

Well, couldn't they have just fired some itsy-bitsy warning shots [Matthew Bogdanos, *Thieves of Baghdad*, with William Patrick (New York: Bloomsbury, 2005), p. 210]?

## II — xwix — Who Cannot Cope with Allegory?

*While the ghost riders swirl around the temporal realm, the Ossianian Minister Ahem interrogates Lt. Col. Simic in the Impersonal Terrace. The range fire subsides and Lothar's party treks across the desert. Park's telephone conversation fades to the discoverer (all too busy) in distant space. As Charles' exposé surfaces, principals of the Founders' League consider methods of damage control. The Hermitage is looted by mobs while Sergei and Talitha escape from the catacombs beneath Ossian and whisk the trek bash through customs. Split from Lothar's party, Mantissa wanders down a dirty old road. Soundman of Ossian offers Lt. Col. Simic a tour of wishram as coalition forces surge into the capitol.*

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### **balkanize**

Act II, Signature xwix - (1)

Main Entry: balƙkanɪz

Pronunciation: ,b•l-k,-fn^z

Function: transitive verb

Inflected Form: -ized ; -izɪŋ

Usage: often capitalized

Etymology: Balkan Peninsula

Date: 1919 : to break up (as a region or group) into smaller and often hostile units –balƙkanɪfɪzæʃn \fb•l-k,-n,-,z†-sh,,n\ noun , often capitalized.

[Following text courtesy of Wikipedia]:

Balkanization, or Balkanisation, is a geopolitical term, originally used to describe the process of fragmentation or division of a region or state into smaller regions or states that are often hostile or non-cooperative with each other [*Merriam-Webster Online Dictionary*, "1. to break up (as a region or group) into smaller and often hostile units," <http://www.m-w.com/dictionary/balkanized>], and it is considered pejorative [Vidanović, Ivan, "Rečnik socijalnog rada Udruženje stručnih radnika socijalne zaštite Srbije: Društvo socijalnih radnika Srbije," *Asocijacija centra za socijalni rad Srbije* (Unija Studenata socijalnog rada, 2006)].

The term refers to the division of the Balkan peninsula, formerly ruled almost entirely by the Ottoman Empire, into a number of smaller states between 1817 and 1912 ["Balkanization," in *Encyclopædia Britannica*, <http://www.britannica.com/EBchecked/topic/50323/Balkanization>]. The term however came into common use in the immediate aftermath of the First World War, with reference to the numerous new states that arose from the collapse of the Austro-Hungarian Empire and the Russian Empire.

The term is also used to describe other forms of disintegration, including, for instance, the subdivision of the Internet into separate enclaves ["Google lays out browser aims," *Financial Times*, September 4, 2008, [http://www.ft.com/cms/s/0/37e74f38-7a19-11dd-bb93-000077b07658.html?nclick\\_ch eck=1](http://www.ft.com/cms/s/0/37e74f38-7a19-11dd-bb93-000077b07658.html?nclick_ch eck=1)], the division of subfields and the creation of new fields from sociology, and the breakdown of cooperative arrangements due to the rise of independent competitive entities engaged in "beggar thy neighbour" bidding wars.

Balkanization is sometimes used to refer to the divergence over time of programming languages and data file formats (particularly XML). The term has been used in American urban planning to describe the process of creating gated communities. There are also attempts to use the term balkanization in a positive way equating it with the need for sustenance of a group or society. Current research on the positive aspects of Balkanization is carried out by Srđan Jovanović Weiss with Centre for Research Architecture at Goldsmiths College ["Srđan Jovanović Weiss at the Centre for Research Architecture," <http://roundtable.kein.org/user/17>; "Shapes of Balkanization - Exhibition at Akademie Schloss Solitude in Stuttgart, Germany," at the Normal Architecture Office (2006), a design practice founded by Srđan Jovanović Weiss, <http://www.thenao.net/NAObalkansolitude-01.htm>].

In January 2007, regarding a temporary rise in support for Scottish independence, Gordon Brown talked of a "Balkanisation of Britain [BBC News, "Politics: UK's existence is at risk - Brown," January 13, 2007, [http://news.bbc.co.uk/1/hi/uk\\_politics/6258089.stm](http://news.bbc.co.uk/1/hi/uk_politics/6258089.stm)]."

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Main street of Watch Hill, RI, USA: part of the Watch Hill Historic District. Photo by Daniel Case, April 21, 2008. See also National Park Service, "National Register Information System," National Register of Historic Places, January 23, 2007, [http://nrhp.focus.nps.gov/natreg/docs/All\\_Data.html](http://nrhp.focus.nps.gov/natreg/docs/All_Data.html).\*

## Watch Hill

### Act II, Signature xwix - (2)

(Newport, RI) City (pop., 2000: 26,475) and port of entry, southeastern Rhode Island, U.S., at the mouth of Narragansett Bay. Founded in 1639 by colonists from Massachusetts, it became a haven for religious refugees. With Providence, it was the joint capital of the state until 1900. Newport has held many of the America's Cup yacht races, and it is a centre for naval education. It also is the site of one of Cornelius Vanderbilt's mansions (The Breakers) and the Touro synagogue, which is the oldest in the U.S.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Watch Hill is an affluent coastal village in the southwestern section of the town of Westerly, the southwestern-most town in Washington County and the entire U.S. state of Rhode Island. The village is listed as a census-designated place [U.S. Geological Survey, "Geographic Names Information System: Watch Hill, Rhode Island," [http://geonames.usgs.gov/pls/gnispublic/f?p=gnispq:3::NO::P3\\_FID:2631341](http://geonames.usgs.gov/pls/gnispublic/f?p=gnispq:3::NO::P3_FID:2631341)]. Watch Hill Historic District is a 629-acre (255 ha) historic district in the village that is listed on the *U.S. National Register of Historic Places*.

As a state-chartered Fire District (1901), the Watch Hill area is authorized to tax residents to fund their volunteer fire

department, but the bulk of property taxes go to the town to fund municipal services and schools. The town was listed in Lisa Birnbach's 2010 book *True Prep* as an acceptable summer destination for the preppy set [*True Prep: It's a Whole New Old World* (Alfred A. Knopf, 2010)]. The town is considered a more staid and family-oriented community when compared to glittering Newport, the more well-known summer getaway in Rhode Island [Vernon, Thomas, "For Elegant Watch Hill, New Faces on the Scene," *New York Times*, June 22, 1997, <http://www.nytimes.com/1997/06/22/realestate/for-elegant-watch-hill-new-faces-on-the-scene.html>].

Watch Hill is situated on a stubby peninsula jutting into Block Island Sound. It includes the westernmost point in the state known as Napatree Point. Together they have formed Little Narragansett Bay which has made Watch Hill a popular harbor around which a business district has grown. The community is a secluded and seasonal resort community with shopping, a golf and beach club, yacht club and public and private beaches. Once occupied by Niantic Indians in the 17th century, European colonists used the area as an important lookout point during the French and Indian War and the Revolutionary War, hence the community's name. Watch Hill is probably most noted for its expensive mansions, but other landmarks in town include the Watch Hill Lighthouse the first of which was built in 1745, and The Flying Horse Carousel, the oldest continuously-operated carousel in the United States and a National Historic Landmark.

Another point of interest in Watch Hill is Napatree Point, a 1.5-mile (2.4 km)-long sandy spit that extends west from the Watch Hill business district. At the end of Napatree Point are the ruins of Fort Mansfield, an old coastal artillery post which was one of a series of such forts constructed to guard the eastern entrance to Long Island Sound as part of the coastal defense network for New York City. It was in operation between 1901 and 1909. The land was sold in 1926 and all the government buildings were demolished during the winter of 1928-29 leaving the three concrete gun emplacements behind.

The Hurricane of 1938 caught Watch Hill by surprise and took a terrible toll. On Fort Road, which connected Watch Hill to the old Fort Mansfield, all the 39 houses, the Yacht and Beach Clubs, as well as the bathing pavilion were destroyed. Fifteen people were killed there alone and others survived by clinging to wreckage as they were swept across the bay to Connecticut ["Watch Hill In The Hurricane of September 21st, 1938," in a special pictorial issue of *Seaside Topics* (November 1938)]. Several breachways were created in Napatree Point and to this day the former northern extension of Napatree remains an island, known as Sandy Point. Google Earth now shows parts of Sandy Point as being in Connecticut. The shortened Napatree Point is now barrier beach about 1.5 miles (2.4 km) long without any roads or houses. It is a public beach and offers great bird watching and surf casting. Some of the fortified gun emplacements of old Fort Mansfield have survived and while overgrown, offers adventurers tunnels and underground rooms to explore. Occasionally at low tide some of remains of the Battery Connell can be seen. As the sea and sand shift, old weapons and sometimes artifacts from the hurricane are revealed.

The Watch Hill waterfront was once lined with huge Victorian hotels. Fire and hurricanes destroyed almost all during the 20th century. The two remaining hotels The Ocean House and the Watch Hill Inn went through huge changes during the 2000s. The Ocean House was originally opened in 1868, torn down in 2005, and reopened in 2010. The Watch Hill Inn & Annex now contains modern residential condos as well. Bay Street in Watch Hill is lined with shops, restaurants, and businesses. East Beach and Nappatree point are the main beaches in Watch Hill.



B-52 Stratofortress deploying its drag chute while landing at Barksdale AFB in Bossier City, LA (United States). Original photo on 917th Wing USAF official web page, by Kevin Jackson, July 4, 2009, <http://www.defenselink.mil/multimedia/about.html>.\*

## drogue

### Act II, Signature xwix - (3)

Main Entry: drogue

Pronunciation: ,drɔːg

Function: noun

Etymology: probably alteration of drag

Date: 1875 1 : sea anchor 2 a : a cylindrical or funnel-shaped device towed as a target by an airplane b : a small parachute for stabilizing or decelerating something (as an astronaut's capsule) or for pulling a larger parachute out of stowage 3 : a funnel-shaped device which is attached to the end of a long flexible hose suspended from a tanker airplane in flight and into which the probe of another airplane is fitted so as to receive fuel from the tanker.

\*[Image & caption credit and following text courtesy of Wikipedia]:

A drogue parachute is a parachute designed to be deployed from a rapidly moving object in order to slow the object, or to provide control and stability, or as a pilot parachute to deploy a larger parachute. It was invented by Giovanni Agusta in 1911.

Design and operational characteristics. A drogue parachute is more elongated and has a far smaller area than a conventional parachute, and thus provides less drag. This means that a drogue parachute cannot slow an object as much as a conventional parachute, but it can be deployed at speeds at which conventional parachutes would be torn apart [NASA, "Abbreviations and Acronyms," in *Relive Apollo 11*, <http://www.nasa.gov/pdf/apollo11/reliveapollo11/glossary.cfm>]. The drogue parachute's simpler design allows for easier deployment. Where a conventional parachute could get caught in itself while unfolding and fail to inflate properly (thus not slowing the falling object as much as it should), the drogue parachute will inflate more easily and more reliably to generate the expected amount of drag.

History. The drogue parachute was applied for the first time in 1912 by a Russian inventor Gleb Kotelnikov, the same man who had introduced the knapsack parachute a year before. On a road near Tsarskoye Selo (now part of St. Petersburg) Kotelnikov successfully demonstrated the braking effects of parachute by accelerating a Russo-Balt automobile to the top speed, and then opening a parachute attached to the back seat ["Parachuting," at the site *Divo: The Russian Book of Records and Achievements*, <http://www.bibliotekar.ru/divo/40-22.htm>]. In aviation, drag chutes were used for the first time in 1937 by the Soviet airplanes in the Arctic that were providing support for the famous polar expeditions of the era, such as the first manned drifting ice station North Pole-1, launched the same year. The drag chute allowed airplanes to land safely on the ice-floes of smaller size [*ibid*].

Parachuting. Drogue parachutes are sometimes used to deploy a main or reserve parachute by using the drag

generated by the drogue to pull the main parachute out of its container. The most familiar drogue parachute is the one used in this manner in parachuting. Such a drogue is referred to as a pilot chute when used in a single user (sports) parachute system. The pilot chute is only used to deploy the main or reserve parachute; it is not used for slowing down or for stability. Tandem systems are different; to reduce the terminal velocity of the pair of tandem jumpers, a drogue is deployed shortly after exiting the aircraft. It is later used to deploy the main parachute as on sports systems.

When used as a method of decreasing the landing distance of an aircraft below that available solely from the aircraft's brakes, the device is called a drag parachute or braking parachute. Braking parachutes are also employed to slow drag racing and land speed record vehicles [North American Eagle Project, "Deceleration: High Speed Parachute Systems," <http://www.landspeed.com/researchchutes.html>].

## **Bureau of Indian Affairs**

### **Act II, Signature xwix - (4)**

Indian Reorganization Act. (June 18, 1934)

Measure enacted by the U.S. Congress to decrease federal control of American Indians and to increase tribal self-government. The act sought to strengthen tribal structure by encouraging written constitutions and to undo the damage caused by the Dawes General Allotment Act by returning surplus lands to the tribes rather than homesteaders. It gave Indians the power to manage their internal affairs and established a revolving credit fund for tribal land purchases and educational assistance. It remains the basic legislation concerning Indian affairs.

[Following text courtesy of Wikipedia]:

The Bureau of Indian Affairs (BIA) is an agency of the federal government of the United States within the US Department of the Interior. It is responsible for the administration and management of 55,700,000 acres (225,000 km<sup>2</sup>) of land held in trust by the United States for Native Americans in the United States, Native American Tribes and Alaska Natives. The Bureau of Indian Affairs is one of two Bureaus under the jurisdiction of the Assistant Secretary — Indian Affairs: the Bureau of Indian Affairs and the Bureau of Indian Education, which provides education services to approximately 48,000 Native Americans. Bart Stevens is the current acting director of the Bureau of Indian Education.

The BIA's responsibilities once included providing health care services to American Indians and Alaska Natives. In 1954, that function was legislatively transferred to the U.S. Department of Health, Education and Welfare, now known as the Department of Health and Human Services, where it has remained to this day as the Indian Health Service (IHS).

Organization. Located at 1849 C Street, N.W. in Washington, D.C., since May 22, 2009, the BIA is headed by an Assistant Secretary-Indian Affairs. The current appointee is Larry EchoHawk, an enrolled member of the Pawnee Nation of Oklahoma. The BIA serves the 564 Federally recognized tribes through four offices:

- The Office of Indian Services - operates the BIA's general assistance, disaster relief, Indian child welfare, tribal government, Indian Self-Determination, and Indian Reservation Roads Program;
- The Office of Justice Services - directly operates or funds law enforcement, tribal courts, and detention facilities on Federal Indian lands. OJS funded 208 law enforcement agencies, consisting of 43 BIA-operated Police agencies, and 165 tribally operated agencies under contract, or compact with the OJS. The office has seven areas of activity: Criminal Investigations and Police Services, Detention/Corrections, Inspection/Internal Affairs, Tribal Law Enforcement and Special Initiatives, the Indian Police Academy, Tribal Justice Support, and Program Management. The OJS also provides oversight and technical assistance to tribal law enforcement programs when and where requested. It operates four divisions: Corrections, Drug Enforcement, the Indian Police Academy, and Law Enforcement [<http://www.bia.gov/WhoWeAre/BIA/OJS/index.htm>];

- The Office of Trust Services - works with tribes and individual American Indians and Alaska Natives in the management of their trust lands, assets, and resources;
- The Office of Field Operations - oversees 12 regional offices; Alaska, Great Plains, Northwest, Southern Plains, Eastern, Navajo, Pacific, Southwest, Eastern Oklahoma, Midwest, Rocky Mountain, and Western; and 83 agencies, which carry out the mission of the Bureau at the tribal level.



Asymmetric spinnaker on an RS K6 sailing dinghy. Photo by Malcom Morley, September 10, 2005.\*

## spinnaker

### Act II, Signature xwix - (5)

Main Entry: spinˈnækər

Pronunciation: ,spi-ni-k,ər

Function: noun

Etymology: origin unknown

Date: 1866: a large triangular sail set on a long light pole and used when running before the wind.

\*[Image & caption credit and following text courtesy of Wikipedia]:

A spinnaker is a special type of sail that is designed specifically for sailing off the wind from a reaching course to a downwind, i.e., with the wind 90°–180° off the bow. The spinnaker fills with wind and balloons out in front of the boat when it is deployed, called flying. It is constructed of lightweight fabric, usually nylon, and is often brightly coloured. It may be optimised for a particular range of wind angles, as either a reaching or a running spinnaker, by the shaping of the panels and seams. Some types of spinnaker can be carried by the side of the boat, but still in front of the mast. This is called "Flying a shy spinnaker," and is used for reaching [see article]. The spinnaker is often called a kite, or a chute (as in cruising chute) because it somewhat resembles a parachute in both construction and appearance. This should not be confused with the spinnaker chute which is a hull fitting sometimes used for launching and recovering the spinnaker. The first boat to carry this sail was the *Sphinx*.

Etymology of the Word. Some dictionaries suggest that the origin of the word could be traced to the first boat to commonly fly a spinnaker, a yacht called the *Sphinx*, mispronounced as *Spinx* ["Spinnaker," entry in the *Compact Oxford English Dictionary*, <http://www.askoxford.com/results/?view=dict&freesearch=spinnaker&branch=13842570&textsearchtype=exact>; and in *The Concise Oxford Dictionary of English Etymology* (Oxford University Press, 1996), <http://www.encyclopedia.com/doc/1O27-spinnaker.html>]. The *Sphinx* first set her spinnaker in the *Solent* in 1865, and the first recorded use of the word was in 1866 in the August edition of *Yachting Calendar and Review* (p. 84) [Richard Mayne, *The Language of Sailing* (Taylor & Francis, 2000), p. 282]. In addition, the term may have

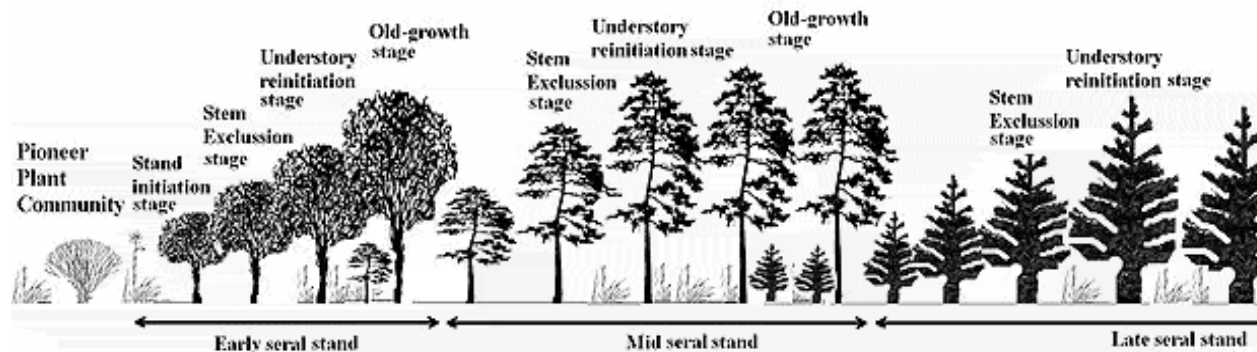
been influenced by the spanker, originally a gaff rigged fore-and-aft sail [*Compact Oxford English Dictionary*].

