



Photographic color print by pagano—WILBAR, N. Y.

Britannica Junior

**A NEW ENCYCLOPAEDIA WRITTEN FOR CHILDREN
FROM PRE-SCHOOL AGE THROUGH JUNIOR HIGH**

Parents...



Happiness? Achievement? Good health? Strength of character? Self esteem? The esteem of their fellows? Education? Inspiration? Good citizenship? Good behavior? Success in their chosen field? A good foundation for later development? The ability to adjust themselves to the world in which they live? Advantages which you yourself were perhaps denied in youth?

Britannica Junior provides these advantages....

- 1** Britannica Junior is the new encyclopaedia for children that will best help them realize your hopes and their own goals in life.
- 2** It is in no sense an abridgement of the Encyclopaedia Britannica. It is a modern encyclopaedia planned and written exclusively for children from pre-school age through Junior High School by eminent specialists in child education. (See pages 20 and 21.)
- 3** It does not pretend to be an encyclopaedia for grown-ups except that its Study Guide volume is an enormous help to parents and teachers entrusted with the education of children. (See pages 22, 23, and 24.)
- 4** Volume I—The Ready Reference—gives quick essential facts identifying 50,000 references and points the way to further information in the encyclopaedia proper. (See page 23.)
- 5** Although it is more easily understood by young children than any other children's encyclopaedia, it is not written down to them. It is presented in narrative form, by people who have an affection for children and know how to win their interest by playing with them.
- 6** It contains more and better color pictures than any other similar type of children's books. (See pages 12 and 13.)
- 7** It offers a children's club service which brings them a wealth of constructive things to do every month in the year. (See page 19.)
- 8** It is the most modern, the most fascinating, and the most useful encyclopaedia for children ever published.

Britannica Junior

**gives children what they really want in
entertainment, pictures, information, and suggestions
for things to make and do**



happiness

MANY radiant hours of happiness are assured your children when they become absorbed in these gloriously real pictures and fascinatingly true stories about the things, people, places, and events that interest them most, for Britannica Junior is written by men and women who know how to make children happy.



good health

THE fundamentals of sensible physical living—the structure and care of the body—building and maintaining good health . . . subjects such as these are so absorbingly presented that children read them as they would stories, and delight in living systematically and joyously by the rules.

good citizenship

BRITANNICA JUNIOR is so thoroughly steeped in the highest ideals of American life today that it is invaluable not only in acquainting the child with the facts and functions of his government, impartially and accurately presented, but in training him for the responsibilities of citizenship ahead of him.



achievement

THINK of how much more can be achieved in life by the child with the head start that Britannica Junior gives him! He will develop self reliance and a greater interest in things worth while. He will feel, and rightly, that he knows his way about—a priceless advantage on which to build achievement in later life.

inspiration

FROM stories of the lives of great men and women as told in these pages, boys and girls derive the kind of inspiration which makes them determined to do great things themselves. Britannica Junior is a character builder, an inspiration that not only encourages the good life but gives the child the actual patterns of greatness to go by.

adaptability

ADAPTING themselves to the life about them is one of the most difficult of problems for children. Britannica Junior is alive, modern, aware of what is best in life—and it teaches children to be so too. The foundation of knowledge, idealism, and practical ability which this fine work provides is an enviable foundation for the successful development of every boy and girl.



IN THESE PAGES WE'RE TALKING TO

(Parents and Teachers will find matters of more

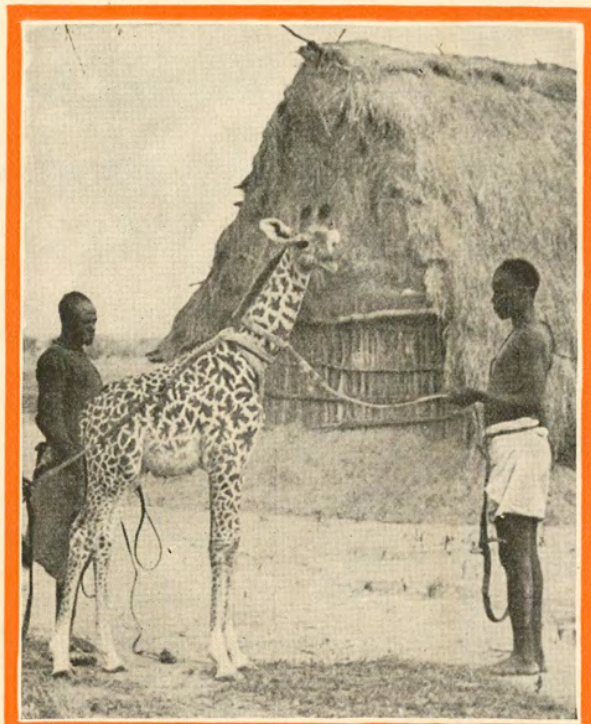
wild animals

and how they live

You know—don't you?—about the small boy who, when he first saw a picture of a giraffe, exclaimed "There ain't no such animal!"

Yet there are thousands of animals just as strange as the giraffe, very much wilder and more savage, some so dangerous that men have always feared and fought them, some so friendly and protective and intelligent that the ancients worshiped them.

In Britannica Junior you will learn their ways of life, their uses to man, their dangers, their habits, their scientific names, and ever so many other fascinating things about animals, some so small that no one has ever seen them except through a microscope—animals that live to be over a hundred years old—animals so big that it takes an army of men to catch them—animals that do the most amazing things—things that man himself has never been able to learn or to master!



Herbert Photos

dogs, cats, and other pets

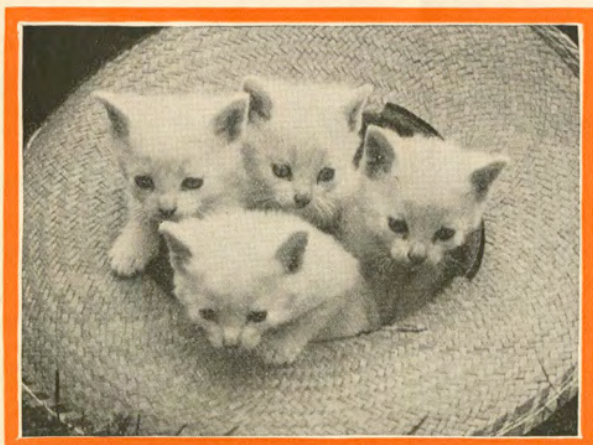
Do you know that in olden times horses were used almost entirely for warfare and never for such nice friendly purposes as drawing milk-wagons or pulling plows? That cats are so useful in killing rats that even today, in England, about 2000 cats are on the government payroll? Do you know how to treat cats during bird nesting season?

How many of the 200 different breeds of dogs can

you name? Do you know which dogs never bark? That some dogs are so intelligent that they can guide blind people through life? Do you know what to feed your dog or your cat, and how to keep them clean and healthy and happy?

Do you know how to enter your pet in a dog show or a cat show? Do you know how to take care of turtles, lizards, frogs, goldfish, canaries, parrots, rabbits, guinea pigs, chickens, ducks, and other pets? Would you know what to do if your pet became sick or "mad"?

These are only a few of the many useful and instructive things you will learn in Britannica Junior about how to treat and take care of your pets.

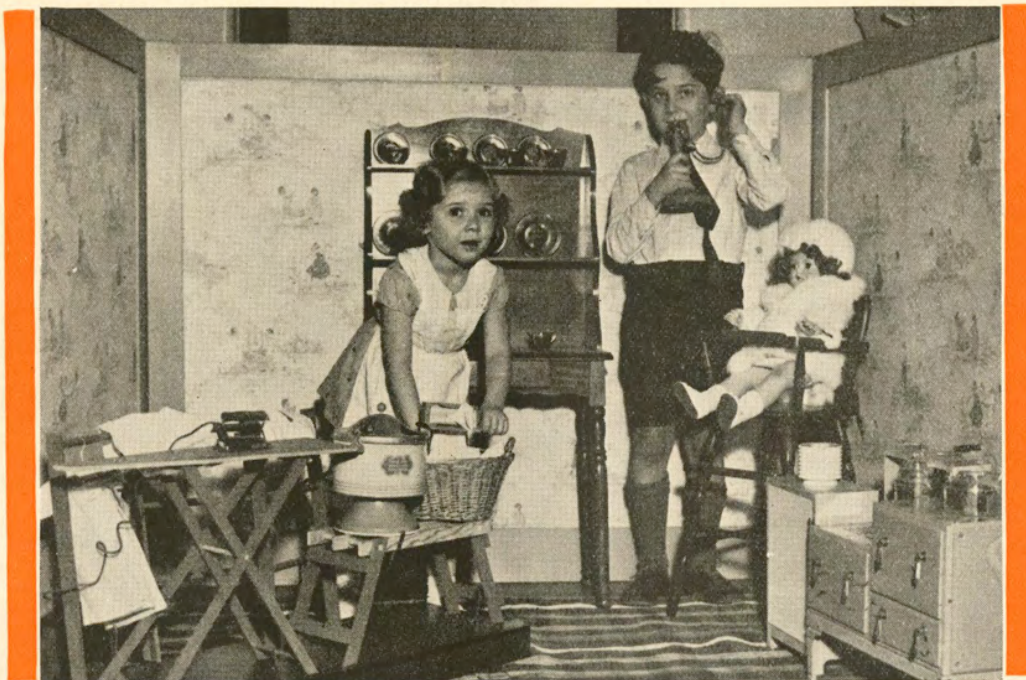


Ewing Galloway



THE BOYS AND GIRLS THEMSELVES

importance to them on pages 20, 21, 22, 23 and 24)



Keystone View

. . learning to be a good housekeeper and big sister

LITTLE girls who like to play house can have the best time imaginable learning how to do it "for real" from the helpful articles on home-making in Britannica Junior.

Do you like to make candy or cookies or biscuits? Wouldn't it be nice to surprise mother some time by getting the whole dinner yourself?

Are you interested in clothes? Do you know the history of costumes and the fascinating stories about

how they are made and the materials they are made of? Can you make dolls' clothes? Can you sew and embroider really well? Do you

know how to use a sewing machine? Can you keep your own clothes neat and in repair?

Wouldn't you like to learn to make pottery vases and other decorative objects? How to weave baskets, hook rugs, and decorate your own room?

Do you know how to take care of babies? How to keep healthy? How to make a garden? How to hang pictures, place furniture artistically—in short, how to be a really good home-maker? Let Britan-

nica Junior show you how to do these and hundreds of other things which are so very important for girls growing into their 'teens.

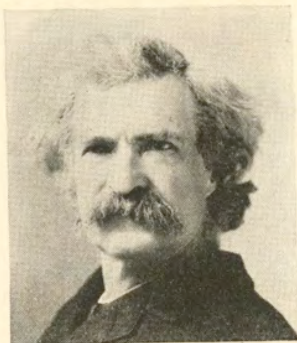


H. Armstrong Roberts



H. Armstrong Roberts

famous books and their authors



Broien Bros.

Mark Twain

Beginning with the very sources of words themselves, it leads you to the various forms of writing—plays, poems, allegories, biographies, essays, fables, stories and novels.

And then it opens the door to the wonderful world of books themselves! It shows you “the glory that was Greece and the grandeur that was Rome,” Biblical literature and ancient mythology, the romances and sagas of medieval times, the great works of the golden age in all the countries of

It seems almost impossible to tell you, in this short page, what a wealth of reading—thrilling, adventurous, romantic, poetic—*Britannica Junior* will guide you to!

