

A STUDY OF RAILWAY
TRANSPORTATION VOL. 1

TEACHER'S MANUAL

Suggested Study Outlines and Source Material

SEVENTH EDITION

ASSOCIATION OF AMERICAN RAILROADS • WASHINGTON 6, D. C.



A STUDY OF RAILWAY TRANSPORTATION • VOLUME I

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SUGGESTED STUDY OUTLINES

AND

SOURCE MATERIALS

SEVENTH EDITION

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To Teachers—This unit material is designed for use with students engaged in a study of railroad transportation under classroom supervision. *Single copies only are available to teachers for this purpose.* Keyed to this TEACHER'S KIT is the student's story book, RAILROADS AT WORK, which may be obtained in quantity for classroom or home use by writing to the Association of American Railroads, Transportation Building, Washington 6, D. C.

ASSOCIATION OF AMERICAN RAILROADS

TRANSPORTATION BUILDING • • WASHINGTON 6, D. C. • • 1956



Courtesy of P. K. Yonge Laboratory School, University of Florida.

Learning by Doing—Making Trains.

FOREWORD

In response to a widespread demand from school administrators and teachers for illustrated material which would be helpful in organizing and conducting transportation units in the grade schools, the Association of American Railroads, after extensive conferences with authorities on curriculum and classroom unit methods, prepared this set of teaching aids, pictures, and story material featuring railroad transportation and the part which it plays in the life of the American people.

At the outset, it should be understood that this material is not a Transportation Unit according to the commonly accepted definition of that term. It is rather a set of aids to teachers for organizing and conducting Transportation Units.

The Kit is divided into three parts—(1) the Teacher's Manual containing suggested study outlines, with correlations for various grades and subjects, content material and factual information, and bibliographical aids, (2) a set of pictures portraying railway development, activities, occupations, locomotives and trains, and other aspects of the railroad industry, and (3) a booklet containing a story and a "quiz" for each picture.

This manual contains outlines, suggestions, and work procedures for units on various grade levels. The outlines are general in scope and can be easily adapted by the teacher to a particular grade level or course of study. The bibliographies direct the teacher to additional reading and source materials for classroom use, including unit techniques, readers, poems, music, and visual aids. The references have been graded as far as possible to increase their usefulness to the teacher.

The pictures may be mounted on cardboard for convenient classroom use or for poster exhibits, bulletin boards, and similar displays.

The stories present factual information which teachers in the lower grades can adapt to the reading abilities of their pupils. Teachers in the upper grades will find the stories helpful for either reading assignments or reference use.

Suggestions from teachers for additions or revisions are cordially invited. A convenient Evaluation Form is included with the set of pictures.

School and College Service
ASSOCIATION OF AMERICAN RAILROADS

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A Lesson in Transportation.

PART I

SUGGESTED OUTLINE

A Study of Railway Transportation in the Lower Grades

The following outline of activities by no means exhausts the possibilities for a project of this kind. It is hoped, however, that the procedures and activities suggested will be of assistance to the teacher in planning and organizing a unit of work which meets the particular interests, needs, and abilities of the pupils.

The bibliographies and other information which follow will aid the teacher in locating ample material to formulate a railway transportation unit of any size or scope.

I. Objectives:

To help the pupil to a better understanding of the importance and usefulness of transportation in family and community life.

To increase the child's knowledge of railway workers as community helpers.

To extend the pupil's knowledge of the world beyond his or her immediate environment.

To develop skills in important branches of learning and social activities.

II. Methods of Initiating a Train Unit:

Relate personal experiences, such as a railroad journey or a visit to a railway station. Tell of other interesting incidents and impressions relating to railroads, trains, or travel.

Tell about a relative or friend who works on the railroad.

Study and operate toy trains.

Discuss pictures of trains.

Read books and conduct research about trains and travel.

Relate experiences in sending and receiving packages by train.

Collect stamps and postal cachets commemorating railroad historical and special events.

Show movies or slides about trains.

Dramatize a trip by train.

Plan an assembly or classroom program based on railroad music.

III. Suggested Procedures for Developing Unit in Terms of Real Experiences:

VISIT A RAILROAD *

Make a tour of the passenger station. Note especially the waiting room, the baggage room, the ticket office, the information booth, the station signs, the railway tracks, and the signals. Learn about the different kinds of tickets, why they are necessary, how much they cost, and destinations passengers can reach from the station. See trains arriving and leaving. Note the different kinds of station employees and the work they perform.

Go through a long-distance passenger train, if possible. Have someone describe the different types of cars and their interesting features.

If the necessary arrangements can be made with railway officers, visit other facilities, such as freight stations, freight yards, storehouses, shops, roundhouses, and mail terminals.

TAKE A TRIP BY TRAIN

Visit a nearby town, having the children buy their own tickets.

Tell the children—or arrange for some railroad man to tell them—about train schedules, fares,

* NOTE: At all times, in the interest of safety and to insure the fullest co-operation of railroad employees, local railway officers should be consulted beforehand and definite arrangements made for visits of school children in specially conducted groups to railroad properties.

tickets, the different kinds of trains, engines and cars, the men who work on the trains, and interesting facts about the railroad and its history. Encourage the children to ask questions.

IV. Activities:

PLANNING AND ORGANIZING

Plan and organize activities for group study, based on individual and group interests. The activities selected will determine procedures. Topics of study may include:

The workers who build the railroads.

The workers who build the locomotives and cars.

The workers who keep the railroads and their equipment in repair.

The workers who help to operate the passenger train and look after the wants and comforts of the passengers (engineer, fireman, conductor, baggage-man, flagman, stewardess, Pullman porter, dining car steward, cook, waiters).

The workers who run the freight train (engineer, fireman, conductor, brakeman).

The workers in passenger stations (agents, ticket sellers, telegraph operators, clerks, gatemen, porters, mail and baggage handlers).

The workers in freight stations (agent, clerks, foremen, truckers).

The different kinds of trains (passenger, freight, mail, express, work).

The different kinds of passenger-train cars (coaches, parlor cars, sleeping cars with rooms and berths, all-room sleeping cars, roomette cars, dining cars, dome cars, observation cars, club and lounge cars, baggage cars, express cars, mail cars).

The different kinds of freight-carrying cars (box cars, flat cars, tank cars, livestock cars, open-top cars for coal, ore, sand, gravel, etc., refrigerator cars, automobile cars, furniture cars, milk cars, cabooses).

How trains help us by carrying the things we use (food, clothing, fuel, building materials, furniture, farm implements, mail, newspapers, express).

Locomotive whistles and bells and the language they speak.

The purpose and meaning of signals and crossing signs.

DEVELOPMENT OF ACTIVITIES

Following the selection of topics, the class may be organized into committees for the solution of problems involving activities in the following fields:

RESEARCH

Through Picture Study

Identify the different kinds of railroad workers, trains, locomotives, cars, buildings, and things shipped by railroad.

Through Reading

Obtain detailed information relating to the assigned topics.

Through Travel

Learn by trips or in other ways how the different types of cars are used; what there is to do at the station; how baggage, mail bags, and express packages are handled; where freight cars are loaded and unloaded (sidings, warehouses, mines, mills, factories, coal yards, docks, freight stations).

INDUSTRIAL ARTS

Construction

Wood—Build locomotive and tender, passenger coach, crossing sign, track signal, ticket office, station, tunnel, bridge.

Paper—Make train models, signs and signals, hats for trainmen, tickets, money.

Educational Toys—Use toy trains, tracks, cars, "choo choo towns," erector sets, and model kits.

Drawing, Painting, Clay or Plastic Modeling

Draw, crayon, or paint pictures of trains, engines, cars, stations, signs, bridges, signals, and other objects, to illustrate spoken or written stories. Draw a map, or model a relief map, with railway lines. Make clay or plastic models of engines, cars, stations, and scenery.

Cutting and Pasting

Encourage each pupil to keep a TRAIN UNIT SCRAPBOOK as a part of his or her activities. Fill scrapbooks with clippings, pictures, drawings, and other things relating to railroads, trains, travel, freight, mail, and express.

Collect pictures of vacation scenery, places to visit, farm scenes, food, fuel, clothing, building materials, and so on, to illustrate the service of the railroads. For instance, the picture of an orange grove may be captioned—"Railroad trains carry oranges."

Sewing

Make costumes for dramatic play—uniforms, overalls, caps.

Classroom Display

Make silhouettes of locomotives, cars, trains, stations, crossing signs, bridges, men at work, and other railway objects.

Make train cut-outs from cardboard or heavy paper.

Have children plan and make posters, art calendars, and other display pieces by mounting pictures on cardboard or heavy paper, with appropriate lettering and art work in pencil or crayon.

Prepare paper or blackboard frieze on railroad development in the United States.

TOOL SUBJECTS

Reading

Daily unit program from blackboard.
 Picture books and stories.
 Original stories and verses on railroad safety, sounds, and travel prepared by the children.
 Story-hour by the teacher.
 Glossaries of railroad terms.
 (Consult bibliography for additional reading material and seatwork.)

Spelling

In letter writing, daily group plans, and other activities, attention should be given to all new words encountered, such as locomotive, sleeping cars, passenger, freight, express, caboose, dining car, station, ticket agent, tunnel, baggage, engineer, and conductor.

Writing

Word lists.
 Descriptive titles for pictures.
 Simple sentences which include unit words, phrases.
 Letters to relatives or friends about an actual, imaginary, or anticipated railway journey.
 Impressions of a visit to the railroad station.
 Letters to the teacher, each about some railway worker.
 Description of a locomotive or freight train.
 Questions about trains and workers ("I punch the tickets. Who am I?"—"I go puff, puff, puff! What am I?")

Number Work

Develop practical arithmetical problems, such as:
 Sell and buy tickets and make change; this can be done as seatwork or as part of dramatic play.
 Find length of cars and trains.
 Measure materials used in building a car in the classroom.
 Count number of wheels, doors, windows, or seats required for a car.
 Count number of cars required for certain shipments, such as livestock, barrels, bushels, crates, automobiles, tractors, desks, radios.
 Teach the children how to tell time; apply this knowledge to an imaginary or actual journey by train.

LANGUAGE ARTS

Reports

Oral reports of the committees on the progress of their assigned topic or "problem" will stimulate interest and help to develop understanding and thought organization, promote the exchange of ideas and increase individual participation in unit activities.

Reading

Assigned or voluntary reading from books, cards, or blackboard.

Dramatic Plays

"Planning a Vacation Trip"—Discussion about where to go and what to see.
 "At the Information Booth"—Questions and answers.
 "At the Ticket Window"—Buying tickets at the station.
 "A Journey by Train"—In which some are passengers and some are crew.
 "A Meal on the Diner"—The children talk about dining cars.
 "In the Sleeping Car"—The mysteries of the sleeping car are explained.
 "The Return Home"—Bidding good-bye to crew and greeting parents at station, giving an account of the trip.

Pantomime

Children act the parts of various railroad workers and their classmates guess who they are.

Safety Demonstration

Railroad signs and signals which promote safety.
 How to cross a railroad track safely (at public crossings).
 Dangers of playing on railroad property.
 Proper way to board trains.
 Safety conduct on trains.
 A "safety first" alphabet, in verse or prose.

SOCIAL STUDIES

Our neighbors who work for the railroad.
 How we travel by train.
 What the freight trains bring us and take away.
 How we get our mail.
 The meaning of "train time."
 When the railroad came to our town.
 How the railroad came to our town.
 Why travel is good for us.

SCIENCE

Discussion of "how" and "why" questions raised by the children.

A simple experiment, such as steam lifting the lid of a kettle or forcing the stopper out of a heated test tube, will help to explain how steam can move a big locomotive. (Caution: Do not use thin test tube and do not set stopper too firmly.)

An inner tube, a bicycle pump, and a measuring gauge will serve to demonstrate the power of compressed air for stopping trains.

The school's science department can suggest

other interesting experiments and possibly provide materials and equipment for demonstrations.

MUSIC

Play recordings of train sounds.

Set train sounds to music to give children a sense of rhythm.

Have children compose and record music for verses they have written, for later playback and evaluation.

Relate facts and new words learned in railroad songs to TOOL SUBJECTS and to LANGUAGE ARTS.

(Consult the bibliography for published songs, music records, and sound recordings.)



Learning by Doing—Children Buying Their Own Railroad Tickets.

PART II

SUGGESTED OUTLINE

A Study of Railway Transportation

in the Middle and Upper Grades

Railway transportation is so closely related to the history and development of our country and touches the everyday life of our people in so many ways that it lends itself admirably to unit study and to curricula adaptations.

The following outline will suggest many ways in which the subject of railway transportation may be correlated or adapted to the several standard courses of study. It is presented, not as a unit of study, but rather as a set of suggestions to aid the teacher in organizing and conducting a unit project adapted to a specific grade level or to a specific problem.

Although this outline is designed especially for middle and upper grades and the preceding outline for early grades, it is quite likely that suggestions will be found in each which may be adapted to nearly any grade level.

I. Objectives:

TO BROADEN THE PUPIL'S UNDERSTANDING OF

The social progress and economic development of this country.

The social significance of railroads as agencies of travel, communication, and commerce in the life of the community, the state, and the nation.

The influence of geography upon the development of transportation routes.

The influence of natural resources upon the development of railroads.

The influence of railroads upon the spread of settlement and upon the expansion of agriculture, mining, lumbering, manufacturing, and commerce.

The relation of railway transportation to trade with other lands.

The industrial aspects of railroads—as employers and as consumers of the products of other industries.

II. Methods of Initiating the Unit:

Survey the class for pupils who have ridden on trains or have relatives working for a railroad.

Discuss hobbies which relate to railroads, trains, travel, or transportation.

Discuss journeys which various pupils have made by train.

Arrange for a talk by an older citizen contrasting transportation conditions today with those of his boyhood and of his father's boyhood.

Have each pupil tell what interests him or her most about railroads.

Discuss the railroad as a community helper or as a neighbor.

Discuss the relation of transportation to other school units, such as food, fuel, clothing, agriculture, housing, and communication.

Discuss the vocational aspects of railroading.

Propose a visit to a railroad station, train, or exhibit.

Plan a unit scrapbook or individual scrapbooks of railway trains, travel, and transportation. (This

activity should be closely supervised by the teacher to avoid the cutting of library books and periodicals.)

III. Methods of Developing the Unit Through Motivating Experiences:

MAKE A SURVEY OF YOUR COMMUNITY

FIND OUT, IF POSSIBLE

How many pupils in the schoolroom or in the school have relatives who work for the railroads.

How many railway workers and families reside in the community.

How many different railroad occupations are represented.

What railroad or railroads serve the community or county.

How many passenger and freight trains enter and leave the community daily, monthly, annually.

Where the trains come from; where they go.

The time required to reach various cities by train.

The history of the railroads in the community; when they were built and opened for service; the date on which the first train entered the community.

Other interesting historical facts about the railroads which serve the community.

ARRANGE AN EXCURSION

Visit some nearby railroad center and have the pupils make oral or written reports on the trip.

