Freeze of 1963

-60

10th May 2024

-70 -80

Analysing the *Big Freeze* of 1963 begins with an analysis of the 1821 Mini Maunder Minimum.

Old Japanese Cedar - D/H Ratio - Libby 1976

Great Conspiracy Comet

Wikimedia: Richard Johnson

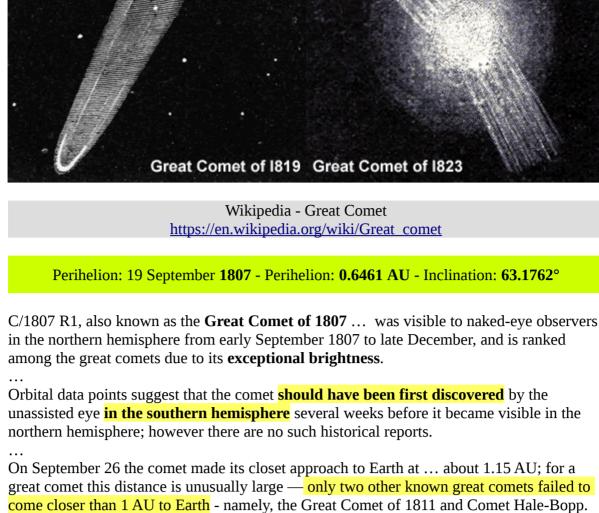


Analysing the **Big Freeze** of 1963 begins by examining the 1821 Mini Maunder Minimum that's

Comet of 1807

associated with a cluster of **four Great Comets** between 1807 and 1823.

Great Comet of 1811



Perihelion: 25 March 1811 - Perihelion: 1.04 AU - Inclination: 106.9°

Wikipedia - C/1807 R1 https://en.wikipedia.org/wiki/C/1807 R1

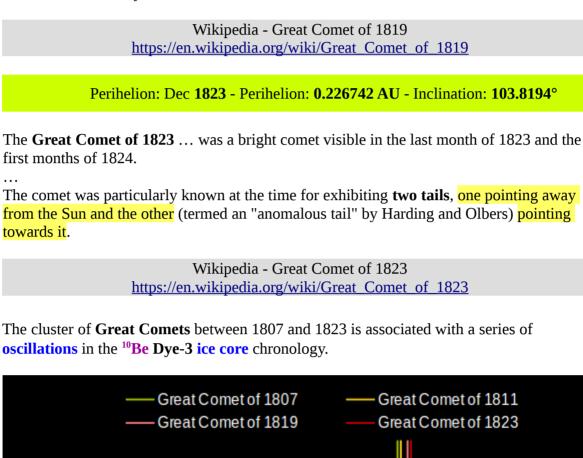
The **Great Comet of 1811** ... was visible to the naked eye for around 260 days, the longest recorded period of visibility until the appearance of Comet Hale–Bopp in 1997. In October 1811, at its brightest, and when it was 1.2 AU from Earth, it displayed an

A report on the first steamship to descend the Ohio River as it approached the confluence with the Mississippi River states, "December 18, 1811.—The anniversary of this day the people of Cairo [Illinois] and its vicinity should never forget. It was the coming of the first steamboat to where Cairo now is—the New Orleans, Capt. Roosevelt, Commanding. It was

> Wikipedia - Great Comet of 1811 https://en.wikipedia.org/wiki/Great Comet of 1811

Perihelion: 28 June 1819 - Perihelion: 0.341514 AU - Inclination: 80.7517°

Great Comet of 1819 - Transit of the Sun - 26 June 1819 Johann Wilhelm Pastorff



Jürg Beer, Stephan T. Baumgartner, Beate Dittrich-Hannen, Jürg Hauenstein, Peter Kubik, Christian Lukasczyk, Werner Mende, Rita Stellmacher, and Martin Suter International Astronomical Union Colloquium - Volume 143 - 1994 https://www.cambridge.org/core/journals/international-astronomical-union-<u>colloquium/article/solar-variability-traced-by-cosmogenic-</u>

isotopes/EDD8F0EBA3573BC4D577E72E122A1B4C

Met Office Hadley Centre Central England Temperature Monthly mean - 1659 to date - current - Downloaded: 6 May 2024

Great Comet 1807 Perihelion — Great Comet 1811 Perihelion

The cluster of **Great Comets** between 1807 and 1823 is associated with a series of

Solar Variability Traced by Cosmogenic Isotopes

1700

1800

AD - J Beer et al - 1994

Great Comet 1823 Perihelion

2000

1600

10Be - Dye 3 Ice Core - 300 m - 1423-1985

cold outliers in the *Central England Temperature* dataset.

