U-Vult pages 1-388

Compton's Encyclopedia

and Fact-Index

F.E. Compton Company

Division of Encyclopaedia Britannica, Inc.

1980 EDITION COMPTON'S ENCYCLOPEDIA

COPYRIGHT © 1980 by F. E. COMPTON COMPANY DIVISION OF ENCYCLOPAEDIA BRITANNICA, INC.

All rights reserved for all countries.

No part of this work may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher.

COPYRIGHT © 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980

BY F. E. COMPTON COMPANY, DIVISION OF ENCYCLOPAEDIA BRITANNICA, INC.

Library of Congress Catalog Card Number: 78-67841 International Standard Book Number: 0-85229-350-X Printed in U.S.A.



THE UNIVERSITY OF CHICAGO
COMPTON'S ENCYCLOPEDIA IS PUBLISHED WITH THE EDITORIAL ADVICE
OF THE FACULTIES OF THE UNIVERSITY OF CHICAGO

EXPLORING COMPTON'S—VOLUME 25

What queen ruled Great Britain and Ireland for 64 years? 313.

What painted smile has puzzled the world for more than four centuries? 326.

Who has been called the "painter's painter"? 272. Why is Leonardo da Vinci justly called a versatile genius? 325.

How long may a United States president hold office? 153.

Does a ventriloquist really "throw" his voice? 279. What kind of mountains build themselves? 379 picture.

What state is called the "Mother of Presidents"? 329.

How many pieces of wood are there in a violin? 327.

What is the Dead Man's Chest, popularized in the 'Treasure Island' pirates' song? 351.

How has a cattle disease helped save human lives? 249.

What plant's leaves have hair-trigger traps? 280. Why are Geiger counters used to prospect for uranium ores? 212.

When was the violin invented? 327.

Are vitamins food? 354.

What is the meaning of the word vinegar? 326.

How did sick chickens help in the discovery of vitamins? 357.

Who are the Baganda of Buganda? 2.

Do vultures kill living prey? 388.

Who were the "abolitionists"? 179.

What was the name of the first permanent English settlement in North America? 169 picture.

Can a person who contracts a venereal disease acquire immunity? 273.

What war was ended by the Treaty of Ghent? 174. What is the meaning of "manifest destiny"? 175.

What are animals with backbones called? 303.

What war was ended by the Treaty of Guadalupe-Hidalgo? 175.

Where is the world's longest railroad? 358.

What two Americans were the first to cross the vast region of the United States west of the Mississippi River? 177.



What city has 170 canals which serve as its streets and avenues? 277.

From where do all vitamins originally come? 354. What is the Bill of Rights? 144.

Why do today's armies wear dull-colored uniforms in combat? 5.

What is the name of the highest known falls on earth? 276 picture.

The Central Pacific and the Union Pacific railroads were connected to form the first transcontinental railway. Where were they joined? 181 picture.

What is the "Holy See"? 267.

How much did the colonists of Virginia pay for their future brides' passage? 335.

Against what dread disease was the first vaccine used? 249.

What was the name of the first steamer to cross the Atlantic Ocean? 262 picture.

What vitamin, found in fresh fruits and vegetables, prevents the disease called scurvy? 356.

What newspaper first carried the text of the United States Constitution? 167 picture.

How many amendments to the United States Constitution have been made? 151-4.

Where is the largest Christian church in the world? 268.

How many permanent member nations are there in the United Nations Security Council? 308-9.



What is the national bird of the United States and when was it adopted? 115.

What is the largest nation in the world in area? 14.

Which vitamin is produced in the body by ultraviolet rays? 3.

What site within the borders of the United States is international territory? 22.

Which United States presidents have taken office without a majority of the popular vote? 388.

In what building are the Declaration of Independence, the Constitution, and the Bill of Rights on display? 143 picture.

How many active volcanoes are there? 380.

Why does a teen-age boy's voice "crack"? 377.

To punish the American Colonies, the British passed the Five Intolerable Acts. What were the provisions of these acts? 170-1.

Who were the Vandals? 265.

What modern French painter produced his finest paintings when he was drunk? 236.

What great service do vultures perform for mankind? 388.

Where was the first permanent white settlement north of the Ohio River? 172 picture.

What is the oldest institution of higher learning in the United States? When was it founded? 209.

In what year was Vatican City established? 267. Where was the first steel-skeleton skyscraper erected? What was its name? 184 picture.

How many states were carved out of the Northwest Territory? 174.

What is South America's smallest nation? 213.

