center, moved slowly as it made great noises smashing trees, unroofing houses, and killing a woman. The object was 6 yd. square and smelled like sulphur.

1752 Dec 6/lap/Angermannland, Sweden/Vallee (1965)
A sphere of fire emanated from a long tubular object.

1754 Mar 26; 22:00-23:00/aap/Midlands, England/Wilkins (1954)
Two human bodies in the sky rushed at each other and glared.

1755 Aug 15/lap/Amsterdam, Holland/Wilkins (1954)
A ball with a tail the diam. of the moon was seen 66 mi. high.

1756 Jan 2/lap/Turion, Italy/Wilkins (1954)
A blue object projecting streamers was seen for 18 min. and then exploded.

- 1756 Mar 10; 19:00-20:00/lap/Koln, Germany and Edinburgh, Scotland/Arnold-Palmer
A pencil of light with a tail toward the north remained for 1 hr. It first appeared at Avignone, France at 18:10.
- 1757/lap/Britain/David (1970)
An astronomer observed wildly maneuvering objects change color and move off at an impossible angle.
- 1758 Nov 26/lap/Breat Britain/PTRSL (v.51), RBAAS (1860)
A dazzling object made night into day, descended and rose again with renewed splendor. Its tail broke off, split into 3 parts, and emitted sparks. Its height was 95 mi. and speed 30 mph.
- 1759 Oct 10; 18:00/lap/England/Wilkins (1954)
A blue, tennis ball sized object descended with high speed and vanished.
- 1761; dusk/lap/France/RBAAS (v.74), HAS (1761)
A flame entered a broken window of a house and sat on the chink of a door. It was thought to be detached from a large meteor in passage.
- 1762 Aug 9/lap/---/Bray, David (1970)
Two astronomers saw an enormous spindle transit the sun. The object was surrounded by a glowing outer ring and traveled slower than a sunspot. It was seen until Sep 7.
- 1762 Dec 5; 20:50/lap/Devon, England/Arnold-Palmer
A twisting, dazzling serpent descended slowly from the sky, going out in degrees.
- 1765 Aug 14; 5:00/lap/Boston, Mass./BG CJ (Apr 19, 1765), Lore-Deneault
A black cloud in the shape of a human body hovered, thundered near the ground and wrecked buildings while emitting smoke and fire.
- 1767 Sep/lap/Cowper Angus, British Isles/Sanderson (1970), Wilkins (1954)
An object like a house on fire emerged from a thick dark smoke. It assumed a pyramid form, rolled forward, rushed up a river and disappeared. A man was thrown off his horse, a large cart was thrown about, and half of a house and half of a bridge arch were destroyed.
- 1769 Oct 24; 19:45/lap/Oxford, England/Arnold-Palmer, Wilkins (1954)
An object like a house on fire moved horizontally and vertically, emitting jets of gas. It rumbled and eventually exploded. It was seen for 1 hr. When seen over Ireland it had a red and blue tail.
- 1772 Aug 2/lap/Cheribou, Java/Smith (1976)
A cloud shot out a long flame making night into day. It was accompanied by a loud report. It set plantations and houses on fire, killing 2,000 people and 1,500 cows.
- 1775 May; 20:30/lap/Hertfordshire, England/Arnold-Palmer
A ball of light shined like the moon and moved slowly.
- 1779 Nov 21/lap/England/Keel (1970), PTRSL (v. 74)
A ball fo fire left a long corkscrew trail. Seen 1 hr.

- 1783 Aug 18; 21:00-22:00/lap/British Isles/PTRSL (1784), RBAAS (1860)
Auroral flashes were seen in the north, apparently from a blue and red object that was changing size, shape, and brightness. The object became very bright, acquired a long luminous tail, split into smaller bodies, left a streak of sparks, buzzed and rumbled. It was observed for 10 to 30 sec. covering 75° arc at a 65 mi. height. Sketches are available in the source.
- 1783 Aug 30/lap/Greenwich, England/PTRSL (1784)
Two spheres of fire were seen.
- 1783 Oct 4; 18:43/lap/Southwark, England/PTRSL (1784)
A red train of fire broadened and became very bright. It was seen 2 to 3 sec. over a 25° arc.
- 1785 Dec 26/lap/British Isles/PTRSL (1784)
A sphere of fire was seen over Scotland, Ireland, and England.
- 1794/lap, strange fall/Sienna, Italy/AW (v.6, n.3)
Rocks fell from a strange luminous cloud.
- 1796 Mar 8/lap/North Germany/RBAAS (1860)
An irregular fireball as large as the moon burst and ejected something.
- 1796 Oct 12/ufos/Bay of Fundy, Nova Scotia/Hervey (1976)
Fifteen ships were seen in the air. A man on board one ship extended his hand. Ports were seen on the sides of the ships.
- 1796/strange fall/Lusatia, Germany/AJS (v.26)
Viscous matter fell from a meteor.
- 1798 Sep 10; 22:40/lap/Northumberland, England/Wilkins (1954), F (v.4, n.3)
A brilliant object like an apothecary pestle split into half moons with streamers. Seen for 5 min.
- 1798 Oct 9/lap/Gottingen, Germany/RBAAS (1860)
A fireball with a serpentine tail was seen. (Probably related to 1946 Oct 9 entry.)
- 1800 Apr 5/lap/Baton Rouge, Louisiana/Wilkins (1954)
A yellow object the size of a house traveled northwestward. It generated heat, produced a violent rushing sound and burned and split trees with a tremendous crash. Seen for 15 min. at a 200 yd. altitude.
- 1803 Jul 4/lap/E. Norton, England/RBAAS (1860)
An electrical meteor struck a building with a detonation.
- 1808 May 16; 16:00/lap, strange fall/Sweden/Lore-Deneault, TRSES (1808 Jul-Sep)
Dark brown objects the size of a hat hovered, then broke up into several pieces forming a wheel. Eventually the objects separated as they gained speed, each forming a tail and some falling to earth. Some places reported a barely visible membrane or soapy jelly on the ground, too. Duration 2 hr.
- 1809 Aug 10/lap/London, England/Vallee (1965)
A flashing cloud traveled at great speed then hovered as specks of light danced and traipsed through.

- 1811 Jul/lap, strange fall/Heidelberg, Germany/Leslie-Adamski
A sticky lump fell after an enormous flying object exploded.
- 1812 Apr 26/lap, strange fall/Normandy, France/AW (v.6, n.3)
A brilliant fiery globe passed over and exploded violently. Reports and rumbling were heard as stones fell with a hissing sound.
- 1812 May 1/lap, strange fall/Barbados/AW(1977 U.G.N.4)
Numerous blasts were emitted from a brown cloud and a blue cloud. So much ash was discharged that tree limbs broke.
- 1814 Sep 5/lap, strange fall/Agen, France/AW(v.6, n.3)
A spherical cloud rumbled, moved slowly, hovered, suddenly speeded up, rotated, exploded, dropped stones, and faded. The cloud was a few ft. in diam.
- 1816/lap/Edinburgh, Scotland/David (1970)
A huge crescent aircraft was seen crossing the sky. (A shock wave?)
Flashing lights were also seen in Lisbon, Portugal and Tottenham, England.
- 1819 June 16/lap/Masulipatan, India/RBAAS (1855)
A fireball descended onto a bungalow roof, exploded and ignited the bungalow.
- 1820 Feb 12/lap/Emburn, France/David (1970), Pereira
Objects streaked in the sky and made 90° turns. Seen again on Apr 27 and Sep 7. On last appearance they moved in military precision while equally spaced along a line.
- 1820/lap, aliens/Manchester, New York/Hervey (1976)
A brilliant aerial object landed and 2 people got out to talk. (First report of the modern scientific era with aliens.)
- 1820/lap/Hopkinton, New Hampshire/Bergier (1974)
A man was followed for mi. by several glowing balls at a 50 ft. distance. At times they stopped with him. (Ground level foo fighter.)
- 1822 Mar 4; 22:00/lap/Canajohaire, N.Y./AJS (1823)
A flash of light was followed by the appearance of a meteor which began to extend itself northeast and southwest while decreasing in intensity. Duration 5 min.
- 1822 Nov 19; 2:00/lap/Valpariso, Chile/RBAAS (1860)
A fireball, 2/3 the diam. of the moon, left a train of fire, jerked about and burst.
- 1823 Aug 7/lap, strange fall/Nashville, Indiana or Nobleboro, Maine/AW (v.6, n.3),
Nininger
A stone fell from a white cloud that made a spiral descent before falling. Sounds of musketry were heard and there was a smell of sulphur. The stone weighed 5 lb. and the cloud was 40 ft. square.
- 1825 Jan 2/lap/Arezzo, Italy/EPJ (1825)
A conical meteor with a globe of fire at the flat end suddenly appeared at a height of 10 fathoms. As it moved near the ground it left a track of light. A great number of shooting stars were seen before and after the fireball.

- 1825 Aug 12; 3:30/lap/Pacific O./NICAP
A large red luminous object rose, illuminating everything, and fell out of sight. It then rose and fell again.
- 1825 Nov/lap/Newton, Ohio/AJS (v.26)
A portion of a meteor greater than the full moon separated, descended, struck earth, broke into a thousand pieces which rolled about breaking into even smaller pieces. The meteor eventually disappeared.
- 1826 Apr 1/lap/Saarbruck, Germany/AJS (v.26), Fort
An object rapidly approached earth and expanded like a sheet while rumbling. Diam. 3 1/2 ft.
- 1828 Oct; 21:00/lap/Jamestown, New York/MUJ (n. 140)
A bright light was seen in the swamps twice. Diam. 40 ft. (Probably ignited swamp gas.)
- 1830 Feb 15/lap/Birmingham, England/RBAAS (1860)
A fireball, the diam. of the moon traveled southwestward, appeared and disappeared 2 times, leaving a visible streak seen for a long time. Duration 2 hr.
- 1831 Oct 20; 3:00/lap/Hopsigheim, Germany/RBAAS (1860)
A fireball as large as the moon, traveled southwestward, emitted sparks and hissed.
- 1832 Nov 12 and 13/lap/USSR/RBAAS (1860)
Columns of white color rose and a horizontal form joined the columns to make an "H." (See 1833 Nov 13 entry.)
- 1832 Nov 14/lap/Tyrol, Germany/AJS (v.26), AR (1832)
A broad stream of light descended, ascended, stretched out into a train, formed a wavy line and gathered into a ball of bright light. It was stationary for 15 min. and was accompanied by falling stars. (See 1833 Nov 13 entry.)
- 1832/alien/Bavaria/Feuerbach, Michell (1967)
The extra ordinary mental and physical characteristics of Kaspar Hauser led Feuerbach to conclude Hauser was an inhabitant of some other planet, miraculously transferred to earth.
- 1833 Sep 17/lap/England, Ireland/RBAAS (1833)
Irregular nebulous masses and bodies of light traveled westward. Many meteors and a spectacular aurora accompanied the phenomena. At York an auroral cloud became curdly and luminous, then disappeared. Auroras were also seen at York on Sep 12 and 16. (Reference has pullout section on phenomenon.)
- 1833 Oct 12/lap/England/RBAAS (1833)
A dramatic aurora accompanied falling stars and luminous nebulous masses. Magnet needle variations were noted. (Reference has pullout section on phenomenon.)
- 1833 Nov 13/lap/northeast U.S./AJS (v. 26)
Innumerable and varied luminous phenomena were observed simultaneously with one of the most spectacular meteor showers ever recorded. Contemporary artists depicted the sky filled with streaks of light behind

- small fireballs apparently caused by meteoroid re-entry. However, contemporary scientific opinion indicated the most remarkable aspect of the events were the sudden local brightenings and elongated luminous clouds. While the meteor streaks radiated from the constellation of Leo the sudden brightenings would just form at a relatively low altitude. The elongated configurations would sometimes result after an explosion and then undulate like a serpent or coiled spring. Laps and meteors were also experienced on Nov 12, 1833, but to a lesser degree. Entries for Nov 12, 13, and 14, 1832, evidently were forerunners of this spectacular Leonid meteor shower.
- 1836/laps, strange events/Szeged, Hungary/Hobana-Weverbergh, Keel (1970)
Globular lights, poltergeist effects and apparitions were seen about a house.
- 1836 Jan 12/lap/Cherbourg, France/RBAAS (1860)
A fiery object, 2/3 the diam. of the moon, with a dark cavity in its nucleus, rotated, cracked, and whistled. It traveled at 1/2 mi./sec. at 1,000 ft. altitude.
- 1839/Feb 13; 15:30/lap/Little Piney, Missouri/Nininger
A bright blaze appeared at one end of a dark body which vibrated up and down and hovered 400 ft. over trees. A streak of light 100 yd. long followed the blaze. Eventually the body exploded and ejected a stone which was recovered.
- 1842 Feb 24/lap/England/PTRSL (1842)
An aurora below the clouds was followed by shooting stars.
- 1845 Jun 18; 21:30/usp, lap/Mediterranean Sea/AT (1848 n. 108), MMT (Aug 18, 1845),
RBAAS (1861), Sanderson (1970)
Three shiny objects rose from the water, 100 miles north of Malta, producing warm air and the smell of sulphur. At Mt. Lebanon 2 fiery objects, 5 times the size of the moon appeared and were connected by long streamers. They were visible for 1 hour and painful to look at. At Antalya, Turkey, a permanent flash of lightning, 50° long was seen for 2-3 min. Red, orange, and green colors were seen and a dull heavy report was heard.
- 1846 Oct 26/lap, strange fall/Lowell, Mass./David (1970), Leslie-Adamski,
Michell-Rickard
A flying disc dropped a 42 lb. lump of fetid-smelling jelly. Similar thing happened in Loweville, New York on Nov 11.
- 1846/lap/Inverness, Scotland/David (1970)
Two large objects hovered and then darted about at great speed.
- 1847 Feb 25/lap/Iowa/RBAAS (1877)
A 48 lb. meteorite fell and was accompanied by a detonation and flash of light.
- 1847 Dec 8/lap/Forest Hills, Arkansas/AJS (1848)
A swirling cloud produced a loud explosion and ejected a fireball straight down. A hot meteorite was found where it struck.
- 1848 Nov 17/lap/Europe/RBAAS (1848), CR (49-401)
A blue globe of light was seen during an aurora in England and France. Another one was seen in England traveling exactly along a beam of the aurora.

- late 1847 or early 1848/lap/Inverness, Scotland/LT (Sep 19, 1848), Lore-Deneault
 Venus and Mars seemed to be displaced 30° north of their actual positions for 20 min. (Unusual type of astronomical observation.)
- 1848/usp/Arabian Sea/Colby
 A ship was approached by 2 rolling wheels which exploded with a crash.
- 1849 Apr 4; 19:15/lap/Delhi, India/RBAAS (1850)
 An extremely slow object was seen dimming and brightening.
- 1849 Nov 13/lap, strange fall/between Tunis and Tripoli/RBAAS (1860)
 Stones fell from an object that varied in color and left a stream of fire. Detonations were heard for 15 min. after the burst. A bright cloud was visible for 1 1/2 hr. after.
- 1849 Aug/strange fall/Rosshire, England/RBAAS (1855)
 A huge mass of ice fell. (Possibly from one of the comets contributing to the Aug showers.)
- 1850 Feb 11/lap/England/RBAAS (1850), RBAAS (1860), PM (v. 36)
 A brilliant, undulating fireball of various colors moved along with jerks. After it burst, globes followed the luminous train. Duration 2 min. An engraving was made.
- 1850 Sep 15; 18:20/lap/Queen Elizabeth Is., Canada/Kane, Lore-Deneault
 A large sphere floated and undulated while smaller spheres appeared and receded with the wind.
- 1850 Sep 30/lap/Cambridge, England/RBAAS (1855)
 An object accompanied by a flash produced a serpent and a wave front.
- 1850 Oct 1; 21:30/lap/Durham, England/RBAAS (1851)
 Three meteors were seen emerging from an auroral arch.
- 1850 Dec/lap/Aberdeen, Scotland/Wilkins (1954)
 A small fiery, purple ball with a yellow tail made a right angle turn.
- 1851 Apr 27; 22:00/lap/Durham, England/RBAAS (1851)
 A blazing, yellow light gently fell to the ground and ran along the surface.
- 1851 Apr 30/lap/India/RBAAS (1855)
 A fireball exploded and then another one fell into the sea min. later.
- 1852 Feb 19/lap/Wyoming, New York/AJS (1852)
 Fireballs with trails were ejected off the corona of an auroral arch.
- 1852 Apr 20/lap/Oxford, England/RBAAS (1852)
 A meteor took an undulating course after being repulsed by an aurora.
- 1852 Jul 5/lap/Paris, France/Jessup (1955)
 A fireball crawled over a window sill, skimmed over the floor and climbed to face height. The witness fainted, regained consciousness and heard an explosion. The object burned paper over a stove pipe and shattered the chimney top. (Also reported as Oct 1898 Marseilles, France)

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- 1852 Aug 9; 22:34/lap/London, England/RBAAS (1853)
A second magnitude meteor moved on a serpentine path.
- 1852 Sep 25; 20:35/lap/St. Ives, England/RBAAS (1853)
A bright meteor shot a distance, increased in size, shot again another distance, again increased in size and broke into 3 pieces producing a sparkling light.
- 1852 Dec 17; 5:00/lap/Dover, England/PRS (1853)
An expanding hissing cloud with a red nucleus the apparent diam. of the moon and a tail 3° in length was seen flashing. As it started to descend it ejected matter and exploded.
- 1853 Aug 11/lap/Tillington, England/RBAAS (1856), Lore-Deneault
A crimson moon with stationary rays rose for 1 1/2 hr. It then dimmed to a small star. (Similar to 1859 Oct 12 entry.)
- 1853 Sep 25; 19:11/lap/England/RBAAS (1854)
An orange first magnitude object exhibited a zig-zag path and left a wavy train and sparks behind.
- 1855 Feb 7/strange event/south Devon, England/F (1952 Apr-May), Jessup (1955)
Tiny hoof prints appeared over an 11 mi. course which included buildings, walls and spans of water. Called the "Devil's Footprints."
- 1855 Feb 8/lap/Devonshire, England/FSR (1966 v.12)
A cogwheel maneuvered in the sky.
- 1856 Feb 3; night/lap/western Europe/RBAAS (1860)
A multicolored object, 2,400 ft. in diam., moved on a curved trajectory with jerks. England-The object appeared red, yellow and blue, dropped luminous balls and exploded leaving a streak for 5 min. France-The object appeared white and blue, detonated and traveled 13 mi./sec. Germany-It appeared as an oval with a thick purple trail at 150 mi. altitude. Similar event reported over England on Feb 11, 1850.
- 1856 Jul 24 and 25, Aug 10/lap/England/RBAAS (1858)
Objects with apparent magnitude between 1 and 3 were seen on each day with serpentine trails.
- 1857 Sep 29; 22:14/lap/Highfield House, England/RBAAS (1858)
An object 6 times the brightness of Jupiter exhibited a circular, leading edge (shock wave?) and fanned out tail.
- 1857 Nov 16/lap/Charleston, South Carolina/AJS (1859)
A red fiery ball the size of an orange, descended and struck a wooden fence, splitting into 2 pieces. Fragments disappeared leaving bristling fibres and the smell of bituminous.
- 1858 Aug 2; 12:35/lap/London, England/RBAAS (1858)
A meteor was seen with a sinuous motion.
- 1859 Oct 12; 19:20/lap/Solva, Wales/LT (Oct 15, 1859), Lore-Deneault
A bright red light with rays rose for 1 hr. Stars shined through it. (Similar to 1853 Aug 11 entry.)
- 1859 Oct 19 or 20/lap/Dorpat, England/RBAAS (1860)
Two fireballs were seen during an aurora.

- 1859 Nov 15; 9:15/lap/middle Atlantic, states of U.S./RBAAS (1860), JFI (1860)
A fireball 1/3 the brightness of the sun, had a tail and curling clouds issuing from it. It traveled 110 mi./sec. and detonations were heard 2-3 min. after passage.
- 1860 Jun 29/lap/Lake Winnepeg/S (v.1, n.15)
A meteor left a zig-zag train.
- 1860 Jul 13; 21:45/lap/Wilmington, Delaware/Lore-Deneault, WT (Jul 20, 1860)
A Roman candle, 200 ft. long, appeared 100 ft. high. It was preceded by a black cloud and followed by red glowing balls.
- 1860 Jul 20; 21; 22:00/lap/Michigan and Virginia area/SoAr (Jul 23, 1860)
A bright light was seen traveling westward which appeared like cannon balls with white thread between them.
- 1860 Aug 5/lap/Norfolk, Virginia/BS (Aug 6, 1860), Lore-Deneault
Red and green objects flew in formation, undulated, rose and subsided.
- 1860 Oct 13/lap/Baffin Bay, England/RBAAS (1865)
A fireball with a tail crossed the beams of an aurora.
- 1861 Mar 4/lap/Ballarat, Australia/RBAAS (1861)
A cone-shaped object with its base forward and with the trail of a comet, came out of a cloud. It fell to the ground and ploughed the earth for 12 yd.
- 1861 Jun 30/lap/north of England/RBAAS (1861), Brown
On this date earth passed through the tail of comet Tebutt and enough dust entered the atmosphere to dim the sun. A yellow aurora and blue fireball were also seen.
- 1861 Nov 19; 21:00-22:00/lap/England/RBAAS (1862)
Among the various meteor reports there was hissing, the smell of sulphur and an observer whose coat was aglow.
- 1861 Dec 1; 21:14/lap/Walthamstow, England/RBAAS (1862)
A yellow fireball the brightness of Polaris was seen on a serpentine path.
- 1861 Dec 10/lap/England/RBAAS (1862)
A second magnitude, blue object alternated 10 times/sec. as if rapidly revolving.
- 1862 Jul 21; 23:10/lap/Weston, England/RBAAS (1862)
A red object the brightness of Jupiter with a tail that resembled curling steam was seen wending its way for 3 sec.
- 1862 Sep 19/lap/England/RBAAS (1862)
Many extreme entries for this date. Observations from London included an object the brightness of the full moon with a broken tail and zig-sag trajectory.
- 1862 Sep 22; 22:22/lap/Etchingham; England/RBAAs (1863).
A first magnitude, red and blue meteor was seen traveling very slowly. Also, a fourth magnitude object traversed a curve and then a reverse curve.