Great Comet 1819 Perihelion -

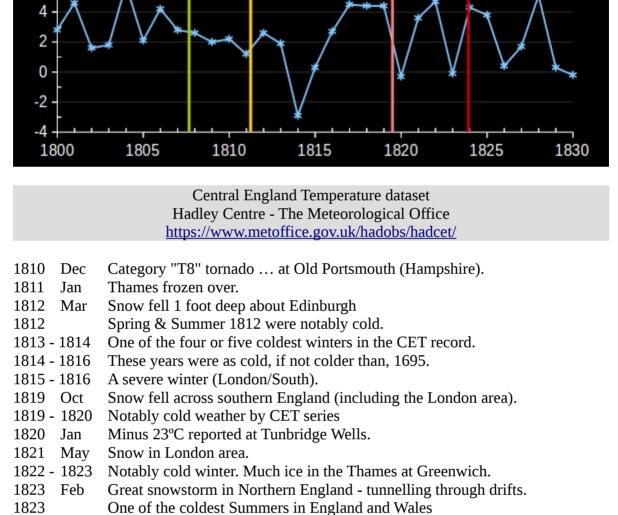
1500

∗– January

8

6

1400



British Weather - 1800 to 1849 https://web.archive.org/web/20180116135924/https://www.booty.org.uk/booty.weather/clim ate/1800 1849.htm

Frost Fair of 1814 on the River Thames in London - Luke Clenell

A singular circumstance mentioned by Arago is that the dry fog of 1783 appeared to possess a certain phosphoric property, a light of its own. ' I find at least in the accounts of some observers,' he remarks, ' that it diffused, even at midnight, a light which they compare to that of the moon at its full, and which sufficed to make objects distinctly visible at a distance of more than 200 yards.' The World of Comets - Amédée Guillemin - 1877 https://archive.org/details/worldofcomets00guiluoft/page/n568/mode/1up **Dry fogs**, distinguished from the above in origin and in character, cannot well be described, except from the appearances which attend them. A mass of air appears of a **dim blue colour**; the azure of **the sky** has lost its ordinary purity of tone, and **appears muddy**; objects at any distance are either altogether removed from sight, or are shrouded in a delicate mantle of light-blue; the sun at mid-day is shorn of much of its brilliancy, and its aspect is no longer golden, but reddish; as it nears the horizon, the unprotected eye can look on it without annoyance, and sometimes, if the dry fog is dense, it is lost to sight before it dips in reality beneath the distant hills; lastly, there is often a peculiar odour perceptible, and electrical and even volcanic phenomena are often **prevalent** about the same time. The Chambers' Edinburgh Journal - 1848-05-13: Vol 9 Iss 228 https://archive.org/details/sim_chambers-edinburgh-journal_1848-05-13_9_228/page/307/mode/1up **CN**, often referred to as **cyanogen**, is a toxic gas made of carbon and nitrogen atoms. ... CN **in the coma of a comet** is thought to be produced when a gas called hydrogen cyanide Astronomers Detect Cyanide Gas in Interstellar Comet 2I/Borisov Sci.News - Sergio Prostak - 28 September 2019 https://www.sci.news/astronomy/cyanide-gas-interstellar-comet-2i-borisov-07637.html

Observations of the Comet of 1783

Wikipedia - River Thames Frost Fairs - 08:15 30 July 2015 https://en.wikipedia.org/w/index.php?title=River Thames frost fairs&oldid=673756933 3rd The cluster of **Great Comets** between 1807 and 1823 is associated with reports of a dim blue phosphorescent dry fog in 1822.

Charing Cross Bridge - Claude Monet - 1902

'On the 23rd of January the earth passed through the orbit of the comet; on this day not the least deviation could be discerned between the direction of the

The World of Comets - Amédée Guillemin - 1877 https://archive.org/details/worldofcomets00guiluoft/page/208/mode/1up

Of meteorological phenomena attributed to comets because their causes have remained unknown, mention must be made of *dry fogs*, such as those of **1783**, **1822**, 1831, and 1834.

De Saussure's hygrometer marked only 57°; the general colour of the air was that of a **dull**, dirty blue; distant objects were blue, or surrounded by mist, and at the distance of a league were undistinguishable. The sun, red, without brilliancy, and obscured by mist, both at his

abnormal tail and the prolonged axis of the other tail.'

rising and setting, could be steadfastly regarded at noonday.

The **frost fair of 1814** began on 1 February ... This was **the last frost fair**.

(HCN) is broken apart by sunlight. It **fluoresces** at **blue** and near-UV wavelengths, as well as in the red. Commonly referred as **phosphorescence**, **persistent luminescence** is the emission of light by a phosphorescent material after an excitation by ultraviolet or visible light. Such materials would "glow in the dark".