Does the British Crown (the king or queen) have the right to veto an act of Parliament? 309.

What canal linked the Great Lakes with the Atlantic Ocean? 175 picture.

What was the chief duty of the Vestal Virgins of ancient Rome? 304 picture.

What is Africa's largest lake? 314.

Where did Leonardo da Vinci paint his masterpiece "The Last Supper"? 325 picture.

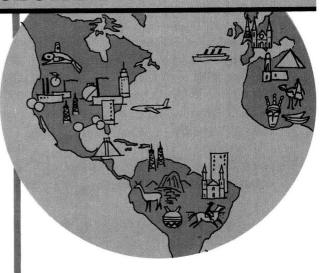
KEY TO PRONUNCIATION



Pronunciations have been indicated in the body of this work only for words which present special difficulties. For the pronunciation of other words, consult the Fact-Index. Marked letters are sounded as in the following words: $c\bar{a}pe$, $\bar{a}t$, $f\bar{a}r$, $f\bar{a}st$, what, $f\bar{a}ll$; $m\bar{e}$, yet, fern, there; $\bar{i}ce$, bit; $r\bar{o}w$, won, for, not, do; $c\bar{u}re$, but, rude, full, burn; out; $\ddot{u}= French\ u$, $German\ \ddot{u}$; $\dot{g}em$, $\bar{g}o$; thin, then; $\ddot{n}= French\ nasal\ (Jea<math>\dot{n}$); $zh= French\ j\ (z\ in\ azure)$; $K= German\ guttural\ ch$.

HERE AND THERE IN VOLUME 25

AT ODD TIMES when you are just looking for "something interesting to read," without any special plan in mind, this list will help you. With this as a guide, you may visit faraway countries, watch people at their work and play, meet famous persons of ancient and modern times, review history's most brilliant incidents, explore the marvels of nature and science, play games—in short, find whatever suits your fancy of the moment. This list is not intended to serve as a table of contents, an index, or a study guide. For these purposes consult the Fact-Index and the Reference-Outlines.



Picture Highlights	Historical Highlights					
Insignia of the United States Armed Forces	The Constitution of the United States . 139 United States History					
A Reminder of the Old South 61	The New World Is Settled 167					
The Shrine of Three Great Charters 143	The United States Wins					
How Salk Polio Vaccine Is Made 251–3	Its Independence 170					
The Volcano That Leaped	Growth of American Democracy 173 The Nation's Westward Advance 176					
out of a Cornfield 381–2						
	The Nation Divides and Reunites 179					
Reading for Pleasure	Building an Industrial Nation 182					
\$155 SHEET 100 S	World War I and Its Results 184					
Uniforms—Military Dress and Insignia . 5	World-Wide Depression and War 187					
The Lavish Palace of Versailles 303	Leadership in the Postwar World 190					
The Sacred Duties of Vestal Virgins 304	The Nation in the Space Age 194					
Volcanoes—Openings in the Earth's Crust	Verdun—A Turning Point in					
Earth's Clust	World War I 282					
	How Grant Captured Vicksburg 311					
School and Home; Work and Play	The War in Vietnam 321					
Universities and Colleges—Where						
Students Get Higher Education 204	Famous People					
Vacation Activities—How to Spend a	a water and a copie					
Happy and Worthwhile Vacation 237	Eight Popes Named Urban 212					
How to Choose the Right Vocation 359	Utrillo of Montmartre 236					
	· ·					