- 1862 Nov 27; 17:00-18:00/lap/Lymington, England/RBAAS (1863)
A fireball of various colors emitted sparks which spiraled as it forced its way along.
- 1862 Dec 15; 18:50/lap/Dordogne Puycharnard, France/RBAAS (1863)
A globe of white light 2 times as bright as Venus was seen traveling slowly. It was accompanied by a brilliant aurora.
- 1863 Feb 7; 18:45/lap/Elie, England/RBAAS (1863)
A white sheet lighted the heavens and then left a triple looped ribband.
- 1863 Apr 20/lap/Hakehurst, England/RBAAS (1863)
A first magnitude object was seen rising vertically, leaving a yellow streak.
- 1863 Apr and May/lap/Weinheim, Germany/Lore-Deneault, N (Feb 15, 1872)
An astronomer observed a thick mass of white sparkling bodies moving with great speed. The bodies varied in shape, motion, and numbers over the days.
- 1863 May 4; 23:30/lap/Righton Marine Parade, England/RBAAS (1863)
An extremely bright, variegated meteor, exhibited rapidly revolving rays while stationary. It faded after a bright flash.
- 1863 Aug 11; 22:33/lap/Weston, England/RBAAS (1863)
A second magnitude, yellow meteor, described a slow serpentine motion.
- 1864 Feb 5; 20:49/lap/Weston, England/RBAAS (1864)
A first magnitude blue object rekindled after it was extinguished.
- 1864 Aug 26; 22:55/lap/Hay, Wales/RBAAS (1864)
A fireball emitting orange flames flashed as it was extinguished and left 3-4 green globes in its path. Duration 3 sec. Sketch available.
- 1864 Aug 31; 22:30/lap/Exeter, England/RBAAS (1864)
A slow moving fireball with a blue envelope and tail was seen emitting red fragments.
- 1864/strange fall or lap/Texas/Beckley
An object dropped artifacts which were then placed in a store window. They were purchased by a stranger the next day.
- 1865 Feb 20/lap/England/RBAAS (1865)
An object the size of the moon was seen during a bright aurora. A similar object was seen on Mar 20. On Feb 21 a green object with a waving tail was seen.
- 1865 Apr 30; 0:45/lap/Weston, England/RBAAS (1865)
A yellow object twice as bright as Venus, expanded and contracted 4-5 times. Its green and red protuberances were seen as wavy in Manchester. It exploded with a flash.
- 1865 Dec 5/lap/England/RBAAS (1869)
A meteor burst like a Roman candle producing 6 fireballs.
- 1866 Jul 22; 23:40/lap/Weston, England/RBAAS (1867)
A second magnitude yellow object was seen on a serpentine course.

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- 1866 Oct 21; 20:23/lap/Hoboken, New Jersey/RBAAS (1867)
A large stationary fireball eventually accelerated and ejected emerald fragments.
- 1866 Oct 24; 16:40/lap/Curragh, Ireland/RBAAS (1867)
A meteor fell like a piece of burning paper.
- 1866 Nov 6/lap/Cartegena, Columbia/LT (Jan 2, 1867)
A red light, like a ship lamp, moved slowly and steadily for 3 min.
- 1866 Nov 9/lap/Chesham, England/RBAAS (1867)
A dazzling object, brighter than Venus, paused 3 times during its descent.
- 1866 Nov 14/lap/England/RBAAS (1867)
A variety of meteors were reported along with sketches including one which collected into a ball. There were noteworthy meteors on Nov 12 and 13 also.
- 1866 Dec 13/lap/England/RBAAS (1867)
An object assumed an undulating trajectory during an aurora.
- 1867 Feb 6; 21:30/lap/York, England/RBAAS (1867)
A red meteor the brightness of Sirius seen forcing its way along in a sinusoidal motion.
- 1867 May 30; 11:00/lap/Birmingham, England/BDP (May 31, 1867)
An astronomer observed several objects moving in different directions with varying speeds. Some had hairy appendages, others distinct tails.
- 1867 Sep 15; 23:04/lap/London, England/RBAAS (1868)
A red and white object brighter than the full moon made a slow serpentine pass as it emitted sparks.
- 1867 Oct 19/lap/England/RBAAS (1869)
An object with a green train, as bright as Sirius, exhibited oscillatory motion.
- 1868 Jan 30/strange fall/Pulask, Poland/Jessup (1955)
A burning lump of sulphur fell and then was stamped out.
- 1868 June 8/lap/Oxford, England/Fort
An astronomer observed a luminous object, $5^\circ \times 1^\circ$, move westward, stop, change course, hover and emit flame and smoke. Duration 4 min.
- 1868 Jul 1; 21:50/ufo/Capiago, Chile/Fort, EM(Jul 10, 1868)
An aerial construction emitted light and engine noise. Others interpreted it as a bird with shining eyes and scales which clanked together.
- 1868 Jul 25/aliens, ufo, technology/Parramatta, Australia/Basterfield
Human heads and an ark landed. A voice invited the observer into the ark, who was then floated into the ark and shown around. (First modern account of body flight.)
- 1868 Oct 7/lap/England/RBAAS (1869)
Numerous dramatic meteors were observed. One of the large ones caused the entire heavens in Sandwich to be momentarily afire.
- 1869 May 31/lap/Torquay, England/RBAAS (1869)
A red object as large as the full moon, suddenly rose and as it was traveling it underwent an outburst and fell to the ground.

- 1869 Aug 7/lap/Indiana, Iowa, & Pennsylvania/DE (Aug 14, 1868), JFI (1869), Lore-Deneault
Eight to 10 bright bodies were seen transiting the sun during a total eclipse observed from Iowa and Indiana. In Pennsylvania at noon, a silvery body settled in a lot, assumed a square shape, shot up a column of fire 3 ft. x 4 ft. x 2 ft. Lasted 10 min.
- 1869 Oct 17, 18, and 19/Bangalore, India/MNRAS (1870v.3, n.5), Lore-Deneault
Dark shadows transited the sun and were followed by streaks of light beyond the limb. The objects varied in size and number, were visible for min. at a time. (Locusts were in India at the same time.)
- 1869 Nov 11; 22:55/lap/England/N (v.1)
An object in the north took an undulated path, exploded violently then continued emitting sparks.
- 1869 Dec 21/lap/England/RBAAS (1874)
A meteor entering the atmosphere came to a stop in mid air.
- 1870 Mar 22; 18:30/lap/between Senegal and Natal, Brazil/Fort, QJMS (1873 v.1 n.6) *First "Daylight Risk?"*
A light gray circular object with appendages and a semicircular shape near its center was seen moving against the wind below the clouds.
- 1870 Aug 9; 3:43/lap/Algiers/RBAAS (1874)
An exploding object left behind a red and yellow lenticular cloud.
- 1870 Sep 15/lap/Ireland/Jessup (1957)
A first magnitude object assumed the shape of a comet, then turned into an opaque white ring which ejected a tail.
- 1871/aliens, ufo/Buckinghamshire, England/FSR (v.25, n.5), Loosely
A man met 2 robots who stepped out of a ufo.
- 1871 Aug 1; 22:43/lap/Marseilles, France/CR (73-398), Lore-Deneault
An astronomer observed a red object move and then stop. Duration 20 min.
- 1871 Aug 29/lap/Meudon, France/LAS (1885 p.5), Lore-Deneault
An astronomer observed numerous opaque objects transit the sun in curved lines, some exhibiting erratic motion. One fell slowly with a wavering motion. Duration 40 min. (A falling leaf maneuver?)
- 1871 Oct 8/lap/Chicago, Illinois/Wilkins (1955)
A roar was heard and a tremendous black balloon-shaped object was seen. It exploded, jetting out flames which set a house afire. (This occurred on the night of the famous Chicago fire.)
- 1871 Nov 15; 17:45/lap/London, England/RBAAS (1872)
A slow, red object with a long train faded gradually as it exhibited a rotating nucleus.
- 1872 June 15/lap/Nandidrorng, India/N (v.6)
The horizon was covered by many thousands of flights in most directions.
- 1872 Sep 5/lap/eastern U.S./RBAAS (1877)
An object with a spiral trajectory was seen from Missouri to the Atlantic coast.

1872 Nov 3; 2:00/lap/Scilly Is., England/PRS (1853)

A meteor burst against a docked ship knocking out the watch. When he recovered he saw balls of fire like large stars falling in the water and found the deck covered with cinders. There was a smell of brimstone.

1872 Nov 3; 17:30/lap/Glasgow, Scotland/RBAAS (1873)

A multicolored object with a red tail left a colored train as its velocity decreased and then increased. The nucleus eventually exploded.

1872 between Nov 25 and Dec 5/disappearance/Atlantic O./Sanderson (1970)

The crew of the ship, Marie Celeste, disappeared.

1872 Nov 27; 18:00-19:00/lap/western Europe/N (v.7)

A remarkable meteor shower associated with comet Biela was seen over much of the world, ranking second only to the Nov 13, 1833 Leonids. Most of the larger meteors of 1872 had white heads with blue-green tails but many exhibited remarkable deflections and wavy or sparkly trails. Auroras were observed in high northern and southern magnetic latitudes.

1872 Dec 7/lap/Banbury, England/Fort

An object like a haycock flew an irregular course, felled trees and walls. It was accompanied by fire and smoke and made the noise of a train.

1873 Feb 3; 2:00/lap/Manchester, England/N (v.7), MG (Feb 5, 1873)

A ball of fire burst forth in brightness to simulate mid day lightening. It shot through the air and burst forth again and then disappeared. It traveled westward. Duration 7 sec.

1873 Jun 17/strange event/Austria and Poland/RBAAS (1874), S (v.1, n.15)

Two astronomers saw a missile emerge from Mars and reach earth in 10-16 sec. and explode. Also, it was reported that Mars broke into 2 pieces. (The missile violated the theory of relativity because the speed of light was exceeded, and Mars never did show any evidence of being split in two.) In Vienna a meteor left a zig-zag trail.

1873 about Jun 20/lap/Ft. Scott, Kansas/Bullard, FSM (Jun 24 & 27, 1873), Keyhoe (1950)

A yellow, striped serpent as long as a telegraph pole was seen floating and coiling up like a snake. A week later another serpent was seen about the sun. These accounts are related to Keyhoe's account of a blurred, cigar-shaped object that swooped down on people in Bonham, Tex. and then appeared in Ft. Scott a day later.

1873 Sep 23; 4:30/lap/Molton, India/RBAAS (1874)

About 20, slow moving meteors lit up the area green as they left trains of fragments of fire.

1874 May 12/lap/England/RBAAS (1874)

A very bright meteor burst, producing colored flashes.

1874 May 16/lap/England/RBAAS (1876)

Luminous pieces dropped from an object with a nucleus and tail. The object was preceded by a faint vapor.

1874 May 19; 0:50/lap/Holyhead, England/RBAAS (1874)

A stationary green oval, the diam. of the sun, started to move slowly, discharging 6 sparks as bright as Jupiter and emitting a crackling sound.

- 1874 Aug 10; 23:53/lap/Birmingham, England/RBAAS (1874)
A blue object, ejected red fragments, exploded, changed to a red object, leaving white smoke wreaths. Its path of motion was deflected. Seen 6 sec.
- 1875 Feb 20/lap/Wales/NQ (1875 s.5, v.3)
Lights over 8 mi. of coast were seen moving horizontally and then perpendicularly in zig-zag fashion. They varied from blue to white. Similar lights were seen several times including early Oct 1877 and in 1694.
- 1875 May 16; 20:40/lap/Greenhithe, England/RBAAS (1876)
A red object the brightness of Venus, proceeded with a faint vapor draping over it. Seen 6-7 sec.
- 1875 Sep 11/lap/Edinburgh, Scotland/RBAAS (1876), N. (v. 12)
A luminous object halted, flashed, and zig-zagged. Its train formed a ring.
- 1876 Aug 4/lap/Glasgow, Scotland/RBAAS (1876)
A luminous object with an extraordinary long tail zig-zagged in a tremulous manner as it traveled southward. Seen 4 sec.
- 1876 Aug 11; 23:22/lap/Creighton, England/RBAAS (1876)
A train of meteors assumed the shape of a reaping hook. Flashes were seen elsewhere. Many entries for this date.
- 1876 Oct 14-17/lap/Bristol, England/RBAAS (1877)
Many very slow meteors were seen.
- 1876 Dec; 19:28/lap/Bristol, England/RBAAS (1877)
A second magnitude object proceeded slowly and faintly, then rapidly and brightly. It was spent with a wreath of white sparks.
- 1876 Dec 21/lap/England, and U.S./RBAAS (1877), N (v. 16), Nininger
England-A meteor broke up in mid flight into 20 to 100 fireballs. A detonation was heard and meteorites fell. Ohio-A yellow and red object brighter than the moon was followed by 3 smaller objects as it traveled eastward for 3 min. Rumbling was heard min. after and a meteorite was recovered. Indiana-A fireball left the longest trail ever recorded, over 1,000 mi. long. It was followed by other meteors of the brightness of Venus and Jupiter and exploded several times and dropped a meteorite.
- 1877 Mar 23/lap/Venice, France/Arnold Palmer
Dazzling balls of fire emerged from a cloud and then moved slowly for 1 hr. Similar balls were seen 8-10 years earlier.
- 1877 May 21; 18:00/lap/Madagascar/RBAAS (1878)
An object with a halo and tail burst into two, producing a low peal.
- 1877 Oct 5/lap/Wales west coast/Arnold-Palmer
Balls, like electric lights, traveled rapidly and then suddenly disappeared.
- 1877 Oct 14; 18:55/lap/France/RBAAS (1879)
A multicolored object with a red-blue surrounding haze fell in jerks as it increased in size. It emitted fireball fragments. Many reports.

- 1877 Oct 19; 18:15/lap/Monmouth, Wales/RBAAS (1878)
An extremely bright white object left a spiral trail which became more and more developed.
- 1877 Nov 27; 22:26/lap/Greenwich, England/RBAAS (1978)
A blue white object the brightness of Venus was seen traveling with extreme slowness for 15 to 20 sec.
- 1877/alien, weapon/Aldershot/Vallee (1969)
A soaring humanoid in tight clothing and shining helmet was seen by 2 sentries who fired at him. The alien responded with blue fire, stunning the sentries.
- 1878 Jun 25; 22:48/lap/Debenham, England/RBAAS (1878)
A slow, red object with a fan-like tail was seen emitting sparks.
- 1878 Jan 22/lap/Denison, Texas/DDN (Jan 25, 1878)
A hovering object described as a saucer seemed to descend on an observer. (First use of the saucer terminology.)
- 1878 May 12/Galashiels, Scotland/RBAAS (1878)
A luminous object like a ball of electricity was seen. Sheet lightning followed 15 min. after its appearance.
- 1878 Jul/lap/Michigan/Hervey (1976)
Three astronomers saw some red discs cavorting during a solar eclipse. The objects were 20,000 mi. distant and 1/2 mi. in diam.
- 1878/aap/Parkersburg, West Virginia/F (1955 Jan)
A horse with wings was seen swimming in the sky.
- 1879 Feb 1/lap/Freemantle, Australia/AW (v.6, n.4)
A black cloud, half the diam. of the moon, burst into a ball of flames, leaving a trail of dark vapor. Seen 45 min.
- 1879 Feb 3/lap/England/RBAAS (1879)
An extremely large meteor was followed by a flare and then it burst into fragments, making an audible report.
- 1879 Feb 22/lap/England/RBAAS (1879)
An atmospheric glare increased and then there was a sudden blaze and explosion with a fireball appearing.
- 1879 Apr 12/lap/---/NYTr (Apr 26, 1879)
A bell-shaped object brighter than the Prasepe Cluster moved 13 h in right ascension at 37° declination over a period of 6 hr.
- 1879 May 15; 21:40/lap/Persian Gulf/FSRWR, Vallee (1969)
Two luminous wheels, 40 m. in diam. and separated by 4 diam., spun and descended at a speed of 80 km/hr. A similar phenomenon was seen by others the following year in the same area.
- 1880 Mar 26; evening/technology/Lamy, Mexico/Moseley, Vallee (1969)
A fishlike flying balloon with fanlike guidance carried 8 to 10 occupants. Voices were heard. A similar event occurred during 1881.

- 1880 Jul 28; 18:00-19:00/lap/Louisville, Kentucky/Fort
An object like a man operating machinery surrounding him was seen. The object ascended, descended, and moved in various directions.
- 1880 Jul 30/lap/Leningrad, USSR/Arnold-Palmer
A large illuminated sphere with 2 smaller ones near by was seen moving along a ravine for 3 min.
- 1880 Aug 8/lap/St. Joseph, Missouri/SLR (Aug 13, 1880)
A large flashing ball descended and made a loud report. It killed 2 horses and melted steel. Lasted 30 to 40 sec.
- 1880 Aug 21/lap/France/CR (103-849)
A yellow and white torpedo dropped something as it left a luminous trail.
- 1880 Nov 11/lap/San Antonio, Texas/Bergier
A ball of fire burned a man causing him to go blind and partially deaf.
- 1880/lap/east Venezuela/Lorenzen (1968), Vallee (1969)
A luminous ball descended and hovered. The observer was drawn to it, but resisted.
- 1881 Feb 22/lap/Raleigh, North Carolina/RT (Feb 22, 1950)
A dim star the size of a hand whirled about.
- 1881 May 22/lap/New South Wales/Jessup (1955)
Fourth and fifth magnitude objects were seen near the head of a comet. A second magnitude object seen on Jun 10th disappeared on the 11th. (Probably fragments of comet Swift.)
- 1881 Jun 11; 4:00/aap/between Melbourne and Sidney, Australia/Vallee (1969)
A fully illuminated ship was seen in the sky.
- 1881 Nov 10; 22:30/lap/Lamoine, Iowa/Lore-Deneault, SH (Dec 1, 1881)
A star shot toward the moon and was followed by 4 others in a line. The formation broke up gracefully. Visible for 1/2 hr.
- 1882 Jul 6; 22:30/lap/Jersey City, New Jersey/Lore-Deneault, SA (Jul 22, 1882)
A second magnitude, red object passed Polaris and disappeared near Capricorn. Duration 45 sec.
- 1882 Oct 14/lap/Europe/AN (209-17), Jessup (1955)
Six objects arranged in a "V" and a spindle were seen near Comet 1882 II. (This comet is known to have a nucleus that split.)
- 1882 Nov 17; 18:00/lap/Europe/N (v. 27)
A long beam of detached light elongated as it rose and passed near the moon. This occurred during a strong aurora.
- 1882 Nov 17; 19:30/lap/Greenwich, England/Bray, Lore-Deneault
An astronomer saw a tremendous green disc with a dark nucleus and markings down its center at an altitude of 40-200 mi. It changed to a cigar shape and disappeared in 2 min. The object was seen immediately after an auroral display.
- 1882 Dec 15/lap/Alaska/S (v.1, n. 15)
A meteor left a zig-zag train.

