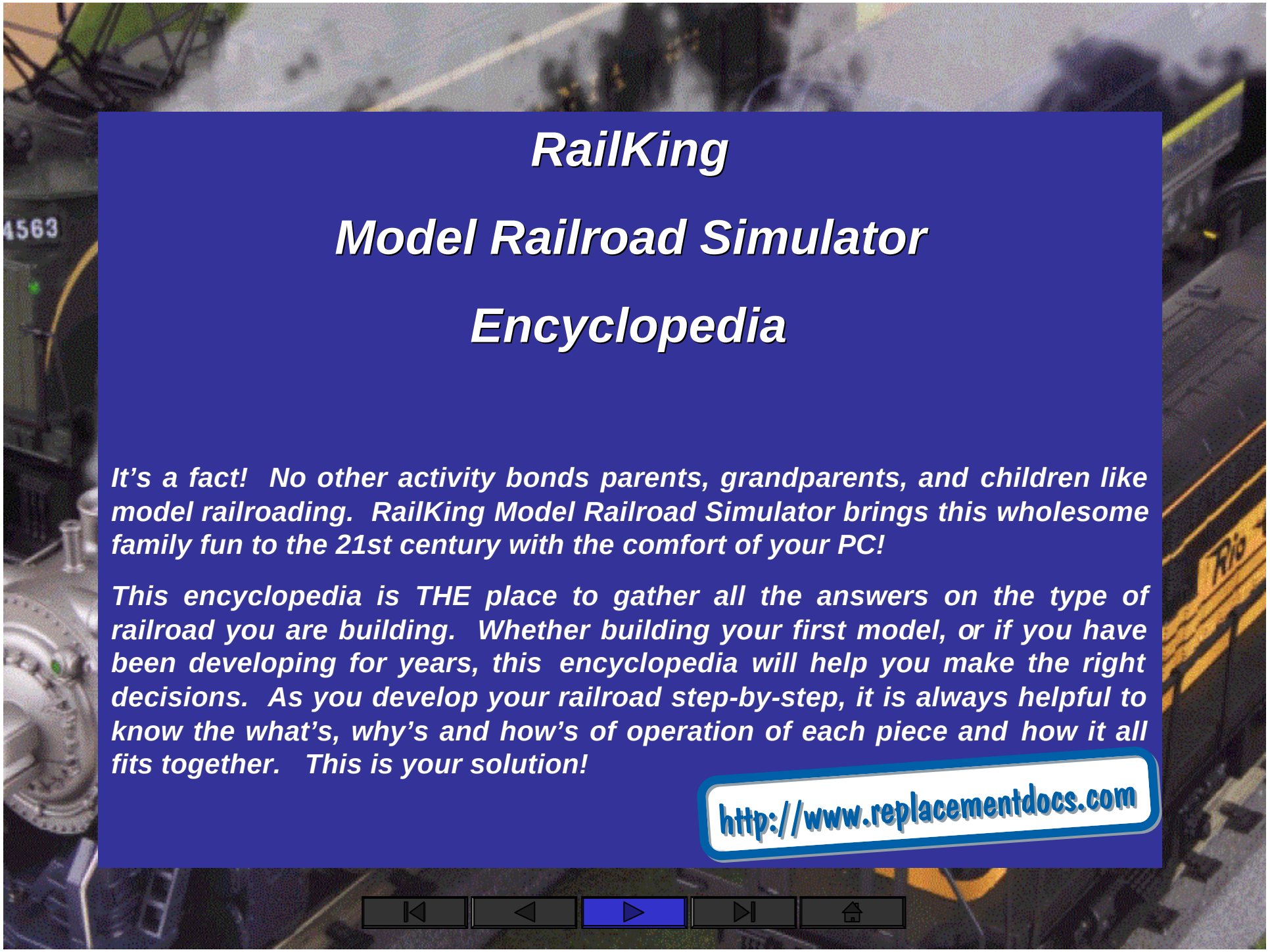


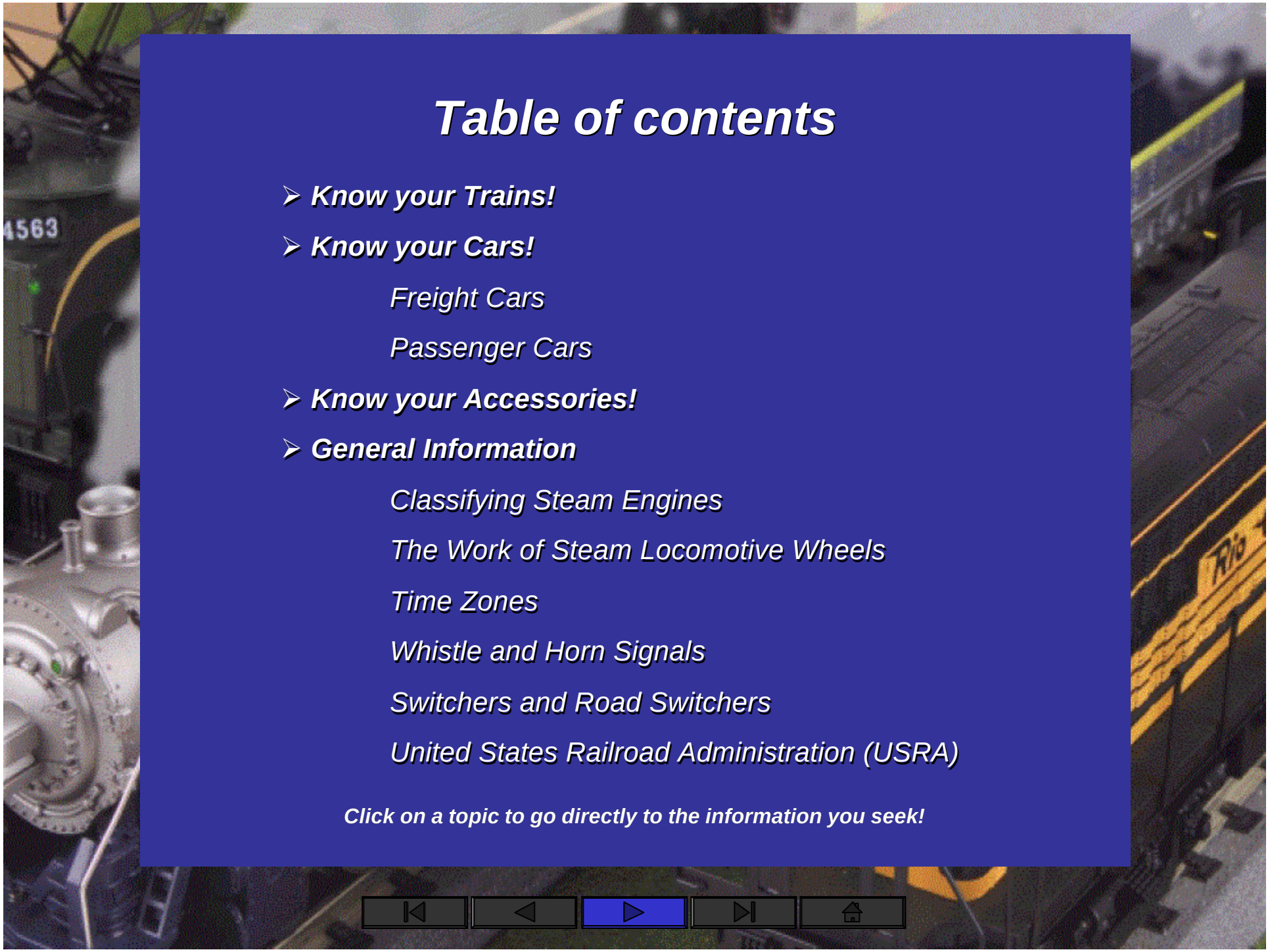
RailKing

Model Railroad Simulator

Encyclopedia

It's a fact! No other activity bonds parents, grandparents, and children like model railroading. RailKing Model Railroad Simulator brings this wholesome family fun to the 21st century with the comfort of your PC!

This encyclopedia is THE place to gather all the answers on the type of railroad you are building. Whether building your first model, or if you have been developing for years, this encyclopedia will help you make the right decisions. As you develop your railroad step-by-step, it is always helpful to know the what's, why's and how's of operation of each piece and how it all fits together. This is your solution!



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Know your Trains!