HERE AND THERE IN VOLUME 25

The Discoverer of Radiation Belts 259	Marvels of Science and Invention
Martin Van Buren—8th President	Vaccines—How They Are Used to
of the United States	Prevent Dread Diseases 249
Velasquez—The Painter's Painter 271	Vitamins—For Growth and Health 354
Vermeer, Master of Light 283	
The Prophetic Works of Jules Verne 303	THIS A
Victor Emmanuel, Kings of Italy 312	The Arts
Victoria—The Queen Who Ruled	Van Dyck—Painter of Royalty 266
Britain for 64 Years	Verdi's Operas 282
Virgil, Greatest of the Roman Poets 328	Leonardo da Vinci—Giant Among
Voltaire—Genius with a Fighting Pen 385	Giants
	Singing Strings with Human Tones 326
	binging burings with Framan Tonos 626
	_
7. W. W. W. Y	
The Plant and Animal Kingdoms	
The Plant with Hinged Jaws 280	At Home and Abroad
The Poisonous Vipers 328	At Home and Abroad
Vultures, Carrion Feeders of the	The Ukraine—Granary of the
Bird Family 388	Soviet Union
	Union of Soviet Socialist Republics 14
TINI - XXY I - XXX - 1 I - C TA - 4	The United States—The Land
The Wide World of Facts	and Its People 28
The Uses of Ultraviolet Rays 3	Uruguay—Buffer State on the Plata 213
United Kingdom—Its Central	Utah—Land of the Honeybee 215
and Local Government 16	Vancouver—Canada's Gateway
United Nations—World	to the Pacific 263
Peace Organization 20	Venezuela's Plains and Cloud-Topped
Government of, by, and for the People . 154	Mountains 274
The Harmony of the Universe 198	Venice—Queen City of the Adriatic 277
Spiritual Capital of the Roman	Vermont—The Green Mountain State . 284
Catholic Church 267	Vienna—Historic City on the Danube . 315
VD—A Serious Public Health Problem . 272	Vietnam—A Reunited Land of
Benefits for United States Veterans 306	Southeast Asia 317
How Voice Sounds Are Produced 376	Virginia—Mother of Presidents 329
Voting—How Americans	The Virgin Islands of the
Govern Themselves 386	United States 351



UBANGI RIVER. One of the chief rivers of equatorial Africa is the Ubangi (or Oubangui) River. It is a tributary of the Congo (or Zaire) River and flows past Bangui, capital of the Central African Empire. The Ubangi separates in part Zaire (formerly the Democratic Republic of the Congo) from the Central African Empire and the People's Republic of the Congo.

The Ubangi River is formed by the confluence of the Uele and Bomu (or Mbomou) rivers at Yakoma, a trading center for a cotton-growing region near the northern border of Zaire. The Uele, the Ubangi's main headstream, rises in the highlands north of Lake Albert and flows for about 700 miles before it reaches Yakoma. The length of the Ubangi proper, from Yakoma to the village of Irebu, where it joins the Congo River, is almost 700 miles.

The Ubangi is navigable from Yakoma to Banzyville. Downstream from Banzyville it flows through the Zongo (Grenfell) Rapids and is not navigable again until Bangui, a commercial and shipping center for cotton, coffee, and livestock. From Bangui downstream the river carries part of the Central African Empire's export trade to the Congo River. (See also Congo River.)

THESE ARTICLES ARE IN THE FACT-INDEX

Ubico, Jorge Ucayali River Uccello, Paolo Udaipur, India Udall, Nicholas Udall, Stewart Lee Udine, Italy Udjung Pandang, Indonesia Uele River Ufa, Russia



UGANDA. Snowcapped mountains, thundering waterfalls, tropical rain forests, stagnant swamps, and rolling savannas with an abundance of game animals are all typical of Uganda. This equatorial African country occupies a landlocked area of 93,981 square miles in that portion

of the East African plateau to the north of Lake Victoria. The western border is dominated by Mount Margherita (16,795 feet) in the Ruwenzori range—the third highest mountain in Africa (see Ruwenzori). On the eastern border is Mount Elgon (14,178 feet).

The central part of the plateau, which averages 4,000 feet in height, is split by the Great Rift Valley. This valley is traversed by the Victoria Nile after it issues from Lake Victoria (see Nile River; Victoria, Lake). Uganda is bordered on the west by Zaire (formerly the Democratic Republic of the Congo), on the

east by Kenya, on the south by Tanzania and Rwanda, and on the north by Sudan.

The section of Uganda to the west of the Victoria Nile consists of rich farmlands that are worked by Bantu tribes. The tribes raise bananas, plantains, cassava, millet, corn, rice, tea, sugarcane, and peanuts. The chief cash crops are coffee and cotton. The drier savanna section to the east of the Victoria Nile is inhabited by Nilotic and Hamitic tribes, who raise sheep, goats, and longhorn cattle.

Copper, tin, tungsten, cobalt, and gold are among the minerals obtained, primarily from the Ruwenzori mountain range. Industrial products include cement, steel, cigarettes, textiles, tools, chemicals, and processed foods.

Claimed by both Germany and Great Britain, Uganda came under British influence as a result of an Anglo-German colonial agreement in 1890. In 1894 Uganda became a British protectorate.

Uganda won its independence in 1962. Sir Edward Mutesa II, ruler of the region of Buganda, became president in 1963. Milton Obote ousted him in 1966. A new constitution was proclaimed in 1967. In a 1971 military coup, Obote was replaced by Maj. Gen. Idi Amin. Amin's belligerence in foreign affairs and his harsh domestic rule drew criticism from many other African leaders. In 1972 he deported thousands of East Indian merchants from Uganda. Disputes with Tanzania and Kenya nearly provoked open warfare; Britain severed diplomatic relations with Uganda. In 1976 Amin was named president for life.