- 1882/lap/88 mi. from Ascension Is./Wilkins (1954)
An object, 800 ft. long, with 2 lights, sank in the water. Sounds of working machinery were heard.
- 1883 Feb 23; 19:00/lap/France/LA' (1883), Vallee (1965)
A fourth magnitude object passed from Alpha Orion to Sirius while making a double turn. Sketch available.
- 1883 Aug 12/lap/Zacatecas, Mexico/Arnold-Palmer
An astronomer saw hundreds of objects transiting the sun in 2 hr. Hundreds more were seen the following day.
- 1883 Aug 29/lap/U.A. Atlantic coast/David (1970)
A searchlight was seen probing from the nucleus of a flying object.
- 1883 Oct 16/lap, strange fall/France/AW (v.6, n.3)
A thick cloud, accompanied by wind and rain, dropped white wool pieces which appeared to be burned.
- 1884 Jun 6/ufo or lap/Dundy Co., Nebraska/NN (1884)
Several people heard a whirring noise and saw a blazing body fall. The debris found included cog wheels, a propeller screw, and a 50 to 60 ft. long cylinder with 10 to 12 ft. diam. One person fell unconscious from the heat, became blistered, and had his hair singed to a crisp. The ground was well marked and sand fused in a 20 ft. x 30 ft. area.
- 1884 Jul 3/lap/Norwood, New York/SA (2-136), NICAP
A Saturn-shaped object passed overhead slowly. (First Saturn type report.)
- 1885 Feb 24/lap/37°N, 170°E/N (v. 31)
A huge fiery mass appeared overhead temporarily blinding the crew members. Flames and sparks ran over the rigging and it fell 50 yds. away with a deafening noise, casting high waterspouts and almost capsized the ship. (Probably a meteor.)
- 1885 Aug 22; 8:15/lap/Saigon, Viet Nam/LA (1885), Vallee (1965)
Two astronomers saw a red object brighter than Venus travel along the horizon, 1/3 around the celestial sphere over a period of 7-8 min.
- 1885 Nov 1/lap/Adrianople, Turkey/Keyhoe (1953), RGB
An astronomer saw a huge round flying machine overhead.
- 1885 Nov 2/lap/Scutari, Turkey/Sanderson (1970), Vallee (1969)
A luminous object circled the harbor several times for 1 to 1 1/2 min. It emitted blue and green flames, illuminated the town, and plunged into the sea.
- 1885 Nov 27; 21:00/lap/Mazapil, Mexico/Nininger
A singing noise was followed by a thud, causing a fence to be covered with a phosphorescent light. Luminous sparks were seen suspended in the air and a hot iron stone was recovered. Meteors and exhalations were seen all night.
- 1885/lap/Bermuda/Wilkins (1954)
A triangular object with grapnels hanging from below descended, then ascended and moved out.

1886 Jul 7/lap/France/Jessup (1955)

A luminous ball, 30 to 40 cm. in diam., jumped to the roof of a house and ripped off its corners. Then it bounded down the stairs, crushed some slate, crawled among some people, pursuing some momentarily and vanished.

1886 Oct 24/lap/Maracaibo, Venezuela/FSR (v. 16, n.3), SA (Dec 18, 1886)

A family of 9 who was indoors, heard a loud humming and saw a dazzling light. The atmosphere became smoky and a smell was present. People vomited soon after and swellings appeared on their faces. The swellings subsided eventually and were replaced by black areas. On the ninth day their skin peeled, leaving raw sores, and their hair fell out. The nearby trees withered.

1886 Oct 30; evening/lap/southwest coast Sweden/N (v. 35)

An object as bright as the full moon was seen traveling northnortheastward. It exploded from time to time with reports while radiating yellow, red, and green light.

1886 Nov 23/lap,disappearance/Missouri/Fort

A flash of light occurred during a storm. It killed 1 person, seriously injured a second, slightly injured a third, and caused a fourth to disappear.

1887 Jan 3; 17:15/lap/Jamaica Plains, Massachusetts/S (v.9, n.205)

A bright meteor with a long tail reduced its velocity until it floated. Duration 30 sec.

1887 Mar 19; 17:00/lap/Atlantic C 900 mi. east of New York City/Fort, MWP.
(Mar 1887), Northrup

Two round objects, one illuminated, made a tremendous noise in flight as they caused the atmosphere to be all afire. The illuminated ball fell very close by and caused the ship to roll dangerously, blackening and

blistering the ship's side. The event was accompanied by the smell of sulphur, wild barometric variations, hail stones, and an icy coating on the ship. (Probably meteors with some ice from the associated comet.)

1887 Nov 12; midnight/usp/Cape Race, Newfoundland/Vallee. (1969)

A large luminous ball slowly emerged from the ocean and moved against the wind 16 m. above the water. It then ascended rapidly. Seen for 5 min.

1887 Nov 18; 19:00/lap/off the coast of Maine/Lore-Deneault

A veering object, whose wake was accompanied by a long bright tail temporarily blinded an observer and produced a pain in his head.

1888 May 4/lap/New Zealand/Fort

A structure with dark bands, lines, and an oval nucleus was seen.

1888 May 21; 23:00/lap/Findlay, Ohio/NYT (May 23, 1888)

An immense hand-shaped object was seen in the sky with red tipped fingers pointing down. The object flashed, changed color, and then pulsed up from the horizon. Lasted 1 hr.

1888 May 27/lap or aap/Darlington Co., South Carolina/Fort, NYT (May 30, 1888)

A 15 ft. long serpent was seen moving in sky like a snake, made a hissing sound.

- 1890 Oct 19; 10:00/lap/near Cape Cod, Massachusetts/Lore-Deneault, Mayberry
A very large meteor fell close by at high speed. The crew was overcome by the strong smell of sulphur. (Probably a meteorite.)
- 1890 Dec 24; 22:00/abductions/South Bend, Indiana/Bergier, F (1950 Sep),
Jessup (1955)
Twenty year old Oliver Luck disappeared as several witnesses heard his fading cries 100 ft. above, "Help, help, its got me." His footprints in the snow, ended near a well. (Probably a religious phenomenon since the event occurred on Christmas Eve near Notre Dame University. Similar accounts occurred during 1865 in Hammersley Fork, Pennsylvania and during 1909 in Wales.)
- 1891 Sep 3/lap/Coyote Spr., New Mexico/UFONS (n. 70)
At each end of a rod there was an elongated half circle of dim lights. It tacked against the wind and was intelligently controlled. This object was eventually approached by a saw-like object. Duration 1 hr.
- 1891 Sep 5; 2:00/aap or lap/Crawfordsville, Indiana/Fort, DJ (Sep 5-8, 1891)
A white, headless monster, 20 ft. long was seen circling at a 300 ft. altitude. It had a red eye and hot breath, and made noise.
- 1891 Oct 14; noon/lap/Ealing, England/N (v.44), MCT (Oct 17, 1891)
A ball of fire glanced off a tree and alighted on the ground about 2 to 3 yds. from 3 men. It then rebounded and exploded rolling over and dazing the men.
- 1892 Feb; 20:00-21:00/lap/Hochlands, Sweden/F (1970 Feb), EM (v.55)
A first magnitude star moved eastward a distance of 125 yd. Then a fiery red, oblong object, 12 in. x 3 in., oscillated like a pendulum. It returned several times during a 10 hr. period.
- 1892 May 10; 23:00/lap/Tiflis, USSR/Em (Mar 4, 1892)
A bright, round meteor increased in size as it approached earth. Two other meteors separated from it and did the same. Seen 3 min.
- 1892 Aug 9/lap, strange fall/Paderborn, Germany/AW (v.6, n.3)
A yellow cloud discharged torrential rain with live pond muscles.
- 1892 Aug 12/lap/Visalia, California/UFONS (n. 67)
An observer felt oppression from a red and blue luminous object, 6 ft. x 4 ft., which came onto a porch for several sec. Flashes on this day were also seen in England.
- 1892/usp/near Jamaica/Smith (1975)
Two very bright glowing objects, the size of a house, suddenly rose from the sea about 200 yd. from a ship. The objects created high waves and followed the ship for 5 min.
- 1892/ugp/Vallacito Mts., California/TFSUFO (n. 11)
A huge fireball rose from the desert floor, went 100 ft. and exploded in a shower of sparks. In a few min. others of bushel basket size rose and behaved like the first. Two of them headed south, moved erratically, rose 50 ft., made a perfect arched trajectory and landed 200 ft. from their origin.

- 1893 Feb 24; 22:00/lap/N. Pacific near Mt. Auckland/Flammonde, Lore-Deneault,
N (v. 48)
Bright red lights in a crescent or diamond shape hung in a curved line
for 1 hr. and emitted smoke. Also seen on Feb 25, May 24 and 25.
- 1893 Mar 7/lap/Val de La Hage, France/Leslie-Adamski
A luminous pear-shaped object was seen.
- 1893 May 25; 22:00/lap/East China Sea/Arnold-Palmer
Globular lights were seen for 2 to 7 hr.
- 1893 Jul 2/lap, aap/Tacoma, Washington/DL (Jul 3, 1893)
A flashing, 150 ft. oval with copper bands around its body, emitted
terrible sounds. It produced an air of electricity, a prickling
sensation and caused watches to stop. While near water it emitted
streams of water. It killed one person and stunned another. It was
also described as a monster with coarse hair, 6 eyes and a propeller tail.
- 1893/ufo, alien, technology/Central Northsouthwest Australia/Basterfield
Eight to 10 lights moved up and down, and zig-zagged while in formation.
- 1894 Jul 19/lap/Greece/N (Sep 29, 1894)
Boiai-An object descended, stopped and left a smoke trail. After 5 min.
it made a report, moved to the summit of Mt. Crithin, fell into the sea
and made another report. Heraclion-A black cloud exploded and an upside
down cone fell into the sea. Selinos-An object like an Etruscan vase
fell on the rocks and broke. Also, a bolide descended, changed direction
and moved parallel to the ground. Athens-On Aug 20 at 20:40 a white
globe with a green halo was seen drifting.
- 1894 Aug 26; 22:30/lap/North Wales/Leslie-Adamski
A flashing light turned into a disc, from which another disc emerged,
orange in color.
- 1894/lap/east coast of U.S./Wilkins (1954)
A luminous wheel was seen that emitted white light and noise.
- 1895 Aug 24; 16:00/lap/Culdaff, Ireland/SA (Dec 14, 1895)
A brilliant fireball, coming from the northwest, shot fire toward an
observer and exploded near his head, causing his hands and head to bleed
badly. The object was also seen in Redcastle.
- 1895 Aug 30/lap/Margate, England/LT (Sep 6 and 10, 1895)
A triangular meteor was seen cruising slowly as it emitted red sparks.
- 1895 Sep 2/lap/Bath, England/LT (Sep 10, 1895)
A brilliant object with a tail and half the size of the moon traveled
leisurely in a curved path.
- 1895 Dec 13/lap/Randolph, Ohio/PA (v. 4)
The serpentine train of a meteor which subtended 5° was seen traveling
northwest as it coiled up into a first magnitude object. Seen 5 min.
- 1896 Feb 10; 9:29/lap/Madrid, Spain/A (v. 10)
A dramatic bolide exploded overhead. Sketch available.
- 1896/aliens/Arolla, Switzerland/Vallee (1969)
Two little men were seen disappearing among the rocks.

1897 Jul 5; 20:50/lap/Ontario, Canada/N (v. 48), MWR (jul 1897), TAPST (1898-74)
A 10 in. diam. ball of light exploded leaving a long white sinuous tail for 6 min. Possibly related to the object reported in TAPST.

1897 Dec. 28; 20:30/lap/Romont, France/TdG (Jan3, 1898), Bullard
A red and white star circled about in different directions at a great height and disappeared over the mts. between Berlens and Mezieres.

1898 Jan 3; 20:40/lap/Vannes, France/Vallee (1966), Libert
A double meteor, the color of Mars, traveled as if they were a pair of balloons tied together. They disappeared with a yellow and red flash. Seen for 5 to 6 min. through a telescope.

1898 Feb 6; 3:30/lap/Lyon, France/TdG (1898)
A bolide, the diam. of the moon, made a parabolic trajectory while traveling southward. It emitted colored flashes and divided into diverging halves,

1898 Jul 4/lap/France/Vallee (1966) Libert
A gold and yellow body, 1/4 the diam. of the moon, headed northnortheast, rose slowly, passed through the zenith, left with increased speed, then exploded. Visible for 12 min.

1898 Sep 4/lap/Lille, France/Gross (1974), Vallee (1965)
A red object hovered while emitting sparks and a luminous discharge. A telescope revealed violet bands along its length and vertical red and black areas along its side.

1898 Oct/lap/Marseilles, France/Jessup (1955)
A sphere of fire darted into a room, paused in a corner, moved toward a person, ascended, circled about, shot out a stove pipe and shattered the chimney top. (Similar to 1852 Jul 5 entry.)

1898/lap/Beugnon, France/Jessup (1955)
During a thunderstorm a globe of fire the size of an apple was seen atop a poplar tree. It descended the tree trunk, moved slowly into a house and exploded, killing 11 oxen.

1899 Feb 11/lap/Yerkes Observatory, Wisconsin/Barnard
Distinguished blue and green masses were seen to the north simultaneously with an aurora.

1899 May 6; 20:30/lap/France/Libert
A very, very slow yellow bolide was seen with a rapidly undulating head as it emitted sparks.

1899 Oct 28; 16:30/lap/Luzarches, France/Neeley
A rose colored globe, the diam. of the moon, detached itself from the clouds, grazing the trees and diminishing to a spark. Visible 15 min.

1899 Nov 15/lap/Bordogne, France/Leslie-Adamski
An enormous red, white and blue disk passed over majestically.

1899/lap/Austria/Arnold-Palmer
A silver and gold disk flew very fast over the mts.

- 1901 Apr 4/lap/Persian Gulf/Leslie-Adamski, Sanderson (1970)
Rotating wheels were seen near the water surface traveling 60 mph. Observed for 15 min.
- 1901 summer/aliens/Bournbrook, England/FSR (v.24, n.5)
Two helmeted humanoids with 9 in. antennas were seen near a hut 4 ft. x 5 ft. x 6 ft. The hut was surrounded by an electrical corona.
- 1901/lap/---/FSM (n. 33)
A ball of fire appeared at a doorway during a storm which touched a girl's head, killing her instantly.
- 1902 Feb 9; 19:40/lap/France/Libert, Vallee (1966)
An object as bright as Venus looped over a 12 sec. duration and split into 4 second magnitude objects. Sketch available.
- 1902 Oct 28; 3:05/lap/Gulf of Guinea/Fort, Sanderson (1967)
A noisy object, 500 to 600 ft. long, with lights at both ends was seen sailing at sea. The surface of the object appeared scaled.
- 1902/lap/Ivy Bend, Missouri/UFOR (1976 v. 7)
A silver and gray spinning top followed a river at tree top level as it made sounds.
- 1904 Feb 28/lap/off east coast of Korea/MWR (1904 v. 32)
Three red, egg-shaped objects soared while in a straight line formation. Their apparent angular diam. were 6 suns, 2 suns, and 1 sun, respectively.
- 1904 Jun/lapRolling Prairie, Indiana/Lore-Deneault
Two orange objects, the size of wagon wheels, hovered 2-3 m. off the ground. They receded and stopped with the motion of the observers. (Ground level foo fighters.)
- 1904 Jul 31/lap/Delaware Breakwater/Clark-Coleman, Vallee (1969)
A glowing cloud enveloped a ship and held it motionless. It coated the men with phosphorous, made their hair stand on end, made the chains on the bridge immovable and spun the compass needle.
- 1904/ufo/Michigan/Lore-Deneault
An object with a thick mast emanated orange light from its window and banked quickly.
- 1905 Feb; 8:20/lap/Burmouth, Wales/Clark-Coleman
A ball of fire appeared above a chapel. Fifteen min. later 2 lights flared from the sides of the chapel, flickering for 30 sec. A fourth light 6 in. in diam. appeared with a dazzling yellow color.
- 1905 Mar/lap/Egryn, Wales/Seagraves
A light appeared near a car, changed its direction of motion, becoming a red ball fo fire. Then two white lights danced about, became one and caught up with the car, pacing it for awhile. (Ground level foo fighter.)
- 1905 Sep 2/lap/Llangollen, Wales/CNO (1905-35)
A 10 ft. long object resembling a winged pig was seen in the sky reclining in a casual position. (An airplane disappeared here on Mar 7, 1922, also.)

- 1905 Oct 13; 17:30/lap/Cortland, New York/S (v.24, n.605)
A meteor with great brilliance burst like a sky rocket and left a zig-zag train for min.
- 1906 May 23/usp/Atlantic O./Ley
A luminous ribbon shot rays into the water near a wide wave of fire that was 200-300 yd long, for a period of 3 min. A gigantic fiery wheel was also seen 550 yd. away.
- 1906 Sep 12/technology/---/Hervey (1976)
Two men suddenly rose and disappeared over the tree tops.
- 1906 Oct 30; 16:30/lap/600 mi. northeast of Cape Race/NYT (Nov 5, 1906),
Sanderson (1967)
Three meteors fell into the sea successively, leaving a red streak in the air from the zenith to the horizon. The largest object had a zig-zag trajectory and fell with a rocking motion less than 1/2 mi. away, causing the water to hiss and producing a 40 ft. high spray.
- 1906 Nov/lap/Oklahoma/Lorenzen (1969)
A stovepipe shaped ball of fire, 60 ft. above the ground, approached some men, stopped 16 ft. away at eye level, flattened out, causing one man to black out. (Ground level foo fighter.)
- 1906/lap/near Oman, Persian Gulf/Stemman
A lighted revolving wheel, larger than a ship, appeared near the water surface.
- 1907 Jul 2; 14:00/lap/Burlington, Vermont/BFP (Jul 3, 1907)
A torpedoshaped machine, 6 ft. long, with 20 ft. halo and tongues of fire, circled about 50 ft. above buildings. Glowing ball fell from torpedo and seemed to rebound. As the torpedo descended and exploded a horse was knocked down.
- 1907 Jul 27/lap/Drobach, Norway/QUFO (v.1, n.13)
An opaque object hovered over a ship. Object photographed.
- 1908 Feb 2 and 3/lap/Arden, Washington/Lore-Deneault
A red, green, and yellow object was seen high up.
- 1908 Feb/ufo/Tacoma, Washington/F (1970 Feb)
A cigar-shaped object flew a foreign flag.
- 1908 Jun 30; daytime/lap/Tunguska, USSR/Baxter-Atkins, SA (May 1931)
An incredibly brilliant fireball produced shock waves in the ground and air as it entered the earth's atmosphere and exploded before colliding with the surface. Seismic waves were detected in Europe, trees were seared and uprooted for a 30 km. radius, 1,500 reindeer killed and a man was knocked down 80 km. away. Only small craters and excessive radioactivity. These effects were also accompanied by undulating masses of clouds, a great yellow aurora to the north and enough dust in the atmosphere to dim the celestial bodies. (The event probably resulted from impact with part of the comet Pons Winnecke.)
- 1908 Sep 4/lap/Worcestershire, England/EM (88-211)
A meteor entered a flashing cloud causing it to burst with great splendor. Shortly after the cloud threw out a streamer.

1905 Dec 23/lap/Worcester, Massachusetts/Wilkins (1954)

An object moving northwestward hovered, returned 2 hrs. later and swept the sky with its search light.

1908/lap/Peoria, Illinois/FS (n. 23)

A polished silver sphere flew over at high speed traveling southward. Observed 30 sec.

1909 Feb 22; 19:30/lap/southern England/N (v. 80)

An orange object blazed out a blue color and left a small silvery stream. The stream intensified and extended over the path of the object. It became bent and contorted with brilliant condensations at the bends. Eventually it became broad and diffuse. When the streak first formed there were faint flashes like an aurora.

1909 Jun 3; 3:00/usp/Malacca Straights/Vallee (1965)

A brilliantly lighted wheel emerged from ocean and spun.

1909 Jul 30; 5:00/technology/New Zealand/AWN (Aug 5, 1909), MUJ (n.177), OFP

An airship with lights at both ends lowered through the mist and circled about. Two figures were plainly visible within. It then shot upwards to the southeast. Sometime after this account another airship alighted and Japanese-looking occupants emerged and started a conversation with the observer. (Probably an ordinary airship.)

1909 Aug 3; night/technology/Waipawa, New Zealand/HBH (Aug 6, 1909), MUJ (n.177)

A grey torpedo-shaped object with 2 lights circled about. One of 3 men occupants shouted at the observer in a foreign language. The object left.

1909 Oct; 22:30/lap/La Porte, Indiana/Lore-Deneault

Two inverted bowls, with a bright irregular corona and joined by a row of lights, dangled several long illuminated tentacles. After 15 min, it blinked out.

1909 Dec 24; 21:02/lap/Limerick, Ireland/Edwards

A rotating luminous disk moved southward and retraced its path. Seen for 32 min.

1909/lap/Germany/UFOR (1978 v. 9)

A bright, white light did a curious dance and passed at a distance of 100 yd about 20 yd. off the ground.

The following two entries have only been dated as happening in the early 1900s and have been arbitrarily placed here.

----; 3:00/lap/Nicodemus, Kansas/M (1954 n. 4)

A ball of fire approached an observer from a great distance, stopping when 3 yd. away. It then retraced its path and went southward, rising until it appeared as a star. Remained 10 sec.

----/lap/West Point, New York/Stringfield (1957)

A dark object, the size of a baseball at arms length, was seen at an altitude of 1,500 ft. traveling 200 to 300 mph while making a whining sound.