PLAN VACATION TRIPS BY TRAIN

Consider the kinds of accommodations available (coach, parlor car, sleeping car, etc.). Ascertain the passenger fare; work out a detailed itinerary of the trip, including train schedules.

WATCH A FREIGHT TRAIN GO BY

Have each pupil observe and make notes of its make-up and other interesting features; kinds of cars, number of cars, different railroads represented, markings on the cars, visible contents of the train. Then assemble all notes and impressions for classroom discussion along the following lines:

Why different kinds of cars are necessary.

Why trains of cars instead of single cars are operated.

What kinds of workers are employed on the train; what other kinds of workers are needed to enable the train to run (men at stations, in shops, in yards, dispatchers, signalmen, track repairmen).

Names and indicated locations of the different railroads and companies having cars in the trains.

Discuss the commodities in the train as far as they could be determined by observation; where such commodities probably came from; where they were probably going.

IV. Activities in Developing the Unit:

PLANNING AND ORGANIZATION

DETERMINING THE PROBLEM

Need of railroad transportation in modern life—exchange of commodities.

The part of railroad transportation in the development of (1) the nation, (2) the state, (3) the local community.

Types of railroad service—freight, passenger, mail, express, baggage.

How the modern city depends upon railway transportation.

How our habits, customs, and ways of living have changed because of improved rail transportation.

The contributions which improvements and progress in railroad transportation make to social and economic advancement.

ORGANIZING FOR INVESTIGATION AND RESEARCH

Identify interests of the individuals and the group.

Formulate questions relating to the project or problems selected.

Pupils and teachers together prepare outline of unit.

Organize committees to plan ways and means of finding the answers through individual and collective effort.

RESEARCH PROGRAM

Consult timetables and maps to study location of important cities, seaports, trade and travel routes.

Make trips to museums, exhibitions, railway stations and other parts of the railroad plant—with permission and under proper guidance—to obtain first-hand knowledge about the railroads.

Hold personal interviews with friends or relatives associated with the railroads.

Arrange for a railroad speaker to discuss the problems selected.

Obtain the loan of motion pictures, slides, or slidefilms from railroads or other distributors.

Consult magazine and newspaper articles, encyclopedias, and other books and pictures; locate specific material through bibliographies, readers' guides, and card catalogues.

Prepare individual or classroom scrapbook of research material used.

CONFERENCE PERIOD

For assembling and evaluating research material.

See also under LANGUAGE ARTS.

PROCEDURES FOR DEVELOPING THE PROBLEMS

READING

Reports by committee members.
Assigned reading for special reports.
Reading from books in school library.
Stories from intermediate readers (see bibliography).

LANGUAGE ARTS

Writing

Stories, letters, or theme papers relating to such topics as:

- "My first train ride."
- "My first ride in a sleeping car."
- "My longest railroad journey."
- "A railroad journey I should like to make."
- "A visit to the railway station."
- "Interesting incidents in railroad history."
- "Men (inventors, builders, financiers, and others) who have contributed to railway development."
- "Local railway history."
- "The part of the railroads in the distribution of United States mails."
- "Railway express service."
- "The materials that go into the building of our homes: The part of railway transportation in bringing them together."
- "Our dinner table: Where the different foods come from and how the railroads help to bring them together."
- "The part of railway transportation in supplying the clothes we wear."
- "How railroads benefit the farmers."
- "How railway transportation helps the mining industry."
- "How railroads serve the lumber industry."
- "How railway transportation aids the manufacturer."
- "Railroad workers and the service they perform."
- "How young people may contribute to safety on railroads."

Description of railroad pictures and the stories they tell.

Autobiography of a box car.

Verses about traveling, trains, engines, and railroad workers.

Reviews of railroad books, articles, or stories.

Brief papers on certain commodities telling where they are produced and how railway transportation aids in their manufacture and distribution.

Letters to research committee asking for information about railroads, trains, fares, and so on.

Letters to parents or friends inviting them to visit transportation exhibit and assembly program on completion of unit.

Letters to railroad representatives and others thanking them for information or aid given in connection with the transportation unit and describing the unit.

section with the transportation unit and describing the unit.

Spelling

Conduct a spelling contest. Select two well-known passenger trains and a conductor (or locomotive engineer) for each. Sides are chosen by them to form the train crews or passengers, and the spelling contest is conducted in the usual manner, using railroad terms exclusively.

Prepare a glossary of railroad terms and phrases, including slang.

Oral Arts

Dramatize railway travel incidents (see dramatic plays in outline for primary grades).

Give short talks on railway travel experiences, or on local aspects of railroad transportation.

Conduct a "quiz" session on railway topics.

Conduct educational games (see page 8).

Have pupils report orally on special assignments, for example: A comparison of our railroads with those abroad; effect of railroad inventions on society; public demands for railroad service, historical and present day.

Discuss geographical, historical, and social aspects of railroad transportation.

Conduct a panel discussion of major problems selected and conclusions reached.

Conference Period

Progress reports discussed and decision made as to where to locate information still desired.

Problem questions brought up and discussed.

Final reports presented by group members.

Evaluation of conclusions reached.

SOCIAL STUDIES

As the subject is treated largely in other sections of this Outline, from which material the teacher may draw extensively, a separate listing of SOCIAL STUDIES correlations has not been given here.

SCIENCE

Report on the use of the following in railroad operations: car retarders, air conditioning, electricity, centralized traffic control, wood preservation.

Study how railroads and railway operations have developed through invention and discovery.

Prepare papers on railroad inventors and their inventions.

Consider the many needs for civil, mechanical, metallurgical, and electrical engineering knowledge in railway operations.

Demonstrate through charts, models, or laboratory experiments the working principles of a few of the many devices employed in railroad operations.

Find out about fuels consumed in locomotives and why or how different kinds of fuel are used.

Explain why and how standard time was adopted.

Experiment with air pressure to illustrate the principle of air-brake operations.

Consider the many uses of electricity in railway operations.

Study railroad bridges and ascertain why different types of bridges are necessary.

Explain the relative merits of different types of motive power: Steam, Diesel, electric, steam turbine, gas turbine.

ARITHMETIC

Develop problems based upon railway mileage, distances between cities, train speeds, travel costs, taxes, wages, capacity of freight and passenger cars, time in transit, cost of equipment, fuel consumed, water consumed, size and weight of engines, capacity of locomotive tenders, weight of rail, freight and passenger traffic, volume of mail, express shipments.

In developing problems relating to railroading, use can be made of dollars and cents, fractions, decimals, denominate numbers, percentages, and graphs.

INDUSTRIAL AND FINE ARTS

Prepare sketches or scale drawing of railway tracks, bridges, tunnels, stations, signals, locomotives, passenger cars, freight cars, trains.

Cut out silhouettes of trains.

Prepare picture sets depicting some period or phase of railroad development and mount them for an exhibit.

Show routes of certain trains on a map.

Draw maps showing railway lines and the most important railway centers in (1) a section of the country, (2) the state, or (3) the nation.

Map the principal transcontinental rail routes.

Make posters on safety and travel.

Build models of trains, tracks, signals, bridges, and buildings for an exhibit, using new materials, model kits, or erector sets.

Draw and color a frieze depicting progress of land transportation, from the horseback rider and the stagecoach to the modern streamliner.

SAFETY

Organize school safety committees.

Determine ways by which the school can cooperate with local railroad and public authorities in the promotion of safety about railroads.

Discuss means of improving school-wide safety habits: Through talks, motion pictures, slides and slidefilms, posters, literature, newspaper publicity for achievements, and assembly programs.

MUSIC

Use sound and song records to aid in dramatics.

Create rhythmical program, including basic patterns: folk dancing, singing games, rhythm band, and hand rhythms.

Identify railroad songs and sounds through singing and listening groups.

Prepare and present publicly an original railroad operetta.

Study and dramatize railroad folk songs and dances (see bibliography).

Set music to railroad verses (see bibliography).

Give assembly program based on railroad music.

Prepare special reports on biography and techniques of composers and arrangers of railroad music.

EDUCATIONAL GAMES

The Carr Family: Write the name of different kinds of railroad cars on slips of paper, place them in a receptacle and have each child draw one. Then have the child pretend he or she is the car drawn, and tell the group the kind of service he or she performs and how that service helps to make other lives more pleasant or more comfortable. For instance, "Mr. Coal Carr" tells how he works carrying coal from the mines to the towns and cities, how the coal is used, and how it helps to run the mills and factories and locomotives and ships and keeps homes and stores and schools warm and adds to the comfort and happiness of many people.

A Selling Game: Write the names of different well-known railroads on slips and have each child draw one. The child then becomes an agent or representative of the railroad named on the slip. On the following day, after the children have had an opportunity to learn something about their respective railroads, have each child make a "sales talk" pointing out the vacation attractions reached by his railroad and give as many reasons as possible why the teacher or the members of the class should spend their vacation in his railroad's territory.

How Would You Send It? Write on separate slips of paper the names of various articles and commodities, large and small, such as lumber, telegraph poles, railroad ties, paper, coal, coke, gravel, potatoes, wheat, flour, cement, furniture, cattle, mules, sheep, swine, cotton in bales, chickens in crates, apples, oranges, strawberries, fresh meats, butter, eggs, clothing, shoes; also different kinds of articles usually sent by express, mail, and baggage. Then, have one of the children draw the slips out of the hat one at a time and name the article, commodity, or animal written thereon, while the children will tell how they think it should be shipped or sent—by box car, by flat car, by gondola, by refrigerator car, by stock car, by express car, by mail car, by baggage car, and so on.

V. Content Material Useful in Developing the Problems:

HISTORY

The relations of railway development and railway transportation to the spread of settlement and the economic development of the United States are covered under the head of geography, immediately following this section.

EARLY MODES OF TRANSPORTATION

Land transportation and inventions that preceded railroads:

Wheel—transferred the friction from the ground to a small central surface, or axle, where it could be easily lubricated. One of the most important inventions of all time.

Paths, pioneer dirt roads, plank roads, turn-pikes.

Horseback, oxcart, private coach, stagecoach, covered wagon.

Unbridged streams and rivers crossed by ferries.

Tramways—wooden roads or ways sometimes capped with strips of iron, and operated by man, horse, or mule power, or by gravity. Used in mines and quarries in British Isles and on European Continent as early as 16th Century. English name said to have derived from early Scandinavian word *traam* or *trum*, meaning a beam of wood.

Stationary Steam Engine—a machine that harnesses steam and puts it to useful work. A steam engine was invented by Thomas Newcomen about 1705, and a greatly improved model was patented by James Watt, January 5, 1769. Many other inventors contributed to its improvement.

EARLY RAILWAY DEVELOPMENTS

Tramways or Railways Employing Animal Power

Horsepower or mule power used on nearly all railways.

Short tramway in use on Beacon Hill, Boston, for the transportation of bricks and materials, about 1807. Built by Silas Whitney.

Thomas Leiper's quarry tramroad, Crum Creek, Pa., 1809.

Tramroad at powder mill, Falling's Creek, Va., about 1811.

Tramroad at Bear Creek Furnace, Pa., 1818.

Tramroad at Nashua, N. H., 1825.

Granite Railroad at Quincy, Mass., built by Gridley Bryant, to transport granite from quarry to tidewater for construction of Bunker Hill Monument, 1826.

Mauch Chunk Railroad, Mauch Chunk (now Jim Thorpe), Pa., 1827.

Early Steam Locomotives

Small, crudely built, slow, uncertain.

First steam locomotive to move a load over a road of rails was built and operated in England by Richard Trevithick in 1804.

Numerous experimental engines followed.

Most successful locomotives were built by English inventor, George Stephenson, ushering in period of organized railroading about 1825.

Experimental locomotive built by John Stevens, Hoboken, N. J., 1825.

English-built locomotive "Stourbridge Lion" tried out at Honesdale, Pa., August, 1829. Driven by Horatio Allen.

Peter Cooper's "Tom Thumb" engaged in a losing race with horse near Baltimore, August 25, 1830.

"Best Friend of Charleston," first American engine in regular service, Charleston, S. C., December 25, 1830.

"West Point," Charleston, S. C., July 15, 1831.

"York," prize-winning locomotive, Baltimore, Md., July 12, 1831.

"DeWitt Clinton," first locomotive in New York State, Albany to Schenectady, N. Y., August 9, 1831.

"John Bull," English-built locomotive, Bordentown, N. J., November 12, 1831.

"Pontchartrain," built in England, New Orleans, La., September 17, 1832.

RAILWAY TRANSPORTATION USHERS IN NEW ERA

First Decade of Railway Era, 1830-1840

Railway era began in earnest in 1830.

Mileage increased from 23 to 2,808 miles; development chiefly in Atlantic States, but short lines in most other states and territories east of the Mississippi River.

Period of experimentation; engineers confronted with countless problems.

Congress made all railroads post routes, 1838.

Railway express service introduced, 1839.

Locomotives frequently balked, jumped track, froze up.

Passenger cars small, unheated, poorly ventilated.

Travel comforts few, delays frequent.

Second Decade of Railway Era, 1840-1850

Mileage increased from 2,808 to 9,021 miles, more than 7,000 miles of which were in the Atlantic States.

Important beginnings made in Great Lakes-Mississippi Valley region.

Territory west of Mississippi River still without steam railroads.

By 1850, it was possible to travel by rail from Maine to Georgia with many changes of cars and with use of stages, boats, and ferries.

Steam transportation demonstrated superiority over rival forms of transportation.

Acquisition of California and discovery of gold stimulated westward migration.

Agitation began for railroad to Pacific.

Westward Expansion, 1850-1870

Mileage increased from 9,021 to 30,626 miles from 1850 to 1860, and to 52,922 miles in 1870.

Land grant era of American railway development inaugurated.

First locomotive west of Mississippi River operated from St. Louis, December 9, 1852.

Rail route opened from New York and Boston to Chicago, 1853.

Vestibuled cars operated in 1853; reclining seat coaches also used the same year.

First railroad in California opened at Sacramento, February 22, 1856.

President Lincoln influenced railroad expansion.

Growth of railroads temporarily halted by War Between the States, 1861-1865; reconstruction work begun in the South.

Sleeping cars introduced on many railroads.

Dining cars introduced in 1863; block signal systems in 1865.

Air brake, patented in 1869, brought greater safety in railroad operations.

First transcontinental rail route opened, 1869.

Railroads operated in nearly every Western state and territory by 1870.

A Period of Unprecedented National Growth, 1870-1900

Railway mileage in United States increased from 52,922 to 193,346 miles. Period of most rapid railway expansion, 1880-1889; 1882, year of greatest construction activity—11,569 miles completed.

Railway network extended into every state and territory in the Union, with Arizona, Idaho, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, and Washington State added to the list.

Notable improvements in science and art of railroading:

Locomotives increased in size and efficiency; number grew from 10,000 to more than 37,000.

Passenger cars added many new travel comforts: steam heat, gas and electric lights, better seating.