Europe, the beginnings of the novel and its flowering in the twentieth century, modern literature right up to today, with especially selected reading lists of books that children love—and the life stories of their authors.

great events of history

HISTORY—when you think of it not in terms of dates and battles but as the lives of real men and women and “the course of human events”—is probably the most absorbing study there is.

Britannica Junior not only outlines history for you so that you can identify all the important names, places, and events at a glance, but it tells you about them, from the very earliest known times right through European and American history, the World War, and events of the present decade, so thrillingly that you’ll find it hard to forget them.



*The Spanish Conquerors
marching through
South American Jungles*

birds, flowers, and butterflies

do you know how to make friends of the birds?

Do you know how to get acquainted with the birds, how to recognize them by their songs, their colors, their eggs, their nests? Can you tell their habits by their feet? Do you realize how they use their bills as

implements and as weapons for their needs? Can you make bird houses with lodging, board and bath?

Do you know why some birds are brilliantly colored and some dull and hard to see?



Ewing Galloway

how many flowers can you recognize?

Do you know that the dogwood "blossom," the scarlet poinsettia, and the calla lily are not really flowers? What are they? Do you know how flowers are constructed, how they live and breathe and grow and eat and drink and defend themselves and multiply?

What is the story of the forget-me-not? The legend of the poppy? What causes leaves to change color? How did the hyacinth get its name?

Do you know how to grow flowers, how to keep them fresh after they have been cut? How they yield honey, perfumes, and certain drugs?

do you collect butterflies and moths?

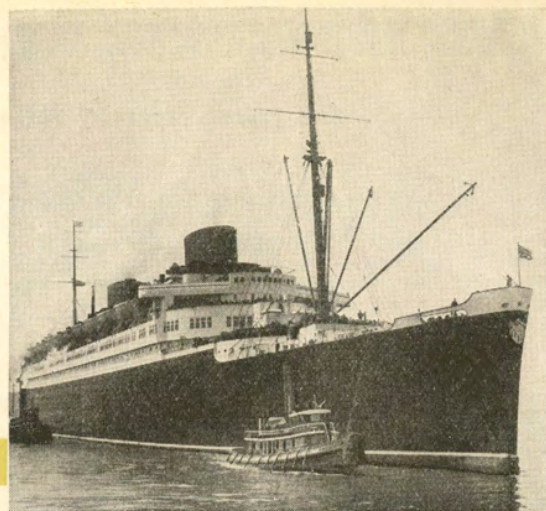
"FLYING FLOWERS" and "living jewels" are the names poets have given these shimmering creatures that come from eggs as caterpillars and go through a fascinating transformation into butterflies and moths.

There are nearly 50,000 species of them in the world. Do you know the difference between a butterfly and a moth? In how many ways are moths the enemies of man? Can you collect, preserve, and classify butterflies?

These are only a few of the hundreds of fascinating nature facts you can find out in the lavishly illustrated pages of Britannica Junior.

SHIPS..

from hand-hewn sailboats to giant liners

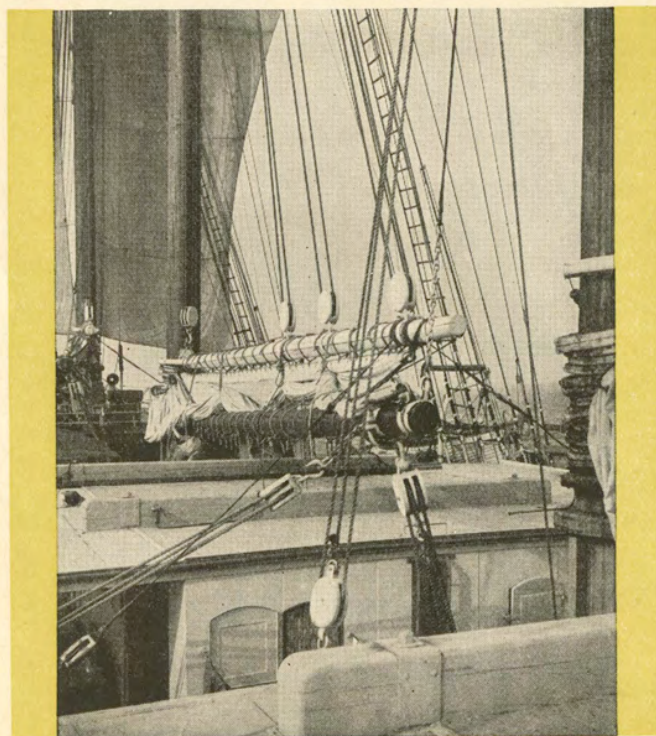
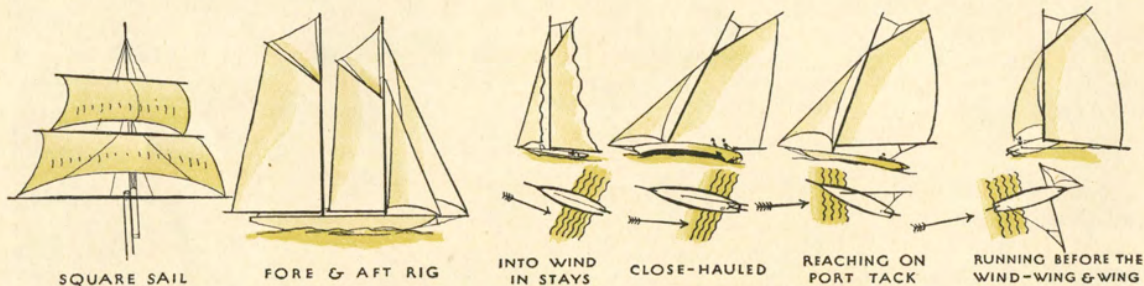


Ewing Galloway

SHIPS fascinate everybody. The story of sailing vessels alone makes a thrilling chapter in maritime history—from the stately galleons of Spain to the

American schooners, frigates, barks, clippers, sloops and yawls.

Do you know some of the wonders that modern



Publisher's Photo Service

ice breakers accomplish? How are ships judged as to size? Who built the first ship to sail the Great Lakes? What instruments and signals are necessary to every modern mariner?

How do sailors determine latitude and longitude? Why is teak the most valuable wood used in ship building?

To an old sailor a modern ocean-going luxury liner would be a strange sight. He would see with wonder the gyroscope compass automatically steering the ship, the directional wireless set, the radio, the land-to-sea and ship-to-ship telephone, the swimming pools, elevators, concert halls, and other conveniences that the big passenger steamers provide. You can find out more about ships from Britannica Junior than the most seasoned sea captains of the last century ever knew or dreamed possible!

horizon instrument is a small device in front of the pilot, and shows the relationship of the airplane in flight to the earth's horizon, the essential help being toward maintenance of level flight. The directional gyro supplements the compass, being set in the air according to the compass course and studied to show errors in the navigation of this course. Electrically heated instruments have been developed as safeguards against bad weather, especially sleet and freezing fogs. An ice-warning indicator has been invented to tell a flier when his wings are becoming coated with freezing moisture which would weigh them down, reduce their lifting power and endanger the outside parts of the steering equipment. When a pilot meets such freezing conditions, he descends to a lower altitude where the ice may melt off, for the temperature rises about one degree for every 300 feet a plane descends.

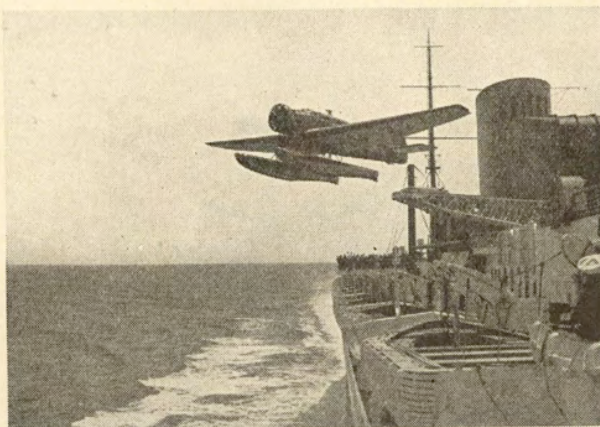
Persons once talked about "bumps," and "air pockets"; now, when a plane suddenly drops a short distance, the pilot knows that it has struck a descending current of air. In meeting a rising or descending current, airplanes usually rise or drop only a few feet, but they are known to have lost more than 1000 feet when they suddenly came into the grip of a violent, descending air current.

Aviation has been aided greatly by more reliable engines. The first Wright engine of twelve horsepower weighed 170 pounds — 14 pounds per horsepower. Modern engines weigh less than 2 pounds per horsepower. Before

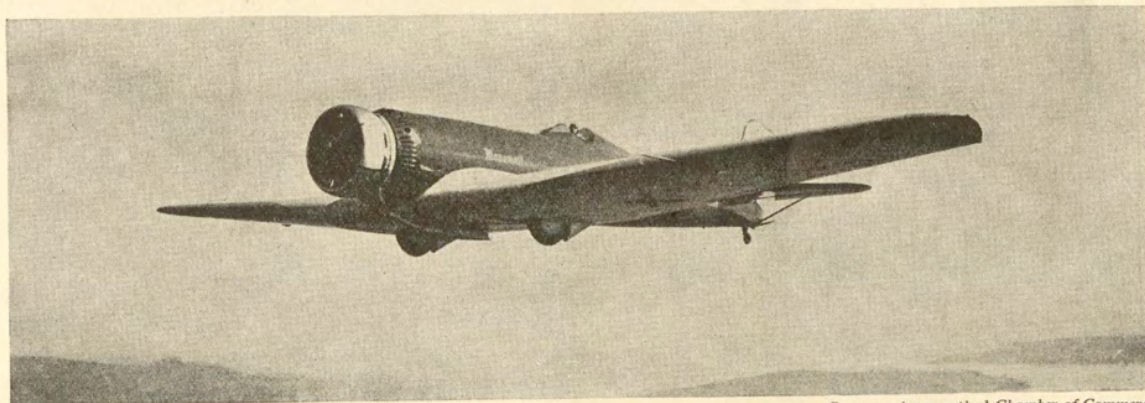
the World War, the curious French Gnome motor, an air-cooled engine that spun around with the propeller, held most of the records. At that time the most famous American engine was the water-cooled Curtiss. The aircraft engine now most widely used is the air-cooled radial motor having stationary cylinders arranged in a circle around the crank case. This type was popularized by Lindbergh, Hawks, Post, Doolittle, Turner, Wedell and other noted record holders. A Diesel aircraft engine that burns cheap and safe fuel oil instead of high-test gasoline has been in successful experimental use.

Supplementary to engine development, the variable pitch propeller works to great advantage. By use of a mere plunger or lever in the cockpit, a pilot is permitted to change the pitch or angle of the blade, thus obtaining at altitude the equivalent of great horsepower on the ground, the variable blade creating for itself more resistance in the thin air of high altitudes, as well as more pull when a plane is on the ground for a take-off with an unusually heavy load.

When Glenn H. Curtiss made his flight from Albany, New York, to New York City, in May, 1910, he waited days at Albany for a calm day. Now airplanes fly through severe storms and withstand high winds so successfully that airmen now anticipate almost complete victory over the elements. We can only speculate on what the airplane of tomorrow will be since at present no limit has been reached in the speed, size, power or, in fact, any quality of the airplane.