> Wikipedia - Persistent Luminescence https://en.wikipedia.org/wiki/Persistent_luminescence

The mainstream has blamed [and retro-fitted the appropriate stratospherically high calculations to]

the **Laki fissure eruption** for the outbreak of **blue phosphorescent** *dry fog* in **1783**.

apparent magnitude of 0, with an easily visible coma. the severest day of the great throes of the New Madrid earthquake; at the same time, a fiery

comet was rushing athwart the horizon"

The **Great Comet of 1819** ... was an exceptionally bright and easily visible comet, approaching an apparent magnitude of 1–2, discovered July 1, 1819 by the German astronomer Johann Georg Tralles in Berlin. After the orbital elements of the comet were calculated by Olbers, he discovered that a transit of the Sun by the comet had occurred on June 26 ... first months of 1824.

towards it.

2nd

1st

Olbers says of the comet of **1823**:

https://archive.org/details/philtrans09725652/mode/2up Unfortunately [for the mainstream]: The **1783** blue phosphorescent *dry fog* arrived before the <u>Laki fissure eruption</u>. Dates in June 1783 and sites of reports of first appearance in Europe of dry fog 8 June 1783 Laki Fissure Eruption Volcanic Air Pollution and Mortality in France 1783–1784 Comptes Rendus Geoscience 337(7) - May 2005 https://www.researchgate.net/publication/37145366

https://en.wikipedia.org/wiki/1783 Great Meteor Comet of 1783 Discovered 19 November 1783 Observations of the Comet of 1783 Edward Pigott - Read: 24th June 1784 Philosophical Transactions of the Royal Society of London I take the liberty of defiring you to prefent them to the Royal Society. The faintnefs of the comet's light, and the unfavourable fky you have had in the fouth, induce me to believe that few observations of it have been made befides the following. diameter of the furrounding coma was about three minutes of a degree. Between the 19th and 26th of November [1783], I thought it had rather diminiflied in its little elevation above the horizon. Between December the 3d and 10th, the comet was entirely effaced by the increafed light of the Moon. On the 10th, the moon being in the horizon did not obliterate ftars of the eighth or ninth magnitude; but I could not find the comet. The following observations were made by my friend Mr. John Goodricke. Edward Pigott - Read: 24th June 1784 Philosophical Transactions of the Royal Society of London 'substantial increase in mortality began in and continued to October 1783 22-27 Volcanic Air Pollution and Mortality in France 1783–1784
John Grattan, Roland Rabartin, Stephen Self, and Thorvaldur Thordarson
Comptes Rendus Geoscience 337(7) - May 2005
https://www.researchgate.net/publication/37145366

1783 Great Meteor - 21:15-21:30 18 August 1783 - Watercolour by Paul Sandby The **1783 Great Meteor** was a meteor procession observed on **18 August 1783** from the British Isles ... **Tiberius Cavallo**, an Italian natural philosopher who had happened to be amongst a group of people on the terrace at Windsor Castle at the time the meteor appeared ... published his account of the phenomenon in v. 74 of the Philosophical Transactions : Some flashes of lambent light, much like the aurora borealis, were first observed on the northern part of the heavens, which were soon perceived to proceed from a roundish luminous body, whose apparent diameter equaled half that of the moon, and almost stationary in the same point of the heavens [...] This ball at **first appeared of a faint bluish light**, perhaps from appearing just kindled, or from its appearing through the haziness; but it gradually increased its light, and soon began to move, at first ascending above the horizon in an oblique direction towards the east. Its course in this direction was very short, perhaps of five or six degrees; after which it directed its course towards the east [...] Its light was prodigious. Every object appeared very distinct; the whole face of the country, in that beautiful prospect before the terrace, being instantly illuminated. Other accounts, such as those of Alexander Aubert and Richard Lovell Edgeworth, noted **red** and **blue** colour tints in the fireball. One of Cavallo's five companions on the terrace was the artist Thomas Sandby ... Wikipedia - 1783 Great Meteor Having compleated my observations of the comet I discovered on the 19th of November last, The comet had exactly the appearance of a nebula: its light was fo faint that it could not be feen in a good opera glafs. In the night-telefcope the nucleus was fcarcely vifible, and the brightnefs. December the 1ft and 3d it was very difficult to be feen, occafioned perhaps by

John Grattan, Roland Rabartin, Stephen Self, and Thorvaldur Thordarson

Met Office Hadley Centre Central England Temperature Monthly mean - 1659 to date - current - Downloaded: 6 May 2024 January 8.0 6.0 4.0 2.0 0.0 -2.01800 1815 1830 1845 1860 1875 1890 1905 1920 1935 1950 1965 1980 1995 **1813 - 1814** One of the four or five coldest winters in the CET record. ... We had to wait until 1962/63 for comparable, extended cold periods,

British Weather - 1800 to 1849 - Martin Rowley https://web.archive.org/web/20180116135924/https://www.booty.org.uk/booty.weather/clim ate/1800 1849.htm

The *Big Freeze* of **1963** is also associated with **four Great Comets** between 1957 and 1967.