New types of freight cars developed for special uses; number of freight and passenger cars increased from 214,000 to 1,450,000.

Introduction of improved automatic air brakes, automatic couplers, signals, steel rails, standardized operating rules and equipment greatly increased railway safety and efficiency.

Standardization of gauge (ending in 1886) permitted long-distance passenger trains and nationwide freight service.

Travel, trade, and communication were greatly aided through adoption by railroads of Standard Time, November 18, 1883.

Federal regulation began in 1887 with creation of Interstate Commerce Commission.

Transcontinental rail routes opened to Washington, Oregon and Southern California.

United States railway mileage represented 40 per cent of world mileage at close of period.

Railway Developments Since 1900

The period since 1900 has been characterized by:

Many improvements in the art of railroading.
Increased efficiency in railway operations.

Increases in wages, taxes, prices, and other railroad costs.

Increased government regulation.

Construction of new mileage continued at gradually slowing pace until 1930, when the total stood at approximately 430,000 miles of track, the all-time peak.

Railway plant capacity and efficiency also increased during this period through:

A net increase from 1900 to 1953 of over 28,400 miles of railroad and nearly 135,000 miles of all track.

Construction of stronger bridges.

Expansion of yards and terminals.

Installation of heavier rails.

Reduction in grades and curves.

Improved signaling systems.

Use of faster and more powerful locomotives.

Increase in multiple-track lines.

Use of larger freight cars.

Increased speed of trains.

Greater use of electrical devices.

Improved methods of handling traffic.

Notable developments:

Electric interlocking plants introduced to promote safety and efficiency.

All-steel passenger cars introduced, increasing travel safety.

Car retarder systems installed in freight yards.

Most passenger cars equipped with air conditioning.

Centralized traffic control systems adopted to speed train operations.

Electrified operations extended.

Light-weight streamlined passenger trains introduced, 1934.

Railroad Retirement Act, providing old age pensions to incapacitated and superannuated railway employees, replaces private railway pension systems, 1937.

Record freight and passenger traffic handled during World War II.

Diesel-electric locomotives become principal source of motive power.

New records made in safety.

New techniques in communications developed.

GEOGRAPHICAL ASPECTS OF RAILROAD TRANSPORTATION

GEOGRAPHICAL FACTORS IN AMERICAN RAILWAY DEVELOPMENT

Transportation is a fundamental need of civilization.

Settlement and development of vast areas of America waited upon the coming of railroads.

The stagecoach, the covered wagon, the ox team, the flatboat, the steamboat, and other modes of transportation each served a useful purpose in its day.

The railroads provided fast, long-distance, year-round, all-weather transportation.

Problems of farmers before railway transportation was available:

Lack of nearby markets in many parts of the country.

Prohibitive cost of transporting products to distant markets.

The time factor in going to market.

INFLUENCE OF RAILROADS AND RAILROAD TRANSPORTATION UPON

Home Life

The food we eat.

The clothes we wear.

Our fuel supply, including fuel used in producing our electricity.

The materials that go into the building of homes.

The furniture and furnishings of our homes.

The books, magazines, and newspapers we read.

The mail we receive.

The prices of things we buy.

Our standard of living.

Community Life

Trade and communication with other parts of the country.

Travels of friends and neighbors.

Local employment.

Local income through payrolls and purchases.

Community manufacturing enterprises.

Local farming activity and farm income.

Support of local government through taxes.

Materials for local industries, commercial enterprises, public works.

Local business activities.

State and Nation

The spread of settlement.

The growth of population.

The establishment and growth of towns and cities.

Land values.

Agricultural development.

Development of forest and mining industries.

Location and development of manufacturing enterprises.

Development of markets and seaports.

Expansion of domestic trade.

Growth of seaborne commerce.

The demand for iron and steel, coal and petroleum, and forest products.

Taxable wealth and the support of federal and state governments.

Travel and recreation; vacation resorts.

Cultural and social aspects of travel and communication.

PRINCIPAL OBJECTIVES OF RAILWAY DEVELOPMENT

Many early railroads, beginning as short lines, were built for one or more of the following purposes:

To form portages between water routes.

To provide transportation from mines and quarries to navigable waters.

To provide transportation during months when rivers and canals were ice-bound and when roads were almost impassable.

To provide all-year-round transportation between agricultural regions and marketing centers.

To lower the cost of transportation.

To transport bulk commodities which were too heavy to move by wagon.

To provide fast, low-cost passenger, mail, express, and freight transportation between important centers of population.

To open up fertile agricultural areas for settlement and development.

To provide means of transporting logs to lumber mills and lumber from mills to markets and seaports.

To link other manufacturing plants with their sources of raw materials.

PROBLEMS CONFRONTING THE RAILROAD BUILDERS

Selection of Routes

Involved consideration of natural obstacles which had to be overcome.

Rivers, streams, inlets, bays, ravines, and gorges had to be bridged.

Mountain ranges constituted formidable barriers to railway building. Engineering problems were great. Extensive blasting and grading and sometimes costly tunnels were necessary. Protection against land slides and snow slides was also a problem.

Rolling, hilly country necessitated curves, cuts and fills to obtain a fairly level roadbed.

Bogs, swamps, or marshes made extensive foundation work necessary to obtain a solid roadbed.

Areas subject to overflow in times of flood required levees or high embankments.

In arid regions, where water and timber were unobtainable locally, supplies had to be transported long distances.

Deserts, where much difficulty was experienced in obtaining a stable roadbed upon the windswept and shifting sands, had to be crossed.

Forests had to be cleared.

Other Problems

Obtaining experienced and competent engineers and superintendents.

Obtaining skilled and unskilled laborers.

Finding living quarters and food for construction forces.

Obtaining construction equipment and materials—piling, lumber, crossties, stone, gravel, rails, bridge materials.

Transporting of locomotives, cars, construction equipment and materials to construction sites.

Guarding safety and health of workmen; preventing epidemics.

Protecting against hostile Indians in the West in early days.

Overcoming local objections to railroad construction.

GEOGRAPHICAL SPREAD OF RAILWAY DEVELOPMENT

Beginnings of Railway Transportation

First public railroads in America were short lines extending inland from port cities on Atlantic seaboard and Gulf coast.

These were built of wooden rails topped with thin strips of iron.

Horsepower commonly used. Early experimental locomotives small, burned wood.

Expansion Into and Through the Interior

Gradually railroads were extended inland, replacing or supplementing canal boats, stagecoaches, and freight wagons, and opening new agricultural and industrial areas.

By 1850, there were many railroads in the Atlantic states and several lines in the Great Lakes region and in the South.

Millions of fertile acres in the prairies and plains of the West awaited only the transforming touch of transportation.

Railway builders were spurred by rich Far Eastern trade of the clipper ships and discovery of gold in California.

By 1860, several lines were being pushed westward from the Mississippi River across Iowa, Missouri, Arkansas, and Louisiana. There were two short railway lines in Texas and one in California.

Railway expansion was temporarily halted by the War Between the States.

Railway Development in the Far West

First transcontinental rail route completed, 1869.

By 1870, there were about 53,000 miles of railroad in the United States, and railroads were in operation in nearly every state and territory.

By 1880, the rail network extended into every part of the Union and was expanding with great rapidity, opening productive areas for settlement and development.

In the period 1880-1890, other main lines were completed to the Pacific, and by 1900 most of the great trunk lines that now serve the continent were in operation.

Completion of Rail Network

From 1900 to 1953, total railway mileage of the United States increased from 193,000 to over 221,700 miles, while miles of all track increased from 259,000 miles to 393,700 miles.

The period from 1830 to 1900 was one of expansion into new territory; the period from 1900 to 1953 was one of expansion in plant capacity, and of continued progress in the quality of transportation service.

INFLUENCE OF RAILROADS UPON URBAN DEVELOPMENT

Cities and towns are the centers of trade, manufacturing, and transportation.

They grow and prosper in proportion to their commercial and industrial activity.

The commercial and industrial growth and the well-being of nearly every urban center—from the small town to the great metropolitan center—are closely related to its transportation development and transportation advantages.

When the railroads were built through new territory, stations were established at intervals along the route to encourage settlers and to make it easy for them to ship their products to market.

Around a great many of these railway stations, stores, shops, homes, schools, hotels, and churches were erected, and in time many of these villages became thriving towns and cities where farmers and others came to do their trading.

The modern city depends on railroads to bring it a never-ending stream of food and clothing for its people—fuel for its homes, schools, churches, and business establishments; building materials with which to erect new structures, to keep streets and buildings in repair; raw materials and manufactured products for stores, mills, and factories. For example, every day in the year the city of New York requires thousands of carloads of coal, fruits, vegetables, meats, dairy products, and other foodstuffs and fuel.

The modern city also depends upon railroads to distribute the products of its mills and factories and the materials and goods of its wholesale establishments. Transportation enters into every transaction.

The great seaport cities depend largely upon railroads to bring to their wharves and docks trainloads of foodstuffs, cotton, lumber, and an endless variety of manufactured products to fill the ships of the seven seas that come for cargo. They also depend upon the railroads to carry back into the industrial and agricultural regions of the interior the products of other lands which these ships bring to our shores.

Consider what would happen to our cities or towns if all railroads were to cease operations entirely. Consider especially the effect this would have upon our supply of food, fuel, clothing, school supplies, magazines, newspapers, and other daily needs; prices of goods and commodities; stores and other business establishments; building industries; manufacturing industries; employment; travel; United States mails; general business conditions.

VI. Relation of Railway Transportation to the Nation's Economic Life:

BEFORE THE RAILROADS

Agriculture for the most part was local in character, with marketing opportunities limited.

Of necessity, pioneer families produced largely for home consumption. They produced most of their foodstuffs and much of their clothing. Where timber was available they produced their own building materials and fuel, and made most of their furniture.

Agriculture was confined largely to narrow strips of territory adjacent to navigable waters or to areas near the principal cities.

Cities, and therefore domestic markets for farm products, were few and small.

Cost of transportation to market by wagons in many cases was prohibitive.

Markets, for those who depended upon flatboats for their transportation, were almost always downstream, because flatboats could travel only with the river current. Thus farmers in Indiana, Illinois, Kentucky, and Tennessee, with few markets of their own, sent or took their products to New Orleans by flatboat, and returned home on foot, or horseback, by keelboat, or by steamboat.

Farm products could be hauled to market or to river and canal landings only when roads were in fairly good condition.

EFFECT OF RAILROADS ON AGRICULTURE

In many parts of the country settlers flocked in to take up available lands.

Agricultural production expanded rapidly.

Many new towns sprang up along the railroads; older communities grew rapidly. Railway expansion greatly stimulated industrial and commercial development; thus many new and nearby markets were created for farm products.

New crops, adapted only to certain soils and climatic conditions, were developed commercially.

Cost of transportation was materially reduced.

PRESENT-DAY BENEFITS TO AGRICULTURE

Providing cheap mass transportation, railroads enable nation-wide distribution of farm products and of manufactured goods to the farm population.

Farm products of every state are now marketed in every other state and large quantities are shipped to foreign countries through our seaports.

Distance on land is no longer a barrier to trade.

Cotton moves by rail from all points where it can be successfully grown to mills, North and South, and to seaports for export.

Grains and grain products move by rail from the producing areas to points of consumption and export, many hundreds of miles distant.

Refrigerator car transportation service makes possible the nation-wide distribution of fresh fruits and vegetables at all seasons of the year.

Farmers and fruit growers of the South and West supply the tables of New England and Canada with a wide variety of fresh fruits, berries, and produce delivered in excellent condition. Potatoes produced in widely scattered areas are shipped to every other part of the country.

Livestock from the West and Midwest move by rail to packing plants in many cities, and packing-house products are marketed throughout the country and exported to all parts of the world.

On the other hand, railroads transport from factories to farm the machinery, equipment, and supplies which the modern farmer and his family need.

United States mails, moving largely by rail, and the Railway Express Agency, as well as railway freight service, enable farm families to "do their shopping" by mail and rail when it is not convenient for them to purchase from local stores.

Railway Mail Service also brings the farm family newspapers, magazines, books, and other reading matter, as well as letters and other daily mail.

Taxes paid by the railroads help pay the salaries of our public officials, meet the expenses of our public schools, protect the health of communities, provide police and fire protection, and pay for public improvements, including roads, airports, and waterways, all over America.

Moreover, railroads purchase large quantities of farm products for their dining cars, restaurants, and work trains. In addition to food, they purchase many raw or manufactured non-edible products originating on the farm, such as cotton, cotton waste, linen, woolen goods, upholstery and carpeting for passenger cars, and leather. They also purchase large quantities of poles, crossties, lumber, paper from pulp wood, fuel oils, and other commodities produced extensively on farmer-owned lands.

RELATION OF RAILROADS TO FOREST INDUSTRIES

Before railroads were built, lumbering operations were confined largely to areas adjacent to navigable waterways or along rivers where logs could be floated downstream to mills.

Railroads enable logs, lumber, and other forest products to be transported to market hundreds or thousands of miles distant, thus greatly increasing their use.

Railroads themselves are large buyers and users of forest products. They buy crossties, telephone and

telegraph poles, bridge timbers, piling, fence posts, and lumber for buildings, platforms, docks and wharves, box cars, and other uses.

RAILROADS AND THE MINING INDUSTRIES

America's vast mining industry has been developed almost entirely since the introduction of railroads.

Before there were railroads, mineral resources in the interior could not be developed profitably because of the lack of suitable transportation.

Some of the first tramroads or railroads were built as adjuncts to quarries and mines.

Railroads are especially well adapted to transport such heavy bulk commodities as coal, iron ore, lead, zinc, and copper ores, sulphur, salt, gypsum, phosphate, limestone, granite, marble, slate, phosphate rock, sand, gravel, fluorspar, feldspar, magnesite, bauxite, and petroleum products.

Railroads are also large buyers and users of mineral products.

They consume millions of tons of all the coal produced in this country.

They use large quantities of iron and steel products, as well as tools and machinery of many kinds.

They also use large quantities of copper, lead, zinc, sand, gravel, limestone, cement, fuel oil, lubricating oils, gasoline, asphalt, and other products of mines and quarries.

RAILROADS AND MANUFACTURING INDUSTRIES

Thousands of manufacturing enterprises depend upon the railroads to transport their raw materials from farm, mine, or forest to the mills or factories and to carry their manufactured products to markets, near and far.

Before railroads were introduced, manufacturing was confined largely to a comparatively few cities—chiefly on the Eastern seaboard.

Railway development was followed by the establishment of factories and mills at numerous points in the interior where raw materials, markets, labor conditions, and transportation provided the greatest advantage.

Today, nearly every important manufacturing plant in the United States is served by railway transportation.

RAILROADS AND FOREIGN TRADE

Before railroads were introduced, the export trade of the United States was confined largely to a few raw materials, and the total value of our exports and imports was only a small fraction of what it is today.

Products moved to and from our port cities to a large extent by canals and rivers, many of which

were closed by ice or drought for several months each year.