These Ugandan Boy Scouts are beating on drums of graduated size to summon mission school students to session.

Three Lions



UGANDA

Uganda became a member of the United Nations and the Commonwealth of Nations in 1962 (see British Empire and the Commonwealth of Nations). Kampala, the capital and largest city (population, 330,700), is the seat of Makerere University. The dominant tribe is the Baganda, whose tribal state of Buganda is the largest and richest of the nation's four regions. (See also Africa.) Population (1969 census), 9,548,847.

THESE ARTICLES ARE IN THE FACT-INDEX Ujiji, Tanzania

Ujjain, India

Uhland, (Johann) Ludwig **Uitlanders**



UKRAINIAN SOVIET SOCIALIST REPUB-LIC. One of the most productive parts of Russia is the Ukrainian Soviet Socialist Republic. It extends from the Polish plains and

the Carpathian Mountains on the west to the Don Basin on the east. On the north it is flanked by the Pripyat' (Pripet) Marshes, and on the south it is washed by the Black Sea and the Sea of Azov. It covers an area of 232,050 square miles, ranking third in size among the 15 republics of the Soviet Union.

The Ukraine lies in the southwestern part of the East European Plain. Through the republic runs a belt of rich black earth, with a steppe region to the south (see Grasslands). The Dnieper River, the third longest river in Europe, flows through the middle of the Ukraine (see Dnieper River). The western part is drained by the Bug and Dniester rivers (see Dniester

The buildings along Kiev's central avenue reflect the massive style prevailing in Soviet architecture since World War II.



River). Through the eastern section flows the Donets River, a tributary of the Don River. The chief elevations are the Donets Heights in the east and the Carpathian Mountains in the west.

The Ukraine has long been the principal granary of the Soviet Union because of the variety of grains harvested on its collective and state-operated farms. These grains include wheat, rye, barley, oats, corn, millet, and buckwheat. Among the other field crops are sugar beets, flax, potatoes, cotton, tobacco, hemp, soybeans, and hops. Sunflowers are cultivated for their seed oil, and the dandelion called the kok-saghyz is grown for its rubber latex. Cattle, hogs, sheep, horses, and poultry are raised in great numbers.

Much of the industry of the Ukraine has been concentrated in the Donets Basin (Donbas) because of its rich deposits of coal and limestone. The Krivoy Rog section is noted for its iron mines, the Nikopol' area for its beds of manganese ore, and the Ruthenia district for its deposits of oil, salt, and natural gas.

Khar'kov, Donetsk, Makeyevka, Dnepropetrovsk, and Voroshilovgrad are noted for their extensive production of iron and steel as well as for the conversion of these metals into all kinds of heavy machinery. Kiev, the capital of the republic, is well known for its flour mills, sugar refineries, textile mills, tobacco factories, and glassworks. L'vov has breweries and distilleries; Odessa, shipyards; and Zaporozh'ye, metallurgical plants and chemical works. (See also Khar'kov; Kiev; Odessa.)

The name Ukraine, meaning "borderland," was given to this region when it was a bulwark against the Mongol invaders. Its nucleus was the principality of Kiev, which had been recognized as the leading Russian state as early as the 9th century. After the fall of Kiev the Ukraine was successively held by the Tatars (1240-1340) and by the Lithuanians and Poles (1340–1654). As a result of an uprising led by bands of adventurers called Cossacks, eastern Ukraine regained a certain degree of independence in the mid-17th century (see Cossacks). However, with the partition of Poland in the late 18th century Russia acquired all the Ukraine except Eastern Galicia and Ruthenia, which went to Austria.

Upon the outbreak of the Bolshevik Revolution in 1917, an independent Ukrainian People's Republic was proclaimed. Later it was given the name Ukrainian Soviet Socialist Republic. It was made a part of the Union of Soviet Socialist Republics in 1922.

The area of the region was enlarged after World War II when it acquired Ruthenia from Czechoslovakia, Eastern Galicia from Poland, and parts of Bucovina and Bessarabia from Rumania. The Crimea, a famous resort, was transferred to it in 1954. Population (1970 preliminary census), 47,136,000. (See also Russia; Union of Soviet Socialist Republics.)