It has been pointed out, however, that the skippers of the barges on the Thames (see Thames sailing barge) also used the term spinnaker for their jib staysails. Unlike the other, tanned sails of these boats, the spinnakers were usually of white color. It has thus been suggested that the term could be "connected with the obsolete word spoon, meaning to run before the wind (cf. spindrift). Early usage of the verb to spoon can be traced back to the 16th century; the change from spoon to spin in the term spindrift is attributed to a local Scottish pronunciation [Edward Keble Chatterton, "Fore and Aft, vii," pp. 232-33 [1912], in Mayne (2000)]. According to *Merriam Webster's Dictionary*, however, spindrift derives from a local Scottish pronunciation of speen (not spoon), meaning "to drive before a strong wind ["spindrift," <http://www.merriam-webster.com/dictionary/spindrift>]."

According to *Merriam-Webster's Dictionary*, finally, the origin of the word spinnaker is simply unknown ["spinnaker," <http://www.merriam-webster.com/dictionary/spinnaker>]. Whereas *The Straight Dope* argues that the word spinnaker evolved from the name the *Sphinx*, via sphinxer, to spinniker, and finally spinnaker [*The Straight Dope*, <http://www.straightdope.com/columns/read/2950/whats-the-origin-of-nautical-terms-like-jibe-tack-etc>].

These references to a mid-nineteenth century origin are problematic. In the logbook of the *USS Constitution*, opening "Remarks on Board Monday July 13th 1812," is the comment "From 12 to 4 AM moderate breezes and thick cloudy weather with rain at 1 AM hauled up the mainsail and set the spinnaker at ½ past 3 AM set the mainsail JTS [John T. Shubrick, Fifth Lieutenant] [National Archives of the United States, "Logbook of the *USS Constitution*".]"

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Ecosystems regenerate after a disturbance such as fire, forming mosaics of different age groups structured across a landscape. Pictured are different seral stages in forested ecosystems starting from pioneers colonizing a disturbed site and maturing in successional stages leading to old-growth forests (diagram by M. Gerzon, March 2009).\*

eco-

## Act II, Signature xwix - (6)

or ecological terrorism or environmental terrorism

The destruction, or the threat of destruction, of the environment in order to intimidate or coerce governments. The term has also been applied to crimes committed against companies or government agencies in order to prevent or interfere with activities allegedly harmful to the environment. Ecoterrorism includes threats to contaminate water supplies or to destroy or disable energy utilities, for example, and practices such as the deployment of anthrax. Another form of ecoterrorism, often referred to as environmental warfare, consists of the deliberate and illegal destruction, exploitation, or modification of the environment as a strategy of war or in times of armed conflict. Examples include the U.S. military's use of the defoliant Agent Orange during the Vietnam War and the destruction of Kuwaiti oil wells by retreating Iraqi military forces during the 1991 Persian Gulf War. The activities of some environmental activists also have been described as ecoterrorism. These activities include criminal trespass on the

property of logging companies and other firms and obstruction of their operations through sabotage as well as the environmentally harmless modification of natural resources in order to make them unsuitable for commercial use (a practice known as “monkeywrenching”).

\*[Image & caption credit and following text courtesy of Wikipedia]:

Ecology (from Greek: οίκος, "house"; -λογία, "study of") is the scientific study of the relations that living organisms have with respect to each other and their natural environment. Variables of interest to ecologists include the composition, distribution, amount (biomass), number, and changing states of organisms within and among ecosystems. Ecosystems are hierarchical systems that are organized into a graded series of regularly interacting and semi-independent parts (e.g., species) that aggregate into higher orders of complex integrated wholes (e.g., communities). Ecosystems are sustained by the biodiversity within them. Biodiversity is the full-scale of life and its processes, including genes, species and ecosystems forming lineages that integrate into a complex and regenerative spatial arrangement of types, forms, and interactions.

Ecosystems create biophysical feedback mechanisms between living (biotic) and nonliving (abiotic) components of the planet. These feedback loops regulate and sustain local communities, continental climate systems, and global biogeochemical cycles. The biological organization of life self-organizes into layers of emergent whole systems that function according to nonreducible properties called holism. This means that higher order patterns of a whole functional system, such as an ecosystem, cannot be predicted or understood by a simple summation of the parts. "New properties emerge because the components interact, not because the basic nature of the components is changed [Odum, E. P., Barrett, G. W., *Fundamentals of Ecology* (Brooks Cole, 2005), p. 8, [http://www.cengage.com/search/totalsearchresults.do?N=16&image.x=0&image.y=0&keyword\\_all=fundamentals+of+ecology](http://www.cengage.com/search/totalsearchresults.do?N=16&image.x=0&image.y=0&keyword_all=fundamentals+of+ecology)]."

Ecology is a sub-discipline of biology, the study of life. The word "ecology" ("Ökologie") was coined in 1866 by the German scientist Ernst Haeckel (1834–1919). Ancient philosophers of Greece, including Hippocrates and Aristotle, were among the earliest to record notes and observations on the natural history of plants and animals. Modern ecology branched out of natural history and matured into a more rigorous science in the late 19th century. Charles Darwin's evolutionary treatise including the concept of adaptation, as it was introduced in 1859, is a pivotal cornerstone in modern ecological theory. Ecology is not synonymous with environment, environmentalism, natural history or environmental science. It is closely related to physiology, evolutionary biology, genetics and ethology. An understanding of how biodiversity affects ecological function is an important focus area in ecological studies. Ecologists seek to explain:

- Life processes and adaptations;
- Distribution and abundance of organisms;
- The movement of materials and energy through living communities;
- The successional development of ecosystems; and
- The abundance and distribution of biodiversity in context of the environment.

Ecology is a human science as well. There are many practical applications of ecology in conservation biology, wetland management, natural resource management (agriculture, forestry, fisheries), city planning (urban ecology), community health, economics, basic and applied science and human social interaction (human ecology). Ecosystems sustain every life-supporting function on the planet, including climate regulation, water filtration, soil formation (pedogenesis), food, fibers, medicines, erosion control, and many other natural features of scientific, historical or spiritual value ["Millennium Ecosystem Assessment - Synthesis Report," United Nations (2005), <http://www.millenniumassessment.org/en/Synthesis.aspx>; de Groot, R. S., Wilson, M. A., Boumans, R. M. J., "A typology for the classification, description and valuation of ecosystem functions, goods and services," *Ecological Economics* 41 (3): 393–408 (2002), doi:10.1016/S0921-8009(02)00089-7, [http://yosemite.epa.gov/SAB/sabcvpress.nsf/e1853c0b6014d36585256dbf005c5b71/1c7c986c372fa8d485256e29004c7084/\\$FILE/deGroot%20et%20al.pdf](http://yosemite.epa.gov/SAB/sabcvpress.nsf/e1853c0b6014d36585256dbf005c5b71/1c7c986c372fa8d485256e29004c7084/$FILE/deGroot%20et%20al.pdf); Aguirre, A. A., "Biodiversity and Human Health," *EcoHealth* 6: 153 (2009), doi:10.1007/s10393-009-0242-0].



## telemetry

### Act II, Signature xwix - (7)

Highly automated communications process by which data are collected from instruments located at remote or inaccessible points and transmitted to receiving equipment for measurement, monitoring, display, and recording.

Transmission of the information may be over wires or, more commonly, by radio. The technique is used extensively for oil-pipeline monitoring and control systems and in oceanography and meteorology. Telemetry for rockets and satellites bloomed in the 1950s and has continued to grow in complexity and in breadth of application. Data can be transmitted from inside internal-combustion engines during tests, from steam turbines in operation, and from manned and unmanned spacecraft. Major scientific applications include biomedical research and remote observation of operations with highly radioactive material.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Telemetry is a technology that allows remote measurement and transparent conveyance of remote information [NASA, "Telemetry: Summary of concept and rationale," *NASA Technical Reports Server*, <http://hdl.handle.net/2060/19890004084>]. The word is derived from Greek roots tele = remote, and metron = measure. Systems that need external instructions and data to operate require the counterpart of telemetry, telecommand.

Although the term commonly refers to wireless data transfer mechanisms (e.g. using radio, hypersonic or infrared systems), it also encompasses data transferred over other media, such as a telephone or computer network, optical link or other wired communications like phase line carrier. Many modern telemetry systems take advantage of the low cost and ubiquity of GSM networks by using SMS to receive and transmit telemetry data.

History. Telemetering information over wire had its origins in the 19th century. One of the first data transmission circuits was developed in 1845 between the Russian Tsar's Winter Palace and the army's headquarters. In 1874, French engineers built a system of weather and snow-depth sensors on Mont Blanc that transmitted real-time information to Paris. In 1901 the American inventor C. Michalke patented the selsyn, a circuit for sending synchronized rotation information over distances. In 1906, a set of seismic stations were built with telemetering to the Pulkovo Observatory in Russia. In 1912, Commonwealth Edison developed a system of telemetry to monitor electrical loads on its power grid. The Panama Canal (completed 1913-1914) used extensive telemetry systems to monitor locks and water levels [Mayo-Wells, "The Origins of Space Telemetry," in *Technology and Culture* (1963)].

Wireless telemetry made early appearances in the radiosonde developed concurrently in 1930 by Robert Bureau in France and Pavel Molchanov in Russia. Mochanov's system modulated temperature and pressure measurements by converting them to wireless Morse code. The German V-2 rocket used a system of primitive multiplexed radio signals called "Messina" to report 4 rocket parameters, but it was so unreliable that Wernher von Braun once claimed it was more useful to watch the rocket through binoculars. In both the USA and USSR, the Messina system was quickly replaced with better systems, in both cases based on pulse-position modulation [Joachim & Muehlner, "Trends in Missile and Space Radio Telemetry," declassified Lockheed report].

Early Soviet missile and space telemetry systems developed in the late 1940s used either pulse-position modulation (e.g., the Tral telemetry system developed by OKB-MEI) or pulse-duration modulation (e.g., the RTS-5 system developed by NII-885). In the USA, early work employed similar systems, but were later replaced by pulse-code modulation (PCM), for example in the Mars probe Mariner 4. Later Soviet interplanetary probes used redundant radio systems, transmitting telemetry by PCM on a decimeter band and PPM on a centimeter band [Molotov, E. L., *Nazemnye Radiotekhnicheskie Sistemy Upravleniya Kosmicheskimi Apparatami*].



*The School of Athens* (1511), fresco by Raffaello Sanzio (1483–1520), [http://mv.vatican.va/3\\_EN/pages/x-Schede/SDRs/SDRs\\_03\\_02\\_020.html](http://mv.vatican.va/3_EN/pages/x-Schede/SDRs/SDRs_03_02_020.html).\*

## dialectic

### Act II, Signature xwix - (8)

Main Entry: difaɫlecɫic

Pronunciation: fɫ^-, -, lek-tik

Function: noun

Etymology: Middle English *dialetik*, from Middle French *dialetique*, from Latin *dialectica*, from Greek *dialektikḗ*, from feminine of *dialektikos* of conversation, from *dialektos*

Date: 14th century 1 : logic 1a (1) 2 a : discussion and reasoning by dialogue as a method of intellectual investigation; specifically : the Socratic techniques of exposing false beliefs and eliciting truth b : the Platonic investigation of the eternal ideas 3 : the logic of fallacy 4 a : the Hegelian process of change in which a concept or its realization passes over into and is preserved and fulfilled by its opposite; also : the critical investigation of this process b (1) usually plural but singular or plural in construction : development through the stages of thesis, antithesis, and synthesis in accordance with the laws of dialectical materialism (2) : the investigation of this process (3) : the theoretical application of this process especially in the social sciences 5 usually plural but singular or plural in construction a : any systematic reasoning, exposition, or argument that juxtaposes opposed or contradictory ideas and usually seeks to resolve their conflict b : an intellectual exchange of ideas 6 : the dialectical tension or opposition between two interacting forces or elements.

\*[Image and caption and following text courtesy of Wikipedia]:

Dialectic (also dialectics and the dialectical method) is a method of argument for resolving disagreement that has been central to Indic and European philosophy since antiquity. The word dialectic originated in Ancient Greece, and was made popular by Plato in the Socratic dialogues. The dialectical method is dialogue between two or more people holding different points of view about a subject, who wish to establish the truth of the matter by dialogue, with reasoned arguments [*The Republic* (Plato), 348b]. Dialectics is different from debate, wherein the debaters are committed to their points of view, and mean to win the debate, either by persuading the opponent, proving their argument correct, or proving the opponent's argument incorrect — thus, either a judge or a jury must decide who wins the debate. Dialectics is also different from rhetoric, wherein the speaker uses logos, pathos, or ethos to persuade listeners to take their side of the argument.

The Sophists taught *arête* (Greek: ἀρετή, quality, excellence) as the highest value, and the determinant of one's actions in life. The Sophists taught artistic quality in oratory (motivation via speech) as a manner of demonstrating

one's *arête*. Oratory was taught as an art form, used to please and to influence other people via excellent speech; nonetheless, the Sophists taught the pupil to seek *arête* in all endeavours, not solely in oratory.

Socrates favoured truth as the highest value, proposing that it could be discovered through reason and logic in discussion: ergo, dialectic. Socrates valued rationality (appealing to logic, not emotion) as the proper means for persuasion, the discovery of truth, and the determinant for one's actions. To Socrates, truth, not *arête*, was the greater good, and each person should, above all else, seek truth to guide one's life. Therefore, Socrates opposed the Sophists and their teaching of rhetoric as art and as emotional oratory requiring neither logic nor proof [*Gorgias*, 449B: "Socrates: Would you be willing then, Gorgias, to continue the discussion as we are now doing [Dialectic], by way of question and answer, and to put off to another occasion the (emotional) speeches [Rhetoric] that [the Sophist] Polus began?"]. Different forms of dialectical reasoning emerged from the Indosphere (Greater India) and in the West (Europe), and throughout history; Socratic method, Hindu, Buddhist, Medieval, Hegelian dialectics, Marxist, Talmudic, and Neo-orthodoxy.

Dialectical method and dualism. Another way to understand dialectics is to view it as a method of thinking to overcome formal dualism and monistic reductionism. For example, formal dualism regards the opposites as mutually exclusive entities, whilst monism finds each to be an epiphenomenon of the other. Dialectical thinking rejects both views. The dialectical method requires focus on both at the same time. It looks for a transcendence of the opposites entailing a leap of the imagination to a higher level, which (1) provides justification for rejecting both alternatives as false and/or (2) helps elucidate a real but previously veiled integral relationship between apparent opposites that have been kept apart and regarded as distinct. For example, the superposition principle of quantum physics can be explained using the dialectical method of thinking—likewise the example below from dialectical biology. Such examples showing the relationship of the dialectic method of thinking to the scientific method to a large part negates the criticism of Popper (see article) that the two are mutually exclusive. The dialectic method also examines false alternatives presented by formal dualism (materialism vs idealism; rationalism vs empiricism; mind vs body, etc.) and looks for ways to transcend the opposites and form synthesis. In the dialectical method, both have something in common, and understanding of the parts requires understanding their relationship with the whole system. The dialectical method thus views the whole of reality as an evolving process.

## **Interpol**

Act II, Signature xwix - (9)

officially International Criminal Police Organization

International organization whose purpose is to fight international crime. Interpol promotes the widest possible mutual assistance between the criminal police authorities of affiliated countries and seeks to establish and develop all institutions likely to contribute effectively to the prevention and suppression of ordinary crime. It was founded in Austria in 1923 with 20 member countries; after World War II its headquarters moved to Paris. By the early 21st century, its membership exceeded 180 countries. Interpol pursues criminals who operate in more than one country (e.g., smugglers), those who stay in one country but whose crimes affect other countries (e.g., counterfeiters of foreign currency), and those who commit a crime in one country and flee to another.

**See also Act I, Signature xxiii - (32)**

~ page 244 ~

## **Wouk, Herman**

Act II, Signature xwix - (10)

born May 27, 1915, New York, N.Y., U.S.

U.S. novelist. His experience serving aboard a destroyer-minesweeper in World War II provided material for *The*

*Caine Mutiny* (1951, Pulitzer Prize; film, 1954), a drama of naval tradition that presented the unforgettable character Captain Queeg. *The Winds of War* (1971) and *War and Remembrance* (1978) together represent a two-volume novel of the war. His other novels include *Marjorie Morningstar* (1955) and *The Glory* (1994).

[Following text courtesy of Wikipedia]:

Herman Wouk (/ˈwoʊk/; born May 27, 1915) is a bestselling, Pulitzer Prize-winning Jewish American author with a number of notable novels to his credit, including *The Caine Mutiny*, *The Winds of War*, and *War and Remembrance*. He born in New York City into a Jewish family that had emigrated from Russia. After a childhood and adolescence in the Bronx and a high school diploma from Townsend Harris High School, he earned a B.A. from Columbia University in 1934, where he was a member of the Pi Lambda Phi fraternity [*Membership Directory*, Pi Lambda Phi Inc. (2010)] and studied under philosopher Irwin Edman. Soon thereafter, he became a radio dramatist, working in David Freedman's "Joke Factory" and later with Fred Allen for five years and then, in 1941, for the United States government, writing radio spots to sell war bonds. He lived a fairly secular lifestyle in his early 20s before deciding to return to a more traditional Jewish way of life, modeled after his grandfather, in his mid-20s. From that day to the present, Wouk has commenced each day of his life with a reading of Scripture in Hebrew [citation needed].

Wouk joined the United States Navy and served in the Pacific Theater, an experience he later characterized as educational; "I learned about machinery, I learned how men behaved under pressure, and I learned about Americans." Wouk served as an officer aboard two destroyer minesweepers (DMS), the *USS Zane* and *USS Southard*, becoming executive officer of the latter. He started writing a novel, *Aurora Dawn* [originally titled by Wouk as *Aurora Dawn*; or, *The True History of Andrew Reale, containing a faithful account of the Great Riot, together with the complete texts of Michael Wilde's oration and Father Stanfield's sermon*], during off-duty hours aboard ship. Wouk sent a copy of the opening chapters to Irwin Edman who quoted a few pages verbatim to a New York editor. The result was a publisher's contract sent to Wouk's ship, then off the coast of Okinawa. The novel was published in 1947 and became a Book of the Month Club main selection. His second novel, *City Boy*, proved to be a commercial disappointment at the time of its initial publication in 1948; perhaps, as Wouk once claimed, it was swept away by the excitement over Norman Mailer's bestselling World War II novel *The Naked and the Dead*.

While writing his next novel, Wouk read each chapter as it was completed to his wife, who remarked at one point that if they didn't like this one, he'd better take up another line of work (a line he would give to the character of the editor Jeannie Fry in his 1962 novel *Youngblood Hawke*). The novel, *The Caine Mutiny* (1951), went on to win the Pulitzer Prize. A huge best-seller, drawing from his wartime experiences aboard minesweepers during World War II, *The Caine Mutiny* was adapted by the author into a Broadway play called *The Caine Mutiny Court Martial*, and was later made into a film, with Humphrey Bogart portraying Lt. Commander Philip Francis Queeg, captain of the fictional *DMS Caine*. Some Navy personnel complained at the time that Wouk had taken every twitch of every commanding officer in the Navy and put them all into one character, but Captain Queeg has endured as one of the great characters in American fiction.