Railway transportation enabled the vast and rich interior to be developed agriculturally, industrially, and commercially, and enabled industries the country over to extend their commerce to all parts of the world.

American manufacturers and merchants rely upon steamships and railroads to bring from other countries large quantities of raw materials and manufactured goods which cannot be successfully produced in this country.

Nearly every American family is a consumer or user of products brought from foreign lands by steamships and railroads.

RAILROADS IN WARTIME

Transportation is a vital necessity in wartime.

The extensive network of railroads in the United States enables troops, supplies, and equipment to be dispatched to any part of the country over several routes in an emergency. If one route were put out of service, other routes could be used.

Railroads provide indispensable service in the transportation of lumber, cement, sand, gravel, and other heavy construction materials, heavy timbers for shipbuilding, fuel, iron and steel, heavy tanks, heavy engines for ship and airplane construction, airplane parts, explosives, ammunition, petroleum products, food and supplies for armed forces and countless other supplies, materials, and equipment essential to defense in wartime.

In World War II, the railroads were called on to carry much of the intercoastal traffic which formerly moved through the Panama Canal. When tanker vessels were transferred to overseas service, huge quantities of the oil which they formerly delivered to the Atlantic Coast area moved by rail. When the shortage of gasoline and rubber seriously restricted motor transportation, intercity highway traffic was largely shifted to the railroads.

VII. The Railroads of the United States Today (A Summary):

THE RAILWAY PLANT

NUMBER OF RAILROAD COMPANIES MILEAGE

Miles of road; miles of track; mileage in United States and other countries compared.

EQUIPMENT

Locomotives; freight cars; passenger cars; streamlined trains; other equipment.

STATIONS AND OTHER BUILDINGS

BRIDGES, TUNNELS, AND SIGNALS

LOCOMOTIVE AND CAR SHOPS

SERVICES OF THE RAILROADS

Transportation of passengers; baggage; freight (bulk, perishable, package); express; United States mails.

OPERATIONS

PASSENGER SERVICE

Passenger trains; passengers carried; average journey, miles; revenue per passenger per mile; total revenues from passengers.

FREIGHT SERVICE

Carloads; freight trains; tons; ton-miles; average haul; revenue per ton-mile; total freight revenues.

EXPRESS SERVICE

Characteristics of express service; volume of express service; modes of transportation used.

MAIL SERVICE

Volume of United States mail moving by rail; per cent of total mail carried by railroads; how transported; postal revenues; other features of Railway Mail Service.

ORGANIZATION AND PERSONNEL

DEPARTMENTS OF THE RAILROAD

OPERATING DIVISIONS

ALLOCATION OF DUTIES AND AUTHORITY

TEAMWORK

RAILROAD WORKERS

Number of workers.

The "Railroad Family" (employees and dependents).

Earnings of railroad workers.

Total compensation (payroll).

Many kinds of railway occupations.

Duties and responsibilities of workers.

Skill and training necessary.

How railroad workers help others.

SUMMARY OF SERVICES AND BENEFITS

CONSIDER THE SIGNIFICANCE OF OUR RAILROADS AS

Pioneer builders of America.

Carriers of freight.

Carriers of passengers.

Carriers of express.

Carriers of mail.

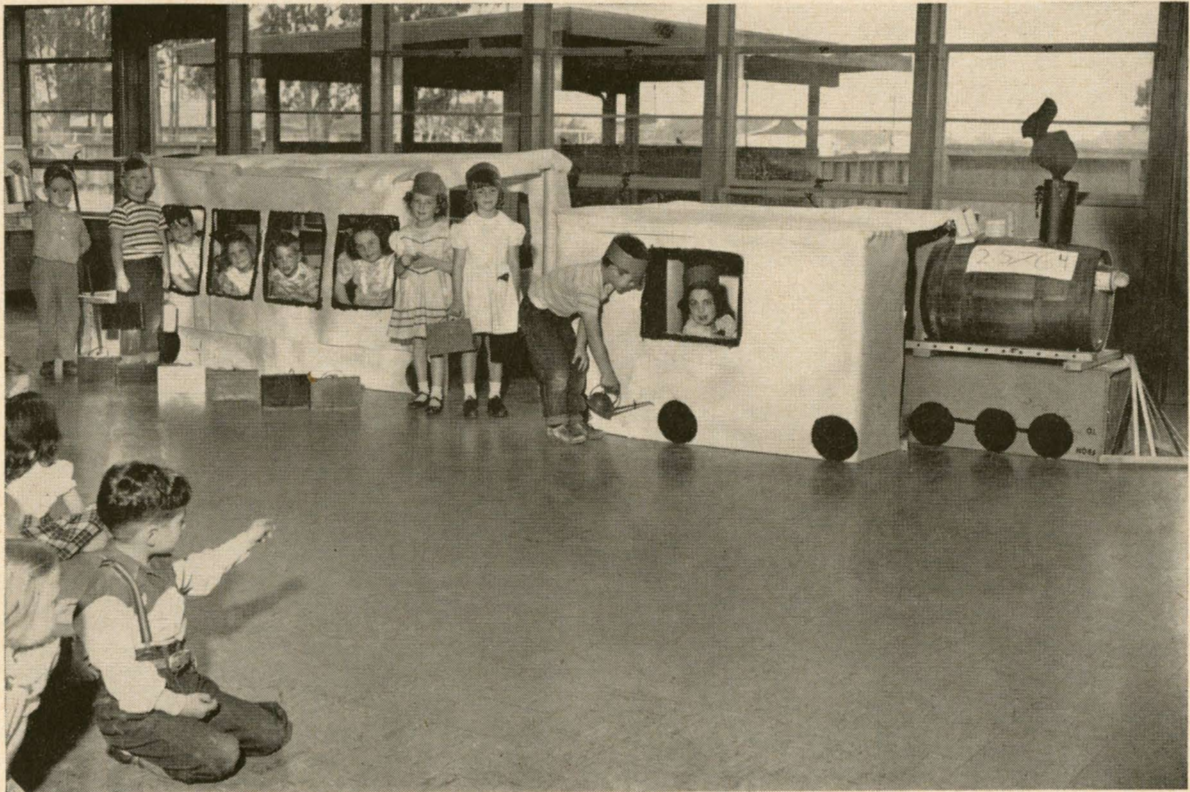
Employers.

Taxpayers.

Fields of investment.

Promoters of foreign commerce.

Instruments of national defense.



Courtesy of C. M. Merlinjones.

All Aboard the "Play and Learn" Train!

PART III—*The American Railroads*

CHRONOLOGY

- 1807—Silas Whitney operated a horse-drawn and gravity wooden tramway on Beacon Hill, Boston.
- 1809—Thomas Leiper built a wooden tramway to connect quarries in Delaware County, Pa., with tidewater; operated by horses.
- February 6, 1815—John Stevens, of Hoboken, was granted first railroad charter in America, by the New Jersey Legislature, which authorized construction between the Delaware and Raritan rivers, near Trenton and New Brunswick.
- February 9, 1825—First locomotive to run on rails in America, built by John Stevens and operated experimentally on a short circular track located at Hoboken, N. J.
- October 7, 1826—Gridley Bryant's Granite Railway was opened at Quincy, Mass., to transport granite used in building Bunker Hill Monument; horses supplied motive power for the 3-mile-long broad-gauge railroad.
- May, 1827—Mauch Chunk Railroad, operated by gravity and mule power, opened at Mauch Chunk, Pa., for transportation of coal.
- August 8, 1829—Locomotive "Stourbridge Lion," imported from England, put on track at Honesdale, Pa., and operated three miles with Horatio Allen as engineer.
- August 25, 1830—Trial trip of Peter Cooper's locomotive "Tom Thumb," from Baltimore to Ellicott's Mills, Md., and return.
- December 25, 1830—Railroad at Charleston, S. C., began scheduled passenger service, using American-built locomotive, "Best Friend of Charleston"; the first public carrier by rail in South Carolina and the first railroad in America to use steam power in regular service; completed to Hamburg, S. C., 136 miles, on October 3, 1833.
- 1830—Anthracite coal used as fuel by locomotive "Tom Thumb."
- 1830—Robert L. Stevens designed forerunner of the T-rail used today; first iron rails of American design were rolled in 1844; Bessemer steel rails first rolled at North Chicago Rolling Mills on May 25, 1865.
- April 14, 1831—First railroad in Louisiana ready for traffic between New Orleans and Milneburg; formal opening on April 23; locomotive "Pontchartrain," first in Mississippi Valley, made initial scheduled run, September 17, 1832.
- July 4, 1831—First railroad in Delaware opened at New Castle; horses were used.
- July 4, 1831—First issue of first railroad journal in the United States, *The Railroad Advocate*, published at Rogersville, Tenn.
- August 9, 1831—First steam train in New York State ran from Albany to Schenectady, pulled by locomotive "DeWitt Clinton."
- November 12, 1831—Locomotive "John Bull" placed in service at Bordentown, N. J.; Isaac Dripps put the engine together—and added a pilot, subsequently.
- November, 1831—United States Mails carried for first time by rail—in South Carolina.
- 1831—A pine-knot fire on open platform car in South Carolina served as first locomotive headlight; 1830's to 1850's, candles and whale oil were used in reflector lamps; 1859, kerosene lamps, followed by gas; 1881, electricity; 1936, figure-8 oscillating headlight; 1944, oscillating headlight that flashes white or red, for safety purposes; 1946, sealed-beam headlight.
- June 12, 1832—First railroad in Alabama opened from Tuscumbia to Tennessee River, where Sheffield now stands.
- October, 1832—First railroad connecting Virginia and North Carolina opened from Petersburg southward; completed to Roanoke River in North Carolina in 1833.
- November 23, 1832—"Old Ironsides." Matthias Baldwin's first locomotive, made initial run from Philadelphia toward Germantown.
- June 6, 1833—Andrew Jackson became the first President of the United States to ride on a railroad train—between Ellicott's Mills, Md., and Baltimore.
- January 30, 1834—Kentucky's first railroad completed from Lexington to Frankfort.
- April 16, 1834—First passenger train service in New England began between Boston and Newton, Mass.
- July 4, 1835—Oldest stone arch railroad bridge in the United States opened at Relay, Md.
- August 20, 1835—Boston-Providence line opened for regular service; first in Rhode Island.
- August 25, 1835—First railroad to Washington, D. C., opened from Baltimore.

- February 5, 1836**—Henry R. Campbell, of Philadelphia, patented an eight-wheeled engine (4-4-0), subsequently termed the American type; engine was completed May 8, 1837; with numerous modifications, it remained a popular type until 1895.
- March 14, 1836**—West Virginia's first railroad began regular transportation and travel service from Winchester, Va., to Harper's Ferry, W. Va. (then in Virginia); locomotive "Tennessee" arrived from England on March 9; road opened with ceremony on March 31.
- April, 1836**—First car ferry, the "Susquehanna," was placed in service on the Susquehanna River, between Havre de Grace and Perryville, Md.
- July 13, 1836**—John Ruggles, U. S. Senator from Maine and "Father of the U. S. Patent Office," was issued Patent No. 1—first in the numbered series—for a device to increase the power of railway locomotives and to prevent their wheels from sliding.
- July 21, 1836**—Canada's first locomotive, the "Dorchester," puffed her way from Laprairie to St. Johns, Que., to open first Canadian railroad.
- October 3, 1836**—First railroad in Ohio and Michigan opened between Toledo, Ohio, and Adrian, Michigan Territory.
- November 6, 1836**—First locomotive in Maine made initial run from Bangor.
- 1836**—First two locomotives known to have been equipped with whistles were built at Lowell, Mass., under the supervision of George Washington Whistler. The "Hicksville" was put in service at Jamaica, Long Island, and was reported to make "a shrill, wild unearthly sound something like drawing a saw flat across a bar of iron." The "Susquehanna" was tried out at Wilmington, Del., traveling at "35 or 40 miles an hour" and was said "to give awful notice of its approach to any point."
- 1836**—Florida's first railroads completed from Tallahassee to the Gulf at St. Mark's, and from St. Joseph (now Port St. Joe) to Lake Wimico; the former operated with horse or mule power while the latter used steam power.
- April 24, 1837**—First steam train in Mississippi operated a short distance from Natchez, hauled by the locomotive "Mississippi."
- May 13, 1837**—Georgia's first railroad opened at Augusta.
- 1837**—*The U. S. Gazette* reported that "Mr. Norris, of this city, . . . has applied a new instrument to steam locomotives, viz: a trombone . . ." It was made of a pipe of a single key, or with several pipes of different keys, "so that there may be a concert of steam instruments" (the forerunner of the chime whistle of today, possibly) to be heard above the noise of the steam engine and cars.
- 1837**—World's first sleeping car operated between Harrisburg and Chambersburg, Pa.—a remodeled day coach, crudely built.
- January, 1838**—New York (South Amboy) and Washington, D. C., linked by a chain of railroads, with ferry service across major rivers and omnibus service through principal cities; line opened from Jersey City, January 1, 1839.
- July 7, 1838**—Act of Congress making every railroad a post route signed by President Martin Van Buren.
- November 8, 1838**—Illinois' first steam railroad opened at Meredosia; locomotive "Rogers" ran to end of track 8 miles away; line opened to Springfield, May 13, 1842.
- November 28, 1838**—First railroad train in Indiana steamed over nine miles of track at Madison, drawn by locomotive "Elkhorn"; the first train arrived in Indianapolis October 1, 1847.
- December 23, 1838**—First railroad in New Hampshire opened from Lowell, Mass., to Nashua, N. H.
- 1838**—Connecticut's first railroad opened part way between Hartford and New Haven.
- March 4, 1839**—America's first long-distance railway express service started by William F. Harnden, former railroad conductor, between Boston and New York.
- November 24, 1842**—Rail route from Boston to Great Lakes at Buffalo completed.
- 1842**—The arrival, from Philadelphia, of the first locomotive to travel on Tennessee soil was made the occasion for a considerable celebration, a special train being run from Memphis to a turntable six miles away.
- June 26, 1848**—Vermont's first train service begun between White River and Bethel.
- September, 1848**—Rail route opened from Cincinnati to Great Lakes at Sandusky.
- October 24, 1848**—Chicago's first locomotive, the "Pioneer," placed on tracks; first run made the following day.
- December 29, 1848**—First direct rail route between Boston and New York completed.
- April 23, 1849**—Railroad from Detroit completed to Lake Michigan at New Buffalo.
- September 20, 1850**—President Millard Fillmore signed first Federal railroad land-grant act; last grant to aid in pioneer railroad development made in 1871; land-grant rate deductions on