Comet Comet Arend-Roland **Mrkos** 1957

Comet Comet Seki-Lines Ikeya-Seki 1962 Wikipedia - Great Comet https://en.wikipedia.org/wiki/Great comet Perihelion: 8 April 1957 - Perihelion: 0.31604 AU - Inclination: 119.94° **Comet Arend–Roland** ... was the third comet to pass through perihelion during **1957** ... Observations of the comet over a period of 520 days allowed precise orbital elements to be computed. However, the distribution of the **orbital elements showed a wavy pattern** that

Wikipedia - Comet Arend-Roland https://en.wikipedia.org/wiki/Comet Arend%E2%80%93Roland Perihelion: 1 August 1957 - Perihelion: 0.355 AU - Inclination: 93.9°

Wikipedia - C/1957 P1 (Mrkos) https://en.wikipedia.org/wiki/C/1957 P1 (Mrkos) Perihelion: 1 April 1962 - Perihelion: 0.031 AU - Inclination: 65.01°

Comet Ikeya–Seki ... was a long-period comet ... 1965 ... The comet was **seen to break into three pieces** just before its perihelion passage. The three pieces continued in almost identical orbits, and the comet re-appeared in the morning sky in late October, showing a very bright tail. ... Ikeya–Seki continued to brighten

Observations ... detected emission lines associated with ionized calcium, chromium,

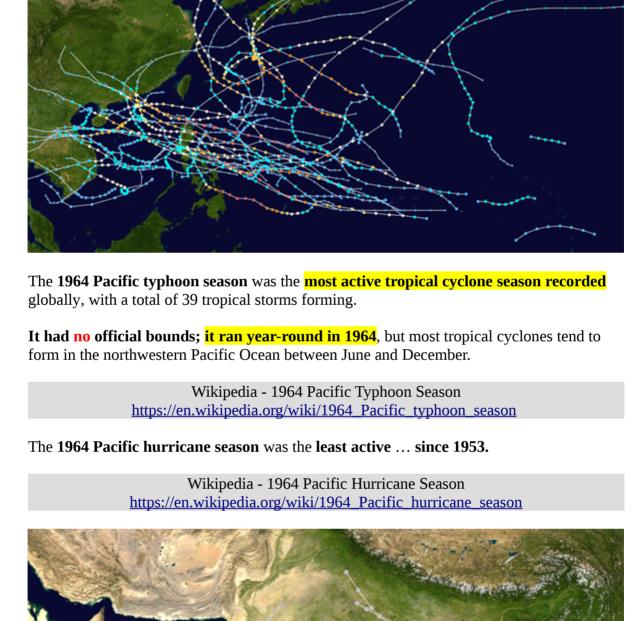
as perihelion approached, becoming **comparable in brightness to the full Moon**.

cobalt, copper, iron, manganese, nickel, sodium, vanadium, and cyanide in Ikeya–Seki's coma. The properties of the ionized iron and nickel lines suggested Ikeya–Seki reached an effective temperature of around 4800 K around perihelion.

4

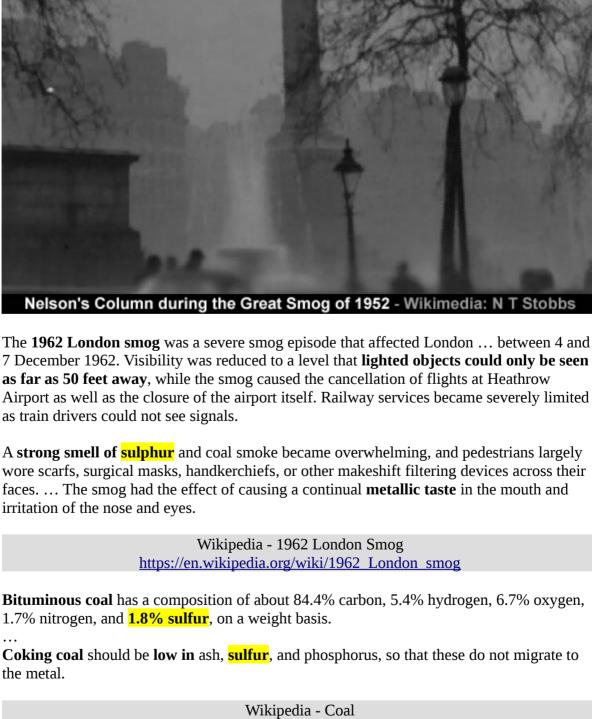
1954 1956 1958 1960 1962 1964 1966 Central England Temperature dataset Hadley Centre - The Meteorological Office https://www.metoffice.gov.uk/hadobs/hadcet/ Coldest month (20th Century) in Central England Record. **Coldest** winter of the century. British Weather - 1950-1974 https://web.archive.org/web/20170510015409/http://booty.org.uk/booty.weather/climate/195 0 1974.htm