His novels after *The Caine Mutiny* include *Marjorie Morningstar* (1955), *Youngblood Hawke* (1962), and *Don't Stop the Carnival* (1965). In 1956 he published in paperback the novel *Slattery's Hurricane*, which he had written in 1948 as the basis for the screenplay for the film of the same name. Wouk's first work of non-fiction was 1959's *This is My God*, an explanation of Orthodox Judaism.

In the 1970s, Wouk published his two most ambitious novels, *The Winds of War* (1971) and *War and Remembrance* (1978). He described the latter, which included a devastating depiction of the Holocaust, as "the main tale I have to tell." Both were made into hugely popular TV miniseries. Although they were made several years apart, both were directed by Dan Curtis and both starred Robert Mitchum as Captain Victor "Pug" Henry, the main character. Wouk devoted "thirteen years of extraordinary research and long, arduous composition" to these two novels. "The seriousness with which Wouk has dealt with the war can be seen in the prodigious amount of research, reading, travel and conferring with experts, the evidence for which is to be found in the uncataloged boxes [of his papers] at Columbia University [Beichman, Arnold, *Herman Wouk: The Novelist as Social Historian* (Transaction Books, 1984), pp. 77-81]."

He married Betty Sarah Brown in 1945, with whom he had three sons: Abraham, Nathaniel, and Joseph. He became a fulltime writer in 1946 to support his growing family. His first-born son, Abraham Isaac Wouk, died in a tragic accident as a child; Wouk later dedicated *War and Remembrance* (1978) to him with the Biblical words, "He will

destroy death forever." In 1998, Wouk received the Guardian of Zion Award. He lives in Palm Springs, California; his wife died in that city on March 17, 2011 ["Betty Sarah Wouk obituary," *Los Angeles Times*, March 23, 2011, p. AA5].

**Find cite in *Winds of War* . . .**

## **Josef Jansen Eroica**

### Act II, Signature xwix - (11)

Roman Catholic reform movement inspired by the writings of Cornelius Jansen.

Influenced by the works of St. Augustine and especially by Augustine's attacks on Pelagianism and the doctrine of free will, Jansen adopted Augustine's doctrines of predestination and the necessity of God's grace, a stance considered uncomfortably close to Calvinism by Roman Catholic authorities, who banned his book *The Augustinus* in 1642. After Jansen's death in 1638, his followers made their base at the abbey in Port-Royal, France. Blaise Pascal, the most famous Jansenist, defended their teachings in his *Provincial Letters* (1656–57). In 1709 Louis XIV ordered the Port Royal abbey demolished. Followers of Jansen started a Jansenist church in 1723, which endured into the late 20th century.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Jansenism was a Christian theological movement, primarily in France, that emphasized original sin, human depravity, the necessity of divine grace, and predestination. The movement originated from the posthumously published work of the Dutch theologian Cornelius Otto Jansen, who died in 1638. It was first popularized by Jansen's friend Jean du Vergier, Abbé de Saint-Cyran, and after Saint-Cyran's death in 1643 was led by Antoine Arnauld. Through the 17th and into the 18th centuries, Jansenism was a distinct movement within the Roman Catholic Church. The theological centre of the movement was the Parisian convent of Port-Royal, which was a haven for writers including Saint-Cyran, Arnauld, Pierre Nicole, Blaise Pascal, and Jean Racine.

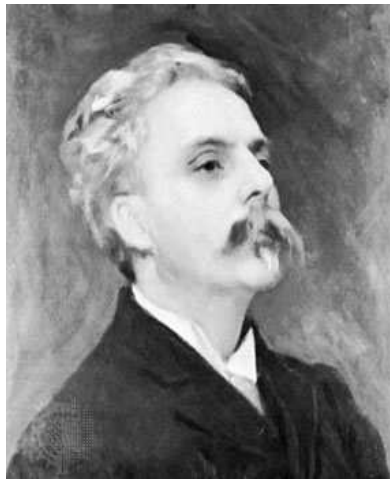
Jansenism was opposed by many in the Catholic hierarchy, especially the Jesuits. Although the Jansenists identified themselves only as rigorous followers of Augustinism, Jesuits coined the term "Jansenism" to identify them as having Calvinist affinities [Vincent Carraud, *Pascal et la philosophie* (PUF, 1992), "Le jansénisme," Société des Amis de Port-Royal, <http://www.amisdeportroyal.org/articles.php?lng=fr&pg=282>]. The papal bull *Cum occasione*, issued by Pope Innocent X in 1653, condemned five cardinal doctrines of Jansenism as heresy — especially the relationship between human free will and efficacious grace, wherein the teachings of Augustine contradicted the teachings of the Jesuit School [*ibid*]. Jansenist leaders endeavored to accommodate the pope's pronouncements while retaining their distinctives, and enjoyed a measure of peace in the late 17th century under Pope Clement IX. However, further controversy led to the bull *Unigenitus*, issued by Pope Clement XI in 1713, which marked the end of Catholic toleration of Jansenist doctrine.

Jansenist Theology. Even before the publication of *Augustinus*, Saint-Cyran had begun publicly preaching Jansenism. Jansen emphasised a particular reading of Augustine's idea of efficacious grace which stressed that only a certain portion of humanity were predestined to be saved. Jansen insisted that the love of God was fundamental, and that only contrition, and not simple attrition, could save a person (and that, in turn, only an efficacious grace could tip that person toward God and such a contrition). This debate on the respective roles of contrition and attrition, which had not been settled by the Council of Trent (1545–1563), was one of the motives of the imprisonment in May 1638 of Saint-Cyran, the first leader of Port-Royal, by order of Cardinal Richelieu [Pascal, Blaise, *Les Provinciales – Pensées Et Opuscules Divers*, Philippe Sellier & Gérard Ferreyrolles, Eds. (Lgf/Le Livre De Poche: La Pochothèque, 2004), pp. 430–431]. Saint-Cyran was not released until after Richelieu's death in 1642, and he died shortly thereafter, in 1643.

Jansen also insisted on justification by faith, although he did not contest the necessity of revering saints, of confession, and of frequent Communion. Jansen's opponents (mainly Jesuits) condemned his teachings for their alleged similarities to Calvinism (though, unlike Calvinism, Jansen rejected the doctrine of assurance and taught that even the justified could lose their salvation). Blaise Pascal's *Écrits sur la grâce*, based on what Michel Serres has

called his "anamorphic method," attempted to conciliate the contradictory positions of Molinists and Calvinists by stating that both were partially right: Molinists, who claimed God's choice concerning a person's sin and salvation was a posteriori and contingent, while Calvinists claimed that it was a priori and necessary. Pascal himself claimed that Molinists were correct concerning the state of humanity before the Fall, while Calvinists were correct regarding the state of humanity after the Fall.

The heresy of Jansenism, meaning here its denial of Catholic doctrine, is that it denies the role of free will in the acceptance and use of grace. Jansenism asserts that God's role in the infusion of grace is such that it cannot be resisted and does not require human assent. The Catholic teaching is that "God's free initiative demands man's free response (CCC 2002) [Catholic Church, *Catechism of the Catholic Church* (Doubleday, 2003)]" — that is, the gift of grace requires human assent.



Gabriel Fauré, portrait by J.S. Sargent; in a private collection.

*Giraudon–Art Resource/EB Inc.*

## **Fauré, Gabriel (Church of the Eternal St. Sulpice)**

### **Act II, Signature xwix - (12)**

born May 12, 1845, Pamiers, Ariège, Fr.

died Nov. 4, 1924, Paris

French composer. Born into the minor aristocracy, he enrolled at age nine in a Paris music school, where he studied with Camille Saint-Saëns and remained 11 years. He held the prestigious organist positions at the churches of Saint-Sulpice (1871–74) and the Madeleine (1896–1905). In 1896 he also became professor of composition at the Paris Conservatory, where he taught students such as Maurice Ravel and Nadia Boulanger. He served as its director 1905–20. In 1909 he accepted the presidency of the *Société Musicale Indépendante*, a group of dissident young composers. His works include the operas *Prométhée* (1900), *Pénélope* (1913), and *Masques et bergamasques* (1919), the orchestral suite *Pelléas et Mélisande* (1898), two piano quartets (1879, 1886), numerous piano nocturnes and barcaroles, a famous *Requiem* (1900), and many beautiful songs.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Saint-Sulpice (French pronunciation: [s?~sɥlpis]) is a Roman Catholic church in Paris, France, on the east side of the Place Saint-Sulpice, in the Luxembourg Quarter of the VI<sup>e</sup> arrondissement. At 113 metres long, 58 metres in width and 34 metres tall, it is only slightly smaller than Notre-Dame and thus the second largest church in the city. It is dedicated to Sulpitius the Pious. During the 18th century, an elaborate gnomon, the Gnomon of Saint-Sulpice, was

constructed in the church.



The Great Organ built by Aristide Cavaillé-Coll in 1862 (photo by Gryffindor, April 2006).\*

The Great Organ. The church has a long-standing tradition of talented organists that dates back to the eighteenth century (see below). In 1862, the current organ, constructed by Aristide Cavaillé-Coll, was added to the church. It is Cavaillé-Coll's magnum opus, featuring 102 speaking stops, and is perhaps the most impressive instrument of the romantic French symphonic-organ era.

The church contains one of the world's finest and most famous organs, constructed by Aristide Cavaillé-Coll in 1862, using many materials from the church's earlier French Classical organ built by Clicquot in 1781. The Grand-Orgue of Saint-Sulpice was at the time of its building one of only three "100 stop" organs in all of Europe. Its organists have also been renowned, starting with Nicolas Séjan in the 18th century, and continuing with Charles-Marie Widor (organist 1870-1933) and Marcel Dupré (organist 1934-1971), both great organists and composers of organ music. Thus for over a century (1870–1971), Saint-Sulpice employed only two organists, and much credit is due to these two individuals for preserving the instrument and protecting it from the ravages of changes in taste and fashion which resulted in the destruction of many of Cavaillé-Coll's other masterpieces. The current organists are titulaire Daniel Roth (since 1985) and Sophie-Véronique Cauchefeur-Choplin ["Organ of St. Sulpice," <http://www.stsulpice.com/Docs/disc.html>].

This impressive instrument is perhaps the summit of Cavaillé-Coll's craftsmanship and genius. The sound and musical effects achieved in this instrument are almost unparalleled. Widor's compositional efforts for the organ were intended to produce orchestral and symphonic timbres, reaching the limits of the instrument's range. Albert Schweitzer, his student and collaborator -- despite initiating an "Orgelbewegung," or organ reform movement, which deplored many nineteenth-century developments-- called this organ the most beautiful in the world. More recently, Stephen Bicknell concurred, pointing out that the full ensemble of many large organs is dominated by a few powerful stops; but at S. Sulpice many ranks, each of moderate power, contribute to a sound of dazzling complexity [<http://www.stephenbicknell.org/3.6.65.php>]. With five manuals — keyboards — and boasting two 32-foot stops, organists at St. Sulpice have an incredibly rich palette of sounds at their disposal.

Aside from a re-arrangement of the manual keyboards circa 1900, the installation of an electric blower and the addition of two Pedal stops upon Widor's retirement in 1934 (Principal 16' and Principal 8' donated by Societe Cavaillé-Coll), the organ is maintained today almost exactly as Cavaillé-Coll left it [B. Epstein, "The Organs of St. Sulpice," <http://www.stsulpice.com>]. In Saint-Sulpice sunday organ recitals are held on a regular basis (Auditions du Dimanche, following the High Mass, usually from 11:30 till 12:05 clock, during the subsequent mas, a visit of the organ loft possible) ["Les Auditions des Grandes Orgues à Saint Sulpice (Paris),"

<http://www.stsulpice.com/Docs/concerts.html>].



Salt Lake City, Utah. Alkire-Naylor Cigar Company Auto Truck, Flor de Baltimore Side. Photo for advertisement, published 1913, [http://content.lib.utah.edu/cdm4/item\\_viewer.php?CISOROOT=/USHS\\_Shipler&CISOPTR=5586&CISOBOX=1&REC=17](http://content.lib.utah.edu/cdm4/item_viewer.php?CISOROOT=/USHS_Shipler&CISOPTR=5586&CISOBOX=1&REC=17).\*

## Havana

### Act II, Signature xwix - (13)

Spanish La Habana

City, capital, and province (pop., 2001 est.: 2,181,500) of Cuba. The city lies on the island's northern coast. The largest city in the Caribbean, it is Cuba's chief port, and it has one of the best harbours in the Western Hemisphere. It was founded by the Spanish in 1515 and moved to its present location in 1519. Made the capital of Cuba in 1592, it was Spain's chief naval station in the New World. Its harbour was the scene of the destruction of the U.S. battleship *Maine* in 1898, the immediate cause of the Spanish-American War. Before 1959, when Fidel Castro came to power, Havana was a haven for U.S. tourists, offering gambling and showy nightlife. In addition to being Cuba's commercial and industrial centre, it contains many buildings reflecting Spanish colonial style, including the cathedral (1704) that formerly contained Christopher Columbus's tomb, the Palace of the Captains General, and Morro Castle. Central Havana is now a World Heritage site.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Cuban cigars are rolled from tobacco leaves found throughout the country of Cuba. The filler, binder, and wrapper may come from different portions of the island. All cigar production in Cuba is controlled by the Cuban government, and each brand may be rolled in several different factories in Cuba. Cuban cigar rollers or "torcedores" are claimed by cigar experts to be the most skilled rollers in the world [citation needed]. Torcedores are highly respected in Cuban society and culture and travel worldwide displaying their art of hand rolling cigars [Rivera, Maricarmen, "Cuban Gold Gets Rolled in Vineland/Store Offers Cigars Rolled by Cuban Hands," *The Press of Atlantic City*, April 29, 2002, <http://nl.newsbank.com/nl-search/we/Archives...>].

Habanos SA and Cubatabaco between them do all the work relating to Cuban cigars, including manufacture, quality control, promotion and distribution, and export. Cuba produces both handmade and machine made cigars. All boxes and labels are marked Hecho en Cuba (made in Cuba). Machine-bunched cigars finished by hand add Hecho a mano, while fully hand-made cigars say "Totalmente a mano" in script text, though not all Cuban cigars will include this statement. Because of the perceived status of Cuban cigars, counterfeits are somewhat commonplace ["Identifying Counterfeit Cuban Cigars," <http://www.decaturspirits.com/cigars/fakecubans/>].

Despite American trade sanctions against Cuban products, cigars remain one of the country's leading exports. The



country exported 77 million cigars in 1991, 67 million in 1992, and 57 million in 1993, the decline attributed to a loss of much of the wrapper crop in a hurricane [Marvin R. Shanken, "Inside Cuban Cigars: Cigar Aficionado Interviews Cubatabaco's Top Official, Francisco Padron," *Cigar Aficionado*, Vol. 2, No. 3 (Spring 1994), pp. 75-83].

~ page 245 ~



A flowering peyote, in cultivation (photo uploaded by Renegatus, July 19, 2006).\*

### peyote

#### Act II, Signature xwix - (14)

Either of two species of the genus *Lophophora* in the cactus family, native to North America, almost exclusively to Mexico.

The body of the peyote cactus is spineless, soft, usually blue-green, and only 3 in. (8 cm) wide and 2 in. (5 cm) tall. The more common species, mescal (*L. williamsii*), has pink to white flowers. *L. diffusa*, more primitive, has white to yellow flowers and a yellow-green body. Well known for its hallucinogenic effects (primarily due to the alkaloid mescaline), peyote figures prominently in old and recent religious rituals of certain American Indian peoples. The sale, use, or possession of dried mescal buttons (flowering heads) or live plants is prohibited by law in many places.

\*[Image & caption credit and following text courtesy of Wikipedia]:

*Lophophora williamsii* (/loʊˈfɒrə wɪlˈjæmsiə/), better known by its common name Peyote (from the Nahuatl word peyotl), is a small, spineless cactus with psychoactive alkaloids, particularly mescaline [Salak, Kira, "National Geographic article about Peyote," *National Geographic Adventure*, <http://www.kirasalak.com/Peyote.html>]. It is native to southwestern Texas and Mexico. It is found primarily in the Chihuahuan desert and in the states of Tamaulipas and San Luis Potosi among scrub, especially where there is limestone. Known for its psychoactive properties when ingested, it is used world wide as an entheogen and supplement to various transcendence practices, including meditation, psychonautics, and psychedelic psychotherapy. Peyote has a long history of ritualistic and medicinal use by indigenous Americans. It flowers from March through May, and sometimes as late as September. The flowers are pink, with thigmotactic anthers (like *Opuntia*).

History. Peyote is known to have been used since the middle of the Archaic period in the Americas by the people of the Oshara Tradition in the Southwest. In 2005 researchers used radiocarbon dating and alkaloid analysis to study two specimens of peyote buttons found in archaeological digs from a site called Shumla Cave No. 5 on the Rio Grande in Texas. The results dated the specimens to between 3780 and 3660 B.C. Alkaloid extraction yielded approximately 2% of the alkaloids including mescaline in both samples. This indicates that native North Americans were likely to have used peyote since at least five and a half thousand years ago [El-Seedi, H. R., De Smet, P. A., Beck, O., Possnert, G., Bruhn, J. G., "Prehistoric peyote use: alkaloid analysis and radiocarbon dating of archaeological specimens of *Lophophora* from Texas," *J Ethnopharmacol* 101 (1–3): 238–42 (October 2005), doi: 10.1016/j.jep.2005.04.022, PMID 15990261]. Specimens from a burial cave in west central Coahuila, Mexico have been similarly analysed and dated to 810 to 1070 AD [Bruhn, J. G., Lindgren, J. E., Holmstedt, B., Adovasio, J. M., "Peyote Alkaloids: Identification in a Prehistoric Specimen of *Lophophora* from Coahuila, Mexico," *Science* 199

(4336): 1437–1438 (March 1978), doi: 10.1126/science.199.4336.1437, PMID 17796678].

From earliest recorded time, peyote has been used by indigenous peoples, such as the Huichol [Lumholtz, Carl, *Unknown Mexico* (New York: Scribners, 1902)] of northern Mexico and by various Native American tribes, native to or relocated to the Southern Plains states of present-day Oklahoma and Texas. Its usage was also recorded among various Southwestern Athabaskan-language tribal groups. The Tonkawa, the Mescalero and Lipan Apache were the source or first practitioners of peyote religion in the regions north of present-day Mexico [Opler, Morris Edward, "The use of Peyote by the Carrizo and Lipan Apache tribes," *American Ethnography Quasimonthly* (2008 [1938]), <http://www.americanethnography.com/article.php?id=12>]. They were also the principal group to introduce peyote to newly arrived migrants, such as the Comanche and Kiowa from the Northern Plains. Documented evidence of the religious, ceremonial, and healing uses of peyote dates back over 2,000 years [Schultes, Richard Evans, "The appeal of peyote (*Lophophora Williamsii*) as a medicine," *American Ethnography Quasimonthly* (2008 [1938]), <http://www.americanethnography.com/article.php?id=20>].

Under the auspices of what came to be known as the Native American Church, in the 19th century, American Indians in more widespread regions to the north began to use peyote in religious practices, as part of a revival of native spirituality. Its members refer to peyote as "the sacred medicine", and use it to combat spiritual, physical, and other social ills. Concerned about the drug's psychoactive effects, between the 1880s and 1930s, U.S. authorities attempted to ban Native American religious rituals involving peyote, including the Ghost Dance. Today the Native American Church is one among several religious organizations to use peyote as part of its religious practice.