- government traffic and mail continued until October 1, 1946, resulting in savings to the Federal Government of \$1,250,000,000 from the time of the first grants in 1850.
- November 20, 1850**—Wisconsin's first railroad opened, Milwaukee to Wauwatosa.
- 1850**—Oil lamps were introduced on cars for night travel; gas light in 1860; Pintsch gas in 1883; electricity in 1885; fluorescent lights in 1938.
- May 14-15, 1851**—Great celebration opening first railroad from Piermont, N. Y., to Lake Erie at Dunkirk; President Fillmore participated.
- July 1, 1851**—The first refrigerator-type car known to have been built in this country began service when eight tons of butter were transported to Boston from Ogdensburg, N. Y.
- August 16, 1851**—Marked the opening of the first international railway link on the North American Continent—Laprairie, Que., to Rouses Point, N. Y., and thence by connecting roads to New York and Boston; passengers and freight were conveyed without transshipment; by international agreement, first of its kind in the world, rolling stock of foreign ownership was permitted free entry into Canada and the United States, a ruling still in effect.
- September 22, 1851**—First recorded use of telegraph for train dispatching took place at Turner (now Harriman), N. Y.
- October 1, 1851**—New York and Buffalo linked by rail—via Albany.
- May 21, 1852**—First passenger train from the East (Detroit) entered Chicago.
- December 9, 1852**—First locomotive west of Mississippi River, "The Pacific," ran from St. Louis to Cheltenham, 5 miles.
- December 10, 1852**—Philadelphia linked by rail with Ohio River at Pittsburgh; ten incline planes used.
- December 24, 1852**—Railroad from Baltimore completed to Ohio River at Wheeling.
- January 24, 1853**—All-rail route completed between Eastern cities and Chicago; but several changes of cars were necessary.
- June, 1853**—A Connecticut railroad equipped a passenger train with flexible connections which provided covered and enclosed passageways (vestibules) between cars.
- August 1, 1853**—First railroad in Texas opened at Harrisburg; first locomotives were "General Sherman" (named for General Sidney Sherman, railroad promoter, and credited as originator of "Remember the Alamo" battle cry) and "Texas."
- February 22, 1854**—Railroad completed from Chicago to Mississippi River at Rock Island, opening first rail route from Eastern seaboard.
- 1854**—Luxurious, adjustable reclining-seat coaches, "night seats" as they were called, placed in service between Philadelphia and Baltimore.
- 1854**—The use of both bituminous and anthracite coal as fuel for locomotives had by this time become a practical success.
- February, 1855**—Susan Morningstar, of Baltimore, Md., is recorded as the first woman railroad employee.
- March, 1855**—Niagara Suspension Bridge completed, opening another rail route between East and West.
- November 20, 1855**—First train in Iowa ran from Davenport to Muscatine.
- 1855**—First through rail route between Chicago and St. Louis opened.
- February 22, 1856**—California's first railroad opened, Sacramento to Folsom.
- April 21, 1856**—First railroad bridge to span the Mississippi River opened at Davenport, Iowa; partially burned on May 6 following collision by steamer "Effie Afton"; rebuilt and reopened on September 8, 1856.
- September 27, 1856**—World's longest railroad completed, Chicago to Cairo and Centralia to East Dubuque, 705½ miles.
- December 2, 1856**—First sleeping car patents issued to T. T. Woodruff.
- April 1, 1857**—First Southern rail route between Atlantic seaboard and Mississippi River completed—Charleston to Memphis.
- June 4, 1857**—Completion of first direct rail route from Baltimore to East St. Louis via Cincinnati.
- August 24, 1857**—"The first step of the steam locomotive on Arkansas soil, was taken by the 'Little Rock' which ran out from Hopefield to the end of the laid track, under steam." Six bales of cotton were received in Memphis from this road, on November 6, the first ever transported over a railroad in Arkansas.
- February 14, 1859**—Iron Horse reached Missouri River at St. Joseph.
- September 1, 1859**—First Pullman sleeping car left Bloomington, Ill., on overnight trip to Chicago; first Pullman conductor was Jonathan L. Barnes.
- April 23, 1860**—Locomotive "Albany," first in Kansas, arrived at Elwood.
- 1860**—Chicago, with eleven railroads, had become America's leading railway center.
- March 31, 1862**—"Oregon Pony," first locomotive in Pacific Northwest, arrived at Portland, Oregon.
- April 12, 1862**—Race and battle between Union soldiers on locomotive "General" and Confeder-

ates on locomotive "Texas," from Big Shanty to Ringgold, between Atlanta and Chattanooga.

June 28, 1862—Minnesota's pioneer locomotive, "William Crooks," hauled first passenger train from St. Paul to St. Anthony (Minneapolis).

July 1, 1862—President Lincoln signed Act authorizing construction of a line of railroads from the Missouri River to the Pacific Coast.

July 28, 1862—Experimental post office car for sorting mail en route placed in service between Hannibal and St. Joseph, Mo.

April 20, 1863—First steam railroad—six miles long—in Washington Territory, opened between Upper and Lower Cascades.

1863—Dining cars introduced; ran between Philadelphia and Baltimore.

August 28, 1864—First permanent Railway Post Office car for picking up, sorting, and distributing mail en route was placed in operation on a run from Chicago to Clinton, Iowa.

September 20, 1865—Railroad opened between St. Louis and Kansas City.

September 22, 1865—First railroad in Nebraska opened westward from Omaha, 10 miles.

November 1, 1865—A tank car especially built for transporting oil took on its initial load at Titusville, Pa.

1865—Block-signal system, through telegraphic communication, introduced by Ashbel Welch.

April 20, 1866—The first code of rules to govern the interchange of freight cars was adopted at a meeting of fast freight lines held in Buffalo.

1866—Automatic block signals introduced.

January 17, 1867—First railroad line completed across Iowa—to Council Bluffs, opposite Omaha; first through train from Chicago reached Missouri River on February 8.

June 25, 1867—First railroad in Colorado opened at Julesburg; completed to Denver, June 22, 1870.

November, 1867—Wyoming's first railroad reached Cheyenne from East.

December 13, 1867—Railroad pushing eastward from Sacramento entered Nevada, near Crystal Peak.

1867—St. Paul and Minneapolis linked with Chicago by rail.

April 21, 1868—Eli H. Janney obtained patent for an automatic coupler; second patent was issued April 29, 1873, for the basic car coupler design generally in use today; standard, interchangeable,

automatic car couplers were introduced in 1887, following extensive experiments; further advance improvements made and standardized in subsequent years.

1868—First Pullman-built dining car, the "Delmonico," placed in service.

January 23, 1869—George Westinghouse applied for air-brake patent.

February, 1869—Railroad building westward from Omaha entered Utah Territory, at Wahsatch.

May 10, 1869—Golden Spike ceremony at Promontory, Utah, signalized completion of the first transcontinental rail route.

July 4, 1869—First bridge to span the Missouri River opened at Kansas City, thus establishing a through route from Chicago.

June 6, 1870—First locomotive entered Indian Territory (now Oklahoma).

August 16, 1871—First narrow-gauge railroad opened a few miles out of Denver, Colo.; road opened to Colorado Springs on October 27, 1871; locomotive "Montezuma" was the first narrow-gauge passenger engine built or operated in this country.

June 8, 1872—First railroad in what is now North Dakota completed from Minnesota line to Fargo; to Bismarck, June 3, 1873.

1872—First railroad in what is now South Dakota completed from Sioux City, Iowa, to Vermillion.

December 24, 1873—First through passenger train between Chicago and New Orleans, using ferry across Ohio River; car trucks changed at Cairo on account of break in gauge.

May 3, 1874—Idaho's first railroad opened from Ogden, Utah Territory, to Franklin, Idaho.

July 1, 1876—Great Hoosac Tunnel, in Western Massachusetts, officially opened for traffic.

May 21, 1877—Tests at Altoona, Pa., marked the first use of telephone communication for railroad purposes.

September 30, 1877—First locomotive and train entered Arizona Territory, at Yuma.

December 7, 1878—New Mexico's first railroad reached Raton Mountains from Trinidad, Colo.

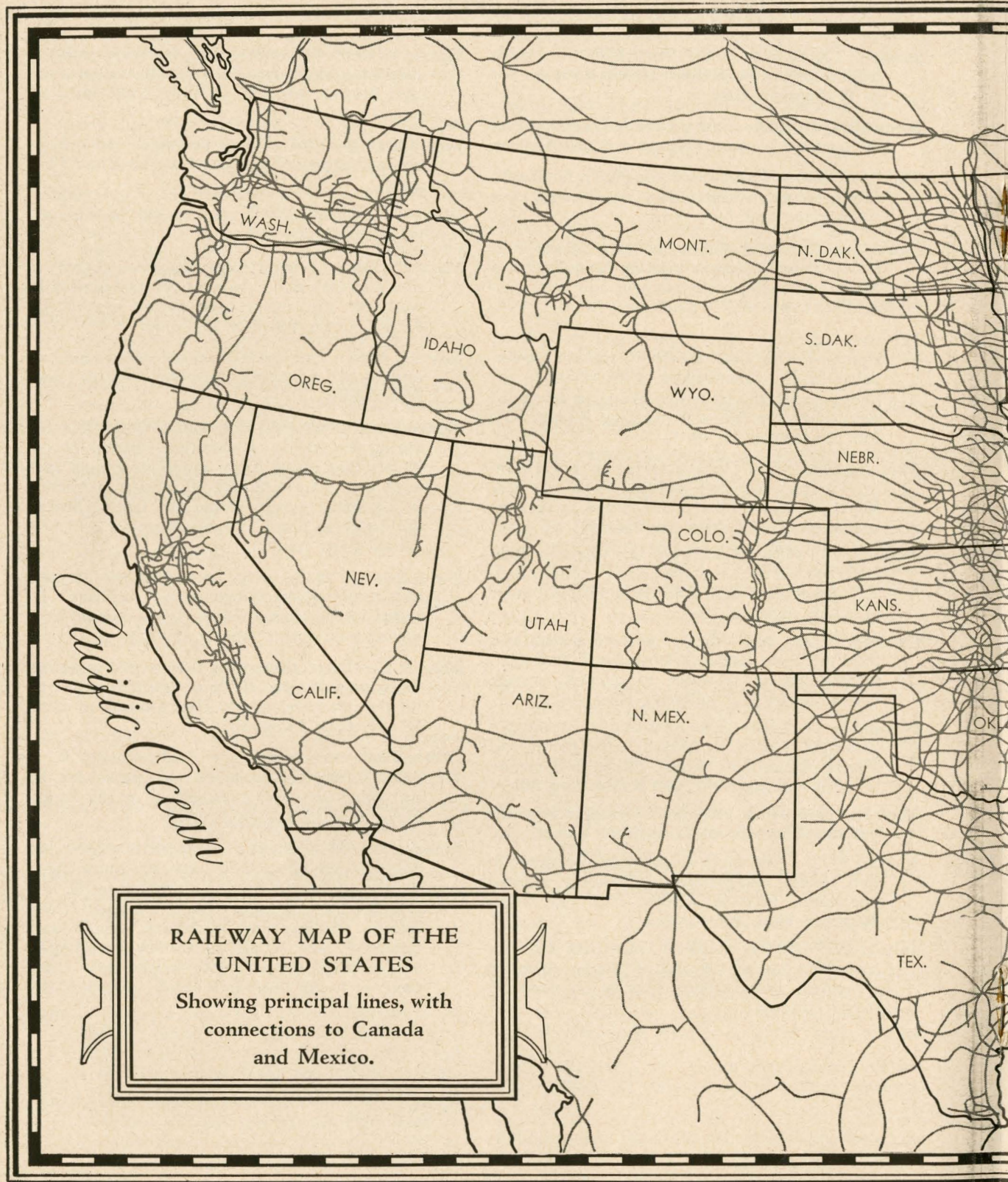
May 1, 1880—Montana's first railroad opened between Monida and Red Rock.

March 8, 1881—Completion of first rail route to Southern California via New Mexico and Arizona.

1881—Railway mileage in United States exceeded 100,000 route miles for the first time.

- 1881—Steam heating system first installed in passenger trains, replacing stoves and hot water heaters.
- January 12, 1883—Completion of direct rail route from California to New Orleans; first through train service began on February 5.
- September 8, 1883—Entrance of first rail route from Great Lakes into Washington Territory celebrated; many American and foreign notables attended the spike-driving ceremony; extended to Puget Sound via Cascade Mountains, July 1, 1887.
- November 18, 1883—Standard time, sponsored by the railroads, adopted throughout the United States.
- November 25, 1884—Middle transcontinental route from Chicago to Pacific Northwest joined at Huntington, Oregon; through traffic commenced December 1, 1884.
- November 7, 1885—Last spike driven in first Canadian transcontinental line at Craigellachie, B. C., the first "special" train reaching Port Moody from Montreal the next morning; line fully opened to Vancouver, B. C., May 23, 1887.
- 1886—Standardization of gauge (4 ft. 8½ in.) of railroads in the South completed, enabling interchange of cars throughout the country for first time.
- February 4, 1887—Interstate Commerce Act, creating the Interstate Commerce Commission, signed by President Grover Cleveland.
- April 14, 1887—General Time Convention, a predecessor of the Association of American Railroads, adopted the first standard code of train rules.
- April, 1887—First modern solid vestibule train placed in service, between New York and Chicago.
- June 17-18, 1887—Successful test runs were made of a passenger train hauled by an oil-burning locomotive, Altoona to Pittsburgh and return.
- December, 1887—Completion of a direct rail route linked Seattle and Portland with San Francisco, Los Angeles, and San Diego.
- 1887—Extensive air-brake tests conducted during 1886-87 on 50-car freight trains at Burlington, Iowa, led to the adoption of an automatic, quick-action, triple-valve brake for freight service.
- 1887—First trains in America to be fully equipped with electric lights ran between New York and Chicago, Boston and New York, New York and Florida, and from Springfield, Mass., to Northampton.
- January 6, 1893—Second rail route completed from Great Lakes to Puget Sound.
- May 10, 1893—Locomotive No. "999" made the world's first 100-mile-an-hour record run.
- 1895—First steam railroad electrifications in the United States completed, in Massachusetts, New Jersey, and Maryland.
- April 15, 1896—Miami, Fla., reached by railroad from Jacksonville and the North.
- 1900—Total investment in railroad properties exceeded \$10,000,000,000 for first time; net capitalization, \$9,548,000,000.
- 1901—Mechanical coal stokers for locomotives introduced.
- 1902—Railroad route mileage in United States passed the 200,000-mile mark.
- 1904—All-steel passenger-train cars placed in steam railway service.
- June 12, 1905—Fastest train speed officially recorded on an American railroad was made on a 3-mile run near Ada, Ohio, at 127.06 miles per hour.
- May 19, 1909—Third northern rail route from Great Lakes to Puget Sound completed; through freight service began July 4, 1909, Chicago to Seattle, and through passenger service on July 10, 1910.
- August 22, 1910—First passenger train arrived in San Francisco over the new second rail route from the Great Salt Lake.
- 1914—Tests were begun looking toward the use of radio in railroad communications.
- 1915—Second and third Canadian transcontinental routes opened for operation, from Eastern Canada to Prince Rupert and Vancouver, B. C.
- December 28, 1917—Federal Government took control of railroads of the United States as a war-time emergency measure; fiscal control became effective January 1, 1918; returned to owners by Federal Government, March 1, 1920.
- October 20, 1925—First Diesel-electric locomotive (a switcher) installed in railroad service.
- July 25, 1927—A co-ordinate system of centralized traffic control, installed on a 40-mile route at Berwick, Ohio, was placed in operation; "CTC" has since been installed on 21,000 miles of track.
- 1927—Beginning of modern developments in mechanical air conditioning of railway passenger cars.
- February 26, 1928—In formal opening, first train passed through Moffat Tunnel, west of Denver; 6.2 miles, second longest in United States.
- December 7, 1928—Railway Express Agency organized to handle nation-wide express business.