The winter of 1962–1963, known as the **Big Freeze of 1963**, was one of the coldest winters (defined as the months of December, January and February) on record in the United Kingdom. Temperatures plummeted and lakes and rivers began to freeze over. Wikipedia - Winter of 1962–1963 in the United Kingdom https://en.wikipedia.org/wiki/Winter of 1962%E2%80%931963 in the United Kingdom



1400 1500 1600 1700 1800 1900 2000 10Be - Dye 3 Ice Core - 300 m - 1423-1 AD - J Beer et al - 1994

The cluster of **Great Comets** between 1957 and 1967 is also associated with **dry fog**.



https://en.wikipedia.org/wiki/Coal

Carbonyl Sulfide (OCS) - Detections in Comets Mohammad Saki, Erika L Gibb, Boncho P Bonev, Nathan X Roth, Michael A DiSanti, Neil Dello Russo, Ronald J Vervack, Jr, Adam J McKay, and Hideyo Kawakita https://iopscience.iop.org/article/10.3847/1538-3881/aba522/pdf

NOAA - 2024 - Magnetic North Pole Latitude - GUFM Model

NOAA - 2024 - Magnetic North Pole Longitude - GUFM Model

The big reported difference with the cluster of Great Comets between 1957 and 1967 is their alignment with an astonishing set of **oscillations** in the position of the **Magnetic North Pole**.

Comet Arend-Roland - Perihelion

C/1962 C1 (Seki-Lines) - Perihelion

C/1957 P1 (Mrkos) - Perihelion

Comet Ikeya-Seki - Perihelion

Cometary sulfur molecules such as H₂S, H₂CS, SO₂, SO, CS, CS₂, S₂, and NS have been

detected in many comets.

Annual Change

Degrees

0.30 -

0.20

0.10

0.00

-0.10

-0.20

-0.30

1940

1945

1960

NOAA - 2011- Magnetic North Pole Longitude - GUFM Model https://www.ngdc.noaa.gov/geomag/data/poles/

1965

1970

Vikimedia: Richard Johnson

Footnote #1 - Phosphorescence

suggested a non-gravitational influence. At perihelion, the comet was emitting an estimated 7.5×10^4 kg/s (83 tons/s) of dust and was releasing roughly 1.5×10^{30} gas molecules per second. It is believed that an outburst of dust occurred on April 2, six days before perihelion. The antitail was formed from particles released between February 6 and March 1, 1957. Estimates of the total amount of dust released into the zodiacal cloud range from 3×10^8 to 5×10^{10} kg. **Comet Mrkos** ... was a non-periodic comet discovered in **1957** by Antonín Mrkos. ... Observation of the comet revealed the presence of **sodium** and **cyanide** in its spectrum ...

C/1962 C1 (Seki–Lines) ... was a non-periodic comet ... very bright in April **1962** ... At late May the comet remained low as it moved in conjunction with the Sun. The **spectrum** of the comet before perihelion was **similar** to that of **comet Mrkos**, having similar intensity of diatomic carbon and NH₂. Also present were the [O I] and the sodium Dline, which had spatial asymmetry. Wikipedia - C/1962 C1 (Seki–Lines) https://en.wikipedia.org/wiki/Comet_Seki-Lines Perihelion: 21 October 1965 - Perihelion: 0.007786 AU - Inclination: 141.8642°

Wikipedia - Comet Ikeya-Seki https://en.wikipedia.org/wiki/Comet Ikeya%E2%80%93Seki

0 -2



The **1964 Atlantic hurricane season** featured the **highest number of U.S.-landfalling** hurricanes since 1933. Wikipedia - 1964 Atlantic Hurricane Season https://en.wikipedia.org/wiki/1964 Atlantic hurricane season

The cluster of **Great Comets** between 1957 and 1967 is also associated with a remarkable oscillation in the ¹⁰Be Dye-3 ice core chronology. Comet Arend-Roland - Perihelion

> C/1957 P1 (Mrkos) - Perihelion C/1962 C1 (Seki-Lines) - Perihelion

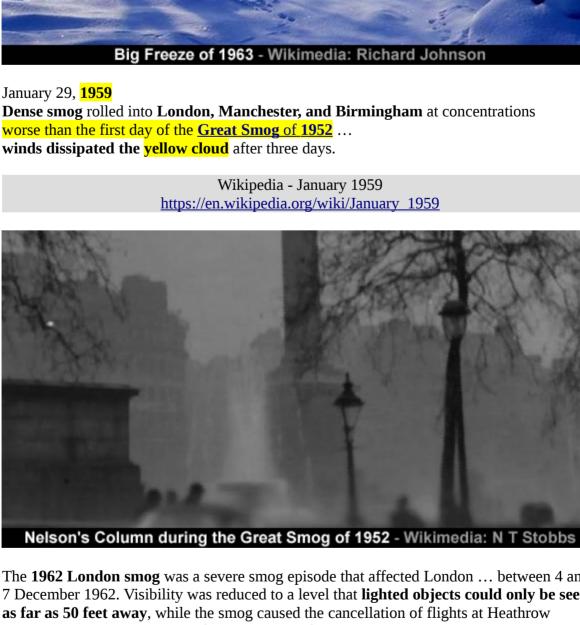
Comet Ikeya-Seki - Perihelion

Wikipedia - 1964 North Indian Ocean Cyclone Season https://en.wikipedia.org/wiki/1964 North Indian Ocean cyclone season