Encyclopedia Information for #30-2150

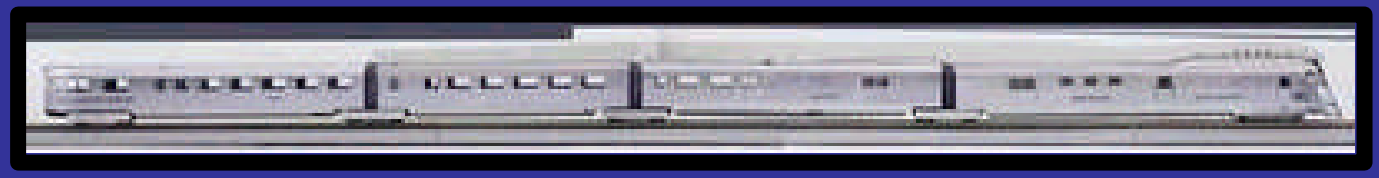
Santa Fe Alco PA Diesel Engine set
with “Warbonnet” paint scheme

The post-World War II era was an exciting transition period for America's railroads. Practical, war-time productions gave way to more daring and glamorous streamlined diesels pulling newly equipped passenger trains. Introduced in 1946, the American Locomotive Company's PA-1 made an instant impact on our railroads and railfans. The PA was designed to be used in combination, as many units as were needed to pull a given train. The ABA configuration (consisting of two cab units and a middle cabless unit all connected together) was popular and elegant because of the way it enhanced the engine's long, sleek appearance. It was GE's industrial designer Ray Stevenson who won a contest to design the striking engine.

Know your Trains!

Encyclopedia Information for #30-2150

Many rail fans agree that the Alco PA is the most beautiful diesel locomotive ever produced. Its long, streamlined look certainly made it one of the best canvases for beautiful paint schemes - an opportunity that few railroads let pass. The Santa Fe's "Warbonnet" paint scheme is one of the most popular ever to grace an American train. Measuring more than 65 feet long, the PA-1 featured 2000 hp and 100 mph gearing, creating an awesome combination of sleekness, speed, and power. Well suited for both passenger and fast freight service, the Alco PA-1 was a fixture on many of our most famous railroads for years after its introduction.



Burlington Pioneer Zephyr Diesel Passenger Set

The Budd Company has long been held synonymous with passenger car construction. Yet Budd proved itself revolutionary in the design of self-propelled passenger cars as well. One of their most unique designs came from a project commissioned by the Chicago Burlington & Quincy Railroad, who simply asked for a stainless steel train, powered by a diesel engine and capable of travelling 100 miles per hour. The consist needed to be equipped with a Railway Post Office compartment, contain space enough for 25 tons of baggage and express, and be capable of seating 70 passengers. The CB&Q left it up to the Budd Company to determine how they would accomplish the task.

Know your Trains!

Encyclopedia Information for #30-2186

The 3-unit articulated consist that Budd ultimately delivered employed the use of lightweight stainless steel construction that borrowed on aircraft fuselage technology. By using a tubular shape, Budd was able to disperse the cars' weight over fewer trucks while creating a stronger design than traditional car bodies afforded. The final design was unique not only in appearance but in function as well. The low, sweeping design and rounded "shovel" nose made Zephyrs a popular attraction and frequent subject of railfan shutterbugs all over the country.

Norfolk Southern SD-90MAC Diesel Engine

Serious efforts to use AC (alternating current) diesel-electric engines began when General Motors introduced its 4,000-hp SD-60MAC in 1991-92. While the AC power increases an engine's adhesion, allowing it to start far heavier trains than a DC-powered locomotive of the same horsepower, the heavier load prevents AC-powered engines from reaching track speed. To solve that problem, locomotive builders have raced to design and deliver AC engines with ever-larger horsepower. In 1995 GM introduced the 5,000-hp SD-80MAC, which uses a 20-cylinder version of EMD's 710-series prime mover to generate extra power.

Know your Trains!

Encyclopedia Information for #30-2226

While they were impressed with GM's results, most railroads chose to wait for the 6,000-hp SD-90MAC, but Conrail took the plunge and placed a 30-unit order for the SD-80MACs. The railroads that opted to wait for the 6,000-hp SD-90MACs initially found themselves with less power when their -90s were delivered in 1996. GM opted to deliver the engines with 4,300-hp prime movers that were designed to be replaced with 6,000-hp engines when they became available. Now that they are operating at full power with a GM16V265H engine, the SD-90MACs offer 170,000 pounds of continuous and 200,000 pounds of starting tractive effort, as well as 115,000 pounds of dynamic braking effort.