- January 12, 1929**—Cascade Tunnel, 7.79 miles in length, longest in Western Hemisphere, opened in Washington State.
- September 9, 1929**—First air-conditioned Pullman car operated between Chicago and Los Angeles.
- May 24, 1931**—World's first completely air-conditioned passenger train placed in service between Washington and New York.
- November 21, 1932**—Recreation car "Miami Biltmore" placed in service between New York and Miami, providing entertainment and recreation facilities supervised by a hostess.
- February 12, 1934**—First light-weight streamliner, equipped with distillate-electric motive power, delivered by manufacturer; after extensive exhibition tour, the train was placed in scheduled service between Salina, Kans., and Kansas City, Mo., on January 31, 1935.
- May 26, 1934**—First Diesel-electric powered streamlined train, completed April 9, 1934, ran non-stop 1,015 miles, Denver to Chicago, at an average speed of 77.6 miles per hour.
- October 12, 1934**—Association of American Railroads formed by consolidation of American Railway Association and other organizations, some of which dated to 1867.
- October 22-25, 1934**—Diesel-powered streamlined train ran from Los Angeles to New York City, 3,258 miles, in 56 hours, 55 minutes; average over-all speed 57.2 miles per hour.
- November 11, 1934**—First light-weight streamlined passenger train to use Diesel-electric power, and first in regular daily service, placed in operation between Lincoln, Nebr., and Kansas City, Mo.
- May 12, 1936**—First 39¾-hour passenger schedule put into effect between Chicago and Los Angeles.
- March, 1937**—Two-way train telephone communication system inaugurated in mainline railroad operations, between Albion, Pa., and North Bessemer Yard, Pittsburgh.
- July 1, 1937**—Federal Railroad Retirement Act went into effect for all railroads, replacing voluntary retirement and disability benefits on some 80 major railroads.
- March 1, 1938**—Anti-telescoping tightlock couplers adopted as alternate standard for passenger-train cars; became standard in 1946 after years of service tests.
- June 15, 1938**—First 16-hour passenger train schedules put into effect between New York and Chicago.
- 1941**—First Diesel-electric road freight locomotives placed in regular service.
- May 17, 1945**—Federal Communications Commission allocated radio channels for exclusive railroad use; first construction permit granted by the F.C.C. on February 27, 1946.
- July 23, 1945**—First modern domed observation car introduced, operating between Chicago and Minneapolis.
- September 2, 1945**—V-J Day ended World War II; during 45 months of war, the railroads moved 90 per cent of all Army and Navy freight and more than 97 per cent of all military personnel in organized groups within the United States; the latter included the operation of 113,891 special troop trains.
- November 15, 1948**—Track tests begun on first gas-turbine-electric locomotive to be built and operated in the United States; first unit went into regular pool service January 1, 1952.
- May, 1952**—Diesel ownership, as expressed in power units, exceeded ownership of steam locomotives for the first time, 19,082 Diesel-electric units to 18,489 steam locomotives.
- 1953**—Total investment in railroad property, \$33,631,000,000; net capitalization (stocks, bonds, and other securities outstanding in the hands of the public), \$16,000,000,000.
- January 1, 1955**—Almost \$11,000,000,000 spent for improvement of facilities and equipment since the end of World War II. Included in the improvements were new yards, terminals, and sidings, roadway and machinery, signals and communications, almost 22,000 new Diesel locomotive units, 600,000 new freight cars, 5,500 passenger-train cars, and nearly 21,000 track-miles of CTC.



THE AMERICAN RAILROAD

Across the vast American continent, from northern woods to tropical seas, from life—linking farms with consuming centers, mines with factories, forests with mills, seaports. Over the 285,000 miles of railroad in the United States, Canada, and Mexico freight trains daily. Tracks and equipment are so standardized and services and operation one of the thousands of stations to any other station on a single ticket or shipping order.



RAILWAY SYSTEM

ocean to ocean, spreads the great network of railroads—busy arteries of our economic mills and mines and farms and factories with markets, and connecting all with the —more than one-third of the world's total—speed many thousands of passenger and rations are so co-ordinated that passengers, freight, express, and mails move from any

PRINCIPAL RAILROADS IN THE UNITED STATES

(1955)

The railroads listed below are officially designated by the Interstate Commerce Commission as Class I carriers, i.e., railroads which have annual gross revenues above \$1,000,000. These railroads operate nearly 100 per cent of the total railway mileage of the United States, employ about 94 per cent of the nation's railroad workers, and handle almost 100 per cent of the railway freight traffic (revenue ton-miles) and passenger traffic (revenue passenger-miles) of the country.

In addition to these railroads, there are several hundred smaller railroads and more than 200 major switching and terminal companies in the United States.

For a complete list of railroads of all classes, consult the Annual Report of *Transport Statistics in the United States, Part I—Railroads*, compiled by the United States Interstate Commerce Commission, and published by the Government Printing Office, Washington 25, D. C. Railroads of all classes are also included in *Moody's Transportation Manual*, Moody's Investors Service, 99 Church Street, New York 7, N. Y., published annually; *Pocket List of Railroad Officials*, Railway Equipment and Publication Company, 424 West 33rd Street, New York 1, N. Y., published quarterly; and the *Official Guide of the Railways*, National Railway Publication Company, 424 West 33rd Street, New York 1, N. Y., published monthly.

<i>Name of Road</i>	<i>General Offices</i>
Akron, Canton & Youngstown Railroad.....	12 East Exchange St., Akron 8, Ohio
Ann Arbor Rail Road.....	Railway Exchange Bldg., St. Louis 1, Mo.
Atchison, Topeka & Santa Fe Railway.....	80 East Jackson Blvd., Chicago 4, Ill.
Atlanta & St. Andrews Bay Railway.....	Dothan, Ala.
Atlanta & West Point Rail Road.....	4 Hunter St., S.E., Atlanta 3, Ga.
Atlantic & Danville Railway.....	115 West Tazewell St., Norfolk 10, Va.
Atlantic Coast Line Railroad.....	Wilmington, N. C.
Baltimore & Ohio Railroad.....	Baltimore & Ohio Bldg., Baltimore 1, Md.
Bangor & Aroostook Railroad.....	84 Harlow St., Bangor, Maine
Bessemer & Lake Erie Railroad.....	P. O. Box 536, Pittsburgh 30, Pa.
Boston & Maine Railroad.....	North Station, Boston 14, Mass.
Cambria & Indiana Railroad.....	1275 Daly Ave., Bethlehem, Pa.
Canadian National Railways.....	360 McGill St., Montreal, Quebec 1, Canada
Canadian Pacific Railway.....	Windsor Station, Montreal, Quebec 3, Canada
Central of Georgia Railway.....	Savannah, Ga.
Central Railroad Company of New Jersey.....	143 Liberty St., New York 6, N. Y.
Central Vermont Railway.....	St. Albans, Vt.
Charleston & Western Carolina Railway.....	Wilmington, N. C.
Chesapeake & Ohio Railway.....	Cleveland 1, Ohio, and Richmond 10, Va.
Chicago & Eastern Illinois Railroad.....	332 South Michigan Ave., Chicago 4, Ill.
Chicago & Illinois Midland Railway.....	Illinois Bldg., Springfield, Ill.
Chicago & North Western Railway.....	400 West Madison St., Chicago 6, Ill.
Chicago, Burlington & Quincy Railroad.....	547 West Jackson Blvd., Chicago 6, Ill.

<i>Name of Road</i>	<i>General Offices</i>
Chicago Great Western Railway	303 West Harrison St., Chicago 7, Ill.
Chicago, Indianapolis & Louisville Railway	608 South Dearborn St., Chicago 5, Ill.
Chicago, Milwaukee, St. Paul & Pacific Railroad	516 West Jackson Blvd., Chicago 6, Ill.
Chicago, Rock Island & Pacific Railroad	La Salle Street Station, Chicago 5, Ill.
Chicago, St. Paul, Minneapolis & Omaha Railway	275 East Fourth St., St. Paul 1, Minn.
Clinchfield Railroad	Erwin, Tenn.
Colorado & Southern Railway	C. A. Johnson Bldg., Denver 2, Colo.
Colorado & Wyoming Railway	P. O. Box 1920, Denver 2, Colo.
Columbus & Greenville Railway	Columbus, Miss.
Delaware & Hudson Railroad	230 Park Ave., New York 17, N. Y., and Albany 1, N. Y.
Delaware, Lackawanna & Western Railroad	140 Cedar St., New York 6, N. Y.
Denver & Rio Grande Western Railroad	Rio Grande Bldg., Denver 1, Colo.
Detroit & Mackinac Railway	Tawas City, Mich.
Detroit & Toledo Shore Line Railroad	131 West Lafayette Ave., Detroit 26, Mich.
Detroit, Toledo & Ironton Railroad	Schaefer Bldg., Dearborn, Mich.
Duluth, Missabe & Iron Range Railway	Wolvin Bldg., Duluth 2, Minn.
Duluth, South Shore & Atlantic Railroad	First National-Soo Line Bldg., Minneapolis 2, Minn.
Duluth, Winnipeg & Pacific Railway	Winnipeg, Manitoba, Canada
Elgin, Joliet & Eastern Railway	208 South La Salle St., Chicago 4, Ill.
Erie Railroad	Midland Bldg., Cleveland 15, Ohio
Florida East Coast Railway	St. Augustine, Fla.
Fort Worth & Denver Railway	307 West Sixth St., Ft. Worth 2, Texas
Georgia & Florida Railroad	Augusta, Ga.
Georgia Railroad	4 Hunter St., S. E., Atlanta 3, Ga.
Grand Trunk Western Railroad	441 East Jefferson Ave., Detroit 26, Mich.
Great Northern Railway	175 East Fourth St., St. Paul 1, Minn.
Green Bay & Western Railroad	207 West Mason St., Green Bay, Wis.
Gulf Coast Lines	Union Station, Houston 1, Texas
Gulf, Mobile & Ohio Railroad	104 St. Francis St., Mobile 13, Ala.
Illinois Central Railroad	135 East 11th Place, Chicago 5, Ill.
Illinois Terminal Railroad	710 North 12th Blvd., St. Louis 1, Mo.
International-Great Northern Railroad	Union Station, Houston 1, Texas
Kansas City Southern Railway	114 West 11th St., Kansas City 5, Mo.
Kansas, Oklahoma & Gulf Railway	Muskogee, Okla.
Lake Superior & Ishpeming Railroad	Marquette, Mich.
Lehigh & Hudson River Railway	Warwick, N. Y.
Lehigh & New England Railroad	Anthracite Bldg., Bethlehem, Pa.
Lehigh Valley Railroad	143 Liberty St., New York 6, N. Y.
Long Island Rail Road	Jamaica Station, Jamaica 35, N. Y.
Louisiana & Arkansas Railway	114 West 11th St., Kansas City 5, Mo.
Louisville & Nashville Railroad	908 West Broadway, Louisville 1, Ky.
Maine Central Railroad	Portland 4, Maine
Midland Valley Railroad	Muskogee, Okla.
Minneapolis & St. Louis Railway	111 East Franklin Avenue, Minneapolis 4, Minn.
Minneapolis, St. Paul & Sault Ste. Marie Railroad	First National-Soo Line Bldg., Minneapolis 2, Minn.
Mississippi Central Railroad	Hattiesburg, Miss.
Missouri-Illinois Railroad	Missouri Pacific Bldg., St. Louis 3, Mo.
Missouri-Kansas-Texas Railroad	Railway Exchange Bldg., St. Louis 1, Mo.
Missouri Pacific Railroad	Missouri Pacific Bldg., St. Louis 3, Mo.
Monongahela Railway	P. & L. E. Terminal Bldg., Pittsburgh 19, Pa.
Montour Railroad	P. & L. E. Terminal Bldg., Pittsburgh 19, Pa.
Nashville, Chattanooga & St. Louis Railway	930 Broadway, Nashville 3, Tenn.
New York Central Railroad	230 Park Ave., New York 17, N. Y.
New York, Chicago & St. Louis Railroad	Terminal Tower, Cleveland 1, Ohio
New York, New Haven & Hartford Railroad	54 Meadow St., New Haven 6, Conn.
New York, Ontario & Western Railway	39 Broadway, New York 6, N. Y.
New York, Susquehanna & Western Railroad	160 Market St., Paterson 1, N. J.
Norfolk & Western Railway	Roanoke 17, Va.
Norfolk Southern Railway	1200 East Main St., Norfolk 10, Va.
Northern Pacific Railway	Fifth and Jackson Sts., St. Paul 1, Minn.

<i>Name of Road</i>	<i>General Offices</i>
Northwestern Pacific Railroad	65 Market St., San Francisco 5, Calif.
Oklahoma City-Ada-Atoka Railway	Muskogee, Okla.
Pennsylvania Railroad	Suburban Station Bldg., Philadelphia 4, Pa.
Pennsylvania-Reading Seashore Lines	22 Federal St., Camden 3, N. J.
Pittsburg & Shawmut Railroad	Kittanning, Pa.
Pittsburgh & Lake Erie Railroad	P. & L. E. Terminal Bldg., Pittsburgh 19, Pa.
Pittsburgh & West Virginia Railway	One Gateway Center, Pittsburgh 22, Pa.
Reading Company	Reading Terminal, Philadelphia 7, Pa.
Richmond, Fredericksburg & Potomac Railroad	Broad Street Station, Richmond 20, Va.
Rutland Railway	Rutland, Vt.
Sacramento Northern Railway	526 Mission St., San Francisco 5, Calif.
St. Louis-San Francisco Railway	Frisco Bldg., 906 Olive St., St. Louis 1, Mo.
St. Louis Southwestern Railway	1517 West Front St., Tyler, Texas
Seaboard Air Line Railroad	S. A. L. RR. Bldg., Norfolk 10, Va.
Southern Pacific Company	65 Market St., San Francisco 5, Calif.
Southern Railway	P. O. Box 1808, Washington 13, D. C.
Spokane International Railroad	P. O. Box 2147, Spokane 10, Wash.
Spokane, Portland & Seattle Railway	American Bank Bldg., Portland 7, Ore.
Staten Island Rapid Transit Railway	25 Broadway, New York 4, N. Y.
Tennessee Central Railway	American Trust Bldg., Nashville 3, Tenn.
Texas & New Orleans Railroad	Southern Pacific Bldg., 913 Franklin Ave., Houston 1, Texas
Texas & Northern Railway	915 Commerce St., Dallas, Texas
Texas & Pacific Railway	1025-1029 Elm St., Dallas 2, Texas
Texas Mexican Railway	Laredo, Texas
Toledo, Peoria & Western Railroad	Union Station, Peoria 2, Ill.
Union Pacific Railroad	1416 Dodge St., Omaha 2, Nebr.
Utah Railway	Newhouse Bldg., Salt Lake City 10, Utah
Virginian Railway	1200 East Main St., Norfolk 10, Va.
Wabash Railroad	Railway Exchange Bldg., St. Louis 1, Mo.
Western Maryland Railway	Standard Oil Bldg., Baltimore 2, Md.
Western Pacific Railroad	526 Mission St., San Francisco 5, Calif.
Western Railway of Alabama	4 Hunter St., S.E., Atlanta 3, Ga.