- 1910 Jan; 23:00/technology/Invercargill, New Zealand/Vallee (1969)
A cigar-shaped object hovered at 30 m. A man appeared at a lateral door shouting words in an unknown language. The object eventually accelerated away.
- 1910 Feb 5/lap, ufo/Greer, Idaho/Stranges, UFOR (1976 v. 7)
A golden disk 1/2 mi. in diam. at 2,000 ft. altitude, appeared to be intelligently controlled. A strong wake followed it.
- 1910 May 19/lap/Northern U.S./Ostrander-Schroeder, PA (v.18), UFOR (1967 v.7)
Alma, Illinois-A red globe brighter than Venus traveled a slow zig-zag course to the northeast, then hovered for 1 hr., drifted and disappeared. A slow meteor with a tail was seen from Wasburn Observatory, Wisconsin. Auroras were seen in various places also. (On this date earth passed through the tail of Halley's comet.)
- 1910 Sep 10/technology/Yaqui, Mexico/Jessup (1955)
An 8 ft. long, brown stone fell from the sky which had human inscriptions on it. (Probably a meteorite.)
- 1910/lap/Wisconsin/Lorenzen (1962)
A straight line formation of round white objects traveled at high speed leaving a vapor trail.
- 1911 Jun 8/lap/Stewart, Nebraska/PA (v. 19)
A meteor traveled in a straight line and then became bent. It looked like a suspended stroke of lightning that looped over itself.
- 1912 Apr 7/lap/Canutama, Brazil/A (v. 26)
A brilliant bolide was seen looping in Gemini. Sketch available.
- 1912 Nov 23/lap/Urbana, Illinois/PA (v. 21)
A green meteor was diverted in its trajectory to travel on a cissoid curve, eventually flying into revolving illuminated pieces.
- 1912; evening/lap/Germany/F (1967 Feb)
Four shining objects, larger and closer than stars, circled overhead while maintaining their relative positions. They executed horizontal, vertical and oblique maneuvers.
- 1913 Feb 9/lap/Saskatchewan, Canada/JRASC(1913 v.7), Nininger
A straight line procession of fire balls was seen down to Bermuda, traveling high in the sky. Could be seen for min. at a time. Detonations were heard 90 mi. from the path. Some people described the phenomenon as various man made objects. (Probably a train of meteors.)
- 1913 Feb 10/lap/Rio Gallegos, Patagonia/N (v. 91)
A violent peal was followed by 20 sec. of humming which was followed by lesser explosions and more humming. Some associated the noises with a huge ball of fire with a long tail that was seen traveling westward.
- 1913; 21:00-22:00/lap/Moravia, Czechoslovakia/Hobana-Weverbergh
Six fiery red stars executed oval motions around a point in the sky for 6 to 8 min. (Possibly ordinary astronomical seeing.)

1913/ufo/Winfield, Kansas/Wilkins (1955)

A black object, 100 ft. in diam., exhibiting superstructure, traveled southward at an altitude of 3,000 ft.

1913 or 1914/lap/Arizona/Lorenzen (1962)

A silver plate, a few hundred ft. in diam. was seen in the sky. The observer's eyes hurt while looking at it.

1914 Jun; 4:00/ufo, aliens/Hanburg, Germany/Vallee (1969)

A shining, cigar-shaped object with illuminated windows was seen in a field. Four to 5 dwarfs, about 1.2 m. tall and in light clothing were also seen nearby. Eventually the object climbed vertically.

1914 Jul/lap/Hanover, Germany/Condon

During a thunderstorm a fireball the size of an egg came through an open window, went down some curtains and disappeared into the floor. (This object has both the characteristics of a foo fighter and ball lightning.)

1914 Aug/aliens, ufo/Georgia Bay, Canada/EPT (Mar 1, 1967), Vallee (1969)

A spherical craft alighted on the water and some men in green and purple clothes, and some in brown clothes, appeared. Those in brown wore square masks down to their shoulders. As the craft rose to a height of 3 m., one of the dwarfs, who had pointed shoes which curved at the tip, remained on the outside.

1914/lap/Indiana/Lore-Deneault

Three gyrating lights were seen 20 ft. off the ground. They searched and made instantaneous turns as if intelligently controlled.

1914/lap/Pennsylvania/FS (1966 v. 12)

A small, disc-shaped object was photographed.

1914 or 1915/lap/Bujoreania, Roumania/Hobana-Weverbergh

A red, football-shaped object, 20 to 25 m. in length, with an exhaust pipe protrusion was seen moving eastward. It bent a tree in its path and left a trail of 8 to 10 sparks. It reappeared 6 or 7 d. later with a whistling noise. It hovered over a house, burning a woman to death.

1915 Jul or Aug/lap/Berlin, Germany/UFOR (1976 v. 7)

A dull, red cigar-shaped object was seen hissing for 1 hr.

1915 Aug 21/disappearance/Gallipoli, Turkey/Vallee (1969)

Twenty-two soldiers saw a British regiment engulfed by a cloud and then disappear.

1915 Oct 5/lap/southwest England/N (v. 96)

A glowing bar was seen after there was an outburst of light greater than the full moon. The bar contorted, curled into a ring with an appendage, expanded and then faded. Visible 2 to 20 min.

1916 May or Jun; 10:00-11:00/lap/Indiana/Lore-Deneault

A dull, aluminum oval, 40 ft. in diam. hovered near the ground. It made smooth accelerations to 5,000 mph for 10 to 15 sec.

1916 Jun; 21:00/lap/Ohio/UFOR (1978 v. 9)

A meteor followed a curved zig-zag path, stopped and became a pale, yellow white object, 5 ft. in diam. The meteor approached an observer, stopped, rose and left, but returned when the person went to bed. (Ground level foo fighter.)

1916 Jul/lap/Huntingdon, West Virginia/CFUFOR (v.2, n.3)

Pulsating, nebulous matter appeared, then dimmed and disappeared. A second, similar object appeared nearby and then the first reappeared.

1916 Jul/lap/Erie, Pennsylvania/F (1960 Jun)

An orange ball, 4 ft. in diam. appeared during an electrical storm near a power line. It moved up and down while emitting sparks. (Probably ball lightning.)

1917 Oct/ufo, aliens/Youngstown, Pennsylvania/Vallee (1969), Lore-Deneault

A saucer, with a platform and row of lights, the size of a car was seen in a field, emitting a high pitch sound. Its dome, with elongated windows, showed figures. The saucer rose slowly after 1-2 min.

1917 Oct 13/lap, alien/Fatima, Portugal/David (1967)

The sun detached itself from the sky, becoming a polished silver disc with clean cut edges. The object shuddered, rocked, emitted bright light and changed color. It caused a stupor in many of the 50,000 witnesses and returned to the sky. In the same area on May 13, 1917, three children were visited by a lady in white in a sphere, and received a message of consolation. (Probably partly a religious phenomenon.)

1917 autumn; evening/lap/Bar Harbor, Maine/Fowler

A huge object, with bright, colored, flashing lights hovered overhead.

1918 Feb/lap/--M(1954 n. 6)

A star descended to within 3 ft. of an observer and retraced its path. Seen for 10 min.

1918 summer/lap/Butte, Montana/Lore-Deneault

A dull red and orange object the apparent angular diam. of pea held at arm's length, moved south bobbing along the Continental Divide. Duration 30 min.

1918 autumn/lap/USA/UFOR (1978 v. 9)

A small light approached an observer, grew rapidly in size, stopped at a distance of 150 ft. and receded to its original position.

1919 Jan 23/lap/Derbyshire, England/Shuttlewood

A white ball of light hovered and became multicolored when its motion started. It changed to orange while moving.

1919 Dec 19/lap/Nutana, Saskatchewan/PA (v. 27)

An object with a yellow green tail brighter than Venus emerged from one cloud and disappeared in another. Seen 3 1/2 sec.

1920 Mar 24/lap/Limerick, Ireland/EM (111-120)

A highly variable, pulsating blue-white elongated patch was seen changing shape and splitting.

1920 Jun 3/lap/Mt. Pleasant, Iowa/UFOR (1976 v. 7)

A blue, translucent, egg-sized object, landed 15 ft. from an observer and rose when approached. The grass was pressed down where it landed and remained for 15 min.

1920 Jun 8; 18:00/lap/between Wathena, Kansas and Rushville, Missouri/FS(n.80)

A cylindrical object flashed green, orange, red and blue. It made a right angle turn into a cloud at 75 ft. altitude and left a vapor trail.

1920 Jun/lap/Texas, Gulf of Mexico/UFOR (1978), Wilkins (1955)

Four orange, green and blue discs, 30 ft. in diam. traveled very fast while in a line.

1920 Jul/disappearances/Bass Straights, Australia/Story

A schooner disappeared. Then a flash of light was seen in the search area and the search plane disappeared, too.

1920 Oct 23; 20:00-21:00/lap/Europe/A(v. 34 and 35)

A double, red bradyte was seen for 15 sec.

1920/lap/Montana/UFOR (1978 v.9)

A silver colored object traveled rapidly southeastward.

1921/abduction, ufo/Marseilles, France/Vallee (1965)

A person was abducted by two beings into a ufo. (An early abduction story.)

1922 Feb 22; 5:00/ufo, alien/Hubbell, Nebraska/Vallee (1965)

A circular object making a high pitched sound was seen in the sky. Winged creatures with 8 ft. spans landed like a plane and left traces in the snow. The object seemed to intercept star light. Duration 5 min.

1922 Mar 7; 11:00/disappearance/Llangollen, Wales/Jessup (1955)

An airplane disappeared over this populated area. (This is the place where winged pig was seen on Sep 2, 1905.

1922/lap/Wellstown, Ohio/Persinger-Lafreniere, UFOR (1978 v.9)

A bright, pink, funnel-shaped light descended, then rose until it became a point of light. Seen 30 min.

1922/lap/Donegal, Ireland/Steiger-Whritenour

Occupants of a cave were awakened by whirring sounds outside. An object fired jets of flame and smoke into the cave, wounding and sickening the inhabitants. The occupants ran out and saw a bright aluminum object ascend.

1922/lap/Manitoba, Canada/CUFOR (v.2, n.8)

A fiery red ball, 2 ft. in diam. was observed traveling westward 60°/sec. about 20 ft. off the ground.

- 1923; 21:00/lap/Indianapolis, Indiana/Lore-Deneault, Loftin
A rotating, red disc, the size of a passenger plane blinked out. It traveled southwestward at a 500 ft. altitude.
- 1924 Sep/lap/Wellingtonbridge, Ireland/FSR (v. 24, s. 5)
A silent beam of light traveled 4-5 mi. about 3 ft. off the ground, jumping a 7 ft. hedge in the process. Seen 30 min.
- 1925 Jul 14; 21:45/lap/Akron, Ohio/FS (1966 n. 48)
A comet-like object with a green and blue tail was seen at an altitude of 5,000 ft. making a faint hissing sound. It was so bright it was hard to look at. After it left with incredible speed, a 15 ft. elongated cloud remained.
- 1925 Aug 20/lap/Wolf, Wyoming/Wilkins
A bright meteor left behind a fiery red orange serpent. It had a head, 1 1/2 turns, and occupied 3° in the sky. Seen 5 min.
- 1925/ufos/Moora, Australia/Basterfield
Two saucers, each with 4 legs and oval windows, left a landing trace.
- 1925/aliens or ufos/Butte Mt., Nevada/Constable, UFOR (1978 v.9)
A clam-like saucer, 8 ft. in diam., with a reddish underside, landed on a flat mesa. It opened and closed its shell halves and oozed froth from the rim of a shell half where a piece was missing. The saucer brightened, pulsated, and unsuccessfully tried to take off when approached by an observer. Eventually, a larger saucer, 30 ft in diam. settled over the smaller one attaching itself with 4 sucker tongues. Both saucers brightened greatly and took off at 1,000mph. An awful stench remained and fine aluminum was left behind where the small saucer bled.
- 1926 Aug 5/lap/Kukunor, Tibet/Roerich, NICAP
A huge oval, reflecting sunlight, traveled at great speed while changing directions.
- 1926; 1:00/lap/Rumania/Hobana-Weverbergh
A whistling, illuminated object with its middle darker than its extremities, hovered over a field 5-10 min., then hovered over the observer 3-4 min.
- 1927 Jun 29/lap/---/PA(v. 35)
A red yellow meteor of apparent magnitude negative 14 was seen moving slowly. It had 2 or 3 flames shooting from it as well as luminous dust like matter about it. It was connected with comet Pons Winnecke.
- 1927 summer/aap/Wolf Co., Kentucky/UFOR (1978 v. 9)
A huge, hissing, red fish, with large fins forward and smaller fins in the rear, traveled eastward.
- 1927 Oct 18/ufo/Bakersfield, California/Lorenzen (1969)
A blue and gray, metallic or ceramic object, 60 ft. in diam., with lenses protruding from holes or windows, moved with a steady acceleration, as it made whining, humming, wheezing, and swooshing noises. The object left behind sand that was fused where it landed.
- 1927/ufo, abduction/El Paso, Texas/IUFOM (1978 n. 2)
A cigar-shaped object emitted clouds of steam while making a faint buzzing sound. Cattle were missing after the object landed. It was seen 3 times.

1927/ufo, lap/West Frankfort, Illinois/Sk (n. 27)

A shiny disc, with gondola underneath, hovered over a house as it simulataneously opened 4 to 5 portholes to emit blue and white light. As it moved it also rotated. The area below the disc appeared to be oil soaked. A sphere, 40 ft. in diam. was also seen 100 ft. away.

1927/lap/California/Wilkins (1954)

A long, yellow, cigar-shaped object traveled at great speed, made progress by contracting and elongating its body.

1928 Aug/lap/Tulsa, Oklahoma/F (1973 Oct)

A car engine missed, backfired, and died as a bright light came within 150 ft. of it. When the object burst into many colors the car restarted easily. (First automobile engine interference case.)

1928 between Nov 1 and Nov 11; 20:30-21:00/lap/Milton, North Dakota/NICAP

An inverted soup bowl-shaped object, 20-25 ft. in diam., shot out with a tremendous roar at a height of 10-20 ft. above the ground, frightening some cattle.

1928/lap/Alberta, Canada/Gray

A metallic cylinder seen in sky was photographed. (Photo appears in reference.)

1928/ufos/Morocco/Goran

A large number of 14th century ships were seen sailing out of the Atlantic O. into the sky. A Turkish emblem and the pennants of Portugal and Spain were displayed.

1929 Jun; 13:00/aliens, ufo/Fermeneuve, Canada/Vallee (1969)

Four to 5 dwarfs were seen rumming about a dark object, 15 m. in diam. and 5 m. high., with yellow lights. The voices of the dwarfs were child like, and a horse became nervous over the affair.

1931 Jan1; 1:00/lap/Coldon, Ontario/NICAP

A silver disc, with a white light and a red and green tail, was seen making smooth turns as it retraced a rectangular pattern.

1931 May; afternoon/lap/Trudumeddu, Sardinia/Bord

A football-sized object emerged from a dwelling and stood in the middle of a field. It traveled 16 to 20 Kmph causing bushes to part as they were approached.

1931 summer/lap/Edmonds, Washington/NICAP

A huge falling star levelled off, then traveled in curves and hovered overhead. In retracing its path, it turned as sharp as lightning. Observed 1 min.

1931/lap/Tasman Sea/Vallee (1965)

A silver pearl, with a flashing beacon, decelerated, then accelerated.

1931; 17:00/lap/Wallowa, Oregon/OUFO (v.1, n. 13)

Some mules were alerted to a particular area on the ground, and then their driver heard music from the same area, something like a piano. Eventually a silver object rose from the area.

1931/lap/Westsouthwest Australia/Hervey (1969)

A rotating, yellow disc, with yellow flames licking over it, traveled at a steady pace.

- 1932 Apr or May/ufo/Durham, New York/NICAP
An aluminum like disc, with yellow lights or port holes on its periphery, appeared.
- 1932 Jun; evening/lap/near Wattsburg, Pennsylvania/NICAP
A bright blue ball, 14 in. in diam. approached an observer to within 4 ft. Then it looped and left at 30 to 40 mph, later returning.
- 1932 Dec/lap/Hueloa, Spain/Ballester-Olmos
A luminous melon or ball of yarn became undone and descended with a deafening explosion, causing various electrical disturbances.
- 1932/alien/New Jersey/Story
Contactee Howard Menger made contact with a sexy blonde woman from Jupiter in the woods.
- 1932 or 1933 summer/lap/Oakland, California/Lore-Deneault
Seven, high altitude meteors, as bright as Venus, left a fiery trail and made a great circle arc. Seen for 40 sec.
- 1933 summer/lap/Beach Haven, New Jersey/Lorenzen (1969)
A light from a disc shined on some observers and a radio tower, as it circled about.
- 1933 summer; morning/ufo/Chryslerville, Pennsylvania/Vallee (1969).
An ovoid object, 6 m. in diam. and 2 m. thick, emitted light as it sat in a field. Instruments could be seen through an open circular door.
- 1934/lap/Ft. Logan, Colorado/Lore-Deneault
A red and blue disc, 40 ft. in diam., left a ring stain on the grass where it hovered. Seen for several min.
- 1934/lap/Ashley Clinton, New Zealand/Hervey (1969)
A white disc with a bright gold center, 20-25 ft. in diam., rotated as it moved in a curved path. It retraced its path and shot up.
- 1936 Oct 2; 16:18/lap/Spain/Wilkins (1954)
White smoke was seen heading earthward when it burst into orange flames, producing a vivid white light which then headed north.
- 1936 Oct/lap/London, England/DM (Oct 3, 1936), SA (1963 Mar)
On its way into a dwelling, a glowing ball cut a telephone wire and scorched a window frame. Inside, it dove into a bucket of water boiling it for a few min.
- 1936 early fall/lap/Bowie Co., Texas/JUJ (n. 154)
Stars arranged in a circle overhead changed places, darted about and stopped. Seen 30-40 min.
- 1936 winter/aliens/Kazakhstan, USSR/FSR (v. 24, n. 5)
A flying man in black was seen for 1 min. (First MIB report.)
- 1936; night/lap/Panama Canal/Lore-Deneault
A fourth magnitude red star moved in a straight line then stood still for a few min.
- 1936/lap/Willow Bank, Australia/Hervey (1969)
A golden spinning top with a long tail burned an observer's face as it approached and exploded.

- 1936 or 1937 late spring/lap/U.S./Hynek
Ten to 12 discs were seen to stack, cavort and dance.
- 1937 Feb 11; 21:00/lap, disappearance/---/Keel (1970)
A large plane, with red and green lights was seen resting on water. As it was approached the lights went out and the plane was enveloped in clouds and it vanished. (Similar event occurred elsewhere on Oct 24, 1937)
- 1938 May; dusk/ugp/Upton, Massachusetts/UFONS (n. 135)
Twenty-five lights issuing from the earth were seen ascending and disappearing at 1 sec intervals.
- 1938 Nov 20/lap/Pont St. Vincent, France/A (v. 52)
A very bright oval bolide was preceded by a series of bright wave fronts. Its luminous train remained 1 min. Sketch available.
- 1938; afternoon/lap/Minneapolis, Minnesota/Lore-Deneault
A white vaporous donut with 2 interwoven revolving parts traveled 5-10 mph about 100 ft. off the ground.
- 1938; night/lap/Bradford, England/FSR (v.27, n.3)
A 200 yd. long torpedo, with a blue haze about it and a row of bright lights, was seen traveling very rapidly.
- 1938 or 1939, alien/Juminda, Estonia/Vallee (1969)
A brown and green frogman, with a bobbing head, carefully accelerated away when chased. The creature was 1 m. tall and had a round head, hump on the front of his body and slits for his mouth and eyes. (Slits are a common feature for many modern aliens reports.)
- 1939 Apr 26/lap/France/Condon
A flash of lightning branched into three directions. The first impact point produced a ball 15-20 cm. in diam. at a height of 25 m. above ground level. An observer 4 m. away felt a breeze as the ball passed by on its way up an iron cable which it melted and pulverized. At the second impact point a similar ball was produced which touched the top of a crane and exploded with long blue sparks. These flames knocked one person down and shocked another. At the third impact point a ball as large as two fists went down a lightning rod to the ground. (Best account of ball lightning.)
- 1939 Jul; 21:30/lap or technology/Pittsburgh, Pennsylvania/Lore-Deneault
A tilted sword or airliner hung in the air for 15 min.
- 1939 Sep/lap/Shenies, New Zealand/Sk (n. 43)
An orange globe, 150 ft. in diam., hovered, moved south, bounced and returned to its original position.
- 1940 Jul6/lap/Hammersley Fork, Pennsylvania/Stringfield (1957)
An aluminum dishpan was seen in the air. One man who saw it was placed in an insane asylum for two years. Another man who saw it was killed by his wife. (This is the place that also had an Oliver Luck type of disappearance in 1865. The Oliver Luck event is described in the 1890 Dec 24 entry.)
- 1940/lap/Dalesville, Quebec/Lore-Deneault
A ball of light as bright as the moon, 15 to 21 in. in diam., moved off a hilltop like a flushed partridge. It climbed at 50 mph, lurched,

and sputtered, sounding like an electric drill with a damaged commuter.
Observed 15-20 sec.

1941/aliens, ufo/Switzerland/Vallee (1965)

Three sets of footprints were found to stop in some snow near 3 holes arranged in an equilateral triangle with 13 m. sides.

1941 Dec 22; 14:15/lap/Utica, New York/Lore-Deneault

A metal disc, 100 ft. in diam., traveled 300 mph at an altitude of 400 ft. Seen for 10 sec.

1941 Dec/lap/Georgia/Lore-Deneault

A star moved in counterclockwise circles, stopped and then moved upwards.

1941 or 1942/lap/China/TFSUFO (n. 23)

A hat-shaped object in the air was photographed.