Peyote and its associated religion are fairly recent arrivals among the Navajo in the Southwestern United States, and can be firmly dated to the early 20th century [citation needed]. Traditional Navajo belief or ceremonial practice did not mention the use of peyote before its introduction by the neighboring Utes. The Navajo Nation now has the most members of the Native American Church. According to some estimates, 20 percent or more of the Navajo population are practitioners [citation needed].

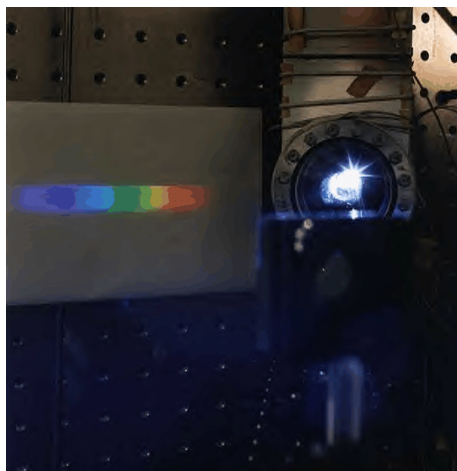
Dr. John Raleigh Briggs (1851–1907) was the first to draw scientific attention of the Western scientific world to peyote [Jan G. Bruhn and Bo Holmstedt, "Early peyote research: an interdisciplinary study," *Economic Botany*, Vol. 28, No. 4 (October 1973)]. Arthur Heffter conducted self experiments on its effects in 1897 [Daniel Perrine, "Visions of the Night: Western Medicine Meets Peyote, 1887-1899," *The Heffter Review of Psychedelic Research*, Vol. 2 (2001), p. 42]. Similarly, pioneering Norwegian ethnographer Carl Sofus Lumholtz [Lumholtz (1902)] studied and wrote about the use of peyote among the Indians of Mexico. Lumholtz also reported that, lacking other intoxicants, Texas Rangers captured by Union forces during the American Civil War soaked peyote buttons in water and became "intoxicated with the liquid [*ibid*, p. 358]." Arguably, this is the first documented use of peyote by non-native Americans.

Legality. United States. Where there is exclusive federal jurisdiction or state law is not "racially" limited, peyote use by Native American Church members is legal and "racially" neutral in the United States [[http://www.deadiversion.usdoj.gov/21cfr/cfr/1307/1307\\_31.htm](http://www.deadiversion.usdoj.gov/21cfr/cfr/1307/1307_31.htm)]. This exemption from federal criminalization is as old as creation of federal law creating peyote related offenses. Code Of Federal Regulations, Special Exempt Persons:

"Section 1307.31 Native American Church. The listing of peyote as a controlled substance in Schedule I does not apply to the nondrug use of peyote in bona fide religious ceremonies of the Native American Church, and members of the Native American Church so using peyote are exempt from registration. Any person who manufactures peyote for or distributes peyote to the Native American Church, however, is required to obtain registration annually and to comply with all other requirements of law."

*U.S. v. Boyll*, 774 F. Supp. 1333 (D.N.M. 1991) [<http://www.druglibrary.org/olsen/religion/boyll.html>] addresses this racial issue specifically and concludes:

For the reasons set out in this Memorandum Opinion and Order, the Court holds that, pursuant to 21 C.F.R. § 1307.31 (1990), the classification of peyote as a Schedule I controlled substance, see 21 U.S.C. § 812(c), Schedule I(c)(12), does not apply to the importation, possession or use of peyote for 'bona fide' ceremonial use by members of the Native American Church, regardless of race.



Light from the SURF III Synchrotron Ultraviolet Radiation Facility of the National Institute of Standards and Technology, Gaithersburg, MD.\*

## **Bureau of Standards**

### **Act II, Signature xwix - (15)**

since 1988 U.S. National Institute of Standards and Technology (NIST)

Agency of the U.S. Department of Commerce responsible for the standardization of weights and measures, timekeeping, and navigation. Active since at least the mid-19th century, the agency works closely with the U.S. Naval Observatory and the *Bureau International de l'Heure* in Paris to ensure global standardized time.

\*[Image & caption credit and following text courtesy of Wikipedia]:

The National Institute of Standards and Technology (NIST), known between 1901 and 1988 as the National Bureau of Standards (NBS), is a measurement standards laboratory which is a non-regulatory agency of the United States Department of Commerce. The institute's official mission is to "promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life [[http://www.nist.gov/public\\_affairs/general\\_information.cfm](http://www.nist.gov/public_affairs/general_information.cfm)]."

NIST had an operating budget for fiscal year 2007 (October 1, 2006 - September 30, 2007) of about \$843.3 million. NIST's 2009 budget was \$992 million, but it also received \$610 million as part of the American Recovery and Reinvestment Act [National Institute of Standards and Technology, "NIST Budget, Planning and Economic Studies," October 5, 2010, [http://www.nist.gov/public\\_affairs/budget/index.cfm](http://www.nist.gov/public_affairs/budget/index.cfm)]. NIST employs about 2,900 scientists, engineers, technicians, and support and administrative personnel. About 1,800 NIST associates (guest researchers and engineers from American companies and foreign nations) complement the staff. In addition, NIST partners with 1,400 manufacturing specialists and staff at nearly 350 affiliated centers around the country. NIST publishes the Handbook 44 that provides the "Specifications, tolerances, and other technical requirements for weighing and measuring devices."

Organization. NIST is headquartered in Gaithersburg, Maryland, and operates a facility in Boulder, Colorado. NIST's activities are organized into laboratory programs, and extramural programs. Effective October 1, 2010, NIST was realigned by reducing the number of NIST laboratory units from ten to six [[http://www.nist.gov/public\\_affairs/releases/reorg\\_092810.cfm](http://www.nist.gov/public_affairs/releases/reorg_092810.cfm)]. NIST Laboratories include [<http://www.nist.gov/laboratories.cfm>]:

- Engineering Laboratory (EL);
- Information Technology Laboratory (ITL);

- Material Measurement Laboratory (MML);
- Physical Measurement Laboratory (PML);
- Center for Nanoscale Science and Technology (CNST) performs research in nanotechnology, both through internal research efforts and by running a user-accessible cleanroom nanomanufacturing facility. This 'NanoFab' is equipped with tools for lithographic patterning and imaging (e.g. electron microscopes and atomic force microscopes);
- NIST Center for Neutron Research (NCNR) provides scientists access to a variety of neutron scattering instruments, which are used in many fields of research (materials science, fuel cells, biotechnology, etc.).

Extramural programs include:

- Hollings Manufacturing Extension Partnership (HMEP), a nationwide network of centers to assist small manufacturers;
- Technology Innovation Program (TIP), a grant program where NIST and industry partners cost share the early-stage development of innovative but high-risk technologies;
- Malcolm Baldrige National Quality Award program, the nation's highest award for performance and business excellence.

NIST's Boulder laboratories are best known for NIST-F1, housing an atomic clock. NIST-F1 serves as the source of the nation's official time. From its measurement of the natural resonance frequency of caesium — which is used to define the second — NIST broadcasts time signals via longwave radio station WWVB at Fort Collins, Colorado, and shortwave radio stations WWV and WWVH, located at Fort Collins, Colorado and Kekaha, Hawaii, respectively.

The SURF III Synchrotron Ultraviolet Radiation Facility is a source of synchrotron radiation, in continuous operation since 1961. SURF III now serves as the US national standard for source-based radiometry throughout the generalized optical spectrum. All NASA-borne extreme-ultraviolet observation instruments have been calibrated at SURF since the 1970s, and SURF is used for measurement and characterization of systems for extreme ultraviolet lithography.



President Barack Obama greets and thanks members of the President's Council on Faith-Based and Neighborhood Partnerships during a drop by in the Roosevelt Room of the White House, March 9, 2010 (WHite House photo by Pete Souza).\*

## church and state

### Act II, Signature xwix - (16)

Relationship between religious and secular authority in society. In most ancient civilizations the separation of religious and political orders was not clearly defined. With the advent of Christianity, the idea of two separate orders emerged, based on Jesus's command to "Render unto Caesar what are Caesar's, and to God the things that are God's" (Mark 12:17). The close association of religion and politics, however, continued even after the triumph of Christianity as emperors such as Constantine exercised authority over both church and state. In the early Middle Ages secular rulers claimed to rule by the grace of God, and later in the Middle Ages popes and emperors competed for universal dominion. During the Investiture Controversy the church clearly defined separate and distinct religious and secular orders, even though it laid the foundation for the so-called papal monarchy. The Reformation greatly undermined papal authority, and the pendulum swung toward the state, with many monarchs claiming to rule church and state by divine right. The concept of secular government, as evinced in the U.S. and post-revolutionary France, was influenced by Enlightenment thinkers. In western Europe today all states protect freedom of worship and maintain a distinction between civil and religious authority. The legal systems of some modern Islamic countries are based on Shari'ah. In the U.S. the separation of church and state has been tested in the arena of public education by controversies over issues such as school prayer, public funding of parochial schools, and the teaching of creationism.

\*[Image & caption credit and following text courtesy of Wikipedia]:

The White House Office of Faith-Based and Neighborhood Partnerships [[http://www.whitehouse.gov/blog\\_post/this\\_is\\_my\\_prayer/](http://www.whitehouse.gov/blog_post/this_is_my_prayer/)], formerly the White House Office of Faith-Based and Community Initiatives (OFBCI) is an office within the White House Office that is part of the Executive Office of the President of the United States.

OFBCI was established by President George W. Bush through executive order [<http://georgewbush-whitehouse.archives.gov/news/releases/2008/06/20080626-20.html>] on January 29, 2001, representing one of the key domestic policies of Bush's campaign promise of "compassionate conservatism." The initiative sought to strengthen faith-based and community organizations and expand their capacity to provide federally-funded social services, with the idea having been that these groups were well-situated to meet the needs of local individuals. As Texas governor, Bush had used the "Charitable Choice" provisions of the 1996 welfare reform (which allowed "faith-based" entities to compete for government contracts to deliver social services) to support the work of faith-based groups in Texas.

The office was briefly led by Don Willett, an aide from Bush's tenure as governor of Texas who was later appointed a justice on the Supreme Court of Texas. The first person named as director of the OFBCI was John DiIulio, a University of Pennsylvania political science professor. DiIulio later left the office and became a critic of the Bush administration. Critics of the OFBCI, including Americans United for Separation of Church and State and the American Civil Liberties Union, assert that it violated the Establishment Clause by using tax money to fund religion. They also argued that faith-based initiatives were used as part of electoral strategies to yield more votes for Bush and the GOP.

For fiscal year 2005, more than \$2.2 billion in competitive social service grants were awarded to faith-based organizations. Between fiscal years 2003 and 2005, the total dollar amount of all grants awarded to FBOs increased by 21 percent (GAO 2006:43 [United States Government Accountability Office, "Faith-Based and Community Initiative: Improvements in Monitoring Grantees and Measuring Performance Could Enhance Accountability," June 2006, p. 43, <http://www.gao.gov/new.items/d06616.pdf>]). The majority of these grants were distributed through state agencies to local organizations in the form of formula grants [*ibid*, p. 17].

The separation of church and state was noted as one of major issues with the Faith-Based Initiatives laws. Critics have claimed that millions in government grants have gone to ministries operated by political supporters of the Bush administration, or have been given to minority pastors who recently committed their support [*The Washington Post*, October 3, 2002, re: Pat Robertson; *The New York Times*, May 3, 2005, re: Rev. Luis Cortez, David D. Kirkpatrick; *The New York Times*, March 30, 2006, re: Bishop Sedgwick Daniels; *Los Angeles Times*, January 18, 2005, re: Rev. Herb Lusk, Bishop Harold Ray; Bill Moyers, *Now*, September 26, 2004, re: Faith Partners, PBS.org].

## animism

### Act II, Signature xwix - (17)

Belief in the existence of spirits separable from bodies. Such beliefs are traditionally identified with small-scale (“primitive”) societies, though they also occur in major world religions. They were first competently surveyed by Edward Burnett Tylor in *Primitive Culture* (1871). Classic animism, according to Tylor, consists of attributing conscious life to natural objects or phenomena, a practice that eventually gave rise to the notion of a soul. **See also shaman.**

[Following text courtesy of Wikipedia]:

Animism (from Latin anima "soul, life") [Segal, Robert, *Myth: A Very Short Introduction* (Oxford University Press, 2004), p. 14; "Animism," in *The American Heritage Dictionary of the English Language*, p. 72] refers to the belief that non-human entities are spiritual beings, or at least embody some kind of life-principle [Iannone, A. Pablo, "Animism," in *Dictionary of World Philosophy* (Taylor & Francis, 2001), p. 54].

Animism encompasses the beliefs that there is no separation between the spiritual and physical (or material) worlds, and souls or spirits exist, not only in humans, but also in all other animals, plants, rocks, natural phenomena such as thunder, geographic features such as mountains or rivers, or other entities of the natural environment [Wenner, Sara, "Basic Beliefs of Animism," *Emuseum* (Minnesota State University, 2001), <http://www.mnsu.edu/emuseum/cultural/religion/animism/beliefs.html>: "The concept that humans possess souls and that souls have life apart from human bodies before and after death are central to animism, along with the ideas that animals, plants, and celestial bodies have spirits"]. Animism may further attribute souls to abstract concepts such as words, true names, or metaphors in mythology. Animism is particularly widely found in the religions of indigenous peoples [Bird-David, Nurit, "Animism Revisited: Personhood, environment, and relational epistemology," *Current Anthropology* 40, pp. 67–91 (1991), reprinted in Graham Harvey, Ed., *Readings in Indigenous Religions* (London and New York: Continuum, 2002), pp. 72–105], including Shinto, and some forms of Hinduism, Buddhism, Pantheism, Christianity and Neopaganism.

Throughout European history, philosophers such as Aristotle and Thomas Aquinas, among others, contemplated the possibility that souls exist in animals, plants, and people; however, the currently accepted definition of animism was only developed in the 19th century by Sir Edward Tylor, who created it as "one of anthropology's earliest concepts, if not the first [*ibid.*]."

According to the anthropologist Tim Ingold, animism shares similarities to totemism but differs in its focus on individual spirit beings which help to perpetuate life, whereas totemism more typically holds that there is a primary source, such as the land itself or the ancestors, who provide the basis to life. Certain indigenous religious groups such as the Australian Aborigines are more typically totemic, whereas others like the Inuit are more typically animistic in their worldview [Ingold, Tim, "Totemism, Animism and the Depiction of Animals," in *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill* (London: Routledge, 2000), pp. 112-113].

Etymology. Sir Edward Tylor was responsible for forming the definition of animism currently accepted in anthropology. The term animism appears to have been first developed as animismus by German scientist Georg Ernst Stahl, circa 1720, to refer to the "doctrine that animal life is produced by an immaterial soul." The actual English language form of animism, however, can only be attested to 1819 [<http://www.etymonline.com/index.php?term=animism>]. The term was taken and redefined by the anthropologist Sir Edward Tylor in his 1871 book *Primitive Culture*, in which he defined it as "the general doctrine of souls and other spiritual beings in general [Tylor, E. B., *Primitive Culture* (London: John Murray, 1871), p. 21]." According to religious scholar Robert Segal, Tylor saw all religions, "modern and primitive alike," as forms of animism [Segal (2004), p. 14].

According to Tylor, animism often includes "an idea of pervading life and will in nature [*ibid.*, p. 260]," i.e., a belief that natural objects other than humans have souls. As a self-described "confirmed scientific rationalist," Tylor believed that this view was "childish" and typical of "cognitive underdevelopment [Bird-David (1999), pp. 67-68]," and that it was therefore common in "primitive" peoples such as those living in hunter gatherer societies. Tylor's

definition of animism has since largely been followed by anthropologists, such as Émile Durkheim, Claude Lévi-Strauss and Tim Ingold. However, some anthropologists, such as Nurit Bird-David, have criticised the Tylorian concept of animism, believing it to be outdated [*ibid*].



Teppo (Japanese-built arquebuse) of the Edo era (early 17th century). Above center is a Japanese 'powder horn' with the emblem of Tokugawa clan (photo by Rama, May 30, 2007).\*

## harquebus

### Act II, Signature xwix - (18)

Main Entry: harquebus

Pronunciation: ,här-kwi-(f)b,,s, -k,-b,,s

Function: noun

Etymology: Middle French *harquebuse*, *arquebuse*, modification of Middle Dutch *hakebusse*, from *hake* hook + *busse* tube, box, gun, from Late Latin *buxis* box

Date: 1532 : a matchlock gun invented in the 15th century which was portable but heavy and was usually fired from a support –harquebusier \här-kwi-(f)b,-,sir, -k,-b,-\ noun.

\*[Image & caption credit and following text courtesy of Wikipedia]:

The arquebus (/ˈrkb?s/ ark-?-bus or /ˈrkw?b?s/ ar-kw?-bus) (sometimes spelled harquebus, harkbus ["The free online dictionary by Ultralingua 4.49," <http://www.ultralingua.com>] or hackbut; from Dutch haakbus, meaning "hook gun [[http://www.writersevents.com/Words\\_Starting\\_with\\_A/aromatic\\_compound\\_arterie\\_s/arquebus\\_definition.html](http://www.writersevents.com/Words_Starting_with_A/aromatic_compound_arterie_s/arquebus_definition.html)"]), or "hook tube," is an early muzzle-loaded firearm used in the 15th to 17th centuries. The word was originally modelled on the German: Hakenbüchse, this produced haquebute. It then copied the Italian word: archibugio; which gave arquebuse (French), arcabuz (Spanish), arcabus (Portuguese) and arquebus (English) [F. Braudel, *The Structures of Everyday Life* (1981), p. 392]. In distinction from its predecessor the hand cannon, it has a matchlock. Like its successor the musket, it is a smoothbore firearm, but it is lighter and easier to carry [citation needed].

It is a forerunner of the rifle and other longarm firearms. An improved version of the arquebus, the caliver, was introduced in the early 16th century. The word is derived from the English corruption of calibre as this gun was of standard bore, increasing combat effectiveness as troops could load bullets that would fit their guns (before, they would have to modify shot to fit, force it in, or cast their own before the battle) [[http://en.wikipedia.org/wiki/Encyclop%C3%A6dia\\_Britannica\\_Eleventh\\_Edition](http://en.wikipedia.org/wiki/Encyclop%C3%A6dia_Britannica_Eleventh_Edition)]. Heavy arquebuses mounted on wagons were called arquebus à croc. These carried a ball of about 3.5 ounces (99 g) [this article incorporates content from the 1728 *Cyclopaedia*, a publication in the public domain [

bin/HistSciTech/...]].