The **1964 North Indian Ocean cyclone season had no bounds** ...

2nd

3rd



As always: Review the evidence and draw your own conclusions.

1955

1950

Met Office Hadley Centre Central England Temperature Monthly mean - 1659 to date - current - Downloaded: 6 May 2024 January Comet Arend-Roland - Perihelion C/1957 P1 (Mrkos) - Perihelion C/1962 C1 (Seki-Lines) - Perihelion Comet Ikeya-Seki - Perihelion 8 2 1963 Jan 1962 - 63

in particular for the January values.

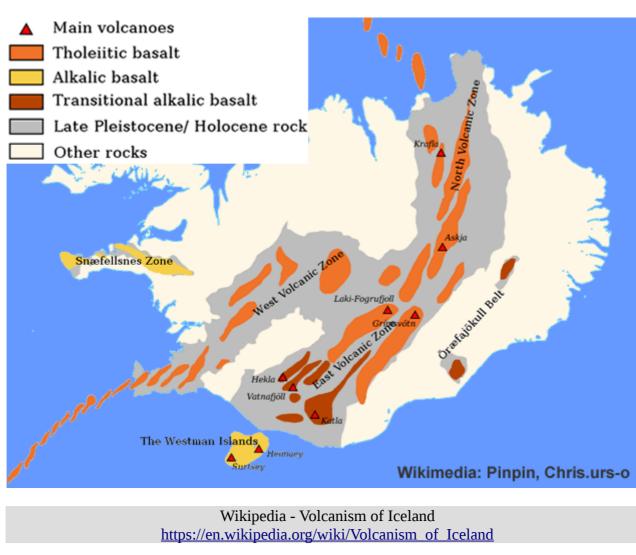
1st

Phosphorescence - Thomas Lamb Phipson - 1862 But one of the most curious phenomena ever witnessed was doubtless that described as having been seen by General Sabine and Captain James Ross in their first northern expedition [1818]. Being in the **Greenland seas during the period of darkness**, they were called up by the officers on deck to observe an extraordinary appearance. Ahead of the vessel, and lying precisely in her course, appeared **a stationary light resting on the water**, and rising to a considerable elevation. Every other part of the heavens and the horizon all around the ship were in utter darkness. As there was no known danger in this phenomenon, the course of the vessel was not altered; and when the ship entered the region of this light ["an arch, formed partly of an uniform yellowish **light, and partly of vertical or nearly vertical streamers**" Page 59], the officers and crew looked on with the liveliest interest. The whole vessel was illuminated; the most elevated parts of the masts and sails, and the minutest portions of the rigging, became visible.

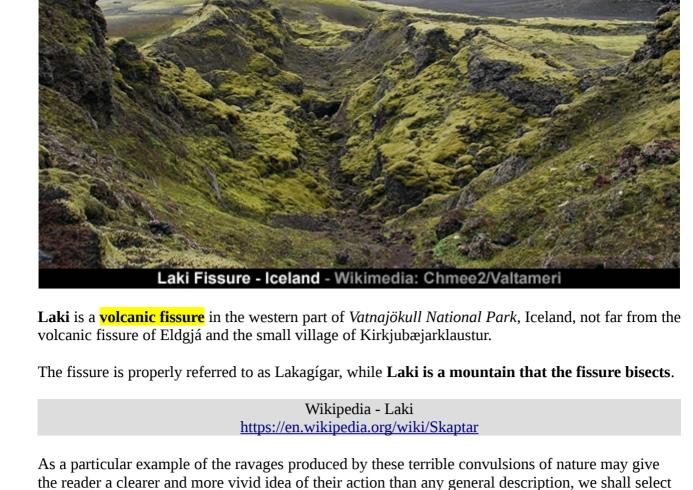
Mr. Crosse and other observers have found **fogs** to be **highly electrical**. Phosphorescence - Thomas Lamb Phipson - 1862

The extent of this luminous atmosphere might have been about 450 yards. When the bow of the ship emerged from it, it seemed as if the vessel were suddenly plunged in darkness. There was no gradual decrease of illumination. The ship was already at a considerable https://archive.org/details/phosphorescenceo00phiprich/page/57/mode/1up

distance from the luminous region when it appeared still visible as a stationary light astern. Many persons would look upon this curious phenomenon as an intensely **phosphorescent mist**. ...