> THIS ARTICLE IS IN THE FACT-INDEX Ukulele



ULAN BATOR, Mongolian People's Republic. The capital of the Mongolian People's Republic (Outer Mongolia) is Ulan Bator. Founded as a monastery town in the mid-17th century, the city, located on the north bank of the

Tola River, became an important trade center. For more than 250 years it was a junction for camel caravans on the tea route between China and Russia. Today, as the country's transportation hub, Ulan Bator is served by railroads, airports, and highways linking it with Peking, Moscow, and other cities.

The dominant feature of Ulan Bator is Sukhe Bator Square, located in the heart of the city. This vast area is surrounded by large government buildings whose architecture shows the influence of the Soviet Union. In the center of the square is an equestrian statue of Sukhe Bator, the Mongolian revolutionist who helped establish the provisional Communist regime in 1921.

Ulan Bator is the cultural and industrial center of the Mongolian People's Republic. It was made the seat of the Mongolian State University in 1942. Its manufactures range from flour and furniture to textiles, glass, leather, and felt.

When Ulan Bator was founded in 1649, it was known as Da Khure. This name, which means "Great Monastery," was later corrupted to Urga by Russian merchants. The government of Mongolia was headed by the Living Buddha, known as the Bogdo-Gegen of the Buddhist-Lamaist religion.

In 1911 Ulan Bator was the chief center of the revolt of Outer Mongolia against the Manchu emperor of China (see China, section on history). In 1912 it became the capital of an independent state under Russian protection, with the Living Buddha as ruler. When the last person to hold that office died,

in 1924, the Communists closed the temples and monasteries and stamped out Lamaism. Population (1962 census), 210,600. (See also Mongolia.)

THESE ARTICLES ARE IN THE FACT-INDEX

Ulanhot, People's Republic of China Ulanova, Galina (Sergeyevna) Ulan-Ude, Russia Ulbricht, Walter Ulcer Ulloa, Antonio de Ulloa, Francisco de Ulm, West Germany Ulnar nerve Ulsan, South Korea Ulster, Ireland Ultima Thule Ultramarine

a German physicist named Johann Wilhelm Ritter experimented with silver chloride and a prism. He passed a beam of sunlight through a prism, which divided the beam into the colors of the spectrum. He then placed some chloride in each color to see what would happen. The red caused little change. Deep violet, however, made the bits of chloride darken. Then Ritter tried some chloride in the lightless space just beyond the violet. The material grew much darker, almost as though it were being covered with soot. He had discovered a powerful, invisible radiation beyond the violet in the sun's spectrum.

Scientists named this radiation *ultraviolet*, meaning "beyond the violet." They found that it traveled in waves like light and at the same speed. It differed, however, in having shorter waves and higher frequency (or number of waves a second), as well as in being invisible (see Energy; Radiation).

For a century, scientists used ultraviolet radiation from sunlight, electric sparks, or electric arcs. In 1901 Peter Cooper Hewitt of New York City made a much more powerful source by passing an electric current through a quartz tube filled with mercury vapor.

Prolonged study led to the discovery that ultra-

violet rays produce vitamin D in the body. The radiation acts on a fatty substance under the skin called ergosterol and changes it to vitamin D. (See also Vitamins.)

Today many foods contain man-made vitamin D. Food chemists produce it by using an ultraviolet ray lamp to irradiate the food.

Ultraviolet radiation has proved to be a powerful germ killer. A butcher's showcase may have a "green light" in it, which is coming from an ultraviolet germ-killing lamp. (The green itself is not the killing force but is produced simultaneously with invisible ultraviolet.)



SUKHE BATOR SQUARE IN OUTER MONGOLIA'S CAPITAL

This square is the scene of parades, which officials review from the platform over the

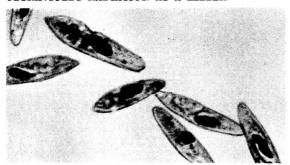
tombs of Sukhe Bator and Choibalsan, leaders of the Mongolian Communist revolution.

Ultraviolet radiation may be used to keep air sterile in operating rooms and elsewhere in hospitals.

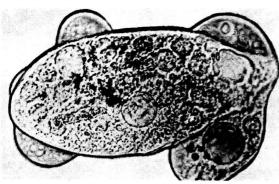
Photographers have found many uses for ultraviolet rays. The rays do not penetrate glass, but a quartz lens will let them through, and a photographic plate or film is very sensitive to them. Pictures can be taken in the dark by turning "black light" (radiation from an ultraviolet lamp) on the object.