The first usage of the arquebus in large numbers was in Hungary under king Matthias Corvinus (r. 1458–1490) [Rázsó, Gy, "The Mercenary Army of King Matthias Corvinus," in J. M. Bak and B. K. Kirily, *From Hunyadi to Rákóczi: War and Society in Late Medieval and Early Modern Hungary* (New York, 1982), pp. 125–40]. Every fourth soldier in the Black Army had an arquebus in the infantry, and every fifth regarding the whole army, which was an unusual ratio at the time. Although they were generally present in the battlefield King Mathias preferred enlisting shielded men instead, as the arquebus had a low rate of fire. The same applied for the primitive cannons and bombards, which were ineffective compared to siege engines, especially against a stone stronghold [E. Kovács Péter, "Mátyás Idegen Zsoldosserege (A „Fekete Sereg”)," in Mátyás, *a reneszánsz király* (Budapest: Officina Kiadó, 2008), p. 92, <http://static.polc.hu/previews/pdf/00/10/51/105111.pdf>]. Arquebusiers were very effective against cavalry and even other infantry, particularly when placed with pikemen in the pike and shot formation, which revolutionised the Spanish military. An example of where this formation was used and succeeded is the decisive Battle of Cerignola (1503), which was one of the first battles to utilise this formation, and was the first battle to be won through the use of gunpowder-based small arms.

The Arquebus also evolved in Russia in the early 1500s as a smaller version of a larger, hand-held artillery weapon. The arquebusiers, or pishchal'niki as the Russians called them, were seen as integral parts of the army and 'One thousand pishchal'niki were outfitted at treasury expense and participated in the final annexation of Pskov in 1510, as well as the conquest of Smolensk in 1512, but were disbanded after each campaign. They were revived in 1545 when two thousand pishchal'niki (one thousand on horseback) were levied by the towns and outfitted at treasury expense.' Their use of mounted troops was also unique to the time period. The Russians developed their pishchal'niki as a skilled tradesman and gave them extra incentives through farming and made their trade something passed on from father to son and not something for which one was conscripted [Michael C. Paul, "The Military Revolution in Russia, 1550-1682," *The Journal of Military History*, Vol. 68, No. 1 (2004), pp. 24-5].

Arquebuses were used in the Italian Wars of the first half of the 16th century. Portuguese and Spanish conquerors also made use of the weapon overseas. Arquebuses were carried by some of the soldiers of Hernán Cortés in his conquest of Mexico in the 1520s, and arquebuses played an important role in the victories of Cristóvão da Gama's small and outnumbered army in his 1541–42 campaign in Ethiopia. Arquebuses were also used in the Moroccan victory over the Songhai Empire at the Battle of Tondibi in 1590.

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Barcode registration on a mail item (photo by Kristoferb May 20, 2010).\*

## bar code

### Act II, Signature xwix - (19)

Printed series of parallel bars of varying width used for entering data into a computer system, typically for identifying the object on which the code appears. The width and spacing of the bars represent binary information that can be read by an optical (laser) scanner that is part of a computer system. The coding is used in many different areas



of manufacturing and marketing, including inventory control and tracking systems. The bar codes printed on supermarket and other retail merchandise are those of the Universal Product Code (UPC).

\*[Image & caption credit and following text courtesy of Wikipedia]:

A barcode is an optical machine-readable representation of data, which shows data about the object to which it attaches. Originally, barcodes represented data by varying the widths and spacings of parallel lines, and may be referred to as linear or 1 dimensional (1D). Later they evolved into rectangles, dots, hexagons and other geometric patterns in 2 dimensions (2D). Although 2D systems use a variety of symbols, they are generally referred to as barcodes as well. Barcodes originally were scanned by special optical scanners called barcode readers; later, scanners and interpretive software became available on devices including desktop printers and smartphones.

The first use of barcodes was to label railroad cars, but they were not commercially successful until they were used to automate supermarket checkout systems, a task for which they have become almost universal. Their use has spread to many other tasks that are generically referred to as automatic identification and data capture (AIDC). The very first scanning of the now ubiquitous Universal Product Code (UPC) barcode was on a pack of Wrigley Company chewing gum in June 1974 ["Alan Haberman, Who Ushered In the Bar Code, Dies at 81," *The New York Times*, June 15, 2011, <http://www.nytimes.com/2011/06/16/business/16haberman.html>...]. Other systems have made inroads in the AIDC market, but the simplicity, universality and low cost of barcodes has limited the role of these other systems until the first decade of the 21st century, over 40 years after the introduction of the commercial barcode, with the introduction of technologies such as radio frequency identification, or RFID.

History. In 1948 Bernard Silver, a graduate student at Drexel Institute of Technology in Philadelphia, Pennsylvania, USA overheard the president of the local food chain, Food Fair, asking one of the deans to research a system to automatically read product information during checkout [Fishman, Charles, "The Killer App – Bar None," *American Way*, August 1, 2001, <http://www.americanwaymag.com/so-woodland-bar-code-bernard-silver-drexel-university>]. Silver told his friend Norman Joseph Woodland about the request, and they started working on a variety of systems. Their first working system used ultraviolet ink, but this proved too easy to fade and was fairly expensive [Tony Seideman, "Barcodes Sweep the World," [http://www.barcoding.com/information/barcode\\_history.shtml](http://www.barcoding.com/information/barcode_history.shtml)].

Convinced that the system was workable with further development, Woodland left Drexel, moved into his father's apartment in Florida, and continued working on the system. His next inspiration came from Morse code, and he formed his first barcode from sand on the beach. "I just extended the dots and dashes downwards and made narrow lines and wide lines out of them [*ibid*]." To read them, he adapted technology from optical soundtracks in movies, using a 500-watt light bulb shining through the paper onto an RCA935 photomultiplier tube (from a movie projector) on the far side. He later decided that the system would work better if it were printed as a circle instead of a line, allowing it to be scanned in any direction.

On 20 October 1949 Woodland and Silver filed a patent application for "Classifying Apparatus and Method," in which they described both the linear and bullseye printing patterns, as well as the mechanical and electronic systems needed to read the code. The patent was issued on 7 October 1952 as US Patent 2,612,994. In 1951, Woodland moved to IBM and continually tried to interest IBM in developing the system. The company eventually commissioned a report on the idea, which concluded that it was both feasible and interesting, but that processing the resulting information would require equipment that was some time off in the future.

Universal Product Code. In 1966 the National Association of Food Chains (NAFC) held a meeting where they discussed the idea of automated checkout systems. RCA had purchased rights to the original Woodland patent, attended the meeting and initiated an internal project to develop a system based on the bullseye code. The Kroger grocery chain volunteered to test it. In mid-1970, the NAFC established the U.S. Supermarket Ad Hoc Committee on a Uniform Grocery Product Code, which set guidelines for barcode development and created a symbol selection subcommittee to help standardize the approach. In cooperation with consulting firm McKinsey & Co., they developed a standardized 11-digit code to identify any product. The committee then sent out a contract tender to develop a barcode system to print and read the code. The request went to Singer, National Cash Register (NCR), Litton Industries, RCA, Pitney-Bowes, IBM and many others [George Laurer, "Development of the U.P.C. Symbol," [http://bellsouthpwp.net/l/a/laurergj/UPC/upc\\_work.html](http://bellsouthpwp.net/l/a/laurergj/UPC/upc_work.html)]. A wide variety of barcode approaches were studied, including linear codes, RCA's bullseye concentric circle code, starburst patterns and others.

In the spring of 1971 RCA demonstrated their bullseye code at another industry meeting. IBM executives at the

meeting noticed the crowds at the RCA booth and immediately developed their own system. IBM marketing specialist Alec Jablonover remembered that the company still employed Woodland, and he established a new facility in North Carolina to lead development.

In July 1972 RCA began an eighteen-month test in a Kroger store in Cincinnati. Barcodes were printed on small pieces of adhesive paper, and attached by hand by store employees when they were adding price tags. The code proved to have a serious problem. During printing, presses sometimes smear ink in the direction the paper is running, rendering the code unreadable in most orientations. A linear code, like the one being developed by Woodland at IBM, however, was printed in the direction of the stripes, so extra ink simply makes the code "taller" while remaining readable, and on April 3, 1973 the IBM UPC was selected by NAFC as their standard. IBM had designed five versions of the UPC symbology for future industry requirements: UPC A, B, C, D, and E [Nelson, Benjamin, *From Punched Cards To Bar Codes* (1997)].

NCR installed a testbed system at Marsh's Supermarket in Troy, Ohio, USA near the factory that was producing the equipment. On June 26, 1974, Clyde Dawson pulled a 10-pack of Wrigley's Juicy Fruit gum out of his basket and it was scanned by Sharon Buchanan at 8:01 am. The pack of gum and the receipt are now on display in the Smithsonian Institution. It was the first commercial appearance of the UPC [Varchaver, Nicholas, "Scanning the Globe," *Fortune*, May 31, 2004, [http://money.cnn.com/magazines/fortune/fortune\\_archive/2004/05/31/370719/index.htm](http://money.cnn.com/magazines/fortune/fortune_archive/2004/05/31/370719/index.htm)].

In 1971 IBM had assembled a team for an intensive planning session, day after day, 12 to 18 hours a day, to hash out how the whole system might operate and to schedule a rollout plan. By 1973 they were meeting with grocery manufacturers to introduce the symbol that would need to be printed on all of their products. There were no cost savings for a grocery to use it unless at least 70% of the grocery's products had the barcode printed on the product by the manufacturer. IBM was projecting that 75% would be needed in 1975. Even though that was achieved, there still were scanning machines in fewer than 200 grocery stores by 1977 [Selmeier, Bill, *Spreading the Barcode* (2008), pp. 26, 214, 236, 238, 244, 245, 236, 238, 244, 245].

Economic studies conducted for the grocery industry committee projected over \$40 million in savings to the industry from scanning by the mid-1970s. Those numbers were not achieved in that timeframe and some predicted the demise of barcode scanning [who?]. The usefulness of the barcode required the adoption of expensive scanners by a critical mass of retailers while manufacturers simultaneously adopted barcode labels. Neither wanted to move first and results were not promising for the first couple of years, with *Business Week* proclaiming "The Supermarket Scanner That Failed [Varchaver (2004)]."

Experience with barcode scanning in those stores revealed additional benefits. The detailed sales information acquired by the new systems allowed greater responsiveness to customer needs. This was reflected in the fact that about 5 weeks after installing barcode scanners, sales in grocery stores typically started climbing and eventually leveled off at a 10-12% increase in sales that never dropped off. There also was a 1-2% decrease in operating cost for the stores that enabled them to lower prices to increase market share. It was shown in the field that the return on investment for a barcode scanner was 41.5%. By 1980, 8,000 stores per year were converting [Selmeier (2008)].

The global public launch of the barcode was greeted with minor skepticism from conspiracy theorists, who considered barcodes to be an intrusive surveillance technology, and from some Christians who thought the codes hid the number 666, representing the number of the beast [<http://www.av1611.org/666/barcode.html>]. Television host Phil Donahue described barcodes as a "corporate plot against consumers [Bishop, Tricia, "UPC bar code has been in use 30 years," July 5, 2004, <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive...>]."

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## planchette

Act II, Signature xwix - (20)

Main Entry: planfchette

Pronunciation: plan-,shet

Function: noun

Etymology: French, from diminutive of *planche* plank, from Latin *planca*

Date: 1860 : a small triangular or heart-shaped board supported on casters at two points and a vertical pencil at a third and believed to produce automatic writing when lightly touched by the fingers; also : a similar board without a pencil.

[Following text courtesy of Wikipedia]:

A planchette ( /plæn'11t/ plan-shet), from the French for "little plank," is a small, usually heart-shaped flat piece of wood that one moves around on a board to spell out messages or answer questions. Paranormal advocates believe that the planchette is moved by some extra-normal force. The motion is due to the ideomotor effect. In occult usage, a pencil would be attached to the planchette, writing letters or other designs on paper to be later interpreted by a medium. The most common use of the planchette is with a Ouija or spirit board. In this instance, it is sometimes referred to as an "indicator" or "pointer" to show where something is, etc., like a Dowsing board. Used since the beginning of the Spiritualism movement of the mid-nineteenth century, planchettes predate the invention of spirit boards.

See also **Act II, Signature xviii - (22).**



*Sweet By and By*, all-female bluegrass band (<http://www.myspace.com/sweetbyandby>). Photo by J. S. North, July 4, 2007.\*

## bluegrass

### Act II, Signature xwix - (21)

In music, a country-music style that emerged after World War II. It is a direct descendant of the string-band music played by groups such as the *Carter Family*. Bluegrass is distinguished from its predecessors by its more syncopated rhythm, its high-pitched tenor (lead) vocals, its tight harmonies, its driving rhythms, and a strong influence of jazz and blues. A very prominent place is given to the banjo, always played in the unique three-finger style developed by Earl Scruggs (see **Lester Flatt**). Mandolin and fiddle are generally featured, and traditional square-dance tunes, religious songs, and ballads furnish much of the repertory. Bluegrass was originated by and got its name from Bill Monroe and his *Blue Grass Boys*. From the late 1940s on, it continued to grow in popularity; from the 1970s an influx of younger musicians brought some influence from rock music.

## Flatt, Lester

born June 19, 1914, Duncan's Chapel, near Sparta, Tenn., U.S.

died May 11, 1979, Nashville, Tenn.

U.S. bluegrass and country music guitarist and singer. He worked in textile mills until the late 1930s, when he and his wife, Gladys, began performing as a duo. In 1945 he joined Bill Monroe's *Blue Grass Boys*. There he met Earl Scruggs (b. 1924), a native of Flint Hill, N.C., who had played banjo since age 5 and had begun playing on radio by the age of 15. Scruggs eventually perfected a picking technique involving the thumb and first two fingers of the right hand that came to be called the "Scruggs style." In 1948 the two men left Monroe's band to form *Flatt and Scruggs* and the *Foggy Mountain Boys*. They made dozens of records in the 1950s and '60s and hosted their own syndicated radio and TV shows. Scruggs's original instrumental compositions, including "Foggy Mountain Breakdown," were especially popular. They parted ways in 1969 when Scruggs joined his sons Gary and Randy (and later Steve) in the *Earl Scruggs Revue*.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Lester Raymond Flatt (June 19, 1914 – May 11, 1979) was a bluegrass musician and guitarist and mandolinist, best known for his membership in the Bluegrass duo *The Foggy Mountain Boys*, also known as "Flatt and Scruggs," with banjo picker Earl Scruggs. Flatt's career spanned multiple decades; besides his work with Scruggs, he released multiple solo and collaboration works. Flatt also served as a member of Bill Monroe's band during the 1940s.

Flatt was born in Duncan's Chapel, Overton County, Tennessee, to Nannie Mae Haney and Isaac Columbus Flatt. A singer and guitarist, he first came to prominence as a member of Bill Monroe's *Blue Grass Boys* in 1945. In 1948 he started a band with fellow Monroe alumnus Earl Scruggs, and for the next twenty years Flatt and Scruggs and the *Foggy Mountain Boys* were one of the most successful bands in bluegrass. When they parted ways in 1969, Flatt formed a new group, the *Nashville Grass*, hiring most of the *Foggy Mountain Boys*. His role as lead singer and rhythm guitar player in each of these seminal ensembles helped define the sound of traditional bluegrass music. He created a role in the *Bluegrass Boys* later filled by the likes of Jimmy Martin, Mac Wiseman, Peter Rowan and Del McCoury. His rich lead voice is unmistakable in hundreds of bluegrass standards.

He is also remembered for his library of compositions. The Flatt songbook looms titanic for any student of American acoustic music. He continued to record and perform with that group until his death in 1979 of heart failure, after a prolonged period of ill health. Flatt was posthumously inducted into the Country Music Hall of Fame in 1985 with Scruggs. He was posthumously made an inaugural inductee into the International Bluegrass Music Hall of Honor in 1991. His hometown of Sparta, Tennessee, held a bluegrass festival in his honor for a number of years, before being discontinued a few years prior to the death of the traditional host, resident Everette Paul England; Lester Flatt Memorial Bluegrass Day is part of the annual Liberty Square Celebration held in Sparta [[http://www.eastpublicrelations.com/lester\\_flatt\\_memorial\\_bluegrass.htm](http://www.eastpublicrelations.com/lester_flatt_memorial_bluegrass.htm)]. Flatt and Scruggs were ranked #24 on CMT's 40 Greatest Men of Country Music in 2003. They performed "The Ballad of Jed Clampett", which was used as the theme for the television show *The Beverly Hillbillies*.

Bluegrass music is a form of American roots music, and a sub-genre of country music. It has mixed roots in Scottish, English [musicologist Cecil Sharp collected hundreds of folk songs in the Appalachian region, and observed that the musical tradition of the people "seems to point to the North of England, or to the Lowlands, rather than the Highlands, of Scotland, as the country from which they originally migrated. For the Appalachian tunes... have far more affinity with the normal English folk-tune than with that of the Gaelic-speaking Highlander." Olive Dame Campbell & Cecil J. Sharp, *English Folk Songs from the Southern Appalachians: Comprising 122 Songs and Ballads, and 323 Tunes* (G. P. Putnam's Sons, 1917), pg xviii], Welsh [citation needed] and Irish [citation needed] traditional music. Bluegrass was inspired by the music of immigrants residing in Appalachia [citation needed], and was influenced by the music of African-Americans [Nemerov, Bruce, *A Tennessee Folklore Sampler: Selections from the Tennessee Folklore Society* (University of Tennessee Press, 2009), pp. 323-324] through incorporation of jazz elements.

In bluegrass, as in some forms of jazz, one or more instruments each takes its turn playing the melody and improvising around it, while the others perform accompaniment; this is especially typified in tunes called

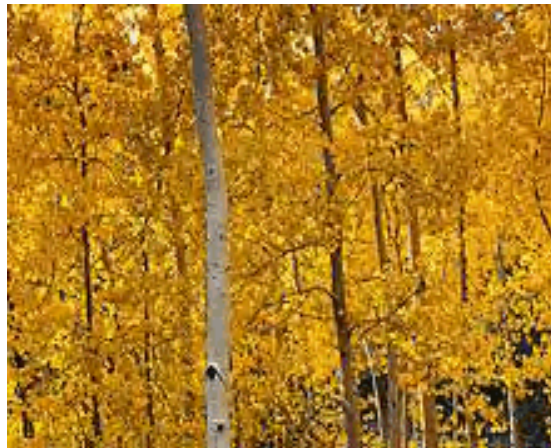
breakdowns. This is in contrast to old-time music, in which all instruments play the melody together or one instrument carries the lead throughout while the others provide accompaniment. Breakdowns are often characterized by rapid tempos and unusual instrumental dexterity and sometimes by complex chord changes.

Bluegrass music has attracted a diverse and loyal following worldwide. Bluegrass pioneer Bill Monroe characterized the genre as: "Scottish bagpipes and ole-time fiddlin'. It's Methodist and Holiness and Baptist. It's blues and jazz, and it has a high lonesome sound." Exactly when the word bluegrass itself was adopted to label this form is not certain, but is believed to be in the early 1950s [Rosenberg, Neil, *Bluegrass: A History* (University of Illinois Press, 1985), pp. 98-99], and was derived from the name of the seminal *Blue Grass Boys* band, formed in 1939 with Bill Monroe as its leader. Due to this lineage, Bill Monroe is frequently referred to as the "father of bluegrass" [<http://www.ibma.org/about.bluegrass/history/index.asp>], although his style drew upon the country, gospel, and blues music with which he had grown up.