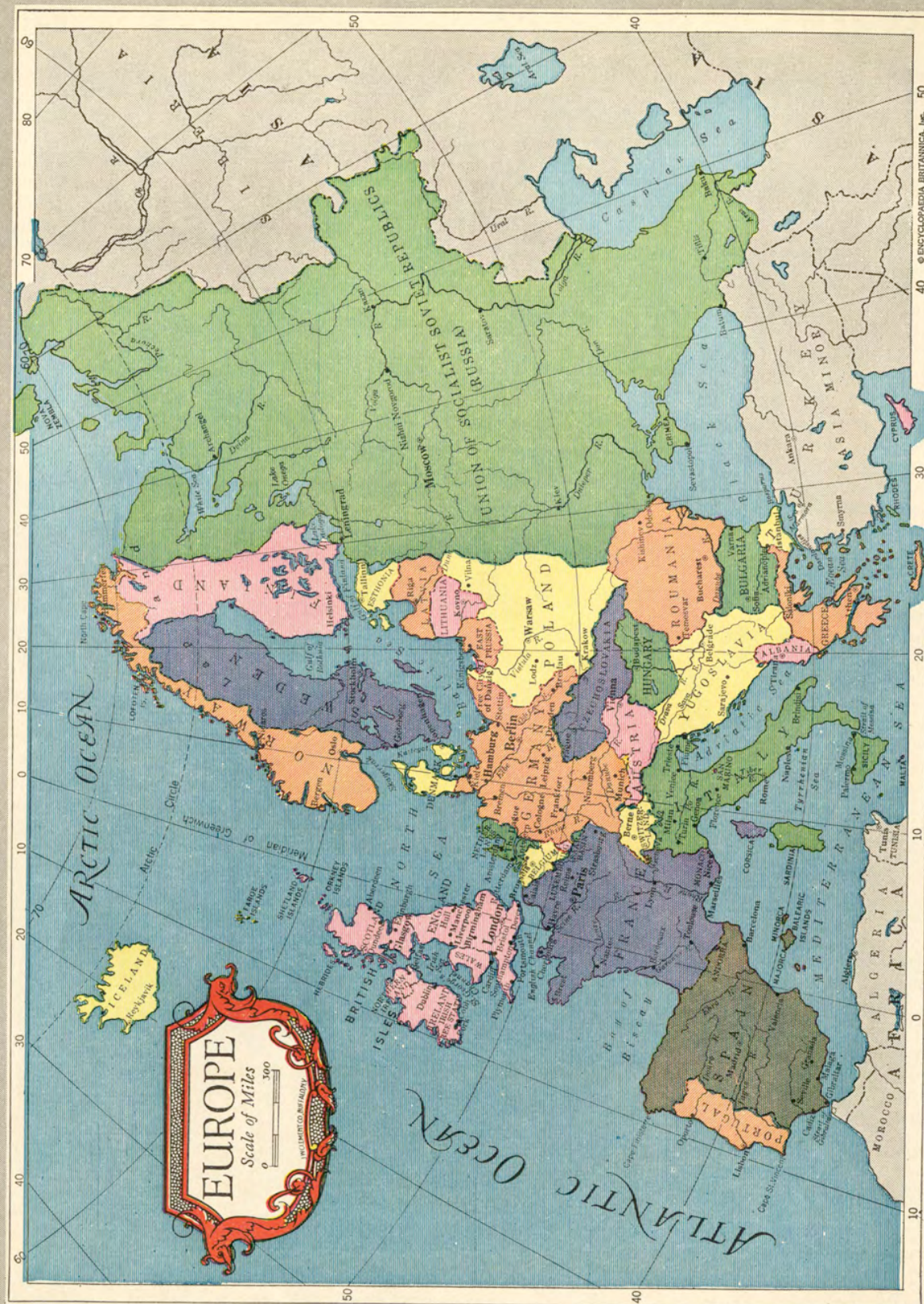
Courtesy North German Lloyd
Speed is the key-note of today! The mail is hurried ashore by a plane catapulted from the deck of the S. S. Bremen.



Courtesy Aeronautical Chamber of Commerce

AN AIRPLANE WHICH SWALLOWS ITS OWN LANDING GEAR

Looking like a huge vacuum bottle with wings, the Boeing monomail is a fascinating example of airplane construction. When the plane is in flight, the landing gear can be drawn in to the position shown, to lessen the friction of the air. This is accomplished by turning a handwheel at the right of the pilot's cockpit.

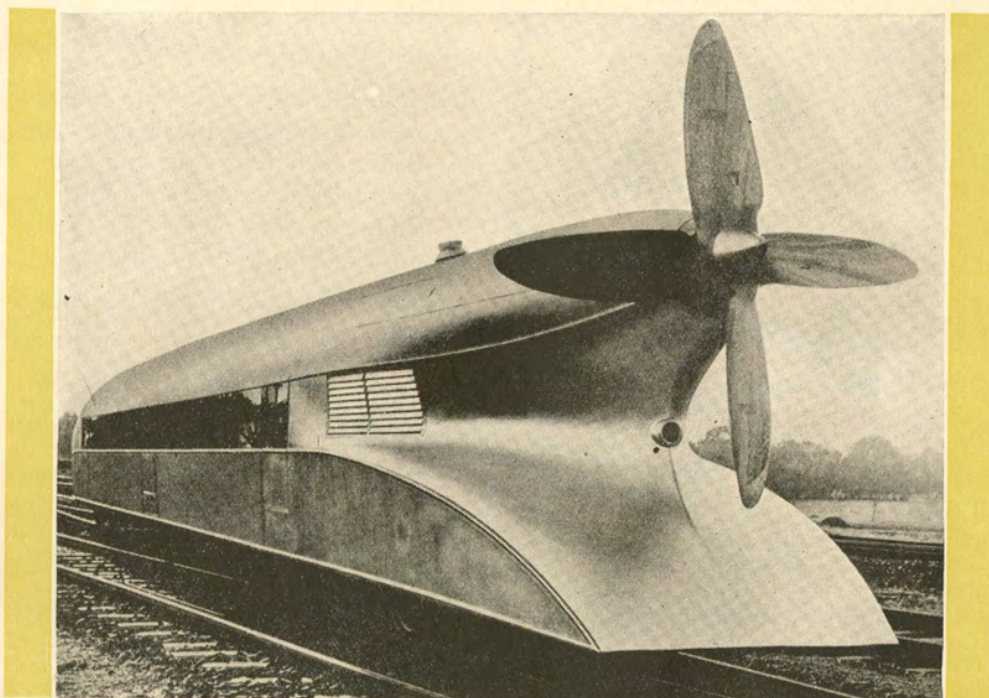


Specimen Map from BRITANNICA JUNIOR

Automobiles, Airplanes, Railroads Radio . . .

and other modern inventions

Can you install a radio? Can you use a barometer? A compass? A speedometer? Do you know all about airships, airplanes, seaplanes, helicopters and autogiros? What do you know of the streamline propeller driven car—the fastest thing on rails?



Keystone View

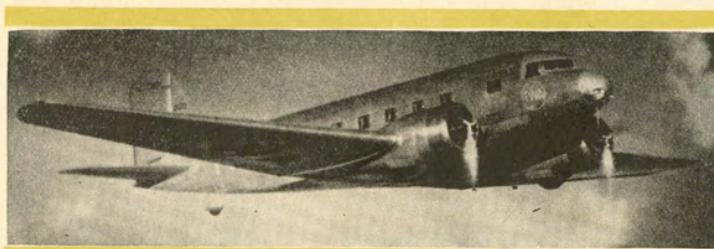
ADVENTURE, speed, travel, what makes things go, how things work—these are fascinating subjects, especially to a boy. And what a wealth of information *Britannica Junior* gives you about all sorts of mechanical things!

Have you seen the new passenger plane that flies daily between New York and Chicago at 200 miles an hour? Do you know all the parts of a locomotive? An automobile?

Do you understand the secrets of cable, telegraph, telephone and radio?

Is there anything you want to know about the workings of engines or other mechanical

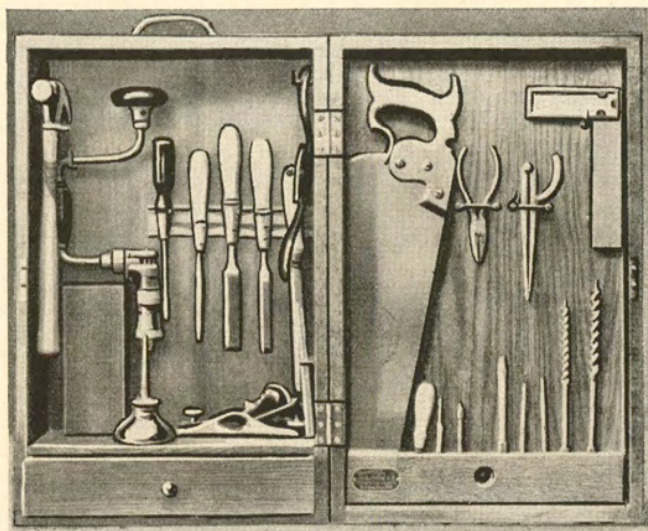
inventions? Can you invent things yourself? Look up your subject in *Britannica Junior*. You'll find explanations, instruc-



Transcontinental & Western Air, Inc.

tions, and diagrams that will tell you what you want to know—simply, completely, and accurately.

INDOOR SPORTS FOR



Courtesy Hammacher Schlemmer & Co.

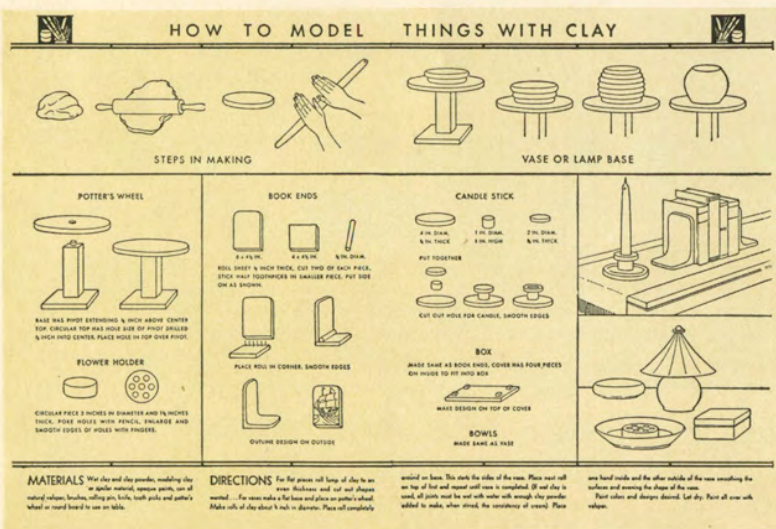
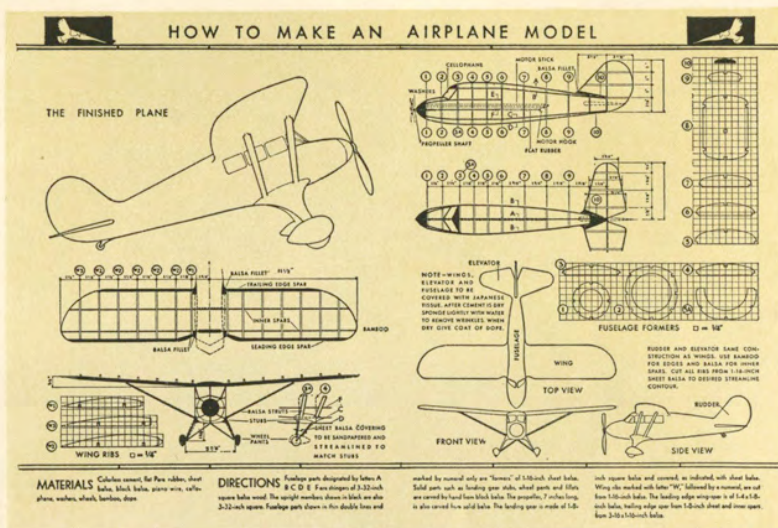
tools and how to use them