Scientists say it is possible to identify any material by the glow, or *fluorescence*, it gives off under the rays (see Fluorescence). The fluorescence occurs because high-frequency ultraviolet radiation excites the atoms of any material it hits. The atoms vibrate and send off waves. The frequency of these waves differs with each element, but it is always lower than

ULTRAVIOLET RADIATION AS A KILLER



This is a picture of normal slipper animalcules, or paramecia. They are protozoans and live in water.



When radiation hits one of the creatures, it swells and its body cracks, letting the contents exude into blisters.



A short time later, the blisters break and the paramecium crumbles to pieces, destroyed by ultraviolet radiation.

the frequency of ultraviolet. Because it occurs in the range of visible light, a glow is seen.

Ultraviolet fluorescence is used to detect forged documents. The different kinds of ink on the document can be distinguished by their fluorescence. Textile manufactures use the ray to identify one material from another. Gems and metals are often recognized by their ultraviolet fluorescence. Dentists can distinguish a live tooth from a dead one because live teeth give fluorescence, whereas dead ones do not.

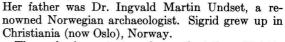
Ultraviolet radiation from sunlamps can give benefits. The rays act like sunlight to make the skin secrete the dark pigment which tans the skin. They also change ergosterol under the skin into vitamin D.

THESE ARTICLES ARE IN THE FACT-INDEX

Ulugh Muztagh Ulyanovsk Umatilla Umber Umbrella bird Umbrella plant Umbrella tree Umbria, Italy Ume River Unalachtigo
Unalaska Island
Un-American Activities,
House Committee on
Unami
Unamuno, Miguel de
Uncas
Underground
Underground
Underwood, Oscar Wilder

UNDSET(un'sĕt), Sigrid (1882–1949). The author Sigrid Undset was noted for her writings against Nazism as well as for her novels. When the Germans invaded her native Norway in 1940, she had to flee. She went first to Sweden and then to the United States, where she remained five years.

Sigrid Undset was born on May 20, 1882, in Kalundborg, Denmark.



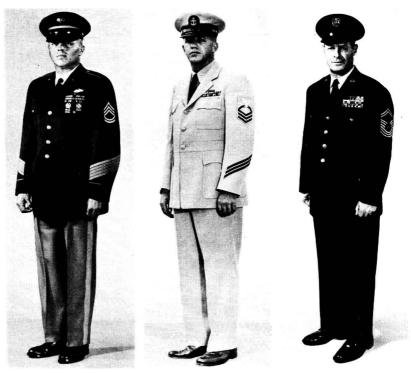
The author's greatest work was the trilogy 'Kristin Lavransdatter'. The first volume, 'The Bridal Wreath', appeared in 1920; the second, 'The Mistress of Husaby', in 1921; and the third, 'The Cross', in 1922. This work about life in the Middle Ages won world acclaim. She became a Roman Catholic convert shortly after the third novel was published. She was given the Nobel prize in literature in 1928.

Sigrid Undset married an artist, Anders Svarstad. They had three children. She died on June 10, 1949, in Lillehammer, near Oslo.

THESE ARTICLES ARE IN THE FACT-INDEX

Undulant fever Ungava, Canada Uniats Unicorn plant UNIFON

UNIFORMS— Military Dress and Insignia



The United States Army sergeant first class (left) wears a semidress uniform of Army blue; the United States Navy chief petty

officer (center), a summer khaki uniform. The United States Air Force chief master sergeant wears the blue service uniform.

UNIFORMS AND INSIGNIA. Military uniforms have long been symbols of distinction, discipline, and tradition. At one time both dress and field uniforms were bright and colorful. The improvement of firearms late in the 19th century, however, made the wearing of conspicuous shades a hazard in combat. After the Boer War (1899–1902) nearly all armies adopted field and service uniforms of gray, brown, and green shades. Many of the dress or formal uniforms are still designed in cheerful, bright hues. These variations, however, are never worn in combat.

United States Army Uniforms

The United States Army adopted an olive-drab shade for winter service uniforms in 1902. In 1957 it was decided to replace it by what is called "Army green." One reason for the change was that many civilians were wearing parts of old uniforms for work clothes. The olive-drab shade thus had lost much of its distinction as a military symbol.

The basic green winter service uniform, for both officers and enlisted men, is made of wool. It includes a blouse cut somewhat like a civilian's single-breasted suit coat. For warm weather, the cotton khaki, or "Army tan," is worn. A blouse is authorized in the same shade. The standard necktie is black in summer or winter, as are shoes. For wear on military posts only, shorts and a short-sleeved shirt are usually issued. In the field, trousers are sometimes tucked into the tops of combat boots.