Monroe's 1946 to 1948 band, which featured banjo prodigy Earl Scruggs, singer-guitarist Lester Flatt, fiddler Chubby Wise and bassist Howard Watts (also known as "Cedric Rainwater") — sometimes called "the original bluegrass band" — created the definitive sound and instrumental configuration that remains a model to this day. By some arguments, while the *Blue Grass Boys* were the only band playing this music, it was just their unique sound; it could not be considered a musical style until other bands began performing in similar fashion. In 1948, the *Stanley Brothers* recorded the traditional song "Molly and Tenbrooks" in the *Blue Grass Boys'* style, arguably the point in time that bluegrass emerged as a distinct musical form [Rosenberg (1985), pp. 84-85]. As Ralph Stanley himself said about the origins of the genre and its name ["Old-Time Man," interview, *Virginia Living*, June 2008, pp. 55-7]:

"Oh, (Monroe) was the first. But it wasn't called bluegrass back then. It was just called old time mountain hillbilly music. When they started doing the bluegrass festivals in 1965, everybody got together and wanted to know what to call the show, y'know. It was decided that since Bill was the oldest man, and was from the Bluegrass state of Kentucky and he had the Blue Grass Boys, it would be called "bluegrass.""

~ page 248 ~



American Aspens, photographed by Doug Dolde along Snowbowl Road in Flagstaff, AZ, October, 2009 (<http://www.douglasdolde.com>).\*

## aspen

### Act II, Signature xwix - (22)

Any of three tree species of the genus *Populus*, of the willow family: *P. tremula* (the common European aspen), *P. tremuloides* (the American quaking, or trembling, aspen), and *P. grandidentata* (the American big-tooth aspen).

Native to the Northern Hemisphere, aspens are known for the fluttering of their leaves in the slightest breeze. Aspens

grow farther north and higher up the mountains than other *Populus* species. All aspens have a smooth, gray-green bark, random branching, rich green leaves that turn brilliant yellow in fall, and catkins that appear before the leaves in spring.

\*[Image & caption credit and following text courtesy of Wikipedia]:

*Populus tremuloides* is a deciduous tree native to cooler areas of North America. The species is referred to Quaking Aspen, Trembling Aspen, and Quakies, names deriving from its leaves which flutter in the breeze [National Park Service, "Quaking Aspen at Bryce Canyon, UT," <http://www.nps.gov/brca/naturescience/quakingaspen.htm>]. The tree-like plant has tall trunks, up to 25 metres, with smooth pale bark, scarred with black. The glossy green leaves, dull beneath, become golden to yellow, rarely red, in autumn. The species rarely flowers, often propagating through its roots to form large groves. The name references the quaking or trembling of the leaves that occurs in even a slight breeze due to the flattened petioles. The specific epithet, *tremuloides*, is given for this trembling characteristic [*ibid*]. Other species of *Populus* have petioles flattened partially along their length, while the Quaking Aspen's are flattened from side to side along the entire length of the petiole.

One of several species to be referred to by the common name Aspen, or American, Quaking, Trembling, Mountain or Golden aspen, the name poplar, Trembling Poplar, is used along with Quakies, Quakers, Popple, Álamo Blanco, and Álamo Temblón. The female given name Waverly means Quaking Aspen, or Meadow of Quaking Aspen. A tall, fast growing tree, usually 20–25 metres (66–82 ft) at maturity, with a trunk 20–80 centimetres (7.9–31 in) in diameter; records are 36.5 meters (120 ft) in height and 1.37 metres (4.5 ft) in diameter. The bark is relatively smooth greenish-white to gray and is marked by thick black horizontal scars and prominent black knots.

The leaves on mature trees are nearly round, 4–8 centimetres (1.6–3.1 in) in diameter with small rounded teeth, and a 3–7 centimetres (1.2–2.8 in) long, flattened petiole. Young trees (including root sprouts) have much larger—10–20 centimetres (3.9–7.9 in) long—nearly triangular leaves. The flowers are catkins 4–6 centimetres (1.6–2.4 in) long, produced in early spring before the leaves; it is dioecious, with male and female catkins on different trees. The fruit is a 10-centimetre (3.9 in) long pendulous string of 6-millimetre (0.24 in) capsules, each capsule containing about ten minute seeds embedded in cottony fluff, which aids wind dispersal of the seeds when they are mature in early summer.

It propagates itself primarily through root sprouts, and extensive clonal colonies are common. Each colony is its own clone, and all trees in the clone have identical characteristics and share a single root structure. A clone may turn color earlier or later in the fall than its neighbouring aspen clones. Fall colors are usually bright tones of yellow; in some areas, red blushes may be occasionally seen. As all trees in a given clonal colony are considered part of the same organism, one clonal colony, named Pando, is considered the heaviest [Jeffrey B. Mitton; Michael C. Grant, "Genetic Variation and the Natural History of Quaking Aspen," *BioScience*, Vol. 46, No. 1 (January 1996), pp. 25-31] and oldest [[http://www.nps.gov/brca/...](http://www.nps.gov/brca/)] living organism at six million kilograms and approximately 80,000 years old. Aspens do produce seeds, but seldom grow from them. Pollination is inhibited by the fact that aspens are either male or female, and large stands are usually all clones of the same sex. Even if pollinated, the small seeds (three million per pound) are only viable a short time as they lack a stored food source or a protective coating [Ewing, Susan, *The Great Alaska Nature Factbook* (Portland, OR: Alaska Northwest Books, 1996)].

Beginning in 1996, individual North American scientists noticed an increase in dead or dying aspen trees. As this accelerated, in 2004, word spread and a debate over causes began. No insect, disease, or environmental condition is yet specifically identified as a joint cause. Trees adjacent to one another are often stricken or not. In other instances entire groves have died.

Many areas of the Western US have experienced increased diebacks which are often attributed to ungulate grazing and wildfire suppression. At high altitudes where grasses can be rare, ungulates can browse young aspen sprouts and prevent those young trees from reaching maturity. As a result, some aspen groves close to cattle or other grazing animals, such as deer or elk, have very few young trees and can be invaded by conifers, which are not typically browsed. Another possible deterrent to aspen regeneration is widespread wildfire suppression. Aspens are vigorous resprouters and even though the above-ground portion of the organism may die in a wildfire, the roots, which are often protected from lethal temperatures during a fire, will sprout new trees soon after a fire. Disturbances such as fires seem to be a necessary ecological event in order for aspens to compete with conifers, which tend to replace aspen over long, disturbance-free intervals. The current dieback in the American West may have roots in the strict

fire suppression policy in the United States.

Because of the vegetative regeneration method of reproduction used by the aspen, where an entire group of trees are essentially clones, there is a concern that something that hits one will eventually kill all of the trees, presuming they share the same vulnerability. A conference was held in Utah in September 2006 to share notes and consider investigative methodology [<http://www.nytimes.com/2006/09/26/science/earth/26aspen.html>].

## **millennialism**

Act II, Signature xwix - (21)

or millenarianism

Belief in the millennium of Christian prophecy (Revelation 20), the 1,000 years when Christ is to reign on earth, or any religious movement that foresees a coming age of peace and prosperity. There are two expressions of millennialism. Premillennialism holds that the Second Coming of Christ will occur before the millennium and will initiate the final battle between good and evil, which will be followed by the establishment of the 1,000-year kingdom on earth or in heaven. Postmillennialism maintains that Jesus will return after the creation of the millennial kingdom of peace and righteousness, which prepares the way for the Second Coming. Throughout the Christian era, periods of social change or crisis have tended to lead to a resurgence in millennialism. The legend of the last emperor and the writings of Joachim of Fiore are important examples of medieval millennialism, and, during the Reformation, Anabaptists, Bohemian Brethren, and other groups held millennial beliefs. It is now associated especially with such Protestant denominations as the Adventists, Jehovah's Witnesses, and Mormons. In a broader sense, many non-Christian traditions, including Pure Land Buddhism and the Ghost Dance religion, are understood as millennialist.

## **Rod McKuen**

Act II, Signature xwix - (22)

[Following text courtesy of Wikipedia]:

Rod McKuen is an American poet, songwriter, composer, and singer. He was one of the best-selling poets in the United States during the late 1960s. Throughout his career, McKuen produced a wide range of recordings, which included popular music, spoken word poetry, film soundtracks, and classical music. He earned two Oscar nominations and one Pulitzer nomination for his serious music compositions. McKuen's translations of the songs of Jacques Brel were instrumental in bringing the Belgian songwriter to prominence in the English-speaking world. His poetry dealt with themes of love, the natural world, and spirituality, and his thirty books of poetry sold millions of copies [Huey, Steve, CMT "Rod McKuen," [http://www.cmt.com/artists/az/mckuen\\_rod/bio.jhtml](http://www.cmt.com/artists/az/mckuen_rod/bio.jhtml) CMT].

Songwriting. Rod McKuen has written over 1500 songs, which have accounted for the sale of over 100 million records [citation needed] for such diverse artists as Madonna, Perry Como, Petula Clark, Waylon Jennings, *The Boston Pops*, Chet Baker, Johnny Cash, Pete Fountain, Andy Williams, *The Kingston Trio*, Percy Faith, the London Philharmonic, Dusty Springfield, Johnny Mathis, Al Hirt, Greta Keller, and Frank Sinatra [<http://www.mckuen.com/biography.htm>].

In 1959, McKuen released a novelty single with Bob McFadden under the pseudonym Dor on the Brunswick label called "The Mummy". In 1961, he had a hit single titled "Oliver Twist". McKuen has collaborated with numerous composers, including Henry Mancini, John Williams, and Anita Kerr. His symphonies, concertos, and other orchestral works have been performed by orchestras around the globe. His work as a composer in the film industry has garnered him two Academy Award nominations for *The Prime of Miss Jean Brodie* and *A Boy Named Charlie Brown* [*ibid*].

In 1967, McKuen began collaborating with arranger Anita Kerr and the San Sebastian Strings for a series of vocal

pop albums, including *The Sea* (1967), *The Earth* (1967), *The Sky* (1968), *Home to the Sea* (1969), *For Lovers* (1969), and *The Soft Sea* (1970). In 1969, Frank Sinatra commissioned an entire album of poems and songs by McKuen; it was released under the title *A Man Alone: The Words and Music of Rod McKuen*. The album featured the song "Love's Been Good to Me," which became one of McKuen's best-known songs [http://www.cmt.com/artists/az/mckuen\_rod/bio.jhtml].

In 1971, his song "I Think of You" was a major hit for Perry Como. McKuen had additional major hits with "The World I Used to Know", "Rock Gently," "Doesn't Anybody Know My Name," "The Importance of the Rose," "Without a Worry in the World," and "Soldiers Who Want to Be Heroes [*ibid*]."

During the 1970s, McKuen began composing larger-scale orchestral compositions, writing a series of concertos, suites, symphonies, and chamber pieces for orchestra. His piece *The City: A Suite for Narrator & Orchestra*, was nominated for the Pulitzer Prize in Music. He continued publishing a steady stream of poetry books throughout the decade. In 1977, he published *Finding My Father*, a chronicle of his search for information on his biological father. The book and its publicity helped make such information more readily available to adopted children [citation needed]. He also continued to record, releasing albums such as *New Ballads* (1970), *Pastorale* (1971), the country-rock outing *McKuen Country* (1976) [*ibid*].



Taiwan

## Taiwan (Xohinga)

Act II, Signature xwix - (23)

officially Republic of China

formerly Formosa

Island, off southeastern China. Both the Republic of China (Taiwan) and the People's Republic of China (mainland China) claim jurisdiction over it. Area: 13,971 sq mi (36,185 sq km), including its outlying islands. Population (2002 est.): 22,457,000. Capital: Taipei. Han Chinese constitute virtually the entire population. Languages: Mandarin



Chinese (official); Taiwanese, Fukien, and Hakka dialects also spoken. Religions: Buddhism, Daoism, Confucianism, Christianity (small minority). Currency: new Taiwan dollar. Lying 100 mi (160 km) off the Chinese mainland, it is composed mainly of mountains and hills, with densely populated coastal plains in the west. It has one of the highest population densities in the world. It is a leading industrial power of the Pacific Rim, with an economy based on manufacturing industries, international trade, and services. Leading exports include electronic equipment, garments, and textiles. Agricultural exports include frozen pork, sugar, canned mushrooms, bananas, and tea. It is a major producer of Chinese-language motion pictures. It is a republic with one legislative branch; its chief of state is the president, and the head of government is the premier. Known to the Chinese as early as the 7th century, it was widely settled by them early in the 17th century. In 1646 the Dutch seized control of the island, only to be ousted in 1661 by a large influx of Chinese refugees, supporters of the Ming dynasty. It fell to the Manchus in 1683 and was not open to Europeans again until 1858. In 1895 it was ceded to Japan following the Sino-Japanese War. A Japanese military centre in World War II, it was frequently bombed by U.S. planes. After Japan's defeat it was returned to China, which was then governed by the Nationalists. When the communists took over mainland China in 1949, the Nationalist Party government fled to Taiwan and made it their seat of government, with Gen. Chiang Kai-shek as president. In 1954 he and the U.S. signed a mutual defense treaty, and Taiwan received U.S. support for almost three decades, developing its economy in spectacular fashion. It was recognized by many noncommunist countries as the representative of all of China until 1971, when it was replaced in the UN by the People's Republic of China. Martial law in Taiwan, which had been in effect since 1949, was lifted in 1987, and travel restrictions with mainland China were removed in 1988. In 1989 opposition parties were legalized. The relationship with the mainland grew increasingly close in the 1990s, though it again became strained when Chen Shui-bian (Ch'en Shui-pian), who advocated independence for Taiwan, was elected president in 2000.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Koxinga (simplified Chinese: 郑成功; traditional Chinese: 鄭成功; pinyin: Guóxíngyé; Wade–Giles: Kuo-hsing-yeh; Pe̍h-oe-jī: Kok-sèng-iâ/Kok-sin-iâ; literally "Lord with the Imperial Surname") is the customary Western spelling [<http://www.premier.com.tw/Touring/Koxinga'sShrine.htm>] of the popular appellation of Zheng Chenggong (simplified Chinese: 郑成功; traditional Chinese: 鄭成功; pinyin: Zhèng Chénggōng; Wade–Giles: Cheng Ch'eng-kung; Pe̍h-oe-jī: Ten Sêng-kong; Phaʔk-fa-sʔ: Tshàng Sʔ'n-Kûng; Foochow Romanized: Dâng Sing-gung), a military leader who was born in 1624 in Hirado, Japan to Zheng Zhilong, a Chinese merchant/pirate, and his Japanese wife and died in 1662 on the island of Formosa (Taiwan).



Zheng Chenggong statue at Gulangyu Island, Xiamen (photo by Gisling, November 2007).\*

A Ming loyalist and the arch commander of the Ming troops on the maritime front for the later monarchs of the withering dynasty, Koxinga devoted the last 16 years of his life to resisting the conquest of China by the Manchus of Qing Dynasty. Upon defeating the forces of the Dutch East India Company (VOC) on Formosa in his last campaign in 1661–1662, Koxinga took over the island in order to support his grand campaign against the Manchu-ruled Qing Dynasty. After Koxinga's death, however, his son and successor, Zheng Jing (鄭經), gradually became the ruler of an independent Kingdom of Tungning, the first Chinese state to rule the island.

Early years. In 1624, Koxinga, whose name at birth was Zheng Sen, was born in Hirado, Nagasaki Prefecture, Japan

to Zheng Zhilong, a Chinese merchant and pirate, and a Japanese woman whose surname was Tagawa, and whose given name has been lost to posterity [Ralph Croizier, *Koxinga and Chinese Nationalism: History, Myth, and the Hero* (Cambridge: Harvard University Press, 1977), p. 11; Donald Keene, *The Battles of Koxinga: Chikamatsu's Puppet Play, Its Background and Importance* (London: Taylor's Foreign Press, 1950), p. 45; Tonio Andrade writes her name as "Tagawa Matsu" ( 田川松 ), but he provides no source for this: see Tonio Andrade, *How Taiwan Became Chinese: Dutch, Spanish, and Han Colonization in the Seventeenth Century* (New York: Columbia University Press, 2007), Ch. 10, para. 7, <http://www.gutenberg-e.org/andrade/andrade10.html#txt10>]. He was raised there until the age of seven and then moved to Nan'an county in Quanzhou in Fujian province of China.

In 1638, Koxinga became a Xiucai (a successful candidate) in the imperial examination and became one of the twelve Linshansheng ( 監生 ) of Nan'an. In 1641, Koxinga married the niece of Dong Yangxian, an official who was a Jinshi from Hui'an. In 1644, Koxinga studied at the Imperial Nanking University, where he met and became a student of the scholar Qian Qianyi [Croizier (1977), p. 12; Carioti, "The Zhengs' Maritime Power," in *The International Context of the 17th Century Far East Seas: The Rise of a 'Centralised Piratical Organisation' and Its Gradual Development into an Informal 'State'*, p. 41, fn. 29].

In 1644, Beijing fell to rebels led by Li Zicheng and the Chongzhen Emperor hanged himself on a tree at modern-day Jingshan Park in Beijing. Manchurian armies aided by Wu Sangui's forces defeated the rebels and took the city. The Ming remnant forces retreated to Nanjing where the Prince Fu ascended to the throne as the Hongguang Emperor. The next year, the Manchurian armies led by Dodo advanced south and conquered Yangzhou and Nanjing while the Ming defending leader of Yangzhou, Shi Kefa, was killed. The Hongguang Emperor was captured and executed.

In 1646, Koxinga first led the Ming armies to resist the Manchurian invaders and won the favour of the Longwu Emperor. The Longwu Emperor's reign in Fuzhou was brief, as Zheng Zhilong refused to support his plans for a counter-offensive against the rapidly-expanding forces of the newly-established Qing Dynasty by the Manchus. Zheng Zhilong ordered the defending general of Xianxia Pass ( 仙霞關 ), Shi Fu (a.k.a. Shi Tianfu, a relative of Shi Lang), to retreat to Fuzhou even when Qing armies approached Fujian. As such, the Qing army faced little resistance when it conquered the north of the pass. In September 1646, Qing armies broke through inadequately defended mountain passes and entered Fujian. Zheng Zhilong retreated to his coastal fortress and the Longwu Emperor faced the Qing armies alone. Longwu's forces were destroyed and he was captured and died shortly afterwards [Frederick Mote & Denis Twitchett, Eds., *The Cambridge History of China: Vol. 7, "The Ming Dynasty, 1368–1644," Part 1* (Cambridge: Cambridge University Press, 1988), pp. 675-676].

By 1650, Koxinga was strong enough to establish himself as the head of the Zheng family [Lynn A. Struve, *The Southern Ming 1644–1662* (New Haven: Yale University Press, 1984), p. 116]. He pledged allegiance to the only remaining claimant to the throne of the Ming Dynasty, the Yongli Emperor. The Yongli Emperor was fleeing from the Manchus in south-western China with a motley court and hastily assembled army then. Despite one fruitless attempt, Koxinga was unable to do anything to aid the last Ming emperor [*ibid.*]. Instead, he decided to concentrate on securing his own position on the southeast coast.