BRITANNICA JUNIOR gives you practical help with carpentry, shows you diagrams of such tools as the Chisel, Nail, Hammer, Bit Brace, Screw Driver, Marking Gauge, Try Square, and Block Plane, and tells you how you can make Bookcases, Shelves, Toys, Frames, Tables, Benches, Chairs, Boxes, Partitions, Stands and Pedestals, Brackets, Chests, Desks, Ladders, Kites, Dog Houses and even Log Cabins!

stamp collecting

PROBABLY all boys and most girls collect stamps. But it's ever so much more fun if you do it scientifically. Britannica Junior tells you not only all about stamp collecting but how to measure and mount stamps, how to soak them from an envelope, how to fasten them to a page, where to get rare stamps, how to judge their values, and many other helpful and important points.

Incidentally, collecting stamps is one of the most fascinating ways of learning geography. Before you realize it, you know all about the world and its ways. Let Britannica Junior show you how.



games children love to play

NOTHING is more fun than a good game with everybody knowing how.

Britannica Junior tells you the rules—*exactly*—for these and other games: Wind and Flowers, Bean-bag Statue, Handkerchief Snatch, Mysterious Tag, Tag Games, Hide and Go Seek Guess, Hide with Me, Animal Bean Bag, Sitting Down Jerusalem, Elephants Fly, The Wreck, The Menagerie, Dodge Ball, Circle Tag, Prisoners' Base, Hide and Run, Tail Tag, Tug of War, Relay Races, Blind Man, Exchange, Danger.

BOYS AND GIRLS...

fascinating end-papers at front and back of each volume

All the end-papers were created by the eminent artists,
Rudolph Ruzicka and Sydney Bagshaw

the modern maps

THE end-papers at the front of each volume consist of twelve beautiful and instructive maps showing:—

THE UNITED STATES

State capitals, principal cities and populations
Agricultural and industrial products; natural resources

Flowers and nicknames of the states

American explorations and settlements—1513–1776

Westward development, frontier lines, trails, forts, centers of population

Indians at the time of their chief historical importance and

Indian reservations at present

THE WORLD

Capitals and principal cities

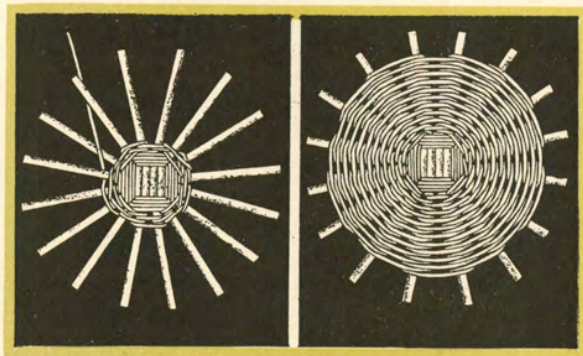
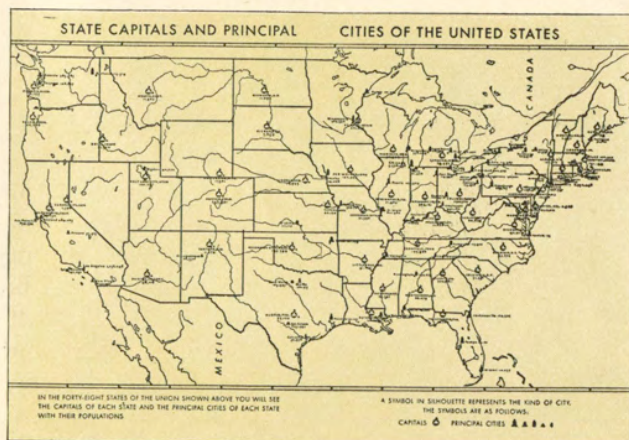
Agricultural products

Natural resources

Animal and bird life, physical features

Great voyages, 'round-the-world flights, Arctic and Antarctic regions, and European expansion

The Actual Size of these End-papers is
15x10 inches; Printed in 3 Colors



Basket Weaving

beautiful and useful things the end-papers show you exactly how to make

How to Make and Fly Kites—8 Different Kinds

How to Make and Decorate Tents Like the Indian Tepees

How to Make and Embroider a Fringed Luncheon Set

How to Model Pottery Vases, Lamps, Book-Ends, Candlesticks, Flower Holders

How to Construct a Ship Model

How to Make a Model Airplane

How to Make Costumes for Parties

How to Construct Bird Houses

How to Weave Baskets and Hook Rugs

How to Stencil Designs for Decoration

How to Make Linoleum Prints

How to Make Amusing Creatures with Nature's Materials

Besides these, you can learn a great deal, in the pages of the encyclopaedia proper, about how to play games, make and dress dolls and marionettes, how to dance, cook, sew, embroider, weave, draw, paint, print, design, build, write, and make and play musical instruments.

OUTDOOR SPORTS FOR

c a m p i n g . . . other outdoor activities

Boy Scouts of America



CAMPING out is wonderful fun, but it can be pretty inconvenient if you don't know how. Have you found that out?

Britannica Junior tells you the most useful things about camping:—what to wear and what not to wear on camping trips, what to do for light, how to pitch tents, how to make a camp cooking fire, how to carry hike packs, how to join logs, what to do about sleeping out, what to take along to eat and how to cook it, how to choose a camp site, how to study the weather, what to do when lost in the woods, how to administer first aid, and, above all, how to get the most possible fun out of your trip whether you're going for a day, a week, or an entire summer's vacation.

SWIMMING, Skating, Skiing, Boating, Fishing, Hunting, Trapping, Racing, Motoring, Flying, Aquaplaning, Horseback Riding, Hiking, Gardening, Farming, Insect and Mineral Collecting, and Exploring are a few of the many stimulating outdoor activities you will enjoy ever so much more after reading about them in *Britannica Junior*.

stars and planets

CAMPING out under the stars becomes a truly thrilling adventure if you can call at least some of the billions of them by name. *Britannica Junior* tells you just what you want to know about the heavenly bodies, their relation to each other, their effect on the earth, and our relation to them—and how fascinating it is!



Camp Fire Grls, Inc.

BOYS AND GIRLS . . .

. . . baseball

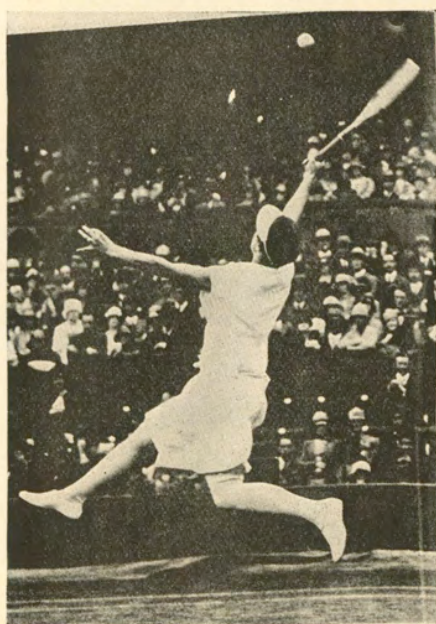
"AMERICA'S National Game and How to Play It" is the heading for the article on Baseball. Would you like to know the official dimensions of a correctly laid out baseball field? Would some "pointers" from big-league coaches and players improve your game?

Britannica Junior gives you many such "pointers" as well as very practical suggestions on pitching, catching, batting, gripping the ball, keeping from getting "rattled" by errors, and training by the "draft system" to be a big-league player.

There are stories about professional ball players and famous games, and lots more of interest to every boy and many girls.

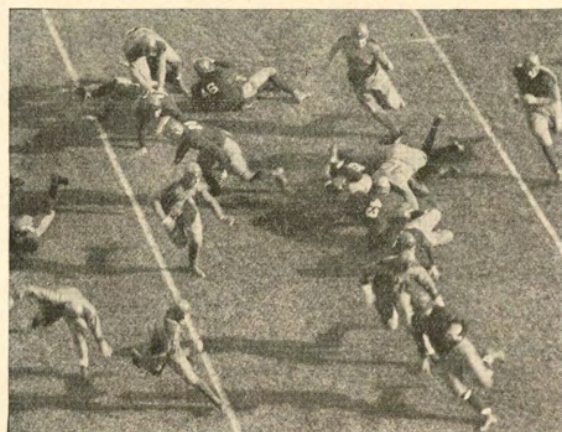
football

JUDGING by the thousands of Americans who turn out



London News

to watch the great football games every fall, practically everybody finds it a thrilling sport. Britannica Junior tells you all about the game—not just the rules but the



Acme



Underwood & Underwood

practical things you want to know to improve your own game. You'll find reading about them and studying the pictures almost as much fun as watching an actual game!

tennis

Unless you are a professional tennis player, Britannica Junior can give you many practical hints for improving your game.

Olympic Games, Badminton, Basketball, Cricket, Croquet, Golf, Handball, Hockey, Jai Alai, and Wrestling Matches are some of the other sports Britannica Junior tells you about in the easy words you use yourself.

You can house your set of Britannica Junior in this handsome bookcase with a world globe on top...

A Complete Britannica Junior Unit--

IF you want to house your set of Britannica Junior in a bookcase which, as an object of beauty, would grace any home—consider the one pictured on this page.

The bookcase itself is of black bakelite inlaid with modernistic chromium bands. It has been especially molded to fit the twelve volumes of Britannica Junior and artistically designed to harmonize with the furnishings of any home. The book-ends are of heavy metal with ebony finish and chromium inlay—very handsome indeed with their special Britannica Junior ship design.

The case is topped by a new 9-inch World Globe, absolutely authentic, as Britannica's reputation for accuracy guarantees. It is so up to date that it even includes Admiral Byrd's findings in the Antarctic regions. Mounted on a specially constructed pedestal, the globe is ornamental as well as of constant usefulness to the adults of the family as well as the children. It is detachable, and when taken down, a small chromium star-headed bolt fits into its place, thus making the bookcase a decorative unit in itself.

Either the bookcase or the globe may be had separately, at a nominal charge, or you may have both at a very low combination price.

The twelve volumes of Britannica Junior contain:—

Over 4,000 pages of fascinating, informative reading matter especially written for children.

An index to 50,000 different subjects discussed in the volumes.

Concise, essential facts identifying 50,000 references, with references to where, in the volumes, further information is to be found.