Footnote #2 - Laki aka Skaptar



which we possess the fullest and most authentic accounts. The preceding winter and the spring of that year had been unusually mild, and nothing seemed to

the eruption of the **Skaptar Jokul in 1783**; it having been not only very violent, but the one of

foretell the approaching danger till **towards the end of May, when a light bluish fog was seen** floating along the ground, succeeded in the beginning of June by earthquakes, which daily

At nine on the morning of that day numerous pillars of smoke were noticed rising in the hill **country** towards the north, which, gradually **gathering into a dark bank**, obscured the atmosphere, and proceeding in a southerly direction against the wind, involved the whole district of Sida in darkness, showering down sand and ashes to the thickness of an inch.

increased in violence till the 8th of that month.

hundred broad.

of more than 120 feet.

cavity the waters had been hollowing out for ages.

threatened to set fire to the dwellings.

smoke even in July of that year.

were thrown to the ground.

This cloud continued to increase till the 10th, when **fire-spouts were observed in the mountains**, accompanied by earthquakes. Next day the large river Skaptaa, which in the spring had discharged a vast quantity of fetid water mixed with gravel or dust, and had lately been much swollen, totally disappeared. This incident was fully accounted for on the 12^{th} , when a huge current of lava burst from one side

of the volcano and rushed with a loud crashing noise down the channel of the river, which it not only filled, but even overflowed, though in many places from four to six hundred feet deep and two

The **fiery stream**, after leaving the hills, threatened to deluge the low country of Medalland, when a lake that lay in its way intercepted it during several days. But at length the incessant torrents filled the basin and proceeded in two streams,— one to the east,

where its progress was for a short time interrupted by the Skalarfiall, up which, however, the

accumulating flood soon forced its way, rolling the mossy covering of the mountain before it like a large piece of cloth. The other current directed its progress towards the south through the district of Medalland, passing over some old tracts of lava, which again began to burn, whilst the air in its cavities escaped with a

The waters of the rivers, swollen by the melting of the jokuls in the interior, and intercepted in their course by the glowing lava, were thrown into a state of violent ebullition, and destroyed many spots spared by the fire.

In this district the liquid matter continued to flow till the 20th of July, following principally the course of the Skaptaa, where it poured over the lofty cataract of Stapafoss, filling up the enormous

strange whistling noise, or, suddenly expanding, threw up immense masses into the air to the height

appeared like a blood red globe, adding to their terror and consternation. The molten elements had so long confined their fury to the Skaptaa that the inhabitants of the eastern district on the Hverfisfliot, though much incommoded by the showers of ashes, hoped to escape its more immediate visitations.

But on the 28th of June a cloud of sand and smoke caused so thick a darkness that in the houses at noon a sheet of white paper held opposite the window could not be distinguished from the black

walls, whilst redhot stones and dust burned up the pastures, poisoned the waters, and

On the 3rd of August a thick vapour rising from the Hverfisfliot, the entire disappearance of its waters, and a foaming fire-stream which on the 9th rushed with indescribable fury down its bed,

During the whole of this eruption the atmosphere was filled with mephitic vapours or darkened **with clouds of ashes**, by which **the sun** was either concealed from the miserable inhabitants, or

overflowing the country in one night to the extent of more than four miles, converted the fearful anticipations of the natives into dreadful realities. The eruptions of sand, ashes, pumice, and lava, continued till the end of August, when the volcano appeared completely exhausted; but flames were still seen in February 1784, and thick clouds of

The whole catastrophe closed in August with an earthquake of such extreme violence that men

The immediate source whence this enormous mass of matter issued is entirely unknown, being situated in that great central desert of sand and snow which none of the natives have ever penetrated; and no traditions of any former occurrence of this kind have been preserved.

Some persons who went up into the mountains during the continuance of the eruption were, in

consequence of the thick smoke, compelled to return, and some subsequent attempts met with no better success. It is not even known whether the current that flowed down the Skaptaa and that in the Hverfisfliot proceeded from the same crater.

It is, however, probable their sources were different though closely connected.

The extent of the lava can only be accurately known in the inhabited districts.

does not exceed 100, and in many places is only eight or ten feet.

many of its crevices being filled with warm water.

into the unknown regions of the interior.

the neighbouring sea.

known to exist.

alone they could obtain.

290; Gliemann, p. 107-109.

continued till the following May.

provisions.

Faroe Islands, a distance of nearly 300 miles.†

† This also happened during the eruption of Hekla in 1693.

them down into the plains, completed the scene of desolation.