Allied Service Companies

The Pullman Company	Merchandise Mart Plaza, Chicago 54, Ill.
Railway Express Agency, Inc.	230 Park Ave., New York 17, N. Y.

Railroad-Owned or Controlled Car Lines

American Refrigerator Transit Company	1218 Olive St., St. Louis 3, Mo.
Burlington Refrigerator Express Company	1101 Vermont Ave., N. W., Washington 5, D. C.
Fruit Growers' Express Company	1101 Vermont Ave., N. W., Washington 5, D. C.
Merchants Despatch Transportation Corporation	600 S. Michigan Ave., Chicago 5, Ill.
National Car Company	1101 Vermont Ave., N. W., Washington 5, D. C.
Northern Refrigerator Line, Inc.	600 S. Michigan Ave., Chicago 5, Ill.
Pacific Fruit Express Company	116 New Montgomery St., San Francisco 5, Calif.
Western Fruit Express Company	1101 Vermont Ave., N. W., Washington 5, D. C.

Many of the railroads and companies listed above have interesting and informative literature about their own lines and the territories which they serve. They will be glad to furnish teachers with such literature upon request.

PART IV

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"All Aboard," by Jeannette Covert Nolan, p. 117-128; "The Great Streamliner," by Catherine Chapin, p. 129-139; "Travel" (poem), by Edna St. Vincent Millay, p. 170. *Fifth*

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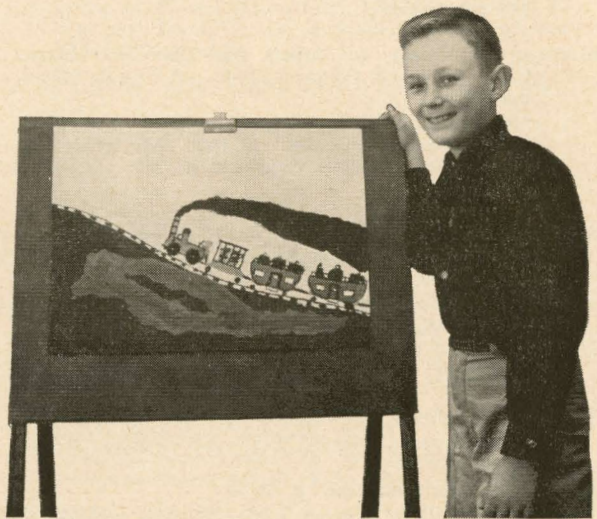
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 "She'll Be Coming 'Round the Mountain," p. 162.

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Railroad and Work Gangs, p. 355-386: "Bolsum Brown," "Poor Paddy Works on the Railway," "The Railroad Cars Are Coming," "Jerry, Go and Ile That Car," "If I Die a Railroad Man," "Jay Gould's Daughter," "On the Charlie So Long," "Casey Jones," "Mama Have You Heard the News?" "Don' Let Yo' Watch Run Down," "There's Many a Man Killed on the Railroad," "She'll Be Comin' Round the Mountain," "I Went Down to the Depot," "Ever Since Uncle John Henry Been Dead," "The Wind It Blew Up the Railroad Track," "Railroad Bill."

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"Goodbye, Julie" (tone play), p. 60-61; "This Old Hammer" (rhythm and work song), p. 149; "The Train Is a-Coming," p. 150-151; "The Little Black Train," p. 152; "When the Train Comes Along," p. 153; "John Henry," p. (15-16, 21, 32, 149), 154-155; "Every Monday Morning (More About John Henry)," p. 156-157.

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 Story-song book for children 4-8 years.

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Wheelwright, Lorin F., comp. *Let's Sing 'Em Again; Songs of Our Growing Nation*. Pioneer Music Press, 1944.
 "Echo Canyon; a Pioneer Railroad Song," arranged by Lorin F. Wheelwright, p. 8-9; "Git on Board, Little Children," a Negro spiritual, arranged by Alton O'Steen, p. 10.

3. Recordings *

a. Children's Records

The Children Met the Train

Alec Wilder Octets (Album MG 25008)

Chocolate Train

Somer Alberg (PP L-41A)

* Because of space limitations, the lists of recordings below are not exhaustive. Although the records named are believed to be currently available, it is possible that they may not be continually re-issued.

The Choo Choo Song
Mervin Shiner-Roy Ross Organ and Orchestra
(DE 9-88074)

Choo Choo to the Farm
Alice Gray (ME Childcraft CM 29)

The Choo Choo Train
Michael Miller-Anne Lloyd (GR BR5B)

The Chugging Freight Engine
Tom Glazer (YPR 728)

Clickety-Clackity Train
Scotty MacGregor (RE J-1005A)

Down by the Station
Warren Gardner (RGA 206, RGA V706)
Anne Lloyd (GR R78A)

The Friendly Train
Listen and Do Series (Album ABC 1)
With Teacher's Manual

The Gandy Dancers' Ball
Anne Lloyd (GR R95A)

Git on Board
Beatrice Landeck (CRG 1004A)

The Golden Treasury of Train Songs
The Choo Choo Train; Kalamazoo to Timbuctoo;
Tootle; Down by the Station; Little Train Who
Said "Ah Choo"; Gandy Dancers' Ball.
Pat O'Malley-Anne Lloyd-The Sandpipers-Mitchell
Miller and Orchestra (GR BR23)

Herman, the Littlest Locomotive
Vernon Crane (COL J-3)

Hoppalong Cassidy and the Mail Train Robbery
William Boyd (CAP CASF-3164, CAS-3164)

I've Been Working on the Railroad
Bob Hannon (COL J-729)
Scotty MacGregor (RE J-60-A)
Bob Moody (TB 205 B-1)

The Little Engine That Laughed
Don Wilson-Dave Cavanaugh (CAS Album-3196)

Little Orley and the Little Engine
Lumpy Brannum (Uncle Lumpy)-Fred Waring
(DE C.U.S. 13)

Little Red Caboose
Big Jon Arthur Presents Sparkie (COL MJV 4-105)
Roy Hallee (PP 2271, 336A)
Bob Hannon (COL J-702, J 4-702)

Little Red Train
Arthur Malvin-Eugene Lowell Singers (Pony 33)

Little Smokey, the Runaway Train (story)
Robin Morgan (COL J-4196)

The Little Switch Engine
Tom Glazer (COL J-229)

Little Train A-Chuggin' at My Heart
Jimmy Boyd (COL J-156)

The Little Train Who Said "Ah Choo!"
Anne Lloyd (GR R87A)

The Longest Train
(RE J-103) (2 parts)

My Little Choo Choo Train
Bob Hannon (MG 30001)

Railroad Songs (Songs of Our Times)
I've Been Working on the Railroad; On the NY,
NH, and H; Casey Jones; When That Midnight
Choo Choo Leaves for Alabam' (DE A-639)

Sleepy Town Train
The Fairyland Players (PP 2282, 104)

Songs About Trains
Floyd Worthington (MT M-3021-B)

Sparky and the Talking Train
Henry Blair-Marvin Miller (CAP BC-66, DC-119,
P-3053, CCF 3026, EBF 3026)

Stay Away from the Railroad Tracks (Songs of Safety)
Frank Luther (DE C.U. 113, A-443) (Teach-o-Discs,
Album 2)

Super Circus Train
Claude Kirchner and TV cast (MP 21)

Three Little Trains
John Griggs (YPR 809)

The Toy Town Choo Choo
Singing Princess (COL J-717)

The Toy Train That Ran Away
Floyd Worthington (MT M-3021-A)

The Train Engine
Earl Rogers (Musicraft Red Robin No. 2)

The Train Ride
(RE J-110)

Train Talk
Tom Glazer-Cy Cohen (COL J-229-2)

Train to Sleepyland
Tom Glazer (COL J-197)

Train to the Farm
Norman Rose and Eugene Lowell Singers
(CRG 1011)

Train to the Ranch
Norman Rose and Eugene Lowell Singers
(CRG 1038)

Train to the Zoo
Norman Rose (CRG 1001)

Train to Toyland
Tom Glazer (COL J-171, J 4-171)

Trains and Planes
Edna G. Buttolph (YPR 706)

Tuggly—The Train Who Couldn't Swim
Toby Deane-Tony Waiman (Crickett 42)

Workin' on the Railroad
Andy Gainey (RGA 2003 P)
Popular Song Slide (SVE TB 219)
Norman Rose-Tom Glazer and Eugene Lowell Sing-
ers (Song collection) (YPR 427)

There's a Happy Little Train
Bob Houston (MGM 10317)

This Train
Sister Rosetta Thorpe
(DE 4803)

Train Is Coming
Memphis Slim (ME 70063)

Train of Love
Mindy Carson-Guy Mitchell (COL 39879;
COL-C 2059)

Train to Kimberly
Josef Marais-Miranda (COL B-318)

The Train Wheels Sang a Song
George Olsen (Major 7215)

Train Whistle Nightmare
Joe "Cannonball" Lewis (MGM 10994, MGM
K10994)

Tuxedo Junction
Glenn Miller (VI 20-1565, EPA-528, SPD-8, 947-
0137, EPB-1071, LPM-1071, EPBT-3029, LPT-12,
EPA-148, 20-2283)
Harry James (COL B-1601, 38526)
Tito Puente (VI EPB-3164, LPM-3164)
Ole Rasmussen (CAP 2379)

Wabash Cannonball
Roy Acuff (COL 20034, H 4-3) (DE 2)
Kay Starr (CAP 54-585, 1660)

Waiting for a Train
Jimmie Rodgers (VI EPAT-409, LPT-3088,
EPAT-22, LPT-3037)

Waiting for the Train
Ernest Tubbs (DE 46119)

Watchin' the Trains Go By
Bob Crosby (Coral 60312)

What a Way to Run a Railroad
Stewart McKay (VI-EJC-1021, LJM-1021)

Where D'Ya Work'a John?
Jerry Colonna (CAP 15098)
Dick Robertson (DE 25353)
Emil DeWan Quintones (ME 4714)

The Wreck of the 1256
Curly Fox-Texas Ruby (King 716-B)

When the Train Came In
Teresa Brewer (LON 26777A)

When the Train Comes Rollin' In
Jimmie Davis (DE 28748)

Zack the Mormon Engineer
L. M. Hilton (FP 36)

d. Railroad Folk Music Recorded by Library of Congress

Echo Canyon (Mormon song)
L. M. Hilton (Record L 30A4)
(also FP 36)

Hammer, Ring
Jesse Bradley (Album 8, Record 39A)

Heavy-Loaded Freight Train
Pete Steele, with 5-string banjo
(Album 21, Record 102B1)

John Henry
Arthur Bell (Album 3, Record 15 B)

John Henry (Square dance)
Wallace Swann (Album 2, Record 10B1)

A Railroader for Me
Russ Pike (Album 20, Record 96B2)

The Rock Island Line
Kelley Pace, Charlie Porter, and others (Album 8,
Record 40B1)

Tamping Ties
Called by Henry Truvillion.
(Album 8, Record 36A2)

Track-Lining Song
Allen Prothero (Album 8, Record 40B2)

The Train
Chub Parham (Album 2, Record 10B2)

Unloading Rails
Called by Henry Truvillion.
(Album 8, Record 36A1)

The Utah Iron Horse (Mormon song)
Joseph H. Watkins (Record L 30A5)

e. Miscellaneous

The Ghost Train (Dramatic work)
(LON LL 414)

Jernbane Galop (Railway Galop)
Royal Symphony Orchestra, Copenhagen
(LON R 10024)

Little Train of the Caipira
Janssen Symphony Orchestra (CAP L-8043)

Pacific 231 (Honegger's Mouvement Symphonique No. 1)
Ansermet (LON 1156-1)
Honegger (DE 25206)
New Orchestral Society (Cook 10683, 1068BN)

Before his recent death, Honegger wrote to the record company as follows: "My score was written in France in 1923, six years before my visit to your country. Pacific 231 is a French engine who received her name at the exposition of St. Louis. 231 means two leading wheels, three driving wheels and one behind, (4-6-2 type) as you know it."

Trains (Comic monologue)
Reginald Gardiner (DE Album 215)

f. Sound Effect Records

American Train-European Train
(COL YB-6)

Choo Choo Record—Real Train Noises
(Lesco)

The Columbian Limited
(COL J-125, J 4-125, MJV 4-125)

Gennett Electrical Transcription Effects
Forty recordings of railroad sound effects, 10-inch, 78 rpm. Catalogue on request. (Gennett)

Rail Dynamics—A Story in Sound
Documentary collection of railside sounds.
(Cook 1070)

Real Train Sounds
Express train—Start, run, stop. (RGA S 500)

Silver Masque Sound Recordings
Fourteen recordings of railroad sound effects, 78 rpm. Catalogue on request. (Masque)

Speedy-Q Sound Effect Records
Twenty recordings of railroad sound effects, 10-inch, 78 rpm. Catalogue on request. (Speedy-Q)

Standard Radio Super Sound Effects

Thirty-four recordings of railroad sound effects, 78 rpm. Catalogue on request. (Standard)

Train Sound Effects
(PP 2263, 338)

Train Sounds
("Tops" 1020)

Trains (2 parts)
(COL YB-23)

Key to record companies:

ABC—Audio Education, Inc.; BB-C—Bluebird-Canadian; BI—Encyclopaedia Britannica; CAP—Capitol; CAP-C—Capitol-Canadian; CM—Mercury Childcraft; COL—Columbia; COL-C—Canadian-Columbia; Cook—Cook Laboratories; CRG—Children's Record Guild; DE—Decca; ER—Enrichment Materials, Inc.; FP—Folkways; GR—Golden; Lesco—Lesco Distributors; LON—London; ME-MG—Mercury; MGM—Metro-Goldwyn-Mayer; MP—Mercury Playcraft; MT—Magic-Tone; PP—Peter Pan; RE—Remington; RGA—Record Guild of America; SVE—Society for Visual Education, Inc.; "Tops"—"Tops" for Tots; TB—Lincoln Records (Teddy Bear Records); VI—RCA-Victor; YPR—Young Peoples Records.

G. VISUAL AIDS

1. Motion Pictures, Slidefilms, and Slides

Completion of First Transcontinental Railroad. ("You Are There Series")

2½ reels, 16 mm., B. & W., sale; Young America Films, Inc.