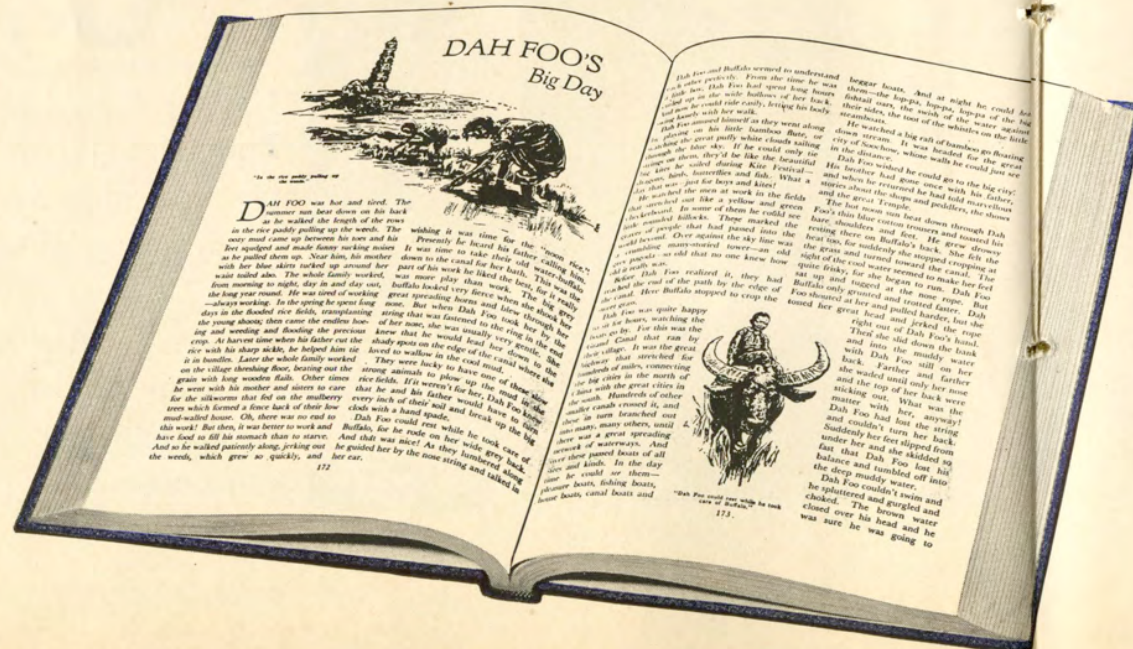
A unique Study Guide, offering a planned, systematic course of reading on thousands of subjects for children up to high school age.

Numerous original "story book" stories, especially written to be read aloud to pre-school children.

Over 140 modern maps, many in full-page color.

Over 3,000 beautiful and really helpful half-tone illustrations, many of them in rich color.

Choice of two beautiful bindings—
Blue and Silver
Red and Gold
Size of volumes
10 1/4 x 8 inches



This new hand-mounted Standard 9" World Globe is amazingly detailed, accurate and up-to-the-minute. It shows all latest political boundaries, steamship, railroad, and caravan routes, ocean currents, and 4,000 place names.



The Complete Set Includes:
Bakelite Inlaid Bookcase
Hand-Mounted
World Globe—9"
Metal Book Ends

photography — the practical sciences

how to take pictures

WHAT happens when you take a photograph with a modern camera? How can you take good pictures indoors? How do plate cameras work? What is photo-engraving? Color photography? How are photographs enlarged? What kind of cameras are used for giant aerial views? For surveying? For motion pictures? For photographing the stars? For police records?

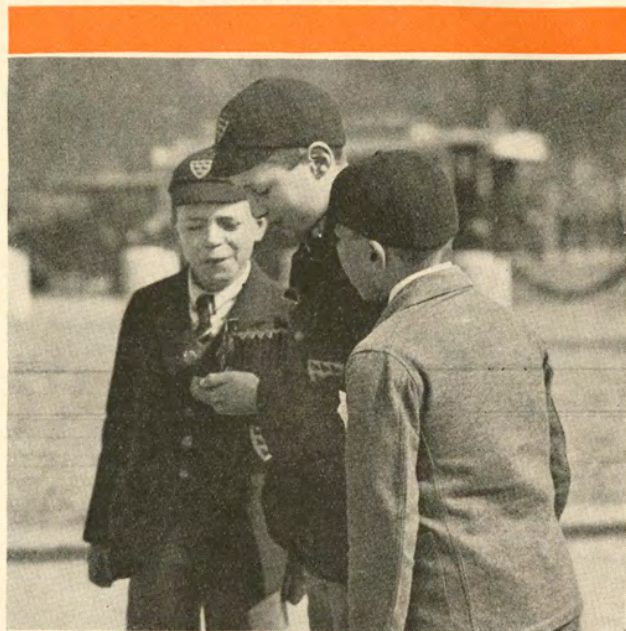
what the microscope reveals!

HAVE you ever tried looking through a microscope at tiny, almost invisible insects, leaves, wings, hairs, skin, blood stains? Let Britannica Junior show you how. Learn how the



Carolyn Mfg. Co. "Microset"

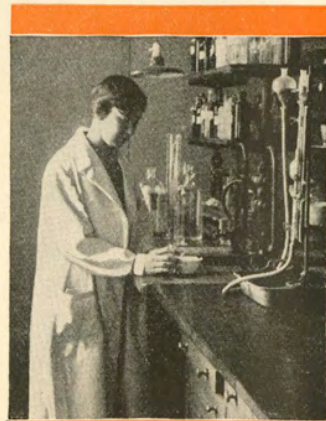
bark of a tree really looks, see the hundreds of minute forms of plant and animal life a bit of earth harbors, find out how a fly can walk upside down, what beautiful forms of life live in stagnant waters, what pollen and seeds really look like, how many exquisite kinds of crystals there are, and dozens of other microscopic "finds" equally fascinating.



making chemical experiments

CHEMISTRY teaches us how to make paper and ink, fountain pens, rayon, poisons for insects, paints, preservatives for food, and even food itself.

Britannica Junior gives you not only the essential facts about chemistry and a table of the mysteriously related chemical elements, but it shows you the secrets of chemical experiments, how to form rock candy crystals, how to bleach flowers, how to remove oxygen from air, how to make ink colorless, how to make water from fire, how to make a fire red, yellow or green, how to make an acid, and ever so many other thrilling transformations.



Ewing Galloway

INSPIRATION of great men



OROC

FROM THE LIVES and women

PROBABLY every child wants to do great and good deeds in life, and some actually do. Perhaps the reason that so many grown-ups (who, after all, were once ambitious children themselves) seem to have accomplished so little is that they lacked both the opportunity and the inspiration on their way through life.

Britannica Junior provides both—which is one reason why you are so much luckier than your parents. From these live, rich, colorful, instructive pages, ideas for great

deeds will come flying into your mind by the dozen. What's more, you'll learn so much about the ways and means of doing them that hundreds of doors of opportunity will be open to you. Best of all, you'll have constantly before you the inspiration of great minds and lofty souls—men and women who, through perseverance, industry, courage, self-sacrifice, genius, or pure nobility of spirit, achieved, invented, discovered, or created great things. Tales from the lives of the Great are fascinating!



*"Lives of great men
all remind us
We can make our
lives sublime,
And, departing,
leave behind us
Footprints on the
sands of time."*

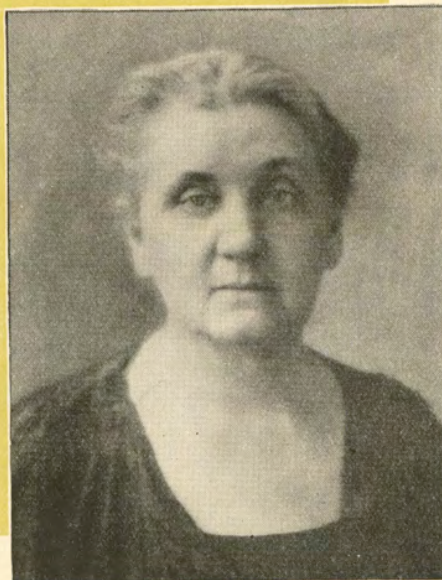


Jane Addams
Admiral R. E. Byrd

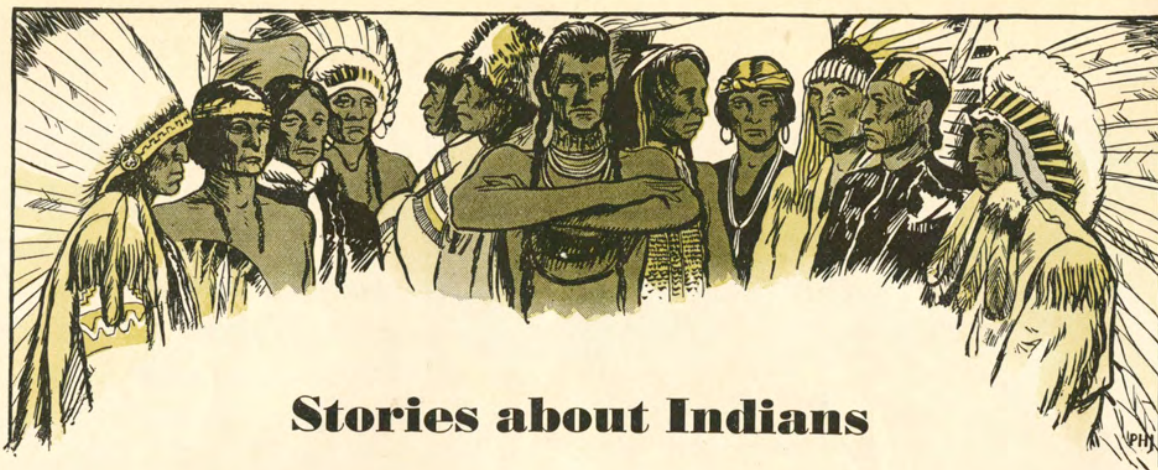


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Paramount Puoltz Photo



Courtesy of Hull House



Stories about Indians

THE American Indian is one of the great enigmas of history. Where he came from and how long he had been in America before the white man came may never be answered—although we have many thrilling clues.

What we *do* know about him is of enormous interest, both for its own sake, as the romance and tragedy of the only true American people, and for its effect on American history.