1942 Feb 25; 2:15/lap/Los Angeles, California/Craven-Cote, LAT(Feb 26, 27 and Mar 1, 1942), WP (Feb 26, 27 and Mar 1, 1942)

Six luminous, white points flew in a tight triangular formation. The objects were detected with radar and were fired upon with anti aircraft guns. Duration 2 hr.

1942 Feb 26/lap/France/Vallee (1965)

Three observers saw an aluminum disk travel at high speed as it circled about and then left.

1942 Apr 4, 5 and 6/lap/Sahara Desert/Pereira

An aluminum object was seen hovering and rotating on each day for 8 hr.

1942 Aug 12/lap/Pacific O./Lore-Deneault

A formation of 150 silver objects flew in straight lines, wobbled about slightly, roared and disappeared swiftly.

1943/teleportation/east coast of U.S./Moore-Berlitz

A destroyer escort was teleported in sec. between Philadelphia and Norfolk ports.

1943 Sep; 4:00/lap/Oncativo, Argentina/Vallee (1969)

A large whistling saucer with a blue and green glow, rose 100 ft. off the ground and left with a fantastic speed. A metallic block from the saucer remained behind.

1944 early Jul/lap/Charlotte, North Carolina/Hervey (1976)

Five silver-blue-green saucers with domes, 25 ft. in diam., hovered overhead. Observed 3 min.

1944 end of Aug/technology/Mattoon, Illinois/Vallee (1969)

A witness' consciousness was dissolved when a man pointed an object at him.

1944 summer/lap/Queens, New York/Lore-Deneault

A shiny cigar-shaped object hung low over some trees.

1944 Sep 24/lap/France/Condon

Six objects were seen in the sky arranged in a line.

1944 Sep/lap/Belgium/F (1974 Dec)

A glowing globe with a cloudy glass appearance traveled 30 mph at an altitude of 40 ft. The object was obviously powered and controlled. Four other objects followed the first one.

1944 Sep/lap/Oliver Spr., Tennessee/Lorenzen (1969)

A white object, 30 ft. long and 4 ft. wide, appeared 50 ft. in front of a car at windshield height. It moved with the car, rose high and disappeared. (Ground level foo fighter.)

1944 Oct/ufl/St. Paul, Minnesota/Lore-Deneault

A 6 ft. diam. disc with black stripes, made a slow turn as it hovered over some trees, and a light was seen from a frosted window on the side. It left with jet speed.

1944 Nov/lap/Phillipines/Lore-Deneault

A green globe was seen streaking upward as it described a perfect parabola. It then left to the north faster than a missile.

1944/alien/Hawaii/NUH (n. 150)

A person participated in the retrieval of an alien body taken from a crashed ufo.

1944/lap/Apache, Oklahoma/F(1968 Jul)

A silvery train of 9 cars made sounds of rushing wind.

1944/lap/Plousti, Roumania/Hobana-Weverbergh

A pointed yellow object came from the north and flew about a bombed out refinery. Leaving a white trail, it departed at 3 to 4 times the speed of an airplane.

1944 or 1945; 16:20/ufo, aliens/Christchurch, New Zealand/MUJ(n. 177)

Several small green figures inside transparent cases were seen in an upturned saucer. The figures were about 120 cm. tall and had large heads. When approached the LGMs drifted into the saucer opening and took off. (See Martian analysis for green children from Mars in 1887.)

1945 Mar/lap/Belfast, Maine/FS (n. 12), Vallee (1969)

A dull black and metallic white object slowly crashed into some trees. As it lifted up it spun, releasing silvery threads and rose straight up. Observers smelled burned sulphur and felt dizzy.

1945 Mar/usp/Aleutian Is./Lore-Deneault

Fourteen observers saw a 400 ft. diam. sphere break out of the water, circle their ship and fly away. (Similar to 1945 summer entry.)

1945 May 23/lap/Tokyo, Japan/ST (Jul 12, 1947), WSJ (Jul 18, 1947)

A 20 sq. yd., blue-gray object was seen moving at taxi cab speed with an area of colored waves following it.

1945 Late Jun or Jul 11; 17:00-18:00/lap/Long Beach, California/MUJ (n. 139)

A bright yellow point broke up into pieces and fell.

- 1945 Jul/lap/Los Angeles, California/Rogo
White smoke was emitted from some orange darts that were plunging earthward. All objects followed the same path and some stopped to retrace their path. Duration several hr.
- 1945 Aug 10; 3:00/lap/East Paterson, New Jersey/Lore-Deneault
A red and green rectangular object glided near the ground and shot upward.
- 1945 Aug; 2:00/lap/6600 mi. southeast of Kyushu, Japan/Lore-Deneault
A star traveled near the horizon, changing from white red to blue, when its speed increased to 3,000 mph. The object was believed to be extra-terrestrial in origin.
- 1945 summer/lap/Wilmington, Massachusetts/Lore-Deneault
A long silver cigar-shaped object traveled at great speed, then hovered near some water.
- 1945 summer; sunset/usp/between Seattle, Washington and Alaska/Sanderson (1970)
A round object, 150-250 ft. in diam., emerged from the sea, transited the sun, circled a ship and climbed straight up. (Similar to 1945 Mar entry.)
- 1945 Sep 20-22/lap/Dragingson, France/FSR (1973 n. 14)
A circular yellow glow, the size of a football, hovered 30 m. above the ground as it throbbed and hummed. The object had a stem protruding from its upper portion and shined a powerful light beam below. These phenomena caused sheep to flee, a dog to be fearful and a man to hide in a bush while he clung to avoid falling.
- 1945 Dec 5/disappearance/Bermuda Triangle/Landsburg-Landsburg
Five planes disappeared after transmitting the radio message; "They look like they're from outer space---don't come after me."
- World War II/lap/Jamaica/Sanderson (1967)
Troops chased an intense green sphere, 2 ft. in diam., which came from the sky and bounced along the road.
- 1946 Jan 22/lap/Cincinnati, Ohio/Gross
A ball of fire blinded a witness and produced electrical power outages.
- 1946 Feb/lap/Brazil/Stringfield(1977), Keel
A shaft of light from the sky struck a man causing grotesque rapid flesh decomposition. His skin opened, muscles sagged, and flesh rolled off. (Also reported as Mar 5 at Aracanguama.)
- 1946 Mar; 16:00/lap/Bernardston, Massachusetts/Lore-Deneault
Three hovering discs were photographed.
- 1946 Apr or May; afternoon/lap/Lafayette, New York/NICAP
A metallic cigar-shaped object, 300 to 400 ft. long, hovered at an altitude of 5,000-10,000 ft.
- 1946 May/lap/La Grange, Florida/Lore-Deneault
A whistling football-shaped object, 15 to 20 ft. long, traveled 125 mph at altitude of 1,000 ft.

1946 Jun/ufo, aliens/---/Stemman

Contactee Howard Menger saw two men and a woman dressed in pastel uniforms step from a ufo. The woman was 500 yr. old and told him to use his mental powers to ready for important events of the future.

1946 Jul/lap/San Antonio, Texas/F (n. 135)

A rose colored object as large as a house was seen traveling 30 ft. off the ground. It traveled close to a house and retraced its path after traveling 10 blocks. One witness had a dreamy feeling and could not stand up while a second witness was put into a trance.

1946 Sep 11; 5:00/lap/Ulysses, Kansas/Green-Smith

A dull copper object, as wide as a highway lane, skimmed along the road 3 ft. off the ground. It banked sharply to avoid collision with a car and made sounds like rushing wind.

1946 summer; 16:30/lap/near Washington, DC/Lore-Deneault

A large top descended like an airplane, spun counterclockwise and tumbled end over end as it eased over the trees. It traveled from horizon to horizon in 3 min.

1946 summer/ufo, aliens/Johannesburg, Africa/FSR (v. 24, n. 5)

Twenty to 30 ft. diam. Saturn shaped objects were seen with 2 white uniformed, humanoids nearby. The ball was detached from the rings which was supported by pillars.

1946 Oct 9; night/lap or aap/San Diego, California/FSM (n. 28), Hurwood, Story

A 40-50 ft. long object was seen scanning the city all night. It had a gray head, dull cherry eyes, an antenna for a tail, and wings with phosphorescent leading edges. A psychic medium felt it was from another planet. This is also the date contactee George Adamski saw a dirigible-shaped mother ship over Palomar Gardens, California, which carried smaller vehicles inside. Possibly related to the 1798 Oct 9 entry. This is also the night a photo was taken of a meteor which may have exhibited a serpentine path of 12 cycles. (PA[v. 55])

1946 Oct; 19:00/lap/Paterson, New Jersey/Lore-Deneault

A bright circular object was seen hovering at an altitude of 300 to 500 ft. for 30 to 40 sec.

1946/lap/Crucroft Is./FSM (n. 27)

A red hot ball, the diam. of the moon, hovered at an altitude of 200 to 300 ft. at a distance of 900 ft. It shimmered as it approached the observer and rose in a curved path. The observer felt mental contact with the object. It disappeared when the sky lighted up with a flash of lightning.

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3. GROUPED SUBJECT DATA

3.1 Vulcan

Many dozens of observations of small round objects transiting the sun were made during the 19th century that were associated with the planet Vulcan, which was supposed to be in orbit between the sun and Mercury. Collections of the data appear in the works by Weston, Neelcy, and this writer. Astronomers were convinced the planet existed because it could explain some of the perturbations observed in the orbit of Mercury and astrologers believed the small planet existed, too, because with its presumed astrological properties, they felt certain prognostications could be improved upon.

Heightened activity concerning Vulcan began in 1859 when amateur astronomer Lescarbault informed the world prominent astronomer, Leverrier, that he, Lescarbault, had seen a small round spot transit the sun. Leverrier looked into this observation as well as others of Vulcan and developed a set of orbital parameters to represent the observation. He then predicted a transit of Vulcan causing the astronomical community to wait with bated breath. In 1846 Leverrier was able to make orbital perturbation calculations to discover Neptune, so it was reasonable to believe he could also make the first predicted transit of Vulcan.

Some of the years during which observations of objects transiting the sun, thought to be Vulcan, are listed below along with the observer's name:

1720 Alischer	1823 Pastorff (2)	1859 Lescarbault
1721 Alischer	1834 Pastorff (4)	1860 H.E.P.
1784 Fritch	1836 Pastorff (2)	1860 Russell
1802 Fritch	1837 Pastorff	1869 Denning
1818 Lloft	1847 Scott	1873 H.E.P.
1819 Gruithuisen	1847 Schmidt	1878 Swift and Watson
1819 Stark	1849 Hind	1897 German astronomers
1822 Pastorff	1849 Lowe and Seidebotham	1898 German astronomers
		1907 Isbister

The American Federation of Astrologers published an ephemeris for Vulcan from 1907 to 1910.

3.2 Mars

Noteworthy observations and reports associated with Mars are listed below along with a source. Since the study of Mars will allow a definitive conclusion the data are extended beyond the normal cutoff for this catalog to 1976.

1719 Astronomers perceived Mars was a comet headed on a collision course with earth. (Moore)

1873 Astronomers reported Mars split in two and that a large meteor emerged from the planet and reached earth. (AJS)

1877 Hall discovered the two moons of Mars. Then a third moon was erroneously reported (NYT). Schiaparelli first saw canal networks on Mars (Figure 3.2.1, Moore). A crashed ovoid and a pilot's body was reported in Argentina. A map on the body indicated he was from Mars (Huneus).

1887 Green children were found in Spain and were presumed to be from Mars (Bergier).

- 1891 Guzman offered a 100,000 franc prize for communications with aliens, except Martians (Moore).
- 1892 Flammarion concluded a superior race inhabited Mars (Pannekoek).
- 1896 to 1899 Smith revealed her travels to Mars under hypnosis and produced a Martian-French dictionary (Figure 3.2.2, Flournay).
- 1896 A man was almost abducted by a Martian from an airship which landed in California (SEM, Cohen).
- 1897 Lassivitz wrote a science fiction story of travel to Mars with a gravity nullifying device (Lassivitz). Wells wrote a science fiction story involving an attack by Martians (Wells). Two nude Martians were seen near a four legged vessel resting on the ground (Cohen). A crashed airship, pilot's body, and papers were reported in Texas (Cohen). Six Martians presumably hoisted a heifer on board an airship and slaughtered the animal (Cohen). A meteorite landed in New York State, apparently with a message from Mars (NYT).
- 1901 Schmail suggests communicating with Martians by making outlines of constellations (NYTr).
- 1906 Lowell concluded Mars was inhabited (Moore).
- 1909 Aliens reportedly landed in Wales, in the style of Wells' Martians (Vallee 1965).
- 1913 Photographs by Lowell and Jarry Deslogues were used to corroborate the existence of life on Mars (Figure 3.2.3, NYT).
- 1920 Nieman and Nieman consider sending pulse coded messages to Mars (Nieman and Nieman).
- 1923 Flammarion urged psychic communications with the Martians (NYT).
- 1924 The public prevailed on the U.S. military to listen for Martian communications (Bradbury).
- 1928 A New Jersey man announced he was a Martian (Fort). Robinson sent a wireless message to Mars (LT).
- 1933 Piccard reportedly burst into the chambers of the World Economic Conference, announcing an imminent attack by the Martians (LT).
- 1938 Welles' fictional radio broadcast of a Martian invasion was believed by many (NYT).
- 1939 Slipher reported conclusive proof of organic life on Mars (LT).
- 1947 Lhote discovered a depiction in the Sahara of a humanoid which he called a Martian (Lhote). Goddard's rocket testing grounds at Rosswell, New Mexico became the site of a crashed saucer, some say with a Martian (Berlitz and Moore).

1950 A live Martian was reportedly photographed in Germany. This was eventually shown to be a hoax (Figure 3.2.4, WT).

1954 One hundred sightings or landings of Martians were reported in Europe (Vallee, 1965).

1959 Shklovsky announced the two Martian moons were hollow and were launched by Martians millions of years ago (NYT). Confirmation of Martian vegetation was reported by deVaucoulers (NYT).

1965 Mariner IV flew past Mars and showed canals did not exist (Moore).

1971 Mariner IX flew closer and showed intelligent settlements did not exist (Moore).

1976 Viking I landed on Mars and showed life did not exist at all (Moore).

The four figures mentioned above appear in the following three pages.

3.3 Airships

Airship sightings in large numbers first occurred in California in Nov 1896 and then spread to much of the nation by the following spring, peaking in the mid-west in mid Apr. The data are found in almost unlimited quantity in newspapers. Those who have collected data which involves reported sightings of airships, lights, balloons, and assorted other objects include:

1965 Vallee	1968 Lore and Deneault	1977 Eberhart
1966 Clark	1970 Hanlon	1981 Cohen
1966 Gibbs Smith	1974 Gross	1982 Neeley
1968, 1969 Clark and Farish	1975 Jacobs	1982 Winkler
		1982 Bullard

Although Cohen's work is the first book sized writeup on the subject, systematic searches of newspapers at least for limited areas have only been made by Eberhart for Ohio, and Neeley for Illinois. By far the most extensive collection of data, however, is that of Bullard covering 33 states and Canada.

One area related to the flap which has only begun to be investigated is the extent of airship and balloon traffic prior to the flap. Searches by this writer indicate data available here is about as voluminous and complicated as the airship flap itself.

3.4 Foo Fighter Data

Foo fighters were glowing round objects of various size, color, and behaviour seen from airplanes during World War II, generally over Europe. The term "foo" is derived from the French word referring to fire, "feu." These reports are distinguished since they provide a maximum amount of in-depth experiences with ufo-like objects. Unfortunately, most of the reports are undated and will limit their analysis.

Except for their altitude, their dynamic and spectral characteristics are indistinguishable from the majority of the preceding chronological entries and the foo fighters have been classified as laps. The following data are foo fighter observations, primarily from 1942 to 1945.

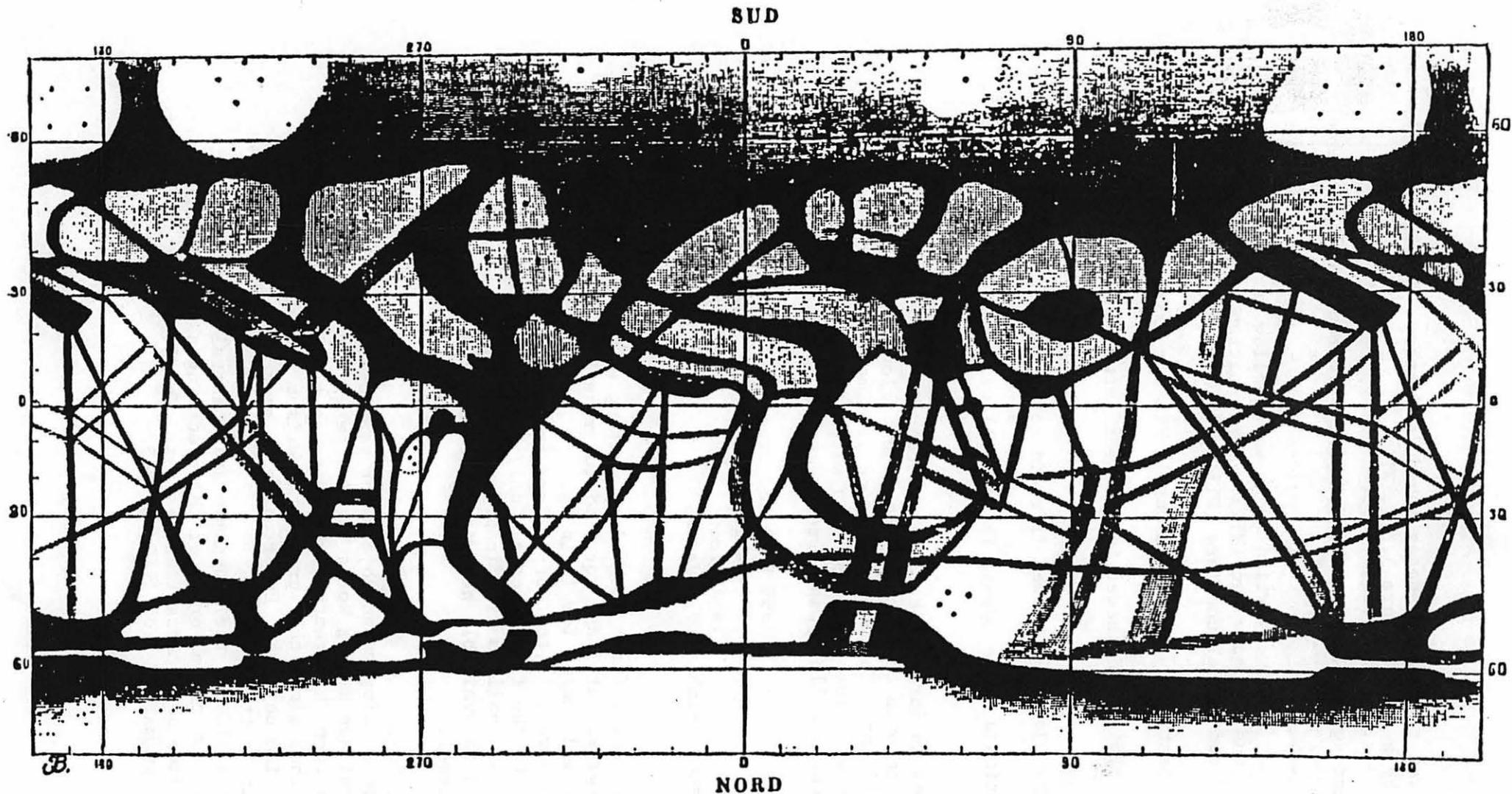


FIGURE 3.2.1: CANALS OF MARS SKETCHED BY SCHIAPARELLI IN 1881 AND 1882. (FROM P. MOORE)

i55c1. 04241 5155c 52410c1 4110
 524112c 01c + 5c 525 ~~~~~
 1c1c. 7c 5525 5c15 4c i55c1.

FIGURE 3.2.2: SOME OF HELEN SMITH'S MARTIAN LANGUAGE WRITTEN WHILE UNDER HYPNOSIS IN 1898. (FROM FLOURNAY)

THEORY THAT MARTIANS EXIST STRONGLY CORROBORATED

STRIKING SIMILARITY OF PHOTOGRAPHS OF MARS TAKEN BY PROF. LOWELL AND BY JARRY-DESLOGES AT DIFFERENT TIMES AND PLACES



FIGURE 3.2.3: EVIDENCE THAT INTELLIGENT LIFE EXISTED ON MARS DURING 1913. (FROM NYT NOV 9, 1913)



FIGURE 3.2.4: A SKETCH OF A WORN PHOTOGRAPH WHICH THE WIESBADENER TAGBLATT PUBLISHED ON APR 1, 1950. (FIGURE PROVIDED BY DENNIS PILICHIS, UFO INFORMATION NETWORK, P.O. BOX 5012, ROME, OHIO)

1938 Jun/Delaware, Illinois/Gaddis

A midair crash between an airplane and a luminous object was preceded by a flash and then followed by a blaze and explosion. Nine on board the airplane were killed. A similar event occurred on Jul 24, 1938, on the Polish border.

1942 Aug 29/Columbus, Mississippi/Lore-Deneault

Two red objects were seen hovering.