From its immense thickness, it was a long time in cooling, being so hot in July 1784, twelve months after the eruption, that Mr Stephensen could not cross it, and even then sending up a thick smoke or steam.

In the year 1794 it still retained an elevated temperature, emitting vapours from various places, and

This long retention of heat will appear more extraordinary when we consider the numerous globular

* The mass of matter ejected on this occasion must have been enormous, and gives no countenance to the opinion that the igneous agents operating on the earth are diminishing in

cavities and fissures it contained permitting a free circulation of the water and atmosphere.*

The stream that flowed down the Skaptaa is calculated at about fifty miles in length by twelve or fifteen at its greatest breadth, — that in the Hverfisfliot at forty miles in length by seven in breadth.

In the narrow channel of the Skaptaa it rose to 500 or 600 feet, but in the plains its extreme height

intensity. Assuming the average breadth of the first current as six miles, and of the second as three, both probably below the truth, the one would cover 300 square miles, the other 120, or 420 in all. With an average depth of fifteen yards, the combined mass would contain 420 X

 $3097600 \times 16 = 19,514,880,000$ cubic yards, or nearly twenty thousand millions.

But this comprises only that portion which flowed into the inhabited districts, whilst it is likely that an equal or greater quantity remained heaped up around the crater, or flowed off

To this must also be added the **pumice**, **sand**, **and ashes scattered** not only over the whole island, but to a distance of 300 miles round, in such abundance as to destroy the fisheries in

With these additions it would amount we may believe to fifty or sixty thousand millions of cubic yards, exceeding the solid contents of Hekla, which, if six miles in diameter at the base and 1700 yards high, would contain nearly fifty thousand millions (49,537,270,000) of cubic yards. This is probably larger than any individual mass of the older igneous rocks

The destructive effects of this volcano were not confined to its immediate vicinity, vast quantities of sand and ashes being scattered over the remoter parts of the country, and some were conveyed to the

The noxious vapours that for many months infected the air were equally pernicious to man and beast, and covered the whole island with a dense fog which obscured the sun, and was perceptible

even in England and Holland. The steam rising from the crater, or exhaled from the boiling watery was condensed in the cooler regions of the atmosphere, and descended in floods, that deluged the fields and consolidated the ashes into a thick black crust. A fall of snow in the middle of June, and frequent showers of hailstones of unusual magnitude,

accompanied with **tremendous thunder-storms tearing up huge fragments of rock** and rolling

The grass and other plants withered, and became so brittle that the weight of a man's foot reduced them to powder; and even where the pastures seemed to have recovered, the cattle refused to

Small unknown insects covered many of the fields, whilst other portions of the soil formerly the most fertile were changed by the ashes into marshy wastes overgrown with moss and equiseta.

A disease resembling scurvy in its most malignant type attacked both men and cattle, occasioned in the former no doubt by the want of food, and the miserable, often disgusting, nature of that which

Many lived on the bodies of those animals which had perished from hunger or disease, whilst others

The numerous earthquakes, with the ashes and other matter thrown into the sea, caused the fish to desert many parts of the coast, whilst the fishermen seldom daring to leave the land, enveloped in

thick clouds during most of the summer, were thus deprived of their usual stock of winter

touch them, dying of actual starvation in the midst of the most luxuriant herbage.

had recourse to boiled skins, or substances still more nauseous and unwholesome.

numbers of men and cattle more or less immediately destroyed by it in two years. The most moderate calculation makes these amount to 1300 human beings, 19,488 horses, 6801 homed cattle, and 129,937 sheep.* * Stephensen says 9336 men, 28,000 horses, 11,461 cattle, and 190,488 sheep, but his

numbers are thought exaggerated. The description in the text is chiefly abridged from this gentleman's "Account of the Eruption" published at Copenhagen in 1785, which will be found translated in Hooker's Journal, vol. ii. p. 124-261. Comp. Henderson, vol. i. p. 272-

The violent earthquakes in **Sicily** and **Calabria** were almost synchronous in commencement and duration with this eruption. The first shock was felt on the 5th February 1783, and they

An Historical and Descriptive Account of Iceland, Greenland and the Faroe Islands Nicol James - 1841 https://archive.org/details/anhistoricaland00nicgoog/page/n43/mode/1up

We cannot better conclude this frightful catalogue of evils than by the following summary of the

Fissure - Wikimedia:

In 1847 Nicol was appointed assistant secretary to the Geological Society of London, being appointed a Fellow of the Society in the same year. He was also elected a Fellow of the Royal

the University of Aberdeen, a post which he retained until a few months before he died.

In 1849 professor of geology in Queen's College, Cork, and in 1853 professor of natural history in

Wikipedia - James Nicol (geologist) https://en.wikipedia.org/wiki/James Nicol (geologist)

James Nicol FRSE FGS (1810-1879) was a Scottish geologist.

Society of Edinburgh his proposer being George Wilson.