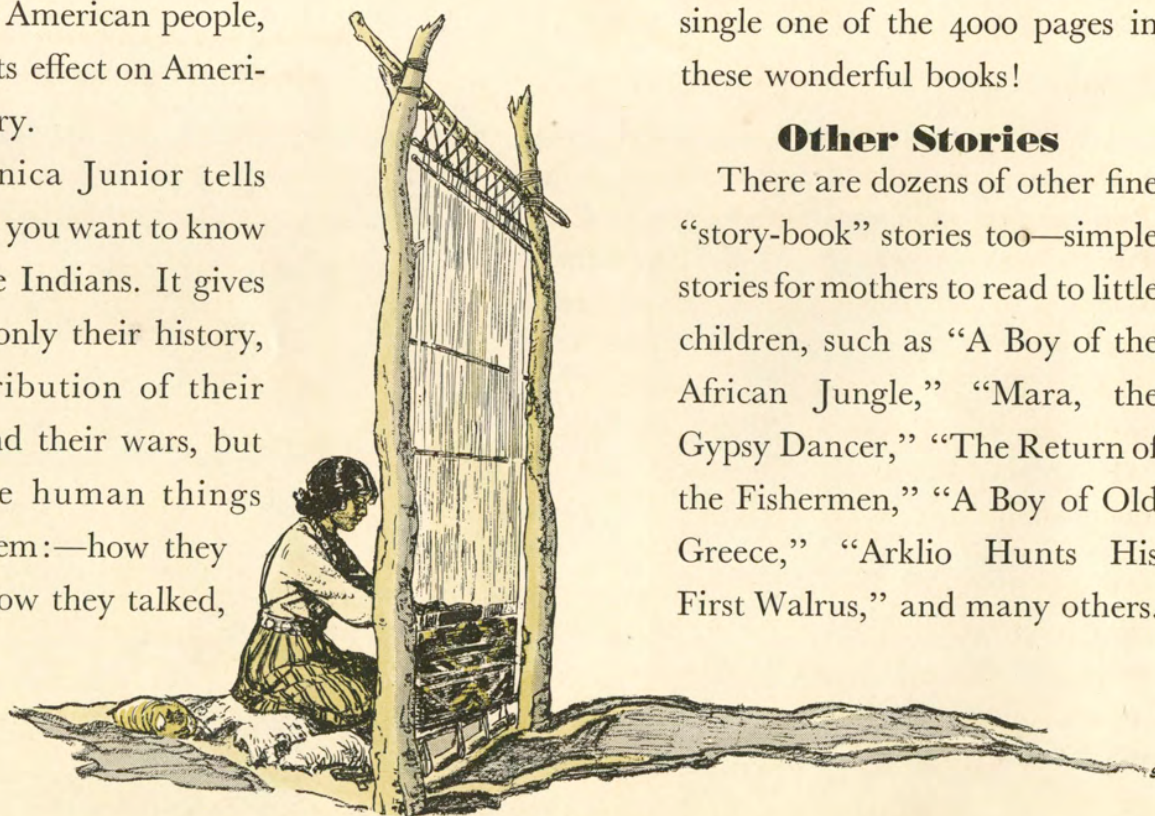
Britannica Junior tells you what you want to know about the Indians. It gives you not only their history, the distribution of their tribes, and their wars, but the more human things about them:—how they looked, how they talked,

how they lived, what they did, what they believed, what we owe to them, and what they are doing today. It even tells you how to build a tepee in your own backyard.

Besides, there is a wonderful “story-book” story about Indians in Britannica Junior, the tale called “Star Flower Earns Her Name.” And fascinating pictures, of course, as there are on almost every single one of the 4000 pages in these wonderful books!

Other Stories

There are dozens of other fine “story-book” stories too—simple stories for mothers to read to little children, such as “A Boy of the African Jungle,” “Mara, the Gypsy Dancer,” “The Return of the Fishermen,” “A Boy of Old Greece,” “Arklio Hunts His First Walrus,” and many others.



strange people in strange lands

THE very names of many foreign places are music to the adventurous imagination:—Tasmania, Polynesia, Borneo, Sumatra, Ha-

waii, Samoa, Turkestan, Hongkong, Persia, Iraq, Arabia, Palestine, Syria, Zanzibar, Somaliland, Morocco, Esthonia!



Native Hungarian gypsy dance

Among the many stories about foreign lands:

Do you know what island is known as the Pearl of the Antilles? Where is the Khyber Pass? Where is the "roof of the world"? Where is the coldest spot on earth? The hottest? What is the Mer de Glace? The Irrawaddy? The Straits Settlement? Where in the world are earthquakes most likely to occur? Who are the Hottentots? The Mayas? Where does cannibalism exist today?

Colorful cities, picturesque people, their strange manners and customs, art, music, religions, clothes, food, architecture, and modes of living are subjects of endless fascination. Let Britannica Junior guide you through visits to them all!

An Arabian Boy of the Desert
Arklio Hunts His First Walrus
A Boy of the African Jungle
A Boy of Old Greece
Boys' Day in Japan

Dah Foo's Big Day
High in the Alps
Mara, the Gypsy Dancer
Star Flower Earns Her Name
The Return of the Fishermen



PLAYS • OPERAS • MOVIES • CIRCUSES

THERE are certain characters in motion pictures, plays, and operas—creations of world famous dramatists—who have so much charm, humor, tragedy or significance of one kind or another that the world thinks of them as real people. Romeo and Juliet, Cyrano de Bergerac, Falstaff, Tom Sawyer, Hänsel and Gretel, Mrs. Malaprop, Salomé, Candida, Tristan and Isolde, Faust, Titania, Carmen, Siegfried, and Peter Pan are among such characters. Don't some of them—if you've seen them on the stage—seem more real to you than some actual people in history?

In Britannica Junior you can read the absorbing stories of the world's best loved operas, plays, players, playwrights, and musical composers and find out all about how movies are made.

a famous clown writes about the circus

"UNCLE BOB" SHERWOOD, the last of P. T. Barnum's clowns, has written the article in Britannica Junior on the Circus—that grand performance which began back in Rome in the year 61 B.C., was revived as a country fair in England, was brought to America and



©P & A Photos

immortalized by Barnum who made it "the greatest show on earth." Read this thrilling story about the life of the elephants, clowns, gypsies, drummers, tumblers, dwarfs, giants, freaks, equestriennes, tight-rope walkers, and other performers under the big tent, and you'll be able to watch all three rings at once next time anyone takes you to the circus!

marionettes and how to make them

If you like putting on shows yourself, Britannica Junior

will show you exactly how to make puppet-dolls or marionettes, how to build stages for them, and how to make them act while you speak their parts!

music and musicians

BESIDES the stories of the operas and the lives of musical composers, you will learn so much about music in these pages that you will recognize, understand, and appreciate the music you hear far better than you ever have before. To children who really love music the paragraphs on musical instruments and the directions for making some of them will be of especial interest.



Uncle Bob Sherwood, last of Barnum's famous clowns



©Mary Dale Clarke

- D. How is the exact time determined?
- E. How can an aviator determine his position by the sun or stars?
- F. What two types of telescopes are there? Who invented each type? Where is the largest telescope of each type located?
- G. What is an equatorial telescope mounting?
- H. Where are the most important observatories located?

Suggested Reference Topics

Clocks and Watches, 4, 212b Telescope, 11, 29a
 Observatories, 9, 126b Photography, 9, 291
 Spectrum and Spectroscopy,
 10, 281a

OTHER REFERENCE READINGS

The following is a list of some books which will be suitable for adult reading. Students of fourteen or older may enjoy and profit by some of these books, or parts of them.

- ABBOT, C. G. *The Sun*. Appleton-Century.
 ABBOT, C. G. *The Earth and the Stars*. D. Van Nostrand Co.
 AMERICAN MUSEUM OF NATURAL HISTORY. *Meteorites, Meteors and Shooting Stars* (Pamphlet).
 CHANT, C. A. *Our Wonderful Universe*. Ryerson Press.
 JEANS, SIR JAMES. *The Universe Around Us*. Macmillan.
 JEANS, SIR JAMES. *This Mysterious Universe*. Macmillan.
 LUYTEN, WILLEM J. *The Pageant of the Stars*. Doubleday.
 MITCHELL, S. A. *Eclipses of the Sun*. Columbia University Press.
 MOHR, A. *A Brief Account of the Harvard University Observatory*. Harvard University Press.
 MOULTON, F. R. *Astronomy*. Macmillan.
 NININGER, H. H. *Our Stone Pelted Planet*. Houghton Mifflin.
 OLCOTT, W. T. *Star Lore of All Ages*. Putnam.
 OLCOTT, W. T. *Sun Lore of All Ages*. Putnam.
 OLIVER, C. P. *Comets*. Williams and Wilkins.
 OSWALD, THOMAS. *Heaven and Earth*. Norton & Co.
 SHAPLEY, HARLOW, and others. *The Universe of Stars*. Observatory Press.
 STETSON, H. T. *Man and the Stars*. Whittlesey House.
 TODD, D. P. *A New Astronomy*. American Book Co.
 — *Yerkes Observatories*. University of Chicago Press.

Some books especially suitable for children fifteen years old and younger are:

- COLLINS, A. F. *The Book of the Stars*. Appleton.
 COLLINS, A. F. *The Boy Astronomer*. Lothrop, Lee & Shephard.
 CORBIN. *Astronomy for Boy Scouts*.
 FONTANY, ELENA. *Other Worlds than This*. S. Rockwell Co.
 GRONDAL, F. A. *The Music of the Spheres*. Macmillan.
 JOHNSON, GAYLORD. *The Sky Movies*. Macmillan.
 ILIN, M. *What Time Is It?* Lippincott.
 PROCTOR, MARY. *Wonders of the Sky*. Warne.
 PROCTOR, MARY. *The Young Folks' Book of the Heavens*. Little, Brown.
 PROCTOR, MARY. *The Romance of the Moon*. Harpers.
 PROCTOR, MARY. *The Romance of Comets*. Harpers.
 PROCTOR, MARY. *Romance of the Planets*. Harpers.
 PROCTOR, MARY. *The Romance of the Sun*. Harpers.
 SERVIS, G. P. *The Story of the Moon*. Appleton.
 STETSON, H. T. *A Manual of Laboratory Astronomy*. Boston Eastern Supply Co.
 UPTON. *Star Atlas*.

SUGGESTED ACTIVITIES

THIS first hand experience with things is of vital importance to real understanding. Suggestions of interesting things to do or make are listed together with some suggested references that may help you. These experiments are in general ar-

anged in an order which will gradually develop the understandings as outlined. However, they cannot be sharply grouped, as many of them contain elements which are common to several of the generalizations. Some are quite simple. Others require considerable ingenuity to carry out. With a little thought, they can be simplified so that parts of them may be followed by quite young children. For example, Exercise No. 28 requires ability to handle the mathematics of proportion, to work it out completely. However third grade children may be asked how large they think the sun is. Some will give answers such as "the size of a dinner plate." A dinner plate may then be carried some distance from the child and the child asked if it now looks smaller. He may be shown that a dime held near his eye will cover a dinner plate some distance away. He may then be led to see that if the plate near the eye covers the sun, which is obviously much farther away than the dinner plate was when the dime covered it, then possibly the sun may be very much larger than the plate. Such ideas may be refined as the child grows older and is able to do more abstract thinking.