In 1661, Koxinga led his troops on a landing at Luermen to attack the Dutch colonists in Taiwan. On 1 February 1662, the Dutch Governor of Taiwan, Frederik Coyett, surrendered Fort Zeelandia to Koxinga. During the siege, Koxinga's life was saved by a certain Hans Jurgen Radis of Stockaert, a Dutch defector who strongly advised him against visiting the overrun ramparts, which he knew would be blown up by the retreating Dutch forces [Rev. W. M. Campbell, *Formosa under the Dutch. Described from contemporary Records with Explanatory Notes and a Bibliography of the Island* (London: Kegan Paul, Trench, Trubner & Co. Ltd., 1903), republished (SMC Publishing Inc., 1992), p. 452]. In the peace treaty, Koxinga was styled "Lord Teibingh Tsiante Teysiancon Koxin [John E. Wills, Jr., *Pepper, Guns and Parleys: The Dutch East India Company and China 1622–1681* (Cambridge: Harvard University Press, 1974), p. 28; Keene (1950), p. 46; Jonathan Clements, *Koxinga and the Fall of the Ming Dynasty* (Phoenix Mill: Sutton Publishing Limited, 2004), p. 92; Chang et al., *The English Factory in Taiwan, 1670–1685* (Taipei: National Taiwan University, 1995), p. 740]." This effectively ended 38 years of Dutch rule on Taiwan. Koxinga then devoted himself to transforming Taiwan into a military base for loyalists who wanted to restore the Ming Dynasty.



Lower Manhattan in 1660. Full size photograph of manuscript map (by Jacques Cortelyou, General Governor of Nieuw Amsterdam at that time). in the Biblioteca Medicea-Laurenziana of Florence, Italy. The Castello plan is the earliest known plan of New Amsterdam (1660), and the only one dating from the Dutch period. The text at the top of the image states: "Image of the city Amsterdam in New Netherland (New York Public Library, Digital Gallery, Digital Record ID: 118555)." The large structure toward the tip of the island is Fort Amsterdam. North is to the right.\*

## Manhattan

### Act II, Signature xwix - (24)

Borough (pop., 2000: 1,537,195) of New York City, southeastern New York, U.S. It includes all of Manhattan island and three smaller islands in the East River. Bounded by the Hudson River, Harlem River, East River, and Upper New York Bay, it is said to have been purchased by Peter Minuit in 1626 from the Manhattan Indians with trinkets valued at 60 guilders. Incorporated as New Amsterdam in 1653, it was obtained by Britain in 1664 and renamed New York City. In 1898 Manhattan was chartered as one of five boroughs making up Greater New York. It is one of the world's great commercial, financial, and cultural centres. Among its many points of interest are Central Park, the Empire State Building, the site of the former World Trade Center, the United Nations headquarters, Wall Street, the Metropolitan Museum of Art, the Museum of Modern Art, Lincoln Center for the Performing Arts, Carnegie Hall, Columbia University, the Juilliard School, and New York University.

\*[Image & caption credit and following text courtesy of Wikipedia]:

A permanent European presence in New Netherland began in 1624 with the founding of a Dutch fur trading settlement on Governors Island. In 1625 construction was started on a citadel and a Fort Amsterdam on Manhattan Island, later called New Amsterdam (Nieuw Amsterdam) [National Park Service, "Dutch Colonies," <http://www.nps.gov/history/nr/travel/kingston/colonization.htm>: "Sponsored by the West India Company, 30 families arrived in North America in 1624, establishing a settlement on present-day Manhattan;" Tolerance Park, "Historic New Amsterdam on Governors Island," [http://tolerancepark.org/\\_wsn/page5.html](http://tolerancepark.org/_wsn/page5.html); see Legislative Resolutions Senate No. 5476 and Assembly No. 2708]. Manhattan Island was chosen as the site of Fort Amsterdam, a citadel for the protection of the new arrivals; its 1625 establishment is recognized as the birth date of New York City [New York City, City Seal and Flag, [http://www.nyc.gov/html/dcas/html/features/greenbook\\_seal\\_flag.shtml](http://www.nyc.gov/html/dcas/html/features/greenbook_seal_flag.shtml): "Beneath the horizontal laurel branch the date 1625, being the year of the establishment of New Amsterdam"].

According to the document by Pieter Janszoon Schagen our people (ons Volck) — Peter Minuit is not mentioned explicitly there — acquired Manhattan in 1626 from Native American Lenape people in exchange for trade goods worth 60 guilders, often said to be worth 24 US\$, though (by comparing the price of bread and other goods) actually amounts to around \$1000 in modern currency [calculation by the International Institute of Social History, Amsterdam ("Value of the guilder/euro," <http://www.iisg.nl/hpw/calculate.php>)]. The price was actually paid to the Canarsees, living in Brooklyn, while the true local people, the Weckquaesgeeks, were not party of the transaction [Pennebaker, James W., Páez, Darío, Rimé, Bernard, *Collective Memory of Political Events: Social Psychological Perspectives* (Routledge, 1997), pp. 303, citing Loewen, J. W., *Lies My Teacher Told Me* (New York: New Press,

1995)].

In 1647, Peter Stuyvesant was appointed as the last Dutch Director General of the colony [Williams, Jasmin K., "New York – The Empire States," *The New York Post*, November 22, 2006, [http://www.nypost.com/seven/11222006/news/cextra/new\\_york\\_the\\_empire\\_state\\_cextra\\_jasmin\\_k\\_williams.htm?page=0](http://www.nypost.com/seven/11222006/news/cextra/new_york_the_empire_state_cextra_jasmin_k_williams.htm?page=0): "In 1647, Dutch leader Peter Stuyvesant arrived with an iron fist to put an end to the colony's rampant crime and restore order"]. New Amsterdam was formally incorporated as a city on February 2, 1653 [New York City Council, "About the Council," <http://council.nyc.gov/html/about/about.shtml>]. In 1664, the English conquered New Netherland and renamed it "New York" after the English Duke of York and Albany, the future King James II [New York Department of State, "New York State History," [http://www.dos.state.ny.us/kids\\_room/kids\\_history.html](http://www.dos.state.ny.us/kids_room/kids_history.html): "...named New York in honor of the Duke of York"]. Stuyvesant and his council negotiated with the English to produce 24 articles of provisional transfer that sought to guarantee New Netherlanders liberties, including freedom of religion, under English rule [Griffis, William Elliot, "Chapter XV: The Fall of New Netherland," in *The Story of New Netherland* (Houghton Mifflin Company, 1909): "In religious matters, Article VIII of the capitulation read, "The Dutch shall enjoy the liberty of their consciences in Divine worship and in Church government;" [http://tolerancepark.org/\\_wsn/page5.html](http://tolerancepark.org/_wsn/page5.html)].

The Dutch Republic regained it in August 1673 with a fleet of 21 ships, renaming the city "New Orange." New Netherland was ceded permanently to the English in November 1674 by treaty.

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A photostatic copy of a page from *Ilustracao Portuguesa*, October 29, 1917, showing the people looking at the miracle of the sun during the Fátima apparitions attributed to the Virgin Mary (<http://www.fatimainconference.org/sixthapparitionoctober131917.htm>).\*

## Fátima

### Act II, Signature xwix - (25)

Village in central Portugal, site of a shrine dedicated to the Virgin Mary. From May to October 1917, three peasant children reported a vision of a woman who identified herself as the Lady of the Rosary. On October 13, a crowd of about 70,000 witnessed an amazing solar phenomenon just after the children had seen their vision. The first national

pilgrimage to the site occurred in 1927. Construction of a basilica started in 1928; now flanked by retreat houses and hospitals, it faces a square where many miraculous cures have been reported.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Our Lady of Fátima (Portuguese: Nossa Senhora de Fátima) (Portuguese pronunciation: [ˈnɔsɐ ʃɐ̃noɾɐ dɐ ˈfatimɐ]) is a title given to the Blessed Virgin Mary as She appeared in apparitions reported by three shepherd children at Fátima in Portugal. These occurred on the 13th day of six consecutive months in 1917, starting on May 13. The three children were Lúcia Santos and her cousins Jacinta and Francisco Marto.

The title of Our Lady of the Rosary is also sometimes used to refer to the same apparition (although it was first used in 1208 for the reported apparition in the church of Prouille), because the children related that the apparition called herself "Lady of the Rosary." It is also common to see a combination of these titles, i.e. Our Lady of the Rosary of Fátima (Portuguese: Nossa Senhora do Rosário de Fátima).

The events at Fátima gained particular fame due to their elements of prophecy and eschatology, particularly with regard to possible world war and the conversion of Soviet Russia [Congregation of the Doctrine of the Faith, "The Message of Fatima – An attempt to interpret the 'secret' of Fatima," [http://www.vatican.va/roman\\_curia/congregations/cfaith/documents/rc\\_con\\_cfaith\\_doc\\_20000626\\_message-fatima\\_en.html](http://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20000626_message-fatima_en.html)]. The reported apparitions at Fátima were officially declared "worthy of belief" by the Catholic Church.

History. On 13 May 1917, ten year old Lúcia Santos and her cousins Jacinta and Francisco Marto were herding sheep at a location known as the Cova da Iria near their home village of Fátima in Portugal. Lúcia described seeing a woman "brighter than the sun, shedding rays of light clearer and stronger than a crystal ball filled with the most sparkling water and pierced by the burning rays of the sun [De Marchi, John, *The Immaculate Heart* (New York: Farrar, Straus and Young, 1952)]." Further appearances were reported to have taken place on the thirteenth day of the month in June and July. In these, the woman exhorted the children to do penance and Acts of Reparation, and to make sacrifices to save sinners. The children subsequently wore tight cords around their waists to cause themselves pain, performed self-flagellation using stinging nettles, abstained from drinking water on hot days, and performed other works of penance and mortification of the flesh [Lucia Santos, *Fatima in Lucia's Own Words*, Memoir 2, p. 93, <http://www.scribd.com/doc/24867341/FATIMA-IN-LUCIA%E2%80%99S-OWN-WORDS-SISTER-LUCIA%E2%80%99S-MEMOIRS>]. Most important, Lúcia said that the lady had asked them to pray the rosary every day, and that saying the rosary many times was the key to personal and world peace. This had particular resonance since many Portuguese men, including relatives of the visionaries, were then fighting in World War I [DeMarchi (1952)]. According to Lúcia's account, in the course of her appearances, the woman confided to the children three secrets, now known as the Three Secrets of Fátima.



Photograph taken by Benjamin Brown French, showing March 4, 1861 inauguration of Abraham Lincoln in front of U.S. Capitol, which was undergoing construction ([http://www.americaslibrary.gov/cgi-bin/page.cgi/jb/civil/lincoln2\\_3](http://www.americaslibrary.gov/cgi-bin/page.cgi/jb/civil/lincoln2_3)).\*

## **Abraham Lincoln ("better angel")**

### **Act II, Signature xwix - (26)**

(Abraham Lincoln)

born Feb. 12, 1809, near Hodgenville, Ky., U.S.

died April 15, 1865, Washington, D.C.

16th president of the U.S. (1861–65). Born in a Kentucky log cabin, hemoved to Indiana in 1816 and to Illinois in 1830. After working as a storekeeper, a rail-splitter, a postmaster, and a surveyor, he enlisted as a volunteer in the Black Hawk War (1832) and waselected captain of his company. He taught himself law and, having passed the bar examination, began practicing in Springfield, Ill., in 1836. As a successful circuit-riding lawyer from 1837, he was noted for his shrewdness, common sense, and honesty (earning the nickname “Honest Abe”). From 1834 to 1840 he served in the Illinois state legislature, and in 1847 he was elected as a Whig to the U.S. House of Representatives. In 1856 he joined the Republican Party, which nominated him as its candidate in the 1858 Senate election. In a series of seven debates with Stephen A. Douglas (the Lincoln-Douglas Debates), he argued against the extension of slavery into the territories. Though morally opposed to slavery, he was not an abolitionist; indeed, he attempted to rebut Douglas's charge that he was a dangerous radical, by reassuring audiences that he did not favour political equality for blacks. Despite his loss in the election, the debates brought him national attention. In the 1860 presidential election, he ran against Douglas again and won by a large margin in the electoral college, though he received only two-fifths of the popular vote. The South opposed his position on slavery in the territories, and before his inauguration seven Southern states had seceded from the Union. The ensuing American Civil War completely consumed Lincoln's administration. He excelled as a wartime leader, creating a high command for directing all the country's energies and resources toward the war effort and combining statecraft and overall command of the armies with what some have calledmilitary genius. However, his abrogation of some civil liberties, especially the writ of habeas corpus, and the closing of several newspapers by his generals disturbed both Democrats and Republicans, including some members of his own cabinet. To unite the North and influence foreign opinion, he issued the Emancipation Proclamation (1863); his Gettysburg Address (1863) further ennobled the war's purpose. The continuing war affected some

Northerners' resolve and his reelection was not assured, but strategic battle victories turned the tide, and he easily defeated George B. McClellan in 1864. His platform included passage of the 13th Amendment outlawing slavery (ratified 1865). At his second inaugural, with victory in sight, he spoke of moderation in reconstructing the South and building a harmonious Union. On April 14, five days after the war ended, he was shot and mortally wounded by John Wilkes Booth.

\*[Image & caption credit and following text courtesy of Wikipedia]:

Abraham Lincoln's first inaugural address was delivered by President Abraham Lincoln, on Monday, March 4, 1861, as part of his taking of the oath of office for his first term as the sixteenth President of the United States. The speech was primarily addressed to the people of the South, and was intended to succinctly state Lincoln's intended policies and desires toward that section, where seven states had seceded from the Union and formed the Confederate States of America. Indeed, the new flag of the Confederacy — the Stars and Bars — had been adopted and raised over Montgomery, Alabama, on this same day [Cannon, Devereaux D., Jr., "Stars and Bars: The First Confederate National Flag," October 20, 2002, [http://www.confederateflags.org/national/FOTCs\\_b.htm](http://www.confederateflags.org/national/FOTCs_b.htm)].

Written in a spirit of reconciliation toward the rebellious states, Lincoln's inaugural address touched on several topics: first, his pledge to "hold, occupy, and possess the property and places belonging to the government"—including Fort Sumter, which was still in Federal hands; second, his argument that the Union was indissoluble, and thus that secession was impossible; and third, a promise that while he would never be the first to attack, any use of arms against the United States would be regarded as rebellion, and met with force. The inauguration took place on the eve of the American Civil War, which began soon after with the Confederate attack on Fort Sumter. Lincoln denounced secession as anarchy, and explained that majority rule had to be balanced by constitutional restraints in the American system of republicanism [Herman Belz, *Abraham Lincoln, Constitutionalism, and Equal Rights in the Civil War Era* (1998), p. 86]:

"A majority held in restraint by constitutional checks and limitations, and always changing easily with deliberate changes of popular opinions and sentiments, is the only true sovereign of a free people."

Desperately wishing to avoid this terrible conflict, Lincoln closed the address with this impassioned plea [<http://www.nationalcenter.org/LincolnFirstInaugural.html>]:

"We are not enemies, but friends. We must not be enemies. Though passion may have strained it must not break our bonds of affection. The mystic chords of memory, stretching from every battlefield and patriot grave to every living heart and hearthstone all over this broad land, will yet swell the chorus of the Union, when again touched, as surely they will be, by the better angels of our nature."

## **limes**

### Act II, Signature xwix - (27)

plural *limites* (Latin "path")

In ancient Rome, a strip of open land along which troops advanced into unfriendly territory. It came to mean a Roman military road, fortified with watchtowers and forts. An example of this construction was the continuous system of fortifications and barriers extending 345 mi (555 km) along the Roman frontier in Germany and Raetia. Hadrian's Wall also served as a limes. Though not impenetrable, the *limites* allowed the Romans to control communications along frontiers and deterred raiding parties. In the eastern and southern empire, *limites* were often used to guard caravan routes.

[Following text courtesy of Wikipedia]:

A limes (/lɑːmɪz/)[[http://en.wikipedia.org/wiki/Oxford\\_English\\_Dictionary](http://en.wikipedia.org/wiki/Oxford_English_Dictionary)] was a border defense or delimiting system of Ancient Rome. It marked the boundaries of the Roman Empire. The Latin noun limes had a number of different meanings: a path or balk delimiting fields, a boundary line or marker, any road or path, any channel, such as a stream channel, or any distinction or difference. In Latin, the plural form of limes is limites. The word limes, hence,

was utilized by Latin writers to denote a marked or fortified frontier. This latter sense has been adapted and extended by modern historians concerned with the frontiers of the Roman Empire; e.g., Hadrian's wall in the north of England is sometimes styled the Limes Britannicus, the frontier of the Roman province of Arabia facing the desert is called the Limes Arabicus, and so forth.

So far the traditional definition and use of the term. It is now more common to accept that "limes" is not a term used by the Romans for the imperial frontier, fortified or not. This is a modern, anachronistic interpretation. The term became common after the third century when it denoted a military district under the command of a "dux limitis" [Benjamin Isaac, "The Meaning of 'Limes' and 'Limitanei' in Ancient Sources," *Journal of Roman Studies* 78 (1988), 125–147; Benjamin Isaac, *The Limits of Empire: The Roman Army in the East* (Oxford: Oxford University Press, Rev. Ed. 1992)]."

The stem of limes: limit-, which can be seen in the genitive case, limitis, marks it as the ancestor of an entire group of important words in many languages; for example, English "limit." Modern languages have multiplied its abstract formulations. For example, from limit- comes the abbreviation lim, used in mathematics to designate the limit of a sequence or a function: see limit (mathematics). In metaphysics, material objects are limited by matter and therefore are delimited from each other. In ethics, men must know their limitations and are wise if they do.

An etymology was given in some detail by Julius Pokorny, *Indogermanisches Etymologisches Wörterbuch*. According to him it comes from Indo-European el-, elei-, lei-, "to bow, bend; elbow." The Latin meaning was discussed in detail by W. Gebert [W. Gebert, "Limes: Untersuchungen zur Erklärung des Wortes und seiner Anwendung," *Bonner Jahrbücher Bd.* 119, No. 2 (1910), pp. 158–205].

The sense is that a limit bends across one in some way. The limes was a cross-path or a cross-wall, which the Romans meant to throw across the path of invaders to hinder them. It is a defensive strategy. The Romans never built limites where they considered themselves free to attack. As the emperor had ordered the army to stay within the limites except for punitive expeditions, they were as much a mental barrier as material. The groups of Germanic warriors harrying the limes during summer used the concept to full advantage, knowing that they could concentrate and supply themselves outside the limes without fear of preemptive strikes.

In a few cases they were wrong. The limit concept engendered a sentiment among the soldiers that they were being provoked by the Germanic raiders and were held back from just retaliation by a weak and incompetent administration; i.e., they were being sold out. They therefore mutinied. The best remedy for a mutiny was an expedition across the limes. Toward the later Empire, the soldiers assassinated emperors who preferred diplomacy and put their own most popular officers into the vacant office.



Adam Smith, paste medallion by James Tassie, 1787. In the Scottish National Portrait Gallery, Edinburgh.

## **Smith, Adam ("invisible hand")**

Act II, Signature xwix - (28)

baptized June 5, 1723, Kirkcaldy, Fife, Scot.

died July 17, 1790, Edinburgh

Scottish social philosopher and political economist. The son of a customs official, he studied at the Universities of



Glasgow and Oxford. A series of public lectures in Edinburgh (from 1748) led to a lifelong friendship with David Hume and to Smith's appointment to the Glasgow faculty in 1751. After publishing *The Theory of Moral Sentiments* (1759), he became the tutor of the future Duke of Buccleuch (1763–66); with him he traveled to France, where Smith consorted with other eminent thinkers. In 1776, after nine years of work, Smith published *An Inquiry into the Nature and Causes of the Wealth of Nations*, the first comprehensive system of political economy. In it he argued in favour of an economic system based on individual self-interest that would be led, as if by an “invisible hand,” to achieve the greatest good for all, and posited the division of labour as the chief factor in economic growth. A reaction to the system of mercantilism then current, it stands as the beginning of classical economics. *The Wealth of Nations* in time won him an enormous reputation and would become virtually the most influential work on economics ever published. Though often regarded as the bible of capitalism, it is harshly critical of the shortcomings of unrestrained free enterprise and monopoly. In 1777 Smith was appointed commissioner of customs for Scotland, and in 1787 rector of the University of Glasgow.