1942 Nov/west coast of France/TFSUFO (1977 n.5)

A large object appeared behind the airplane, then overtook and paced it for 15 min. Eventually it gained altitude and made a 180° turn. The object was photographed.

1942/Tasman Peninsula/Wilkins (1955)

An object, 150 ft x 50 ft., flew parallel to the airplane and then turned away. It had the face of a Cheshire cat and flashed blue-green.

1942/Ziuder Zee, Holland/Trench (1966)

As an orange disc followed the airplane the tail gunner fired at it leaving no impression on the object. It traveled at a speed of 180 mph, an altitude of 15,000 ft. and at a distance of 2,000 to 3,000 yd. The object left with a speed of 1,000 mph.

1943 Sep/France/Hobana-Weverbergh

A flashing, jet black, cigar-shaped object was seen traveling at three times the speed of the airplane when it abruptly stopped 1 mi. away and turned and circled the airplane.

1943 Oct 14/Schweinfurt, Germany/Edwards (1967)

A formation of silvery discs, 3 in. x 1 in., closed rapidly on the airplane. A wing passed through the cluster and one hit the tail with no effect. A cloud of black debris, 3 ft. x 4 ft., was also seen about 20 ft. from the discs.

1943/Arizona/OUFO (v. 1, n. 3)

An airplane was attacked by two luminous objects that cast a strong beam of light on it. When the airplane exploded the crew bailed out and the beams ignited the parachutes, sending them to their deaths.

1944 Feb/Victoria, Australia/FSM (1957 n. 27), Story

A dark shadow appeared along side of the airplane for 18-20 min. as it flickered and belched flames. It accelerated to three times the speed of the airplane at an altitude of 4,500 ft. The airplane's radio and directional instruments failed in the presence of the object.

1944 May/English Channel/IUFOM (1978 n. 2)

A half dozen silvery discs, 5 ft. in diam., rushed toward the airplane at a fantastic speed. Then the intercom went dead, the compasses haywire, and other instruments froze. There was a raspy sound on some of the intercoms.

1944 May/Austria/OUFO (v.1, n.2)

A German pilot photographed one of the objects.

- 1944 Aug 10/Palembang, Sumatra/Lore-Deneault
Two pulsating objects, one red-orange, the other blue-green, paced the airplane. Although the pilot maneuvered sharply the objects followed and then left straight up. Also, 100 mi. north a red-orange sphere, 5 to 6 ft. in diam., followed another airplane 500 ft. off a wing for 8 min. It eventually made an abrupt 90° turn and left rapidly.
- 1944 summer/Normandy, France/Lore-Deneault
A pulsating, red object was seen sailing and then hovering for 15 min. Eventually it went away.
- 1944 Oct; 21:30/Weert, Netherlands/Lore-Deneault
A point of light twice the brightness of Venus was seen for 45 min.
- 1944 Nov 23; 22:00/Alsace Lorraine, Germany/Arnold-Palmer
Glowing objects were seen traveling at fantastic, variable speeds. They changed in color from orange to red to white to orange.
- 1944 Nov 24/Germany/MUJ (n. 133), Lore-Deneault
A blinding red amber light was seen for a few sec. and its heat could be felt inside the airplane. Then a 10 ft. diam. disc appeared 50 yd. off a wing moving to a position 10 yd. to the rear. The object paced the airplane for 45-50 min. and suddenly went out.
- 1944 Nov 27/Alsace Lorraine, Germany/Arnold-Palmer
A huge fiery, orange object was seen traveling at 250 mph.
- 1944 Nov; 22:00/Rhine near Strasburg/Lore-Deneault
Eight to 10 orange lights were seen off the wing of an airplane. The pilot banked into the objects and they vanished only to reappear later. Bright, red objects were seen at other times.
- 1944 Nov/Santa Rosa, California/Lore-Deneault
A huge red light appeared, and in response the pilot did a wing-over and dive. The object disappeared.
- 1944 Dec 22; 6:00/Hagenau, Germany/Lore-Deneault, Arnold-Palmer
Two large, orange glowing objects climbed to a 10,000 ft. altitude and leveled off on the tail of the airplane for several min. Then the object changed into an airplane and did a wing over and left. A red flame was also seen on the 23rd.
- 1944; 23:30/Los Angeles, California/Lore-Deneault
A red-orange light from the sky stopped 100 yd. above the airplane. It moved higher and farther as it was approached by the airplane, but eventually it came closer. Seen for 5 min.
- 1944/Neustadt, Germany/Arnold-Palmer, Lore-Deneault
Fifteen glowing objects followed the airplane with their lights winking on and off. A gold colored ball was also seen moving slowly in the daylight.
- 1944/India/FSM (n. 18), Constable
An airplane's propellers were immobilized with a ray from a glowing disc.

- 1945 Jan/Germany/Lore-Deneault, Arnold-Palmer
Three formations of red and white objects followed and overshot an airplane as the airplane made a steep climb.
- 1945 Mar/Brenner Pass, Europe/OUFO (v.1, n.2)
A yellow-white light, smaller than a basketball, approached the airplane at an incredible speed. It almost attached itself to the wing of the airplane and synchronized its motion with the airplane's. The pilot felt as if he were being observed by intelligence. Duration 2 to 3 min.
- 1945 May/Ohrdorf, Germany/Lore-Deneault
A yellow-white fireball went from horizon to horizon in 2 sec., with a wobbling motion.
- 1945 Aug 28/Iwo Jima, Pacific O./Lore-Deneault, Stringfield (1957)
Three brilliant blobs kept pace with the airplane as it developed engine trouble at 10,000 ft. It lost altitude and oil from the engine, and the magnetic navigation system went wild. When the airplane pulled up, the objects remained below and the engine began to work properly again.
- 1945 summer; day/India/Macvey
An oval object, which appeared below the airplane, became hazy and changed in color from heliotrope to pink. It paced the airplane for 5 min. as it pulsed and then disappeared.
- 1945; dawn/Truk Lagoon/Lore-Deneault
Two red lights, the size of a basketball, changed from orange to white to orange. One turned back while the other paced the airplane and shot ahead by 1,000 yd. Duration 1 hr.
- 1945/English Channel/Lore-Deneault
An object at 2,000 ft. altitude rose, fell, swung off, and traveled at a high speed.
- 1945/Formosa/Stringfield (1957)
A chain of luminous globes followed one another in a spiral climb, passing the airplane and going out of sight.
- 1945/Honshu, Japan/IUFOM (1978 n.2)
Some airplanes were approached from behind and then paced by six round, silver objects. The objects were obviously under intelligent control and sensitive to every move of the airplanes.
- 1945/Shimonoseki, Japan/IUFOM (1978 n.2)
A brilliant, red object with a halo followed the airplane. It traveled smoothly and the pilot could not accelerate his craft. The controls did not respond while the needles and dials spun wildly. The object turned and left.
- World War II (WW II)/England/Wilkins (1954)
Strange balls, doing an aerial ballet, were seen following and then easily overtaking some airplanes. On another occasion 15 to 20 balls followed at a distance, emitting flames and winking in and out.

WW II/England/FSR (v. 28, n. 2)

A foo fighter was retrieved which had glyphs on its side. Photos of the object were made.

WW II/Germany/Vesco

An airplane felt the backwash produced by the passage of a fiery ball.

WW II/Germany/Macklin

Four objects that were pacing some airplanes made a 90° turn at a distance of 800 yd. When they approached the planes within 300 yd., they moved up and went away. In another instance an object passed over the airplane as the pilot attempted to overtake the object. Then the object descended like a helicopter.

WW II/Germany/Flammondé

One pilot experienced various foo fighters in a number of his flights. He encountered red balls off his wings or up front, and groups of light at a distance. Once, at 700 ft., an object pursued him for 20 min., matching the airplane's maneuvers at 260 mph. Another time, one paced him at the wing tip at 360 mph.

WW II/Eastern Europe/Lore-Deneault

A silver dollar sized object entered an airplane through a hole in the hull. It stopped in front of the pilot, surveying the instruments and crew. It remained for 25 sec. and then left through the same hole.

WW II/Europe/Vesco

An airplane was followed by 15 fiery balls, which in turn approached the wings and blinked in brightness. The objects spun and produced an intense heat. While the objects were nearby the radar ceased functioning.

3.5 Ghost Rockets and Fliers

Ghost rockets were glowing objects seen traveling over Scandinavia primarily during July and August in 1946. They exhibited a variety of shapes and colors and could be found traveling at various altitudes and speeds. At times they collided with objects or the ground, and left traces. Bullard has many Scandinavian accounts from Swedish newspapers which are more complete than the often quoted source, Gross (1974).

Ghost rocket activity was preceded by an "exceptional" auroral display on Feb 26 over Helsinki and by a "powerful, flaming aurora" on Jul 26 over Stockholm. Reports of isolated luminous phenomena started to appear in Morgon Tidningen as early as May 4, and on Jun 9 an airplane exhaust left an afterglow.

Whether this class of objects is related to the ghost fliers of Scandinavia of 1933 and 1937 is not clear. The ghost fliers appeared primarily in Jan and Feb each year and involved accounts of lights, sounds, and airplane sightings. Bullard has an extensive collection of Scandinavian accounts of ghost fliers from Swedish newspapers. While it was speculated that the ghost rockets were Russian guided missiles, the ghost fliers were thought to be contraband smugglers.

Except for their altitude, the dynamic and spectral characteristics of the ghost rockets are indistinguishable from the majority of the preceding chronological entries and they have been classified as laps. The following is a list of ghost rocket accounts only:

- 1946 Jul 9/Sweden/SD (Jul 11, 1946), Bullard
An object with a fiery streak fell on a beach leaving a shallow crater 1 m. in diam. and some slag. The slag was yellow and black and left a smell. Examination of the slag revealed a piece of paper with small checkerboard markings on it. Another object which changed from blue to green and had a long tail, fell into a lake. This object also left a smell behind.

- 1946 Jul 11/Sweden/SD (Jul 13, 1946), Bullard
A winged fireball with a copper tail traveled at an altitude of 50 m. and then fell in a field.

- 1946 Jul 19/Norway/SD (Jul 21, 1946), Bullard, MT (Jul 21, 1946)
An object with a 25 m. wingspan was heard sighing loudly as it passed and fell into a lake leaving a vaporous cloud. Other objects were sighted elsewhere.

- 1946 Jul 29/Norway/Gross (1947)
An object with lettering on its side was seen diving into a lake.

- 1946 Aug 1/Tampa, Florida/Lore-Deneault, SD (Aug 2, 1946)
A large, luminous object on a collision course with an airplane veered away at a distance of 1,000 yd. The object had port holes, a trail of fire and a rocket propulsion system. Seen for 2 1/2 to 3 min. In Sweden three additional objects were seen, one glowing and two others cigar-shaped that exploded.

- 1946 Aug 9/Sweden/SD (Aug 10, 1946), Bullard
An observer was almost hit by a bright, egg-sized object that traveled at great speed. It fell to the ground and hissed.

- 1946 Aug 11/Sweden/Flammonde, Gross (1974), NYT (Aug 12, 1946), SD (Aug 12 and 14, 1946)
A swarm of fireballs with trails appeared traveling northeastward. One elongated object spewed blue-green smoke and fireballs. It exploded with a flash blinding a witness. Some objects were identified as part of the Perseid meteor shower.

- 1946 Aug 12/Sweden/NYT (Aug 14, 1946), SD (Aug 13 and 14, 1946)
A missile with wings and fins turned 35° from its flight path and returned to its original course. Many other luminous objects were seen which emitted sparks during their southward flight. One object glowed like a carbide lamp, had a wiry tail, and was followed by two somewhat smaller dark bodies.

- 1946 Aug 13/Sweden/Gross (1974)
An object struck a reconnaissance plane, killing 3 on board.

- 1946 Aug 16/Denmark/SD (Aug 17, 1946)
A line of luminous objects were seen. In another instance an object was seen traveling northward like a glowing cigar which had 20 m. flames separated from it.

1946 Aug 20/France/SD (Aug 21, 1946)
Long, whistling objects were observed every night for a week. One was enormous with an orange-red tail.

1946 Aug 22/Sweden/SD (Aug 23, 1946)
Two unusual objects were seen. One was a motionless ball that had some faint smoke about it, and the other a star-like object which moved slowly in jerky fashion.

1946 Aug 27/Denmark/SD (Aug 29, 1946)
A peculiar, yellow light formed into a ball and exploded, sending out a sea of fire in the form of a thousand sparks. In Sweden a red ball was seen traveling with enormous speed. On the 28th a little black cloud was seen traveling rapidly over Sweden.

1946 Sep 18-24/Italy/CdS (Sep 19 and 25, 1946)
Many fiery balls left trails in the sky.

1946 Sep/Finland/Gross (1947)
An object was seen traveling slowly at an altitude of 15 mi. It exploded 3 times, changing from red to orange, increasing in speed with each outburst. It ejected fragments that glowed for several min.

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ABSTRACT

The analysis here is based on data appearing under separate cover as PART I of this report. Earlier entries, which are often undated, are given an historical treatment, while later data, which often appear in scientific periodicals, are given a technical treatment. No compelling evidence was found to substantiate an extra-terrestrial intelligence hypothesis. But, considerable evidence is available that the largest class of data, specified as luminous atmospheric phenomena, is geomagnetic in nature and of cometary origin.

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1. HISTORICAL ANALYSIS

This analysis is based on undated catalog data appearing under separate cover as PART I of this report. The data from the Chronological portion of the catalog concerns ancient and medieval entries, while data from the Grouped Subject portion concerns Vulcan, Mars, and the 1897 airships.

1.1 Earliest Entries

The history of societies before the first millenium B.C. is at best sketchy and discontinuous. Nevertheless, four entries in this catalog are reported as occurring long before this time and offer information concerning aliens and craft with astounding detail. These entries are as conspicuously more detailed compared to any other archeological evidence of the period as they are unsubstantiated.

Paleolithic and other very old cave paintings also precede the era of recorded history and little is known of the societies responsible for the art work. Consequently, interpretations of depictions of strange looking objects and humanoids as being ufos and aliens, respectively, are speculative.

Data from the ancient era, before the 6th century A.D., are somewhat more definitive than early paintings, but still defy reliable interpretation. Terminology used is often vague or in a context not clear to the modern mind, and differentiating between fact and fiction is often impossible.

1.2 Vulcan and Solar Transits

If Vulcan were a planet with an orbit near the plane of the ecliptic and inside the orbit of Mercury, it could be observed transiting the sun. To differentiate the transit of Vulcan from that of Mercury or Venus, the times and positions of the transits of the inner planets must be determined. These data are found in a variety of nautical almanacs. During the 19th century, transits of Venus occurred during the dates Jun 5-9 and Dec 7-11 in 1874 and 1882. Similarly the transits of Mercury only occurred during May 5-11 and Nov 5-15, about 15 times per century. None of these known transits coincide with sightings of Vulcan appearing in section 3.1 of PART I.

In spite of all the reported sightings of Vulcan, existence of the planet has never been confirmed. Discovery would certainly have been made by now if the planet existed since continuous photographs of the sun have been made by astronomers for many years. While a few of the observations of Vulcan may have been of isolated, circular sunspots without penumbral features, it does not seem possible that all the observers could have been deceived this way so often. Just what was seen transiting the sun is not clear.

While it is evident that the idea of Vulcan does not resemble ufos or aliens, the history of this planet is still instructive to the study of ufo-like data. The 19th century was the greatest for the discovery of objects in the solar system, and credit for the discovery of objects such as moons, comets, asteroids, or planets brought fame to the discoverer. So it appears that many wished to see Vulcan so much they reported that they did. A more detailed account of Vulcan appears in an article by this writer in the Griffith Observer.

1.3 Mars

Although Mars can be fairly well observed every 2.1 years when it is opposite the sun, it is closest to us only every 15 to 17 years. The years

of these relatively infrequent favorable oppositions, occurring in 1877, 1892, 1909, 1924, and 1939, have much more of the noteworthy data associated with them than other years. But, the interplanetary vehicles sent to Mars by N.A.S.A. in 1965, 1971 and 1976 showed there was no life on the planet or even any features attributable to former intelligent life. Consequently, all the data of section 3.2 of PART I is imaginary.

Much of the initial misinterpretation was due to astronomers, occurring in a variety of ways. The earliest blunder involved a simple visual observation with a telescope in 1873. The reported meteor from Mars reached earth so quickly it exceeded the speed of light, violating Einstein's idea of relativity. In the years 1877 and 1959 the two moons of Mars were involved. Their discovery in 1877 was the start of the general procession of nonsense, and the 1959 proclamation that the moons were products of intelligent beings, represented the last of the same. One year after the discovery of the moons the first flying saucer was reported (catalog entry 1878 Jan 22). In 1913 photographic and visual evidence of intelligent life was even presented in detail in the New York Times. In 1939 and 1959 proof of the existence of life forms was extended to sophisticated, spectroscopic evidence.

In both the years, 1894 and 1924, it was thought that Martians were attempting to communicate with us. A similar error was made in 1960 when radio signals from pulsars were interpreted as communications from "Little Green Men." The first reference to little green people appears to have been used in connection with Mars in 1887.

The most striking data concerning Martians are the numerous events reported which are similar to landmark events in modern ufology. In the years 1877, 1897, 1909, and 1954, the Martians and their craft landed, as so many aliens were reported to have in the 20th century. While the Martians didn't quite complete their abduction in 1896, many successful abductions would occur later. As early as 1897, writings in the Martian language were offered as proof of travel to Mars, much as B. Hill offered a star map as proof of her alien contact. In both cases the evidence is about as hard as any offered in ufology and both were generated while under hypnosis. The live Martian photographed in 1950 is reminiscent of reports collected by Stringfield concerning Wright Patterson Air Force Base, however, Stringfield's data was never proved to be a hoax as was the 1950 photograph.

The science fiction writer, Wells, played no small role in the development of the Martian fiasco. Amidst the airship sensations of 1897 his "War of the Worlds" was published. The landings in 1909, the imminent attack of 1933, and Wells' radio broadcast of 1938 were all modeled in part after Wells' story. The rocket pioneer, Goddard, indicated in his diary that his scientific ideas were stimulated by Wells' imaginative story. Even the story by Moore and Berlitz, of a crashed saucer with alien bodies, took place at Goddard's last rocket test site in Roswell, New Mexico.

While the Martian data is sufficiently extensive to be called a microcosm of modern ufology, and is imaginary, it does not prove that all of ufology is imaginary. However, the Martian nonsense does suggest the hypothesis that all of ufology is imaginary.

1.4 Airships

The first definitive interpretations of airship data came from debunkers Menzel and Klass. Their perspective is that the reports, even though in the thousands over the U.S., were imaginary. They, like the aviation historian, Gibbs-Smith, believe that this country was not sufficiently advanced technologically to have airships capable of sustained and controlled flight.

Somewhat less glib in the interpretation of the early data is that of Vallee who also suggested the airship was a figment of the imagination, and he showed a few similarities in medieval annals and folklore. Articles in the Flying Saucer Review by Clark, Farish, and Hanlon, however, suggest that the data belong to a mysterious unexplained set of data. While NICAP shares some of the mysterious outlook on the 1896-7 data, they also evaluate the possibility of a secret inventor who was able to cause at least some of the sightings with flights of his craft. But as they admit, they found little or no data supporting the secret inventor theory. More recent interpretations include those of Jacobs, Eberhart, Cohen, Neeley, and Bullard, who essentially suggest the observations are misinterpretations, embellishments, or hoaxes.

In spite of the statements by Gibbs-Smith and Berliner that there were no long distance, powered, steerable craft in 1897, there is extensive evidence to the contrary cited by this writer in the Mufon UFO Journal, regarding a roundtrip airship flight between San Francisco and Cleveland in the summer of 1897 by H. Maxim. His backer, C.A. Smith, took out a patent on the airship in Aug of 1896 and then indicated to the press in Nov of 1896 he would make a transcontinental flight in the spring. But, as late as Jul of 1897 the airship was still being built, and completion of the trip only occurred in late Aug. The flying machine had been seen over Denver traveling on a line between San Francisco and Cleveland. Other examples of extended airship flight were those of Wilson, who landed in four places in and around Texas, covering hundreds of miles from April 19 to April 23, 1897, and of airship Pegasus, which dropped letters in Kentucky, Ohio, and Wisconsin in the spring of 1897. Many reports also exist of lengthy trips in balloons, such as Barnard's trips in Tennessee during May 1897 of 12 and 15 miles which was referred to by the press as being equaled or exceeded by at least "fifty other contrivances." Mrs. Meyers, wife of the superintendent of a balloon farm in California, claims hundreds of ascensions--some covering hundreds of miles in distance and miles in altitude. The balloonist, Allen, of Rhode Island, was credited with 3,000 ascensions.

One of the objections made by aviation historians to lengthy trips, especially over one or more nights, is that there were no satisfactory navigation techniques in existence in 1897. None was necessary, however, since moonlight from the gibbous moon was adequate to see details of the surface of the earth. According to the English pioneer, P. Spencer, on a moonlight night at an altitude of 2,000 feet:

"Every roadway, hedge and rivulet stood clear as if we were looking down on a large scale map."