ACTIVITIES: THINGS TO DO OR MAKE

1. Make a table by ruling a sheet of paper into columns, one column for each different kind of thing seen in the sky, as for example, stars, planets, nebulae. In its proper column list by name as many examples of each kind of celestial body as you can. For example, under "constellations" list the big dipper, Orion, and others. Then put a red star before the name of each thing you can actually locate in the sky.
2. Learn to recognize as many of the constellations and stars as possible. Find out when the planets occur as morning and evening stars. It is sometimes hard to recognize the constellations in the bowl-like sky from diagrams on a flat surface. To help you in this, make a model of the sky. Select a large, round-bottomed bowl. Cut newspaper into triangular strips of various sizes. Dip them in starch paste and lay them over the outside of the bowl until it is covered at every point by three or four layers of paper. When dry remove the hemispherical shell and paint it black inside. Now locate the main stars as they appear in the sky and prick holes through the paper to represent them. Hold the paper hemisphere over your head and the light will show through the pin holes and give you a miniature pattern of the stars. Another way to do this is to mark the location of the stars with chalk on the inside of an old umbrella. Planispheres are made which can be rotated so as to show the location of constellations and planets at any time of year. A fairly large and sturdy one costs about a dollar

gia 6-212b; Germany 6-221a; grange 6-280b; Greece 6-302b; Haiti 7-5b; harvesting machine 8-146a; hay 7-40b; Honduras 7-116b; Hungary 7-148b; Idaho 7-166b; Illinois 7-169b; India 1-177; Indiana 7-184b; Iowa 7-218b; Ireland 7-222b; Italy 7-243b; Japan 7-262a; Kansas 7-304b; Ky. 7-312b; Lithuania 8-101b; La. 8-133a; Me. 8-172a; Md. 8-205a; Mich. 8-267b; Minn. 8-289b; Miss. 8-297a; Mo. 8-302a; Mont. 8-325b; Neb. 9-26a; Newfoundland 9-55a; N.J. 9-60b; N.Y. 9-84a; N. America 9-104b; N.C. 9-105b; N.D. 9-110a; Ohio 9-137a, *chart* 9-135b; Okla. 9-140b; Ore. 9-162a; Palestine 9-192a; Penna. 9-236b; Persia 9-247a; pests 3-256b; Portugal 9-353b; potatoes 9-359a, *pictures* 359; poultry-raising 9-363a; products, U.S., *end paper*, front 3; reaping 10-35a; Russia 11-128a; Saskatchewan 10-165a; seeds 10-189a; sheep 10-207a; Sicily 10-222b; silo and silage 10-228a; soil 10-253a; sorghum 10-259b; S.C. 10-266a; S.D. 10-268a; Spain 10-274; Sweden 10-348b, 10-350a; Switzerland 10-356; Tenn. 11-34a; Tex. 11-40a; threshing 10-35a; tobacco 11-62a; Turkey 11-98a; Union of S. Africa 11-114b; U.S. 11-122b, U.S. *pictures* 11-125; Vt. 11-156a; Va. 11-169a; Wash. 11-212a; W.Va. 11-236b; wheat 11-240a; Wis. 11-256a; world products, *end paper*, front 4; Wyo. 11-281b; Yugoslavia 11-291b; *pictures* 2-66, 2-68, 2-69, 2-70a; see also FARMING.

AGRICULTURE, U. S. DEPARTMENT of department of U. S. government established 1862; purpose is to encourage and spread knowledge of agriculture among people; headed by member of the cabinet 2-68b; building 11-208b; G. Cleveland 4-204b; corn 4-292a; forestry 6-103b; govt. depts. 5-54a, *chart* 5-54; 5-56a; plant diseases 9-311a; poultry 9-365a; secy. 6-281a; soil information 6-179a; Weather Bureau 11-225a.

AGRIPPINA (*ä gri pī nā*) (16-59) mother of Roman emperor Nero; she poisoned her husband Claudius to secure throne for Nero and was assassinated by latter 9-32b.

AGUARDIENTE (*ä gwär di ēn'tā*) name applied to native whiskey in American S.W. and to pulque or other distilled liquor in Mex.

AGUASCALIENTES (*ä gwäs käl'yēn'tās*) name of a state and of its capital city in central Mex.; area of state 2,499 square mi.; pop. 132,942; pop. of city 54,000; *map* 8-256.

AGUINALDO (*ä ge nūl'dō*) **EMILIO** (1869-) Filipino patriot; was leader in rebellions against Spanish, and later American, rule in Philippine Islands; in 1899 his forces attacked Americans; this was followed by two years of guerrilla warfare terminating in his capture, when he took oath of allegiance to U. S. 2-71b; Philippine Islands 9-280b.

AGULHAS (*ä gool'yās*) **CAPE** most southern point of Africa; on coast of Cape Colony, Union of S. Africa, about 100 mi. S.E. of Cape of Good Hope, *map* 2, facing 54.

AHAB king of Israel from about 875 to 852 B.C.; he waged successful war against Assyrians, and was husband of Jezebel, who ruled after him; *chart* 7-87b.

AHASUERUS (*ä hās ū ē'rūs*) (**XERXES**) a royal Persian name which occurs in books of Ezra and Esther in Bible; scholars generally agree that it is applied to king called in Persian history Xerxes 11-284a; Esther 5-243b; Mesopotamia 8-247a; Persia 9-247b.

AHAZ a king of Judah during 8th century B.C.; he asked aid of Assyrians against his enemies and was reduced to vassalage by them 8-246b.

AHAZIAH (*ä hā zī'ā*) name of two kings in Bible; one was 8th king of Israel, son of Ahab, other was 6th king of Judah, son of Jehoram; both had short reigns 2-281a; Elijah 5-190b.

AHMADABAD (*ä mād'ā bād*) India manufacturing city, W. central India; pop. 313,789; products: cotton, silk; *map* 2, facing 270.

AHMAD FUAD (*ä'mūd fōb'ād*) king of Egypt who took throne as sultan in 1917 and title of king, as Fuad I, in 1922; b. 1868, the son of Khedive Ismail 5-178a.

AHMED ZOGU (*ä'mēd zō'gō*) (Zogu I) b. 1893, king of the Albanians, an Albanian clan chieftain; proclaimed king in 1928 2-108b.

AHRIMAN (*ä'ri mán*) name given to principle of evil in dualistic Zoroastrian religion; opposed to Ormazd, principle of good, much as Satan is opposed to God in Christian religion 11-302a.

AHURA-MAZDA (*ä hōr'ā mād'ā*) or **ORMAZD** (*ōr'māzd*) spirit or principle of good in Zoroastrian religion, as opposed to Ahriman, spirit of evil; also called Ormazd or Ormuzd 11-302a.

"AIDA" (*ä ē'dā*) opera composed by Verdi in 1871; marks phase of composer's development from earlier Italian form of opera; deals with Egyptian theme 9-154a; Verdi 8-374a, *Stories of the Operas*, 12.

AIGRETTE (*ä grēt'*) name given long plumes of egret bird; their use as ornament of women's headdress has decreased because habit threatened extinction of the rare bird 7-44b; heron 7-74b.

AIKEN, CONRAD POTTER (1889-) American critic, poet; b. Savannah, Ga.; *Earth Triumphant, House of Dust, Costume by Eros*.

AILERON (*ä'lē rōn*) rear portion of airplane wing, used to keep the plane level, and for banking 2-80b; airplane 2-80b; aviation 2-319b; *pictures* 2-78, 2-80a, 2-81b.

AINSWORTH, WILLIAM HARRISON (1805-1882) novelist; b. Manchester, England; *The Tower of London, Old St. Paul's, Windsor Castle*.

AINTAB (*in'tāb*) or **GAZI-ANTEP** Turkey, city of S. Turkey, near Syrian border; pop. 40,000; products: cotton and silk materials, morocco leather; exports: cereals, tobacco.

AINUS (*ī'nōz*) a race of hairy aborigines in northern islands of Japan; were conquered by Japanese in pre-historic times; once numerous but now few 7-261a; hair 7-5a.

AIR atmosphere surrounding earth, enabling human beings, animals and plants to breathe; composed of nitrogen, oxygen, carbon dioxide, hydrogen and six rare gases (ozone, argon, neon, helium, krypton and

xenon) 2-72a; argon 2-72a; atmosphere 2-73a; composition 2-72b; electrical conductivity 8-71a; heating and ventilating 7-53a; krypton 2-72b; neon gas 9-32a; oxygen 9-176b; ozone 2-72b; photography 9-294a; pressure 11-225a; sound conduction 10-260a; stratosphere 2-73b; surveying 10-344a; tropopause 2-73b; troposphere 2-73b; wind 11-251a; xenon 2-72b; *pictures* 2-72, 74, 75.

AIR BRAKE mechanical device, operated by compressed air, for applying brakes on a railroad train, invention (in 1869) of George Westinghouse; in triple-valve automatic brake, a later development, compressed air keeps brakes off, not on 2-75b; railroads 10-26a; Westinghouse 11-234a; *picture* 2-76.

AIR BRUSH device for applying paint or varnish to objects by means of compressed air 2-76b.

AIR, COMPRESSED the compression or reduction in volume of air for industrial use; usually stored in cylinders; pressure thus produced operates many mechanisms 9-316a.

AIR CONDITIONING the treating of air in inclosed space to regulate its moisture content, purity, temperature and circulation; used in textile mills, offices, homes 7-54a.

AIR-GUN gun from which bullet is shot by compressed air.

AIR LOCK intermediate chamber used to regulate atmospheric pressure; in a caisson it helps retain pressure while allowing egress; is also used in submarines 4-12a.

AIR-MAIL name applied to system of transporting mail by aircraft; also equipment for this purpose; also mail so transported 8-85a; postal service 9-358a; F. D. Roosevelt administration 9-371b; stamps 10-300a; *chart* 7-105c.

AIRPLANE heavier-than-air aircraft, mechanically driven and with fixed wings; according to number of supporting surfaces airplanes are classified as monoplanes, biplanes or triplanes; position of propeller determines type as "pusher" or "tractor" 2-77a; aileron 2-80b; aluminum 2-143b; amphibian 2-79b; army 2-248a; autogiro 7-58a; compass 4-257b; construction 2-80b; development 7-214a; engineers 5-205b; engines 2-85a; fog 6-90b; forest patrol 6-104b; gasoline 6-188a; gyroscope 6-336b; helicopters 7-58a; insect eradication 3-155a; instruments 2-81a, 2-84a; Italy 7-249b; landing 2-83a; model airplanes 8-307a; model airplanes, how to make, *end paper*, back 1; operation 2-81a; parachute 9-204b; pioneers 2-77a; polar exploration 9-331, 332a; propellers 3-18b; pusher type 2-78a; radio 10-18b; robot 2-84b; seaplane 2-79b; slipping 2-83a; streamline 10-322a; surveying 10-344; tail spin 2-82b; tractor type 2-78a; transportation 11-70a; types 2-78b; U. S. 11-123a; warfare 11-188a; World War 2-77b, 11-270b; Wright brothers 11-279a; *pictures* 2-77, 78, 79, 80, 81, 82, 83, 84, 85, 11-72 Fig. 7.

AIRPLANE MODEL LEAGUE OF AMERICA national organization to encourage designing of miniature models of airplanes and gliders; holds annual competition 8-309a.

Key—pāle, cāre, bāt, fārm, tās, bāll; bē, mēt, hēr; mice, tīn; cōld, nōt, fōr, oi as in oil, lōd, ou as in out; āse, rūn, pūll.

The second line of pronunciation key (shown below) appears on opposite pages throughout the index

ü as in French début; g (always hard) as in gay; j as g in gentle; k for ch as in Scotch loch; ñ (nasal); th as in thee.