[Following text courtesy of Wikipedia]:

In economics, the invisible hand, also known as invisible hand of the market, is the term economists use to describe the self-regulating nature of the marketplace [Sullivan, Arthur, Steven M. Sheffrin, *Economics: Principles in Action* (Upper Saddle River, NJ: Pearson Prentice Hall, 2003), p. 32]. This is a metaphor first coined by the economist Adam Smith in *The Theory of Moral Sentiments*, and used a total of three times in his writings. For Smith, the invisible hand was a social mechanism that channelled ambition toward meeting the needs of society, even if the ambitious had no benevolent intentions. He first introduces the concept in *The Theory of Moral Sentiments*, written in 1759, and the market does not come into his discussion.

By the time he wrote *The Wealth of Nations* in 1776, he had spent several years studying the economic models of the French Physiocrats, so that the invisible hand is more directly linked to the concept of the market: it is specifically competition between buyers and suppliers which channels the profit motive of individuals into providing products that society desires at prices which are rarely above cost. The process whereby competition channels ambition toward socially desirable ends comes out most clearly in *The Wealth of Nations*, Book I, Chapter 7 - although the term "invisible hand" appears nowhere in that chapter.

The idea of markets automatically channeling self-interest toward socially desirable ends is the founding justification for the laissez-faire economic philosophy, which lies behind neoclassical economics. The central disagreement between economic ideologies is, in a sense, a disagreement about how powerful the "invisible hand" is, or whether forces that developed after Smith's time, such as large scale industry (Marx), finance (Keynes), and advertising reduce its effectiveness [Olsen, James Stewart, *Encyclopedia of the Industrial Revolution* (Greenwood Publishing Group, 2002), pp. 153-154].

*The Wealth of Nations*. The part of *The Wealth of Nations* (1776) which describes what future generations would consider to be Smith's invisible hand, ironically, does not use the term. The process by which market competition channels individual greed is most clearly described in Book I, Chapter 7. Adam Smith uses the metaphor in Book IV, chapter II, paragraph IX of *The Wealth of Nations*. In the often misquoted and poorly understood paragraph quoted below Smith argues that a preference for the use of "domestic" industry over "foreign" industry to gain individual profit constitutes an "invisible" and benevolent hand which promotes the interests of the nation and society at large while at the same time enriching the individual. The individual may have a selfish motive but the use of domestic industry and labor enriches and promotes the interests of society as a whole.

"By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was not part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it."

Smith may have borrowed the expression from Shakespeare's *Macbeth*. The expression is used in a dialogue in which Macbeth informs Lady Macbeth of his fears for their safety. Macbeth asks the night to destroy his enemy "with thy bloody and invisible hand (Act 3, Scene 2)."

The theory of the Invisible Hand states that if each consumer is allowed to choose freely what to buy and each

producer is allowed to choose freely what to sell and how to produce it, the market will settle on a product distribution and prices that are beneficial to all the individual members of a community, and hence to the community as a whole. The reason for this is that self-interest drives actors to beneficial behavior. Efficient methods of production are adopted to maximize profits. Low prices are charged to maximize revenue through gain in market share by undercutting competitors. Investors invest in those industries most urgently needed to maximize returns, and withdraw capital from those less efficient in creating value. All these effects take place dynamically and automatically.

It also works as a balancing mechanism. For example, the inhabitants of a poor country will be willing to work very cheaply, so entrepreneurs can make great profits by building factories in poor countries. Because they increase the demand for labor, they will increase its price; further, because the new producers also become consumers, local businesses must hire more people to provide the things they want to consume. As this process continues, the labor prices eventually rise to the point where there is no advantage for the foreign countries doing business in the formerly poor country. Overall, this mechanism causes the local economy to function on its own. In *The Wealth of Nations*, Smith provides an example that illustrates the principle [Smith, Adam, *Wealth of Nations*, <http://www.econlib.org/LIBRARY/Smith/...>]:

"It is not from the benevolence of the butcher, the brewer or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages."

Some economists question the integrity of how the term "invisible hand" is currently used. Gavin Kennedy, Professor Emeritus at Heriot-Watt University in Edinburgh, Scotland, argues that its current use in modern economic thinking as a symbol of free market capitalism is not reconcilable with the rather modest and indeterminate manner in which it was employed by Smith [Kennedy, Gavin, "Adam Smith and the Invisible Hand: From Metaphor to Myth," *Econ Journal Watch* 6 (2): 239-263 (2009), <http://econjwatch.org/articles/adam-smith-and-the-invisible-hand-from-metaphor-to-myth>].

In response to Kennedy, Professor Daniel Klein argues that reconciliation is legitimate. Moreover, even if Smith did not intend the term "invisible hand" to be used in the current manner, its serviceability as such should not be rendered ineffective [Klein, Daniel B., "In Adam Smith's Invisible Hands: Comment on Gavin Kennedy," *Econ Journal Watch* 6 (2): 264-279 (2009), <http://econjwatch.org/articles/in-adam-smith-s-invisible-hands-comment-on-gavin-kennedy>]. In conclusion of their exchange, Kennedy insists that Smith's intentions are of utmost importance to the current debate, which is one of Smith's association with the term "invisible hand". If the term is to be used as a symbol of liberty and economic coordination as it has been in the modern era, Kennedy argues that it should exist as a construct completely separate from Adam Smith since there is little evidence that Smith imputed any significance onto the term, much less the meanings given it at present [Kennedy, Gavin, "A Reply to Daniel Klein on Adam Smith and the Invisible Hand," *Econ Journal Watch* 6 (3): 374-388, <http://econjwatch.org/articles/a-reply-to-daniel-klein-on-adam-smith-and-the-invisible-hand>].

Criticisms. The Nobel Prize-winning economist Joseph E. Stiglitz, says: "the reason that the invisible hand often seems invisible is that it is often not there." Stiglitz explains his position [*The Roaring Nineties* (2006); Altman, Daniel, "Managing Globalization," in Q & Answers, with Joseph E. Stiglitz, Columbia University and *The International Herald Tribune*, October 11, 2006, <http://blogs.ihrt.com/tribtalk/business/globalization/?p=177>]:

"Adam Smith, the father of modern economics, is often cited as arguing for the 'invisible hand' and free markets: firms, in the pursuit of profits, are led, as if by an invisible hand, to do what is best for the world. But unlike his followers, Adam Smith was aware of some of the limitations of free markets, and research since then has further clarified why free markets, by themselves, often do not lead to what is best. As I put it in my new book, *Making Globalization Work*, the reason that the invisible hand often seems invisible is that it is often not there. Whenever there are 'externalities' — where the actions of an individual have impacts on others for which they do not pay, or for which they are not compensated—markets will not work well. Some of the important instances have long understood environmental externalities. Markets, by themselves, produce too much pollution. Markets, by themselves, also produce too little basic research (the government was responsible for financing most of the important scientific breakthroughs, including the internet and the first telegraph line, and many bio-tech advances). But recent research has shown that these externalities are pervasive, whenever there is imperfect information or imperfect risk markets—that is always. Government plays an important role in banking and securities regulation, and a host of other areas: some regulation is required to make markets work. Government is needed, almost all would agree, at a minimum to enforce contracts and property rights. The real debate today is about finding the right balance between the market and government (and the third 'sector' — non-governmental non-profit organizations). Both are needed. They can each complement each other. This balance differs from time

to time and place to place."

Noam Chomsky, while acknowledging the intelligence of Smith's thesis, criticizes how the term of the "invisible hand" has been used. He also explains [<http://www.chomsky.info/articles/199303--.htm>]:

"Throughout history, Adam Smith observed, we find the workings of 'the vile maxim of the masters of mankind: All for ourselves, and nothing for other People.' He had few illusions about the consequences. The invisible hand, he wrote, destroys the possibility of a decent human existence 'unless government takes pains to prevent' this outcome, as must be assured in 'every improved and civilized society.' It destroys community, the environment, and human values generally — and even the masters themselves, which is why the business classes have regularly called for state intervention to protect them from market forces..."

Stephen LeRoy, professor emeritus at the University of California, Santa Barbara, and a visiting scholar at the Federal Reserve Bank of San Francisco, offered a critique of the Invisible Hand [<http://www.frbsf.org/publications/economics/letter/2010/el2010-14.html>]:

"The single most important proposition in economic theory, first stated by Adam Smith, is that competitive markets do a good job allocating resources... [t]he financial crisis has spurred a debate about the proper balance between markets and government and prompted some scholars to question whether the conditions assumed by Smith... are accurate for modern economies."

Among the conditions that were assumed, and which have since fallen into question, are that information asymmetries, incentive distortions, and the failure of government regulators to serve as a check [[http://www.dailykos.com/story/2010/5/9/864916/-Is-the-Invisible-Hand-stealin g-our-Future-well-being](http://www.dailykos.com/story/2010/5/9/864916/-Is-the-Invisible-Hand-stealing-our-Future-well-being)].



Noctilucent clouds over Bargerveen, Drenthe, Netherlands (photo by Hrald, June 23, 2009).\*

## **noctilucent cloud**

### **Act II, Signature xwix - (29)**

Main Entry: nocftiflucent cloud

Pronunciation: fnäk-t,-,lü-s<nt-

Function: noun

Etymology: noctilucent ultimately from Latin *noct-* + *lucent-*, *lucens* lucent

Date: 1910 : a luminous thin usually colored cloud seen especially at twilight at a height of about 50 miles (80 kilometers).

\*[Image & caption credit and following text courtesy of Wikipedia]:

Night clouds or Noctilucent clouds are tenuous cloud-like phenomena that are the "ragged-edge" of a much brighter and pervasive polar cloud layer called polar mesospheric clouds in the upper atmosphere, visible in a deep twilight. They are made of crystals of water ice. The name means roughly night shining in Latin. They are most commonly

observed in the summer months at latitudes between 50° and 70° north and south of the equator.

They are the highest clouds in the Earth's atmosphere, located in the mesosphere at altitudes of around 76 to 85 kilometers (47 to 53 mi). They are normally too faint to be seen, and are visible only when illuminated by sunlight from below the horizon while the lower layers of the atmosphere are in the Earth's shadow. Noctilucent clouds are not fully understood and are a recently discovered meteorological phenomenon; there is no evidence that they were observed before 1885.

Noctilucent clouds can form only under very restrictive conditions; their occurrence can be used as a sensitive guide to changes in the upper atmosphere. Since they are a relatively recent classification, the occurrence of noctilucent clouds appears to be increasing in frequency, brightness and extent. It is theorized that this increase is connected to climate change.

Discovery and Observation. Noctilucent clouds are first known to have been observed in 1885, two years after the 1883 eruption of Krakatoa [Chang, Kenneth, "First Mission to Explore Those Wisps in the Night Sky," *New York Times*, July 24, 2007, <http://www.nytimes.com/2007/04/24/science/24cloud.html>...; Bergman, Jennifer, "History of Observation of Noctilucent Clouds," August 17, 2004, [http://www.windows.ucar.edu/tour/link=/earth/Atmosphere/NLC\\_history.html](http://www.windows.ucar.edu/tour/link=/earth/Atmosphere/NLC_history.html). It remains unclear whether their appearance had anything to do with the volcano, or whether their discovery was due to more people observing the spectacular sunsets caused by the volcanic debris in the atmosphere. Studies have shown that noctilucent clouds are not caused solely by volcanic activity, although dust and water vapour could be injected into the upper atmosphere by eruptions and contribute to their formation [Australian Antarctic Division, "Noctilucent clouds," <http://www.aad.gov.au/default.asp?casid=2005>]. Scientists at the time assumed the clouds were another manifestation of volcanic ash but, after the ash had settled out of the atmosphere, the noctilucent clouds persisted [Phillips, Tony, "Strange Clouds," February 19, 2003, [http://science.nasa.gov/headlines/y2003/19feb\\_nlc.htm](http://science.nasa.gov/headlines/y2003/19feb_nlc.htm)].

Connection to climate change. There is evidence that the relatively recent appearance of noctilucent clouds, and their gradual increase, may be linked to climate change [Thomas, G. E., Olivero, J., "Noctilucent clouds as possible indicators of global change in the mesosphere," *Advances in Space Research* 28 (7): 939–946 (2001), Bibcode 2001AdSpR..28..937T, doi:10.1016/S0273-1177(01)80021-1]. Atmospheric scientist Gary Thomas of the Laboratory for Atmospheric and Space Physics at the University of Colorado has pointed out [Phillips, Tony, "Strange Clouds at the Edge of Space," August 25, 2008, [http://science.nasa.gov/headlines/y2008/25aug\\_nlc.htm](http://science.nasa.gov/headlines/y2008/25aug_nlc.htm).] that the first sightings coincide with the Industrial Revolution and they have become more widespread and frequent throughout the 20th century. The connection remains controversial however [*ibid*]. Wilfried Schröder was the first who explained noctilucent clouds as "indicators" for atmospheric processes [*Gerlands Beiträge zur Geophysik* (Meteorologische Rundschau 1971)].

Climate models predict that increased greenhouse gas emissions cause a cooling of the mesosphere, which would lead to more frequent and widespread occurrences of noctilucent clouds [A. Klekociuk, R. Morris, J. French, "First Antarctic ground-satellite view of ice aerosol clouds at the edge of space," Australian Antarctic Division (2008), <http://www.aad.gov.au/default.asp?casid=34672>]. A competing theory is that larger methane emissions from intensive farming activities produce more water vapour in the upper atmosphere [<http://www.aad.gov.au/>] - methane concentrations have more than doubled in the past 100 years [Hsu, Jeremy, "Strange clouds spotted at the edge of Earth's atmosphere," September 3, 2008, [http://www.usatoday.com/tech/science/space/2008-09-02-strange-clouds-space\\_N.htm](http://www.usatoday.com/tech/science/space/2008-09-02-strange-clouds-space_N.htm)]. Tromp et al. suggest that a transition to a hydrogen economy could increase the number of noctilucent clouds through increased emissions of free hydrogen [Tracey K. Tromp, Run-Lie Shia, Mark Allen, John M. Eiler, Y. L. Yung (June 2003). "Potential Environmental Impact of a Hydrogen Economy on the Stratosphere," *Science Magazine* 300 (5626): 1740–1742 (June 2003), Bibcode 2003Sci...300.1740T. doi:10.1126/science.1085169, PMID 12805546, <http://www.sciencemag.org/cgi/content/abstract/300/5626/1740>. A comprehensive review on the results of noctilucent clouds has been given by Wilfried Schröder, *Entwicklungsphasen der Erforschung der Leuchtenden Nachtwolken* ("development phases of noctilucent cloud research") (Berlin: Akademie-Verlag, 1975); Michael Gadsden and Wilfried Schröder, *Noctilucent Clouds* (Heidelberg, New York: Springer Verlag, 1989); Wilfried Schröder, *Noctilucent Clouds* (Bremen: Science Edition, 1998); Wilfried Schröder, *Mesospheric Circulation and Noctilucent Clouds* (Bremen: Science Edition, 2006)].



*The Redoutable*, the first French nuclear missile submarine, photographed January 5, 2005  
(<http://www.netmarine.net/bat/smarins/redoutab/photo12.htm>).\*

## **force de frappe**

### Act II, Signature xwix - (30)

Main Entry: *force de frappe*

Pronunciation: f•rs-d,-fr'p

Usage: foreign term

Etymology: French : military striking force especially with nuclear weapons.

\*[Image & caption credit and following text courtesy of Wikipedia]:

The Force de Frappe (French for strike force) is the designation of what used to be a triad of air-, sea- and land-based nuclear weapons intended for dissuasion, and consequential deterrence. The French Nuclear Force, part of the Armed Forces of France, is the third largest nuclear-weapons force in the world, following the nuclear triads of the Russian Federation and the United States. In March 2008, President Nicolas Sarkozy of France confirmed reports giving the actual size of France's nuclear arsenal, and he announced that France will reduce its French Air Force-carried nuclear arsenal by one-third, leaving the Force de Frappe with just under 300 warheads ["France to reduce nuclear arsenal, warns of Iran danger," March 21, 2008, <http://www.afp.com/english/news/stories/newsmlmmd.0315436ec76e505e2a2ebaa8239ff19d.121.html>].

The decision to arm France with nuclear weapons was made in the mid-1950s by the administration of Pierre Mendès-France under the Fourth Republic. President Charles de Gaulle, upon his return to power in 1958, solidified the initial vision into the well-defined concept of a fully independent Force de Frappe capable of protecting France from a Soviet or other foreign attack, independent of the North Atlantic Treaty Organization, which President de Gaulle considered to be dominated by the United States to an unacceptable degree. In particular, France was concerned that in the event of a Soviet invasion of Western Europe, the United States - already bogged down in the War in Vietnam and afraid of Soviet retaliation against the United States proper - would not come to the aid of its Allies in Western Europe.

The strategic concept behind the Force de Frappe was the so-called dissuasion du faible au fort (Weak-to-strong deterrence), i.e., the capability of inflicting to a more powerful enemy more damage than the complete destruction of the French population would represent. The enemy, having more to lose, would therefore refrain from proceeding any further (see Mutual Assured Destruction). This principle was summarized in a statement attributed to President de Gaulle himself [citation needed]:

"Within ten years, we shall have the means to kill 80 million Russians. I truly believe that one does not light-heartedly attack people who are able to kill 80 million Russians, even if one can kill 800 million French, that is if there were 800 million French."

In his book *La paix nucléaire* (1975), French Admiral de Joybert explained deterrence as ["Les Redoutable: Histoire d'une aventure technique, humaine et stratégique," *Meretmarine*, <http://www.meretmarine.com/article.cfm?id=112443>]:

"Sir, I have no quarrel with you, but I warn you in advance and with all possible clarity that if you invade me, I shall answer at the only credible level for my scale, which is the nuclear level. Whatever your defenses, you shan't prevent at least some of my missiles from reaching your home and cause the devastation that you know. So, renounce your endeavour and let us stay good friends."

France carried out its first test of an atomic bomb in Algeria in 1960 [Blair, W. Granger, "France Explodes Her First A-Bomb in a Sahara Test," *New York Times*, February 13, 1960, p. 1, <http://select.nytimes.com/gst/abstract.html...>] and some operational French nuclear weapons became available in 1964. Then, France executed its first test of the much more powerful hydrogen bomb over its South Pacific Ocean test range in 1966. This first hydrogen bomb was air-dropped from a strategic bomber - in an already weaponized form.

President de Gaulle's vision of the Force de Frappe featured the same triad of air-based, land-based, and sea-based means of deterrence already deployed by both the United States and the Soviet Union. Work on these components had started in the late 1950s and was vigorously accelerated as soon as de Gaulle became the President of France.

~ page numbers refer to topic's appearance within main text ~

## End Notes

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