The Pageant of America Lantern Slide

A teaching unit from "Pageant of America"; 36 slides relate to railway transportation, sale; Yale University Press.

Railroad Film Directory

Alphabetical and subject listing, compiled by the Association of American Railroads. (Free)

The Story of the Iron Horse

Keystone Units of Stereographs and Lantern Slides in the Social Studies; Teacher's Manual; sale; Keystone View Company.

2. Maps, Charts, and Picture Sets

List of Maps Showing Railway Lines

U. S. general, regional, state, local; world; individual railroad maps; free; compiled by the Association of American Railroads (1955).

Standard Time Zones of the United States and Adjacent Parts of Canada and Mexico

U. S. National Bureau of Standards, Miscellaneous Publications No. 190, January 1, 1948. For sale by the U. S. Superintendent of Documents.

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A.A.R. Steel Box Car—37 x 27 in.; Simmons-Boardman Publishing Corporation (1949).

Hudson Type (4-6-4) Passenger Locomotive and Tender—36 x 24 in.; Simmons-Boardman Publishing Corporation (1941).

Pacific Type (4-6-2) Locomotive—35 x 21 in.; Simmons-Boardman Publishing Corporation (1929).

Wall Charts: **How Railroads Serve; Railroads and World Trade; Railroads and Industry; Railroads and the Community; Going Places by Rail; Railroads and the American Life; Railroads and National Defense**—Set of 7; 22 x 34 in., folded to 8½ x 11 in.; color; teaching guide; free; Association of American Railroads.

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Living Together in the Modern World:

Problem 4—Transportation—118 pictures on 99 cards covering various modes of transportation to modern times; explanatory text on reverse side of each picture; sale, Creative Educational Society, Inc., "A Guide for Teachers," by Dorothy L. Harding, and a cross reference index aid in locating train pictures in other units. "Journey by Train," picture nos. 32-40.

Trains—Picture sets, 8 x 10 in. or 11 x 14 in., 15 sets of 15 photos each, mounted, unmounted, cloth-backed, captioned; Realistic Visual Aids.

H. ADDRESS LIST OF PUBLISHERS AND AUDIO-VISUAL AID PRODUCERS

A.

- Abelard-Schuman, Inc., 404 Fourth Ave., New York 16, N. Y.
- Aladdin Books—See: E. P. Dutton & Company, Inc.
- Allyn and Bacon, Inc., 41 Mount Vernon St., Boston 8, Mass.
- American Book Company, 55 Fifth Ave., New York 3, N. Y.
- American Childhood*—See: Milton Bradley Company.
- Americana Corporation, 333 North Michigan Ave., Chicago 1, Ill.
- D. Appleton-Century Company—Now: Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, N. Y.
- Association of American Railroads, Transportation Building, Washington 6, D. C.
- Association of Southeastern Railroads, 912 Seventeenth St., N. W., Washington 6, D. C.
- Association of Western Railways, Public Relations Office, 105 West Adams St., Chicago 3, Ill.
- Audio Education, Inc., 55 Fifth Ave., New York 3, N. Y.

B.

- Bantam Books, Inc., 25 West 45th St., New York 36, N. Y.
- Bay Books Limited, Suite 230, 742 Market St., San Francisco 2, Calif.
- Beckley-Cardy Company, 1632 Indiana Ave., Chicago 16, Ill.
- Bellman Publishing Company, Cambridge 38, Mass.
- Belwin, Inc., 250 Maple Ave., Rockville Centre, Long Island, N. Y.
- C. C. Birchard & Company, 285 Columbus Ave., Boston 16, Mass.
- Charles Wesley Bird, 617 Pine Ave., Fresno, Calif.
- The Bobbs-Merrill Company, Inc., 730 North Meridian St., Indianapolis 7, Ind.
- The Book House for Children, Tangley Oaks, Lake Bluff, Ill.
- Milton Bradley Company, 74 Park St., Springfield 2, Mass.

C.

- Cascade Pacific Books, 5448 Forty-seventh St., S. W., Seattle, Wash.
- Irving Caesar, 1619 Broadway, New York 19, N. Y.
- Children's Press, Inc., 310 South Racine Ave., Chicago 7, Ill.
- P. F. Collier & Son Corporation, 640 Fifth Ave., New York 19, N. Y.

F. E. Compton & Company, 1000 North Dearborn St., Chicago 10, Ill.

Cook Laboratories, 101 Second St., Stamford, Conn.

Coward-McCann, Inc., 210 Madison Ave., New York 16, N. Y.

Creative Age Press, Inc.—See: Farrar, Straus and Young, Inc.

Creative Educational Society, Inc., Mankato, Minn.

Cross Publications, 116 John St., New York 7, N. Y.

Thomas Y. Crowell Company, 432 Fourth Ave., New York 16, N. Y.

Crown Publishers, Inc., 419 Fourth Ave., New York 16, N. Y.

D.

The John Day Company, Inc., 210 Madison Ave., New York 16, N. Y.

Doubleday, Doran & Company—Now: Doubleday & Company, Inc., 575 Madison Ave., New York 22, N. Y.

Duell, Sloan and Pearce—Little, Brown, 124 East 30th St., New York 16, N. Y.

E. P. Dutton & Company, Inc., (Aladdin Books), 300 Fourth Ave., New York 10, N. Y.

E.

Eastern Railroad Presidents Conference, 143 Liberty St., New York 6, N. Y.

Educational Publishing Corporation, Darien, Conn.

Encyclopaedia Britannica, Inc., 425 North Michigan Ave., Chicago 11, Ill.

Enrichment Materials, Inc., 246 Fifth Ave., New York 1, N. Y.

F.

Farrar, Straus and Young, Inc., 101 Fifth Ave., New York 3, N. Y.

Fawcett Publications, Inc., 67 West 44th St., New York 36, N. Y.

Federation for Railway Progress, 1430 K St., N. W., Washington 5, D. C.

The Fideler Company, 31 Ottawa Ave., N. W., Grand Rapids 2, Mich.

Field Enterprises, Inc., Educational Division, Merchandise Mart Plaza, Chicago 54, Ill.

Follett Publishing Company, 1257 South Wabash Ave., Chicago 5, Ill.

Folkways Records and Service Corporation, 117 West 46th St., New York 36, N. Y.

G.

- Garden City Books—See: Doubleday & Company, Inc.
 Gennett Records, Box 38, Foulke Station, Richmond, Ind.; Charles Michelson, Inc., 15 West 47th St., New York 36, N. Y.; All Canada Radio Facilities, Ltd., 80 Richmond St., West, Toronto 1, Canada.
 Ginn and Company, Statler Building, Boston 17, Mass.
 Glade House, Inc.—See: Parker Art Printing Association.
The Grade Teacher, Educational Publishing Corporation, Darien, Conn.
 Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, N. Y.
 The Greystone Corporation, 100 Sixth Ave., New York 13, N. Y. (CRG-YPR records)
 The Grolier Society Inc., 2 West 45th St., New York 36, N. Y.
 Grosset & Dunlap, Inc., 1107 Broadway, New York 10, N. Y.

H.

- Harcourt, Brace and Company, Inc., 383 Madison Ave., New York 17, N. Y.
 Grahame Hardy, Publisher, Carson City, Nevada.
 Harper & Brothers, 49 East 33rd St., New York 16, N. Y.
 D. C. Heath and Company, 285 Columbus Ave., Boston 16, Mass.
 Henry Holt and Company, Inc., 383 Madison Ave., New York 17, N. Y.
 Houghton Mifflin Company, 2 Park St., Boston 7, Mass.

I.

- The Instructor*, F. A. Owen Publishing Company, Dansville, N. Y.

K.

- Kalmbach Publishing Company, 1027 North 7th St., Milwaukee 3, Wis.
 Keystone View Company, Meadville, Pa.
 Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N. Y.

L.

- Lesco Distributors, 17 South 21st St., Philadelphia 3, Pa.
 J. B. Lippincott Company, 227-231 South 6th St., Philadelphia 5, Pa.
 Little, Brown and Company—See: Duell, Sloan and Pearce—Little, Brown.
 Lothrop, Lee & Shepard Company, Inc., 419 Fourth Ave., New York 16, N. Y.
 Samuel Lowe Company, 1324 Fifty-second St., Kenosha, Wis.
 Lyons and Carnahan, 2500 Prairie Ave., Chicago 16, Ill.

M.

- The McBride Company, 200 East 37th St., New York 16, N. Y.
 The Macmillan Company, 60 Fifth Ave., New York 11, N. Y.

Macrae Smith Company, 225 South 15th St., Philadelphia 2, Pa.

Masque Sound Engineering Company, 331 West 51st St., New York 19, N. Y.

Charles E. Merrill Books, 400 South Front St., Columbus 15, Ohio.

Julian Messner, Inc., 8 West 40th St., New York 18, N. Y.

Model Craftsman Publishing Corporation—See: Penn Publications, Inc.

William Morrow & Company, Inc., 425 Fourth Ave., New York 16, N. Y.

N.

National Railway Publication Company, 424 West 33rd St., New York 1, N. Y.

W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, N. Y.

O.

F. A. Owen Publishing Company, Dansville, N. Y.

Oxford University Press, Inc., 114 Fifth Ave., New York 11, N. Y.

P.

Parker Art Printing Association, 303 Alcazar, Coral Gables 34, Florida.

Pacific Books, Publishers, P.O. Box 558, Palo Alto, Calif.

Pageant Press, 130 West 42nd St., New York 36, N. Y.

Peggy Cloth-Books, Inc., 109 Worth St., New York 13, N. Y.

Penn Publications, Inc., P. O. Box 469, Ramsey, N. J.

Wm. Penn Publishing Corporation, 221 Fourth Ave., New York 3, N. Y. (Successors to Penn Publishing Company of Philadelphia. Books published previous to 1943 are owned and handled by Alfred A. Knopf. Books published since 1943 are distributed by Tudor Publishing Company, 221 Fourth Ave., New York, N. Y.)

Pioneer Music Press, 975 S. W. Temple St., Salt Lake City 4, Utah.

The Platt & Munk Company, Inc., 200 Fifth Ave., New York 10, N. Y.

Plays, Inc., 8 Arlington St., Boston, Mass.

Popular Mechanics Press, 200 East Ontario St., Chicago 11, Ill.

Popular Publications, Inc., 205 East 42nd St., New York 17, N. Y.

Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N. Y.

The Pullman Company, Merchandise Mart Plaza, Chicago 54, Ill.

G. P. Putnam's Sons, 210 Madison Ave., New York 16, N. Y.

R.

The Railway and Locomotive Historical Society, Inc., Baker Library, Harvard Business School, Boston 63, Mass.

Railway Equipment and Publication Company, 424 West 33rd St., New York 1, N. Y.

Railway Express Agency, Inc., 230 Park Ave., New York 17, N. Y.

Rand McNally & Company, P. O. Box 7600, Chicago 80, Ill.

Random House, Inc., 457 Madison Ave., New York 22, N. Y.

Realistic Visual Aids, Box 11, Highland, Calif.

Rexford Record Corporation, 1440 Broadway, New York 18, N. Y.

The Richards Company, Inc., 2 West 45th St., New York, N. Y.

Rinehart & Company, Inc., 232 Madison Ave., New York 16, N. Y.

Will Roberts, 655 Fifth Ave., New York 20, N. Y.

Row, Peterson and Company, 1911 Ridge Ave., Evanston, Ill.

S.

Scott, Foresman and Company, 433 East Erie St., Chicago 11, Ill.

William R. Scott, Inc., 8 West 13th St., New York 11, N. Y.

Charles Scribner's Sons, 597 Fifth Ave., New York 17, N. Y.

Shapiro, Bernstein & Company, Inc., 1270 Sixth Ave., New York 20, N. Y.

Geo. L. Shuman & Company, 203 North Wabash Ave., Chicago 1, Ill.

Silver Burdett Company, Morristown, N. J.

Simmons-Boardman Publishing Corporation, 30 Church St., New York 7, N. Y.

Simon and Schuster, Inc., 630 Fifth Ave., New York 20, N. Y.

Peter Smith, 20 Railroad Ave., Gloucester, Mass.

Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago 14, Ill.

South-Western Publishing Company, Inc., 634 Broadway, Cincinnati 2, Ohio.

Speedy-Q Sound Effect Records, P. O. Box 38, Foulke Station, Richmond, Ind.; The Starr Piano Company, 1344 South Flower St., Los Angeles 15, Calif.; Charles Michelson, Inc., 15 West 47th St., New York 36, N. Y.

The Spencer Press, Inc., 179 North Michigan Ave., Chicago 1, Ill.

Standard Radio Transcription Services, Inc., 360 North Michigan Ave., Chicago 1, Ill.

Stanford University Press, Stanford University, Calif.

Studio Publications, 432 Fourth Ave., New York 16, N. Y.

Clayton F. Summy Company, 235 South Wabash Ave., Chicago 4, Ill.

T.

The Tell-Well Press, Inc.—See: The John C. Winston Company.

Traffic Service Corporation, 815 Washington Building, Washington 5, D. C.

Transatlantic Arts, Inc., Hollywood-by-the-Sea, Florida.

Treasure Books, Inc., 1107 Broadway, New York 10, N. Y.

U.

United Educators, Inc., Publishers House, Lake Bluff, Ill.

U. S. Superintendent of Documents, Washington 25, D. C.

The Universal Guild, Inc., 17 Smith St., Brooklyn 2, N. Y.

V.

The Vanguard Press, Inc., 424 Madison Ave., New York 17, N. Y.

The Viking Press, 18 East 48th St., New York 17, N. Y.

W.

Watson Publications, Inc., 201 North Wells St., Chicago 6, Ill.

Wayne Features Publishers, 5426 Harper Ave., Chicago 15, Ill.

Webster Publishing Company, 1808 Washington Ave., St. Louis 3, Mo.

Westminster Press, Witherspoon Building, Philadelphia 7, Pa.

Wheeler Publishing Company, 2831 South Parkway, Chicago 16, Ill.

Whitman Publishing Company, 1220 Mound Ave., Racine, Wis.

Whittlesey House, McGraw-Hill Book Company, 330 West 42nd St., New York 36, N. Y.

Wilcox & Follett Company, 1000 West Washington Blvd., Chicago 7, Ill.

The Willis Music Company, 124 East 4th St., Cincinnati 1, Ohio.

The John C. Winston Company, 1010 Arch St., Philadelphia 7, Pa.

Wonder Books, Inc., 1107 Broadway, New York 10, N. Y.

The Wonderland of Knowledge Corporation, Publishers House, Lake Bluff, Ill.

World Book Company, 313 Park Hill Ave., Yonkers 5, N. Y.

Edward Wray, Publisher, 9 South Clinton St., Chicago 6, Ill.

Y.

Yale University Press, 386 Fourth Ave., New York 16, N. Y.

Young America Films, Inc., 18 East 41st St., New York 17, N. Y.