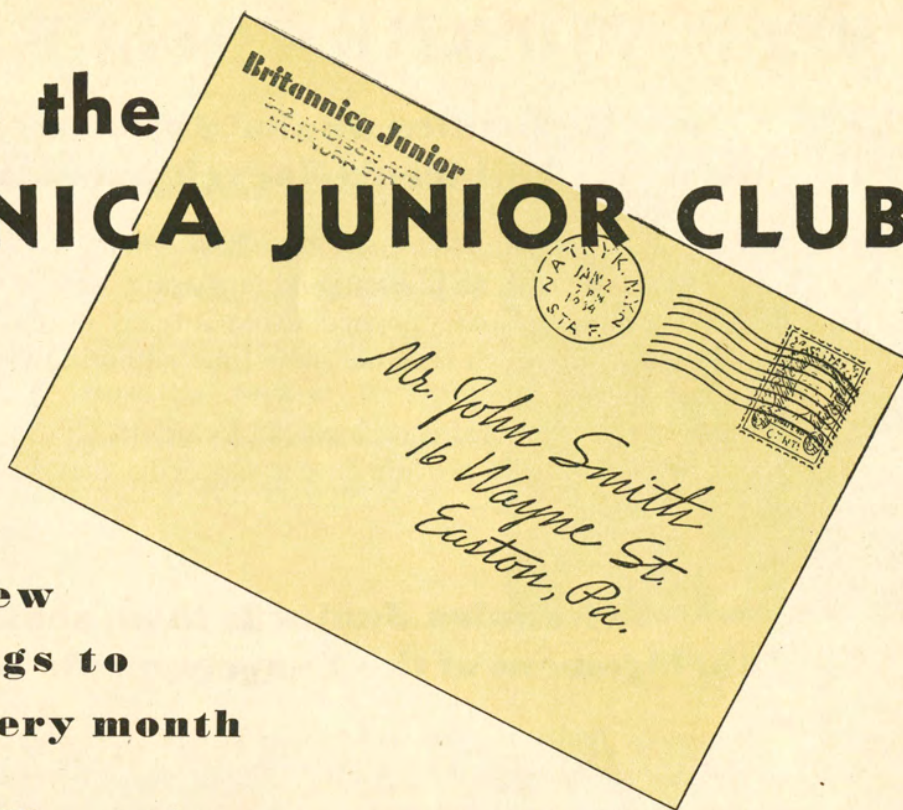
belong to the BRITANNICA JUNIOR CLUB

Sketch of the
handsome
Britannica
Junior Club
pin



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There are a number of children's encyclopaedias—some good, some not so good. Yet there has been, for the past few years, an insistent and increasing demand, on the part of both parents and educators, for a children's encyclopaedia that is really for children—one which they can understand and enjoy, but which is at the same time authoritatively correct and in tune with *modern child education*.

As publishers of that standard encyclopaedia for adults all over the world—the Britannica—we felt that it was up to us to provide an encyclopaedia that would be to children what the Britannica is to grown-ups.

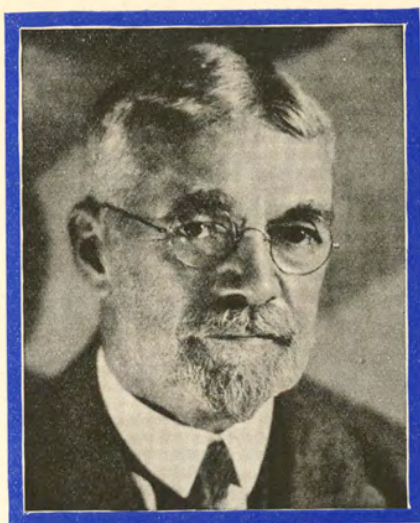
Britannica Junior is in no sense an abridgement of the Encyclopaedia Britannica

Britannica Junior is a new encyclopaedia planned and written exclusively for children from pre-school age through Junior high school. Not one single article, not a line or a sentence, is taken from the Encyclopaedia Britannica.

distinguishing features

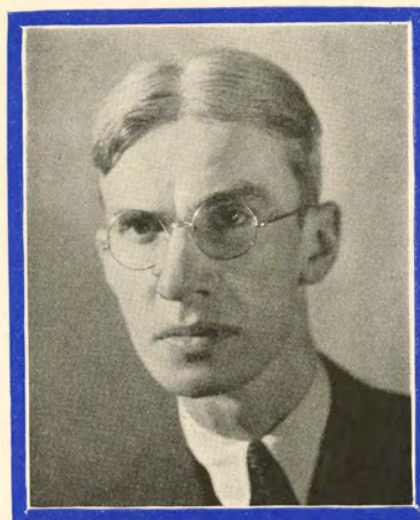
1. Every article has been written or edited by an eminent modern educator.
2. Every statement is authoritatively accurate but presented in "narrative" form by men and women who know how to appeal to children.
3. Facts are augmented by explanations of "how" and "why." In other words, the "functional" method of training, endorsed by the Progressive Education Association and modern schools everywhere, is followed throughout.
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Franklin H. Hooper,
Editor

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RAYMOND L. DITMARS, Curator of reptiles and in charge department of mammals, New York Zoological Park. Author of "Snakes of the World," Contributor of *Snakes and Reptiles*.

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CHARLES J. FINGER, Winner of Newberry medal for most distinguished contribution to juvenile literature. Contributor of the article *Marco Polo*.

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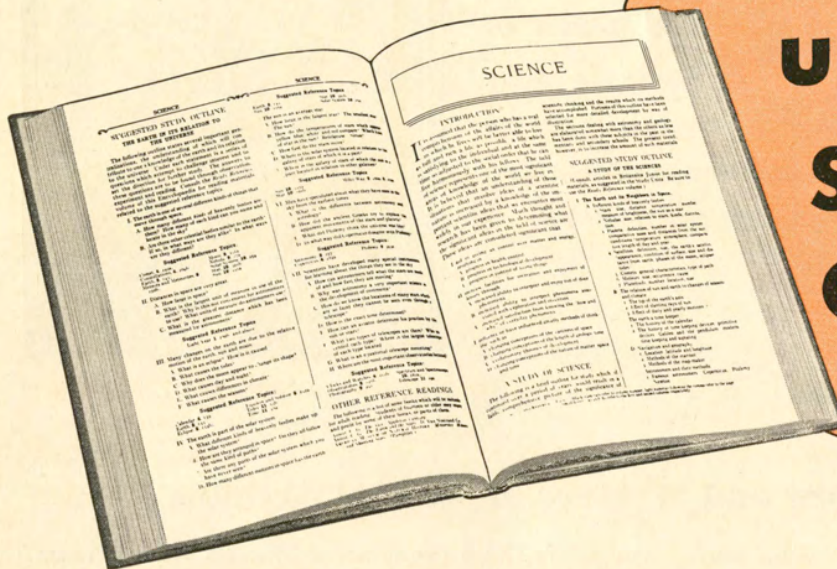
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TABLE OF CONTENTS

Section I: The Place of Britannica Junior In Modern Education

For Beginners

- I. THE PARTS OF A BOOK
- II. ENCYCLOPAEDIAS—WHAT THEY ARE, WHO WRITES THEM AND HOW THEY ARE ARRANGED
- III. ENCYCLOPAEDIAS—FINDING THE ARTICLE
- IV. ENCYCLOPAEDIAS—THE INDEX
- V. ENCYCLOPAEDIAS—FINDING THE UNCOMMON TOPIC
- VI. ENCYCLOPAEDIAS—ILLUSTRATIONS AND MAPS
- VII. REVIEW OF PART I

For Older Boys and Girls

- I. INSTRUCTION IN THE USE OF BRITANNICA JUNIOR AND OTHER REFERENCE BOOKS
 - a. Types of Books
 - b. What is an Encyclopaedia?
- II. HOW TO USE BRITANNICA JUNIOR
 - Alphabetical Arrangement
 - The Ready Reference
 - Cross References
- III. HOW TO USE A LIBRARY
 - Classification of Books
- IV. OTHER REFERENCE BOOKS
- V. HOW TO ORGANIZE MATERIAL

Section II: The Place of Britannica Junior In the Home

- I. SCHOOL STUDIES
- II. DISCUSSIONS IN THE HOME
- III. ENCOURAGING REFERENCE ACTIVITIES IN THE HOME
- IV. LEISURE TIME INTERESTS AND BRITANNICA JUNIOR
 1. Astronomy
 2. Camping
 3. Collections
 4. Creative Arts
 5. Dramatics and Marionettes
 6. Experiments in Science
 7. Games
 8. Handicraft Hobbies
 9. Home Aquarium
 10. Home Gardening
 11. Household Craft Arts
 12. Microscopy
 13. Nature Lore Collections
 - a. Butterfly and Moth Collections
 - b. Shells
 - c. Rocks and Minerals
 - d. Leaf Prints
 14. Pets
 15. Photography

Section III: The Place of Britannica Junior In the School

English

- INTRODUCTION
SUGGESTED UNITS OF STUDY
- I. TOWN AND CITY LIFE

- II. THE FARM
- III. STUDIES OF TRANSPORTATION
- IV. LITERATURE OF THE EARLY NATIONS
- V. LITERATURE IN THE MIDDLE AGES
- VI. AMERICAN LITERATURE
- VII. THE STORY OF BOOKS

The Social Sciences

- INTRODUCTION
SUGGESTED UNITS OF STUDY
- I. HOW PEOPLE LIVE TOGETHER IN YOUR OWN COMMUNITY
 - II. THE STORY OF TRANSPORTATION AND COMMUNICATION
 - III. A STUDY OF PRIMITIVE PEOPLE
 - a. Primitive People of the Prehistoric Period
 - b. Primitive People of Today
 - IV. THE CIVILIZATION OF GREECE AND ROME
 - V. THE WORLD OF THE MIDDLE AGES
 - VI. THE HISTORY OF THE AMERICAN CIVILIZATION
 - a. The Old World Discovers a New World
 - b. European Settlers and Early Life in America
 - c. The Beginnings of a Nation
 - d. The Westward Movement of the American People
 - e. The Conflict Between the Industrial North and the Agricultural South
 - f. The Growth of an Industrial America
 - g. America, After the World War
 - VII. THE DEVELOPMENT OF MODERN NATIONS

Science

- INTRODUCTION
SUGGESTED UNITS OF STUDY
- I. THE EARTH AND ITS RELATION TO THE UNIVERSE
 - II. THE EARTH AND ITS CHANGING SURFACE
 - III. HOW PLANTS AND ANIMALS ADAPT THEMSELVES TO THEIR ENVIRONMENT
 - IV. WEATHER PREDICTION AND ITS VALUE TO US
 - V. HOW THE WORK OF THE WORLD IS DONE
 - VI. APPLIED SCIENCE
 - VII. SCIENCE AND MATHEMATICS

Health

- INTRODUCTION
SUGGESTED UNITS OF STUDY IN THE FIELD OF HEALTH EDUCATION
- I. HOW TO KEEP HEALTHY
 - II. SPORTS AND GAMES THROUGHOUT THE AGES

Music

- INTRODUCTION
- I. MUSIC FOR YOUNG CHILDREN (4-9 YEARS)
 - II. MUSIC FOR CHILDREN (9-12 YEARS)
 - III. MUSIC FOR OLDER CHILDREN (12-14 YEARS)
- SUGGESTED UNITS OF STUDY IN THE FIELD OF MUSIC
- I. THE EVOLUTION OF STAFF NOTATION
 - II. MUSICAL INSTRUMENTS
 - III. MUSIC OF THE ANCIENT CHINESE
 - IV. THE HISTORY OF BELLS

Art

- INTRODUCTION
SUGGESTED UNITS OF STUDY IN THE FIELD OF ART
- I. THE STORY OF ART
 - II. HOW ART SURROUNDS US IN OUR EVERYDAY LIFE
 - III. ART IN THE SCHOOL
 - IV. ART IN THE COMMUNITY

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