During the summer the duration of darkness is only about 1/3 the length of day, and during full moon time moonlight is provided throughout the night. By choosing flights around the full moon the surface of the earth and its land marks, especially towns and railroads could be seen virtually all the time. Evidence indicates that full moon, indeed, was the time balloons and airships made flights. Full moon in April 1897 was on the 17th and according to Farish as well as Neeley, peak activity for the 1897 activity occurred within a day of this date.

Not only have aviation historians not yet determined the extent of balloon or airship activity in the late 19th century, they have also overlooked evidence for heavier than air craft which preceeded the Wright brothers' flight of 1903 by several decades. The San Antonio Express indicates that Brodbeck made many successful flights with his craft and as early as 1865 in San Antonio, Texas.

In view of the large number of newspaper accounts of balloons and airships in and around 1897, a man-made craft hypothesis for an explanation of the 1897 Airship phenomenon is most reasonable.

1.5 Religious Nature of Ufology

Catalog entries with religious overtones appear as far back as the 1st millenium B.C. in the Old Testament. From this material Downing concludes:
"Ufos come from another dimension, a parallel universe. . . and . . . some if not all modern ufos are related to what has been called the angelic reality reported in the Bible."

Ezekiel's descriptions of ufos led engineer Blumrich to interpret them as spaceships and even sketch them. During the Middle Ages a small flap of religious phenomena occurred, usually involving Christ or the crucifixion. The Oliver Luck disappearance on Christmas eve of 1890 near Notre Dame University is basically a story which also occurred in 1865 and 1906. In 1917 there was a complex religious event occurring in Portugal, a Catholic country, involving a lap and visitations.

The religious connection in the field of ufos, however, is much broader than the entries indicated above. One property of ufology, itself, which is like that of religions is the inability of debunkers to disprove the origin of the general ufo phenomena, if the assumption about the origin is chosen properly. If the origin of the ufo phenomenon is chosen to be in the space-time continuum, and humans never find a way to disprove this, believers in ufology will be as impervious to criticism as are Christians impervious to atheists, or believers of astrology to scientists. If those responsible for the ufo phenomenon are presumed to be just superior to humans and not perfect like God in a theistic religion or the universe in astrology, the new ufological religion is weaker than conventional religions which employ absolute references.

As discussed in UPIAR-RIP by this writer, the Martian phase of ufology is actually the third one to be tried in the development of a weak religion. The other two phases, involving the moon and Venus, the two other closest neighbors to earth, developed little. In the case of the moon, the idea of aliens there never developed much because it was discovered already in the 19th century that there was no atmosphere or water on the moon, not allowing life to exist there as we know it. Accounts of aliens on Venus developed somewhat beyond that of the moon but there, too, problems arose. Not only wasn't there the continuous stimulation like that received by repeated observations on Mars, because the Venusian atmosphere is opaque, but it was eventually recognized that the atmosphere of Venus is too hot for water to exist and, therefore, life to exist as we know it. Since the Martian phase is complete we are well into the fourth phase, where it is not yet clear which origination hypothesis will be chosen by consensus, if any.

The development of a ufological religion is similar to the development of present conventional monotheistic religions. Just as paganism, polytheism and astrology preceded monotheism, so did the lunar, Venusian and Martian phases precede the present phase of ufology.

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2. TECHNICAL ANALYSIS

The analysis here is based on dated catalog entries appearing under separate cover as PART I of this report. The data from the Chronological portion of the catalog concern luminous atmospheric phenomena (laps), while data from the Grouped Subject portion concern foo fighters and ghost rockets.

2.1 Cometary and Geomagnetic Associations

2.1.1 Earth's Encounter of Cometary Matter

Because the lap data are of special interest, they are separated from PART I of this report and tabulated in short form as the Appendix to section 2.1. To reduce the scientific criticism often associated with ufo-like data, that it is anecdotal in nature, the laps in the Appendix are only those that appear in scientific periodicals along with some relatively well observed foo fighter and ghost rocket phenomena.

The frequency of occurrence of laps during the years from 1746 through 1946 is plotted in Figure 1, revealing a nonrandom distribution, with three of the most outstanding lap peaks occurring during four of the most outstanding meteor showers. Table 1 indicates the peaks occur during the Perseids in Aug, the Draconids and Orionids in Oct, and the Leonids in Nov. Since meteor showers are caused by meteoroids in the orbit of a comet it indicates that some type f matter, in addition to the meteoroids, accompanies the stream to cause the laps. Table 1 lists the comets responsible for the four showers, and are Swift Tuttle, Giacobini Zinner, Halley, and Tempel Tuttle.

Comets Encke, Brorson Metcalf, and Halley are the three appearing in Marsden's catalog with smallest perihelions, and their orbits intersect the plane of the ecliptic between earth's orbit and the sun. One end of the line of nodes of these three orbits point to the position on earth's orbit which corresponds to the lap peaks of Figure 1 in early and late Feb, and mid May. These three times are far from any known meteor showers, indicating matter is sprayed by the sun from the orbital stream in the orbital plane of the comet to intersect earth's path. Encke (Figure 2) has only one spray date because its perihelion is near the ecliptic, while Brorson Metcalf and Halley have two spray dates.

When all the comets of Marsden's catalog are examined, additional comets are found with orbits that intersect the plane of the ecliptic near or inside earth's orbit. The shower producing ones are Biela and Tuttle, while the sprayables are Brorson, Grigg Skjellerup, Pons Winnecke, and Pons Brooks. The other sprayables are either of single apparition or with a period greater than 156 years, and do not appear to be disturbed enough by the sun to produce a stream dense enough to generate laps, so they are eliminated from consideration. Pons Winnecke has a continuum of spray dates since its orbit is perturbed and its line of nodes is regressing. Showers without identified comets are eliminated also, since they appear to be dying streams not capable of producing laps either. The North and South Taurids associated with Encke are eliminated since they are spread out over three months, much more than any other comet, and are marginal showers. The only other exceptions are the sungrazers and split nuclei comets which will be discussed later. When all the sprays and showers indicated above are plotted in Figure 1, additional correspondences among lap peaks, showers, and sprays are found indicating an overall strong link between laps and comets.

Showers	Duration	Comet	Period (yr.)	Perihelion (A.U.)	Spray Dates
---	---	Brorson (1868 I)	5.5	0.60	Jan 2
---	---	Brorson Metcalf (1919 III)	69.0	0.49	Feb 3 and Aug 3
Aquarids	Apr 21 - May 12	Halley (1910 II)	76	0.59	May 19 and Nov 19
---	---	Grigg Skjellerup (1927 V)	5.0	0.89	Apr 26
Taurids	Jun 24 - Jul 5	Encke (1901 II)	3.3	0.34	Feb 25
---	---	Pons Winnecke (1909 II)	5.9	0.70	Jun 24 thru Jul 15
Perseids	Jul 25 - Aug 17	Swift Tuttle (1862 II)	120	0.96	Aug 10
Draconids	Oct 10	Giacobini Zinner (1900 III)	6.6	0.93	Oct 8
Orionids	Oct 18-26	Halley (1910 II)	76	0.59	May 19 and Nov 19
Leonids	Nov 14-20	Tempel Tuttle (1866 I)	33.5	0.98	Nov 13
---	---	Pons Brooks (1884 I)	71.6	0.78	Dec 4
Andromedids	Dec 14-20	Biela (1852 III)	6.6	0.86	Nov 27
Ursids	Dec 17-24	Tuttle (1939 X)	13.6].02	Dec 21

Table 1: Meteor showers and cometary data. Shower data are taken from Brown, and orbital data for comet spray calculations from Marsden. Epochs for comet orbital parameters were chosen as representative of the era analyzed. Because of perturbation of streams and geometry of orbits, shown intervals do not necessarily overlap spray dates.

2.1.2 Magnetic Storms and Auroras

Collections of the dates of outstanding magnetic storms are available in the works of Loomis, Ellis, and Greaves et al., for England from 1841 to 1946. These storms have been designated by the collectors as being the "greatest," "remarkable," "great," "very strong," or with peak deflection of the horizontal magnetic components greater than 300γ. In order to supplement these data with observations from sites outside of England, the data collected by Maris et al. is included and plotted in Figure 3. Like the laps in Figure 1, peaks of the frequency distribution of magnetic storms in Figure 3 show a strong link with comets and suggest laps and magnetic storms are related phenomena.

Numerous entries of the Appendix of section 2.1 and meteor catalogs of Powell and his successors, are accompanied by auroras. In several Appendix entries, laps are described as moving along or being deflected by various auroral forms. Other links between auroras and comets are the data gathered each of the last three times earth made contact with a comet. Two of these instances occurred when earth passed through the comet's tail, which necessarily occurs on the comet's spray date. Accounts by Lowe and Brown indicate that on Jun 30, 1861, when earth passed through the tail of Tebutt, a yellow aurora and blue lap were seen, and there was enough dust in the atmosphere to temporarily dim the sun. Various accounts in Popular Astronomy for 1910 show that on May 19, 1910, about a month after perihelion passage, earth passed through the tail of Halley and the U.S. experienced numerous auroras, two laps and meteors in the direction of the tail edge. The third instance when earth encountered a comet was in connection with the Tunguska, Siberia event of June 30, 1908. While the most dramatic aspect of the event was an explosion, Crowther gives accounts of a temporary dimming of all the celestial bodies by dust, a yellow aurora, and some laps. The comet responsible here probably was Pons Winnecke since its orbit was osculating over earth's orbit at the position which corresponded to its spray date of July 1 in 1908.

While Lovering has a remarkable collection of dates for auroras over the world and into the Medieval period, few of them have descriptions allowing them to be designated as outstanding. Data for the northern U.S. however, is available with the observer's descriptions of the phenomena in the collections of Lovering and Barnard for the years 1746 to 1909. These auroras are nearly always described as "brilliant," "splendid," or "very. . ." In order to supplement these data with observations from sites outside the U.S., auroras observed by Stevenson in England and the unusual or anomalistic collection of Corlias are used for the years 1835 to 1946 and are plotted in Figure 4. While the frequency distribution of auroras in Figure 4 has peaks corresponding to comets as do the laps and magnetic storms, the correspondence is not as strong.

2.1.3 Subclasses of Laps

One subclass of laps, ghost rockets, is not only associated with auroras and comets, but also with the sun. Their peak activity occurring during the summer of 1946 was not only preceded by a powerful flaming aurora on Jul 26 over Stockholm, but the main activity was unique to that time, and occurred just before the sunspot number achieved its greatest value ever recorded. Unfortunately, there is insufficient lap data to show a broad dependence of laps on the sunspot cycle. With the present data, only the sunspot peak of 1893 has a strong correlation with the frequency of occurrence of laps during the solar cycle.

Numerous laps were observed on Nov 27, 1872, in conjunction with the Andromedids and therefore were associated with Biela, whose nucleus is known to have split. Since this display occurred precisely on Biela's spray date, it suggests split nuclei comets are also good candidates for spraying. Of the split nuclei comets listed by Sekanina, only four have orbits inside of earth's and one of them is Biela. A second comet of these four, Sewarthal, is nonperiodic and passed through perihelion on March 17, 1888, apparently producing a lap on May 26, one day after its spray date.

The comets whose nuclei are disturbed the most are the sungrazers, especially the Kreutz family, which possess two spray dates apiece. But because the perihelions of the sungrazers are less than 0.01 A.U., the material sprayed from them becomes dispersed by the time it reaches earth's orbit and it is difficult to associate the laps which occur within weeks of the spray dates of the comets.

2.1.4 Statistical Considerations

Quantitative measures of the relationships among comets and the phenomena of laps, magnetic storms, and auroras are desirable. Only elementary measures are computed since the parameters of the distributions of the phenomena may not be stationary, even after two centuries. One measure is a Chi Square test of association of the frequency of occurrence throughout the year with all spray dates and shower durations. Another measure is the ratio of the observed frequency of occurrence of the phenomenon around spray or shower times, to the mean frequency of occurrence. This ratio is in effect a cometary index, which achieves a maximum value within two days of a spray or shower. The results are found in Table 2 below:

Phenomena	Number of Data Points	Chi Square Probability	Comet Index
Laps	233	<0.005	1.81
Magnetic Storms	255	0.040	1.49
Auroras	320	0.35	1.20
Ghost Rockets	20	...	1.91
Stevenson Corliss Auroras	70	0.14	1.58

Table 2: Measures of association of comet sprays and showers with various phenomena.

Comet associations with laps and magnetic storms are very significant statistically, but only possibly significant with auroras. The associations are also reflected in the comet index which increases as the Chi Square statistic decreases. Ghost rockets show the highest index with their peak activity occurring in Aug which links them to the Perseids and Brorson Metcalf.

2.2.5 APPENDIX

Lap dates are listed after the reference name and before the volume designation.

Am. J. Sci. Mar 5, 1822 (v. 6); Apr 1, 1826; Nov 14 1832; Nov 13, 1833 (v.26); Dec 8, 1847 (v.55); Feb 19, 1852 (v.62); Nov 16, 1857 (v.77). Annee Scientifique Aug 29, 1871 (1885-5). Astronomie Aug 22, 1885 (v. 1); Feb 10, 1896 (v. 10); Apr 7, 1912 (v.26); Oct 23, 1920 (v. 34); Nov 20, 1938 (v.52); Oct 10, 1947 (v.61). Astron. Nachr. Oct 14, 1882 (209-17). Astrophys. J. Feb 11, 1899 (v. 31). Comp. Rend. Nov 17, 1848 (49-401); Aug 1, 1871 (73-398); Aug 21, 1880 (103-849); Jan 3, 1898 (126-295). Ed. Philos. J. Jan 2, 1825 (1825). English Mechanic Jul 1, 1868 (v. 7); May 10, 1892 (v. 55); Sep 4, 1908 (88-211); 1920 Mar 24 (111-120). J. Frank. I. Nov 15, 1859 (1859); Aug 7, 1869 (1869). J. Roy. Astro. Feb 9, 1913 (v. 7); Libert, L., Report to French Ass. Adv. Sci (1908, Clermont-Ferrand) Jul 4, 1898; Feb 9, 1902. Los Angeles Times Feb 25, 1942 (Feb 26, 27, Mar 1, 1942). M. Not. R. Astr. Soc. Oct 17-19, 1869 (v. 30 n. 5). M. Weath. Report. Mar 19, 1887 (v. 15); Feb 28, 1904 (v.32); Jul 2, 1907 (v. 35). Nature Nov 11, 1869 (v. 1); Feb 3, 1873; Nov 27, 1872 (v. 7) Sep 11, 1875 (v. 12); Dec 21, 1876 (v. 16); 1882 Nov 17 (v. 27); Oct 30, 1886 (v. 35); Oct 14, 1891 (v. 44); Feb 24, 1893; Jul 5, 1897 (v. 48); Jul 19, 1894 (v. 50); Feb 22, 1909 (v. 80); Feb 10, 1913 (v. 91); Oct 5, 1915 (v. 96). New York Times May 27, 1888 (May 30, 1888). Nininger, H.H., "Our Stone Pelted Planet," (1933, Houghton-Mifflin) Aug 7, 1823; Feb 13, 1839; Dec 21, 1876; Nov 27, 1885; Feb 9, 1913. Notes and Quer Feb 20, 1875 (s. 5 v. 3). Phi T. Roy. Nov 26, 1758 (v. 51); Nov 21, 1779; Aug 18, 30, Oct 4, 1783; Dec 26 (v. 74); Feb 24, 1842 (1842-87); Jul 14, 1745; Nov 4, 1749 (Abr. v. 10). Pop. Astr. Dec 13, 1895 (v. 4); May 19, 1910 (v. 18); Jun 8, 1911 (v. 19); Nov 23, 1912 (v. 21); Jun 29, 1927 (v. 35) Proc. Roy. Soc. Dec 17, 1852 (1853). Q.J.R. Meteorol. Soc. Mar 22, 1870 (v. 1 n. 6). Report Br. Assoc. Adv. Sci. Sep 17, Oct 12, 1833 (1833); Nov 17, 1848 (1849); Apr 4, 1849; Feb 11, 1850 (1850); Oct 1, 1850; Apr 27, 1851 (1851); Apr 20, 1852 (1852); Aug 9, Sep 25, 1852 (1853); Sep 25, 1853 (1854); Jun 16, 1819; Sep 30, 1850; Apr 30, 1851 (1855); Aug 11, 1853 (1856); Jul 24, 25 Aug 10, 1856; Sep 29, 1857; Aug 2, 1858 (1858); 1758 Nov 26; Aug 18, 1783; Mar 8, 1796; Oct 9, 1798; Jul 4, 1803; Nov 19, 1822; Feb 15, 1830; Oct 20, 1831; Nov 12, 1832; Jan 12, 1836; Nov 13, 1849; Feb 11, 1850; Feb 3, 1856; Oct 19, Nov 15, 1859 (1860); Jun 18, 1845; Mar 4, Jun 30, 1861 (1861); Nov 19, Dec 1, 10, 1861; Jul 21, Sep 19, 1862 (1862); Sep 22, Nov 27, Dec 15, 1862; Feb 7, Apr 20, May 4, Aug 11, 1863 (1863); Feb 5, Aug 26, 31, 1864 (1864); Feb 20, Apr 30, 1865 (1865); Jul 22, Oct 21, 24, Nov 9, 14, Dec 13, 1866; Feb 6, 1867 (1867); Sep 15, 1867 (1868); Dec 5, 1865; Oct 19, 1867; Oct 7, 1868; May 31, 1869 (1869); Nov 15, 1871 (1872); Nov 3, 1872 (1873); Dec 21, 1869; Aug 9, 1870; Jun 17, Sep 23, 1873; May 12, 19, Aug 10, 1874 (1874); May 16, 1874; Sep 11, 1875; Aug 4, 11, 1876 (1876); Feb 25, 1847; Sep 5, 1872; Oct 14-17, Dec 13, 21, 1876 (1877); May 21, Oct 14, 19, Nov 27, 1877; May 12, Jun 25, 1878 (1878); Feb 3, 22, 1879 (1879). Sci. Jun 29, 1860; Jun 17, 1873; Dec 15, 1882 (v. 1 n. 15); Jan 3, 1887 (v. 9 n. 205); Oct 13, 1905 (v. 24n 605); Aug 20, 1925 (v. 62 n. 1607). Sci. Am. Jul 6, 1882 (Jul 22, 1882); Jul 3, 1884 (Aug 2, 1884); Oct 24, 1886 (Dec 18, 1886); Aug 24, 1895 (Dec 14, 1895); early Oct 1936 (Mar 1963). Svenska Dagbladet Jun 9, Jul 9, 11, 19, 29, Aug 1, 9, 11, 12, 13, 16, 20, 22, 27, Sep 21, 26, 1946 (May-Oct, 1946). Trans. Roy. Swedish Acad. Sci. May 16, 1808 (Jul-Sep, 1808) Trans Astron. and Phys. Soc. Toronto Jul 5, 1898 (1898-74). Observations from airplanes appearing in a variety of sources Jul 10, 24, 1938; Aug 29, 1942; Oct 14, 1943; Aug 10, Nov 23, 24, 27, Dec 22, 23, 1944; Aug 28, 1945.