Army semidress and dress blue uniforms are authorized for both enlisted men and officers. Formal uniforms for officers include both a white and a blue dress uniform and white or blue mess dress. The Women's Army Corps (WAC) and nurse uniforms are generally styled after those for Army men.

Ranks of officers are indicated by insignia on shoulder loops or collars. Specialist and noncommissioned officer (NCO) rank insignia are worn on both sleeves (see illustrations, pages 8 and 9).

On or off the post either a cloth garrison cap or a visored service cap may be worn. The service-cap insignia, slightly different for officers and for enlisted men, features the United States coat of arms. The garrison cap very often carries a unit crest. In combat a steel helmet is worn, while the protective helmet liner only may be worn in nontactical training.

Official colors of branch or corps are worn on various uniform components, such as the dress aiguillette. Light blue stands for infantry; yellow for armor; scarlet for artillery; orange piped with white for signal; cobalt blue piped with golden yellow for chemical; and scarlet piped with white for the engineers.

Air Force Uniforms

Except for insignia, Air Force officers and airmen dress alike. The uniform is dark blue. It includes a coat, matching trousers, light-blue oxford shirt, dark-blue tie, and service cap. An optional summer uniform is tan. Some variations exist, such as shorts

and pith helmets. A lightweight blue uniform became mandatory issue in 1962 and 1963.

For semiformal functions, a blue uniform is worn with white shirt and black bow tie. There is a more formal officer's uniform with a midnight-blue tailcoat. A white dress uniform also may be worn. The Women's Air Force (WAF) uniform is of similar design.

Navy Uniforms

The regular service uniforms of the Navy are blue. Grades above first-class petty officers wear a double-breasted tunic with white shirt and dark tie. Naval aviation officers wear a green uniform while on flight duty. Enlisted men below the rank of chief petty officer wear dungarees for work. Summer work and service uniforms for all other Navy men are khaki. Khaki or dungarees are worn during submarine duty.

Petty officers and nonrated men wear a loose-fitting jumper with a square sailor collar. The collar and the sleeves of the dress jumper are trimmed with three stripes. The undress jumper has a plain collar. For several years the trousers had zippers, but in 1956, at the request of many sailors, the official trouser was changed back to the traditional 13-button "broad fall front." For shore patrol or field duty, trousers are tucked into khaki leggings. Officers and chief petty officers wear a visored cap. First-class petty officers and lower grades wear a round white hat with a brim that turns up all around.

There are white service uniforms for both enlisted men and officers, and full-dress uniforms for officers and chief petty officers. A white dinner jacket and blue trousers may be worn. Shorts may be worn for some tropical service.

Navy ranks of commissioned and warrant officers are indicated by the number and size of gold stripes worn on the lower sleeve or on shoulder boards. The stripes are black on the naval aviation green uniform. Collar insignia, like those of the Army for equivalent rank, are worn on Navy officers' summer uniforms. Enlisted men wear marks of grade on their left sleeves (see illustrations on opposite page). Nurses' and WAVES' uniforms resemble male Navy dress.

Marine and Coast Guard Uniforms

The style of the Marine Corps uniforms is generally similar to that of the Army. The winter uniform consists of a forest-green wool coat, or a combat jacket, khaki shirt, and tie. The blue dress uni-

form includes a dark-blue blouse piped in red, with standing collar. Trousers are light blue, with a red stripe for noncommissioned and commissioned officers. A khaki cap is worn with the summer service uniform and a forest-green cap in winter. With the blue uniform a blue cap is worn in winter and a white cap in summer. The Marine Corps emblem, worn by all marines, is a globe resting on an anchor, surmounted by an eagle. Rank and insignia are similar in design to those of the Army.

The Coast Guard wears the same uniforms and insignia of grade as the Navy, with some minor changes. A Coast Guard shield is used on officer and chief petty officer insignia where a Navy star would appear on Navy uniforms. Other variations



Marine officers and enlisted men wear this forest-green service uniform.

are in buttons, some sleeve insignia, cap devices, and shoulder marks.

Service Ornaments

For wounds and overseas service in World War I, members of the Army may wear wound chevrons on the right sleeve and wear service chevrons (one for each six months) on the left sleeve. An overseas service bar of gold lace may be worn horizontally on the right sleeve for each six months of overseas duty with the Army in World War II. The Army also authorized a similar bar for service in the Korean war.

Enlisted men of the Army wear a diagonal service stripe (hash mark) on the lower left sleeve for each three years of service. The Marine Corps and Navy wear a service stripe for each four years of service. (For information on decorations, service medals, and badges, see Decorations.)





SPACE-AGE INSIGNIA OF THE UNITED STATES ARMED FORCES

At left is the Air Force astronaut wings insignia. It is worn on the left breast of the space pilot's uniform. The naval

astronaut wings, right, are worn in a similar position on the uniform by Navy, as well as Marine, astronauts.

TYPICAL UNIFORMS OF THE UNITED STATES ARMED FORCES



Air Force officer mess dress summer uniform (left). In winter a black jacket is worn.



By courtesy of U. S. Navy

WAVE officer (right) in white naval summer dress. Worn for special occasions.

By courtesy of U. S. Army



Army summer duty uniform (left) with garrison cap. For company grade officers.



Coast Guard enlisted SPAR (right) in summer service uniform of gray-blue.

RANK INSIGNIA OF THE

	ENLISTED MEN										
E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-9†	W-1	W-2
AIRMAN	AIRMAN THIRD CLASS	AIRMAN SECOND CLASS	AIRMAN FIRST CLASS	STAFF SERGEANT	TECHNICAL SERGEANT	MASTER SERGEANT	SENIOR MASTER SERGEANT	CHIEF MASTER SERGEANT	CHIEF MASTER SERGEANT OF THE AIR FORCE	SKY BLUE WARRANT OFFICER W-1	CHIEF WARRAN OFFICEF W-2
PRIVATE	PRIVATE	PRIVATE FIRST CLASS	CORPORAL	SERGEANT SPECIALIST	STAFF SERGEANT	SERGEANT FIRST CLASS	FIRST SERGEANT MASTER SERGEANT	SERGEANT MAJOR COMMAND SERGEANT MAJOR	SERGEANT MAJOR OF THE ARMY	GOLD BROWN WARRANT OFFICER W-1	CHIEF WARRAN OFFICEI W-2
PRIVATE	PRIVATE FIRST CLASS	LANCE CORPORAL	CORPORAL	SERGEANT	STAFF SERGEANT	GUNNERY SERGEANT	FIRST SERGEANT MASTER SERGEANT	SERGEANT MAJOR MASTER GUNNERY SERGEANT	SERGEANT MAJOR OF THE MARINE CORPS	GOLD SCARLET WARRANT OFFICER W-1	CHIEF WARRAN OFFICES W-2
SEAMAN RECRUIT	SEAMAN APPRENTICE	SEAMAN	PETTY OFFICER THIRD CLASS	PETTY OFFICER SECOND CLASS	PETTY OFFICER FIRST CLASS	CHIEF PETTY OFFICER	SENIOR CHIEF PETTY OFFICER	MASTER CHIEF PETTY OFFICER	MASTER CHIEF PETTY OF THE NAVY	GOLD BLUE WARRANT OFFICER W-1	GOLD BL. CHIEF WARRAN OFFICE

^{*} Rank marks of Coast Guard officers bear a shield in place of the Navy star.

[†] Only one person in each branch of the service holds this rank

U.S. ARMED FORCES

OFFIC	ERS		COMMISSIONED OFFICERS									
W-3	W-4	0-1	0-2	0-3	0-4	0-5	0-6	0-7	0-7 0-8	0-9	0-10	SPECIAL
SILVER SKY BLUE	SILVER SKY BLUE	GOLD	SILVER	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
								*	**	***	***	**
CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL	GENERAL OF THE AIR FORCE
SILVER BROWN	SILVER	GOLD :	SILVER	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
							Y	*	**	***	****	禁
CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL	GENERAL OF THE ARMY
SILVER SCARLET	SILVER	GOLD	SILVER	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	
					*	*	Y	*	**	***	***	
CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL	
SILVER BLUE	SILVER BLUE	GOLD	SILVER	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
					*	*		*	**	***	***	***
		Î						\$	〇 公 令			
<u> </u>	8	*	*	*	*	*	*	*	*	*	*	¥
CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-4	ENSIGN	LIEUTENANT JUNIOR GRADE	LIEUTENANT	LIEUTENANT COM- MANDER	COM- MANDER	CAPTAIN	COMMO- DORE	REAR ADMIRAL	VICE ADMIRAL	ADMIRAL	FLEET ADMIRAL

INSIGNIA OF BRANCH OR SPECIALTY-U. S. ARMED FORCES



Army insignia of branch are worn on the lapels. Air Force badges are worn on the breast (see also picture of astronaut

wings, page 328). Navy officer and warrant officer insignia shown on this page are worn on the collars or caps.