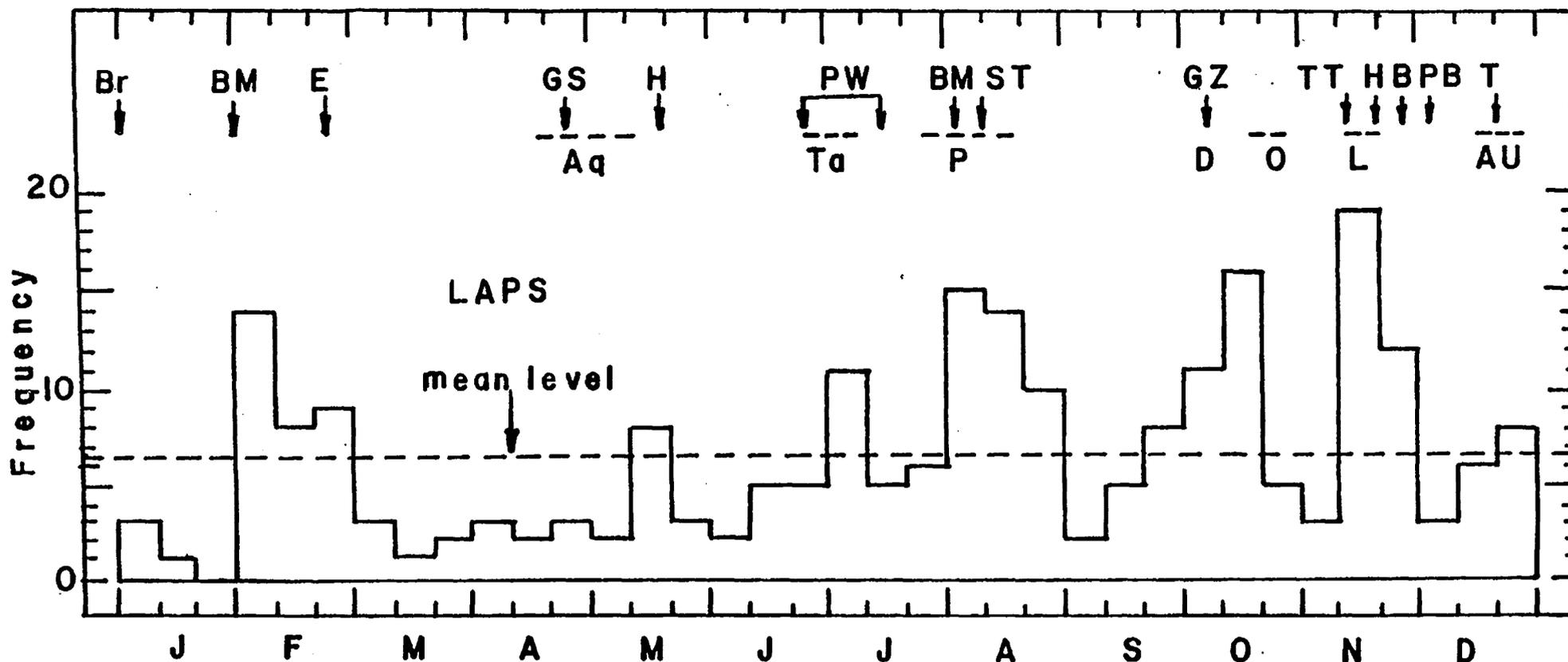


FIGURE 1: FREQUENCY OF OCCURRENCE OF LAPS DURING THE YEAR COMPARED WITH COMET SPRAY DATES AND SHOWERS, COVERING THE PERIOD 1746 TO 1946. THERE ARE 206 OBSERVATIONS WITH 27 OF THEM WEIGHTED TWICE. SPRAYS ARE DESIGNATED WITH A DASHED LINE AND SPRAYS WITH AN ARROW. THE CODING IS AS FOLLOWS;

- | | | | | |
|----------------------|-----------------------|--------------------|-----------------|--------------|
| B = BIELA | GS = GRIGG SKJELLERUP | PW = PONS WINNECKE | A = ANDROMEDIDS | O = ORIONIDS |
| BR = BRORSON | GZ = GIACOBINI ZINNER | ST = SWIFT TUTTLE | AQ = AQUARIDS | P = PERSEIDS |
| BM = BRORSON METCALF | H = HALLEY | T = TUTTLE | D = DRACONIDS | TA = TAURIDS |
| E = ENCKE | PB = PONS BROOKS | TT = TEMPEL TUTTLE | L = LEONIDS | U = URSIDS |

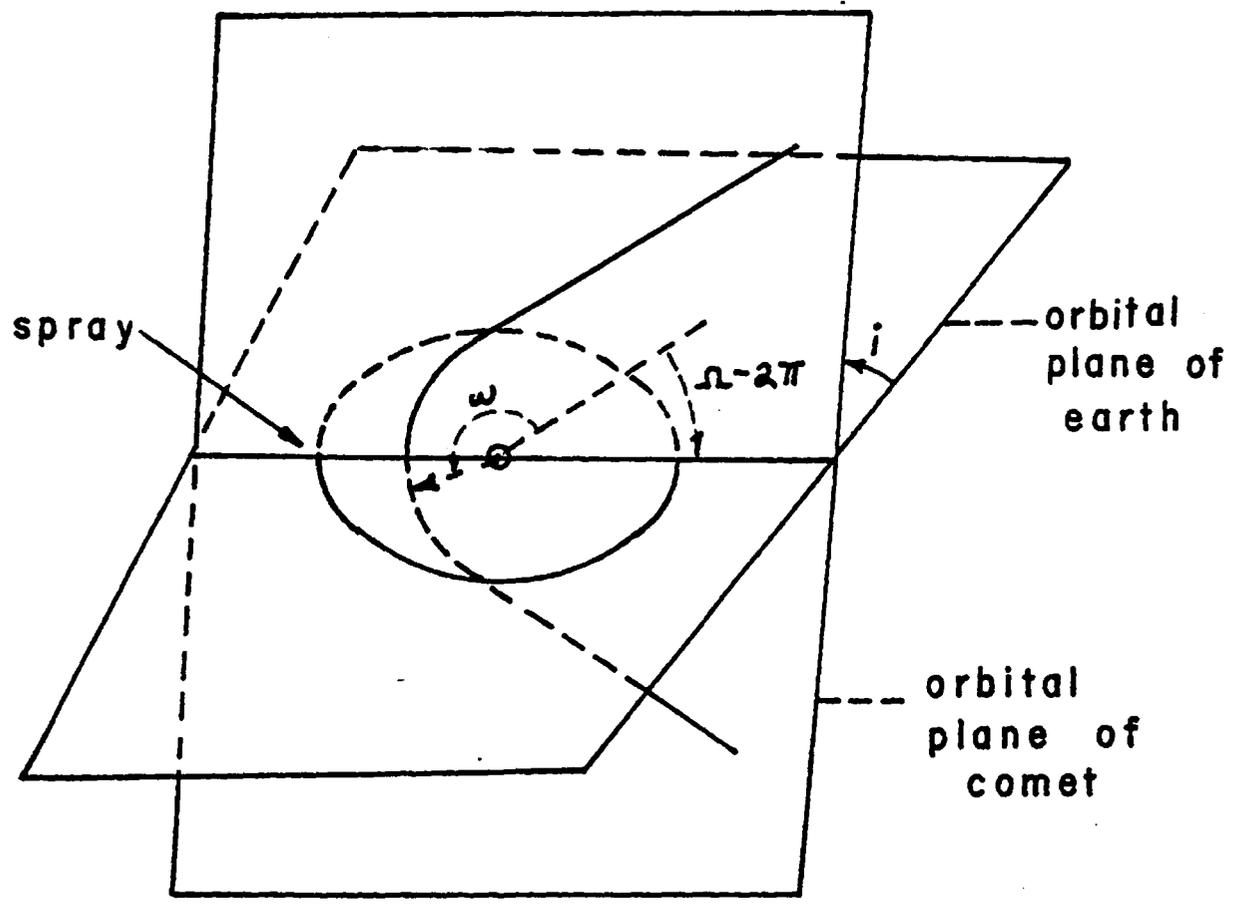


FIGURE 2: ORBIT OF ENCKE AND EARTH. ($i = 13^{\circ}$, $\Omega = 335^{\circ}$, $w = 184^{\circ}$,
 $Q = 0.34$ A.U., SPRAY DATE = FEB 25, γ = VERNAL EQUINOX,
 Θ = SUN)

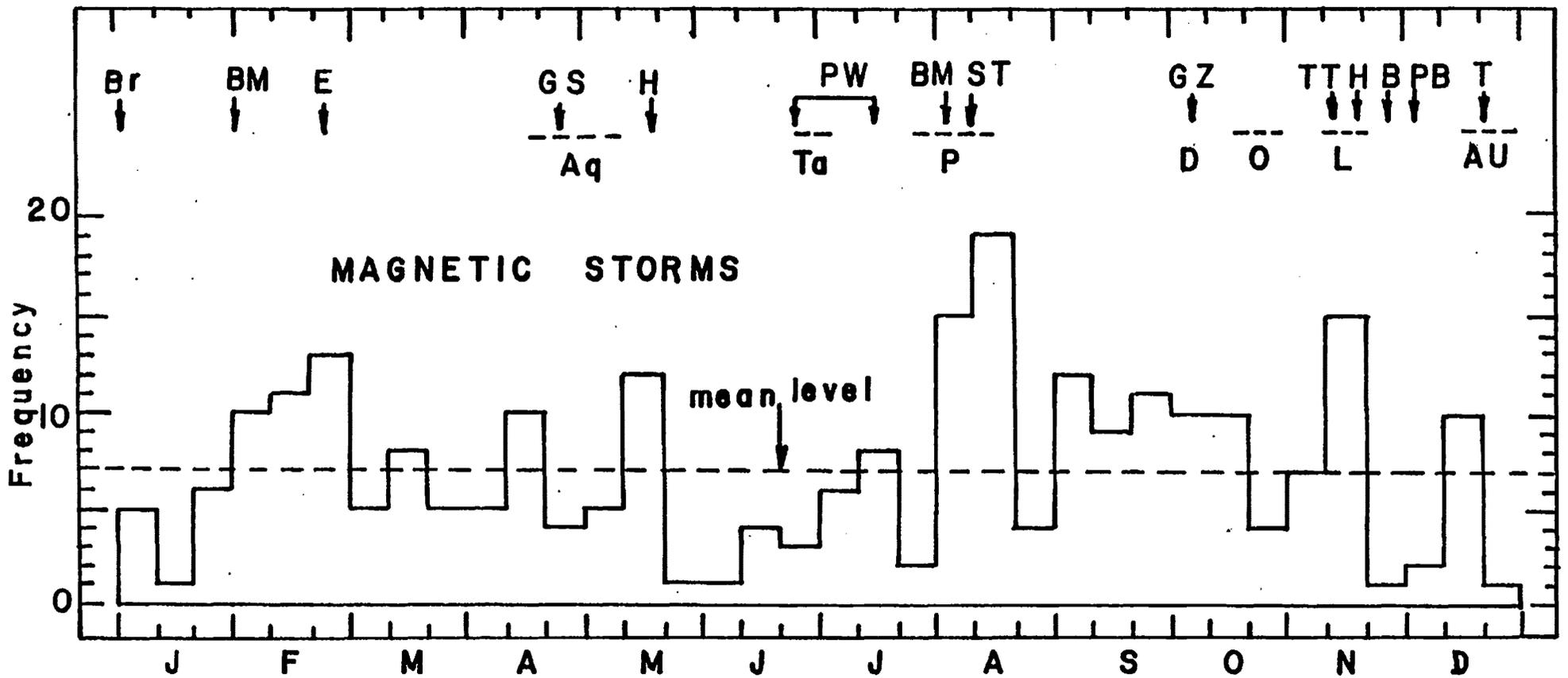


FIGURE 3: FREQUENCY OF OCCURRENCE OF OUTSTANDING MAGNETIC STORMS DURING THE YEAR COMPARED WITH COMET SPRAY DATES AND SHOWERS, COVERING THE PERIOD 1746 TO 1946. THERE ARE 232 OBSERVATIONS WITH 23 OF THEM WEIGHTED TWICE. CODING AND DESIGNATIONS ARE THE SAME AS IN FIGURE 1.

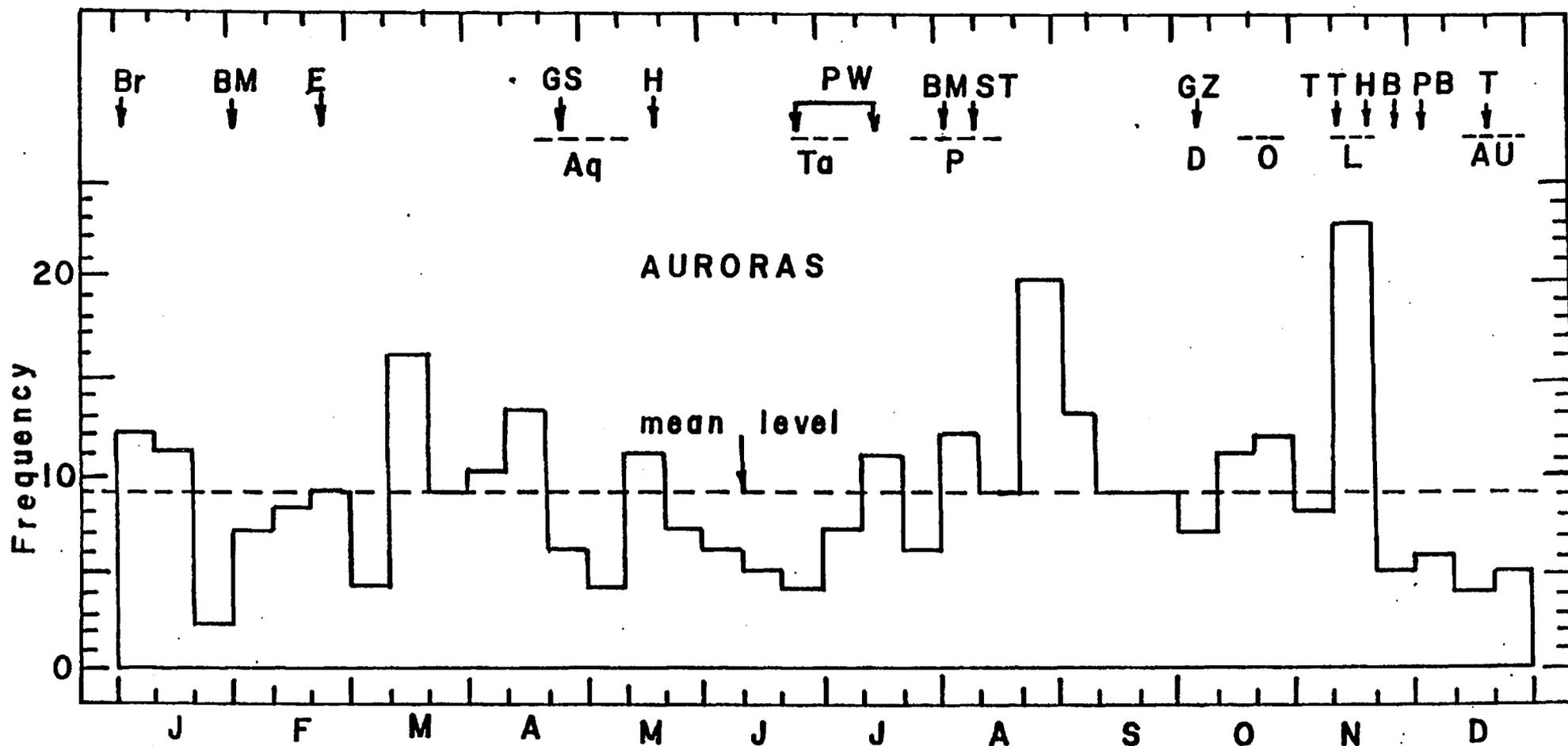


FIGURE 4: FREQUENCY OF OCCURRENCE OF REMARKABLE AURORAS DURING THE YEAR COMPARED WITH COMET SPRAY DATES AND SHOWERS, COVERING THE PERIOD 1746 TO 1946. THERE ARE 320 INDEPENDENT OBSERVATIONS WEIGHTED EQUALLY. CODING AND DESIGNATIONS ARE THE SAME AS IN FIGURE 1.

2.2 Solar-Comet Mixture Speculations

2.2.1 Mixture Outside the Geomagnetosphere

The composition of matter which produces a lap is a mixture from the sun and a comet. Field lines connected to the sun will constrain partially or fully ionized gas and ferromagnetic dust from a comet and plasma from the sun. If these field lines embed the solar-comet mixture in cometary streams, earth will encounter the mixture with meteoroids during showers or when the solar wind sprays the mixture into earth's path.

While meteoroids and ferromagnetic dust of cometary streams have sufficient kinetic energy to penetrate the geomagnetosphere the gaseous component of the solar-comet mixture does not. Geoscientists, however, suggest atomic particles responsible for magnetic storms and auroras make entry into the magnetosphere via the neutral sheet of the geomagnetic tail. If the gaseous component of the solar-comet mixture enters this way, solar field lines would reconnect with earth's and the solar-comet mixture accelerated into the magnetosphere. The force would be created by earth's gravity and the accompanying ferromagnetic dust which would seek earth's magnetic poles as it dragged the gaseous mixture and lines with it. Eventually the mixture would arrive near the auroral ovals and possibly be influenced in the lower levels of the atmosphere by fields produced by overhead currents associated with magnetic storms.

2.2.2 Mixture Near Earth's Surface

The idea that ufo-like phenomena near the earth's surface are gaseous apparently has arisen because atomic particles appear to excite the surrounding atmosphere, making it nebulous in appearance and producing the varied colors. The most common colors are readily accounted for with excited nitrogen producing red and blue, and oxygen producing green.

In 1966 Jenzano publically demonstrated his tube of gas which was excited with high voltages. The glowing gas, which was just residual air after some evacuation, was influenced in appearance and behavior by magnetic fields and even the proximity of the demonstrators' hands. Jenzano suggested that the variability of this bluish plasma is remindful of some ufos.

Objections to Jenzano's suggestion are numerous. Ufos are generally seen in the lower portion of earth's atmosphere which is one or two order's of magnitude more dense than the residual air in his tube. Also, ufos operate without the presence of external high voltage fields. The only connection with ufos, which is weak, is that auroras accompany many laps and auroras occur at high altitude where the atmospheric density approaches that of the Jenzano tube.

Shortly after Jenzano's publicized demonstration, Klass authored two articles appearing in Aviation Week and Space Technology with descriptive arguments that ufos are plasma in character. Among the varied offerings of Klass was the idea that ufos, especially foo fighters, followed or were repelled by objects, by virtue of their net electrostatic charge. And for another class of ufos the energy source for plasma ionization was the high voltage lines they were seen near. Klass even suggested the great maneuverability of ufos was not hard to understand because scanning electrons in TV tubes reversed direction 30,000 times/sec.

These ideas and many others of Klass' were pounced on by McDonald and attacked at length with uncommon scientific vengeance. McDonald's theme was that Klass' ideas were sadly lacking in quantitative foundation. He pointed

out free plasmas are unstable, especially if there is a net electrostatic charge and can only travel slowly in our atmosphere. Also, high voltage sources as in Jenzano's tube, and Klass' transformers and TV tubes do not simulate atmospheric conditions.

When I spoke to Klass in early 1983, he said he now felt ufos were only plasma in a negligably small percentage of the cases but now ufos were misidentifications of planets, etc. to a significant degree.

There is considerable evidence that laps contain strong magnetic fields. In a number of instances the laps are reported to interfere with compasses or electrical devices. Magnetic fields are also apparently present in the subclass of laps collected by Nininger which eject ferromagnetic material. The field is required for the support of the metallic objects, probably iron meteorites, as the lap moves about. Even the numerous phenomena with coiled spring shapes suggest the presence of a magnetic field line along the axis of the coil that some laps exhibit as they excite the atmosphere. How such strong magnetic fields are produced, however, is not clear. But since the gaseous mixture of laps is constrained by magnetic fields, McDonald's arguments do not apply, since they concern free plasmas.

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3. CONCLUSIONS

An analysis of early ufo-like data has advantages compared to the analysis of modern data because it comes from a simpler technological era and covers a much longer time period. For the study here, the most revealing statistic of the report is the date of occurrence. The first two dated accounts occur in Aug of the years 1015 and 1133, and are associated with the onset of the meteor shower season.

The character of the catalog entries changes with time to reflect the development and interest of society. Many of the late ancient and medieval accounts concern armies, ships, or people, rather than airships, spaceships, or aliens. During the height of the power of the Church, religious phenomena were prominent. As the industrial revolution developed, the sightings became more technological, first with airships, then saucers, and finally with details of accounts of aliens. But most important of all, there is no hard evidence of extraterrestrial contact, or even repeated accounts of a particular type of craft or alien.

In a number of instances involving large numbers of participants a variety of misidentifications can be established. The Martian affair involved willful and accidental misidentification, whereas the Vulcan phenomenon probably was wishful thinking. The catalog entry of Feb 9, 1913, is one of the few early events with large numbers of witnesses and it was shown to be the result of a train of meteoroids skimming earth's atmosphere. If this phenomenon is representative of other ufo like sightings it shows that a significantly large fraction of the witnesses will embellish their observations.

Laps, like magnetic storms and auroras are geomagnetic phenomena that are linked to cometary streams. The streams originate in twelve, short-period comets whose orbits pass through the plane of the ecliptic within or near earth's orbit. Laps and storms have similar statistical correlations, while laps and auroras are often seen simultaneously. They occur when earth encounters a solar-comet mixture embedded in a stream during a shower or when the sun sprays the mixture into earth's path. The mixture is apparently entrained by the geomagnetic tail and is transported into the geomagnetosphere.

Because a magnetic pole, along with its auroral zone, is in Canada many more ufo-like phenomena are sighted in the U.S. than at lower latitudes in North America. Similarly, populated Scandinavia, which is at a high latitude but located about as far below the auroral zone as the U.S., was the site of the uniquely intense ghost rocket activity. Further, a few centuries ago, the magnetic pole was over Europe and is part of the reason why so many of the reports came from this area then. But Europe was the most scientifically developed then and this also contributed to their reporting the most then.

Although the foo fighter data only yielded nine dated accounts, they were the most distinguished class of laps. Four of the accounts occurred directly on or within a day of a comet spray date and the in situ interactions provided the best evidence as to the gaseous and magnetic character of laps.

If the ufo-alien accounts be true they are certainly some of the most important events ever to occur in human history. But only a remarkably small 8% of these accounts are dated, compared to 71% of the laps. It looks as if contact with extra-terrestrial intelligence is not treated with the same scientific thoroughness as are laps and probably involves

recall. While only 20% of the foo fighter accounts were dated they were much more homogenous and reliable than the ufo-alien accounts, and were concentrated over a two or three year period.

There is no compelling evidence that any of the accounts of the catalog are due to extra-terrestrial intelligence. However, the extra-terrestrial intelligence hypothesis is adopted by many to suit a need in their life. An examination of post 1947 data in the light of solar-comet mixtures will probably further develop the scenario offered here. The most challenging problem remaining is to explain the evolution of the mixture in the geomagnetosphere.