Know your Trains!

Encyclopedia Information for #30-2515

Pennsylvania Railroad GG-1 Electric Engine

The GG-1 could be called the Gold Standard for locomotives, with its unparalleled longevity and road performance. Its incredible performance is probably due to the fact that it had to compete for its spot on the Pennsy roster. When the PRR was in the market for a new high-speed passenger locomotive, it was given two prototypes to consider. The GG-1, based on the New Haven EP-3, defeated the R1 in the contest to determine which engine Pennsy would order, and so began the engine's unparalleled dominance.

Know your Trains!

Encyclopedia Information for #30-2515

The 139-unit GG-1 fleet was built between 1934-44, primarily for passenger work, though during World War II and in the 1950s when passenger train miles were reduced the engines did dual duty, pulling freight trains when needed. The GG-1 survived longer than any other locomotive design, lasting well into the 1980s, and survived both the railroad that created it and that road's successor, Penn Central.

Norfolk & Western "Powhattan Arrow" Passenger Set
with Class J Steam Engine
Engine Cab Number: 611 (the last Class J engine to be retired)

The Norfolk & Western Railroad was one of the U.S.'s major Class-1 railroads servicing the eastern U.S. While the railroad's freight business was primarily hauling coal trains from the mines in West Virginia and other parts of its territory, it also provided top-notch passenger service in an era when travellers expected trains to help them get where they were going, comfortably, quickly, and elegantly.

Know your Trains!

Encyclopedia Information for #30-4036

The Class J 4-8-4 steam locomotive was especially designed to muscle the N&W's passenger cars over the railroad's tough, mountainous Appalachian terrain. Not only was the engine nimble and powerful enough to top the highest mountains and to slow quickly for sharp curves before exploding back to full speed, but it is also considered one of the most beautiful streamlined steam engines ever built. The J is most famous for heading the deluxe Powhattan Arrow passenger train, which ran between Norfolk, VA, and Cincinnati, OH.

Know your Trains!

Encyclopedia Information for #30-4036

Engine No. 600, the first of N&W's famous Class J engines, was designed by N&W's in-house engineers and built in the railroad's own Roanoke, VA, shops in 1941. The engine's rounded body and decorative cowling (used to hide often lumpy mechanics of a steam engine) captured the spirit of the mid-twentieth century, when sleek passenger engines looked as fast as bullets heading up the high-speed express trains.

Four more Class Js quickly followed No. 600 before World War II brought an end to production of passenger efforts. The War Production Board, which regulated the manufacture of things like locomotives, needed to reserve valuable metals and other raw materials for production more directly related to the war effort. In 1943, however, the Board did permit N&W to build six more Class Js, without the decorative streamlining and geared lower than the others, so that they could haul heavy freight trains of materials vital to the war effort as well as the throngs of troops and civilians who needed to get to new locations. The Js helped N&W do its part to power the war effort, making far more daily runs than during peacetime and scarcely ever needing to stop for maintenance.

After the war, N&W converted the six 1943 engines to match their others, and it built an additional three Class Js in 1950. During an era when most railroads were eager to make the change to diesel engines, the N&W's order of three new steam engines as late as 1950 speaks volumes about the reliability and flexibility of these steamers. The Norfolk & Western continued to use the Js until the late 1950s, when dieselization became inevitable.

When it was the pride of the N&W, the Class J headed up several of Norfolk & Western's famous named passenger trains, many of which consisted of streamlined cars painted to match the tuscan red and gold decorative skirting that graced the engine. Streamlined cars were made of a lighter weight material than earlier passenger cars, which meant the trains could pull more cars; and therefore more passengers, to help increase railroad revenue.

Know your Trains!

Encyclopedia Information for #30-4039

Southern Pacific “Daylight” Passenger Set
with GS-4 Steam Engine
Engine Cab Number: 4449

Southern Pacific's newly redesigned Daylight passenger train, with its 4-8-4 Northern steam engine and striking streamlined passenger cars, was the most beautiful train in America when it debuted in 1937. Its unmistakeable hues, chosen to reflect the shades of the sunset over the Pacific ocean, gave this luxurious passenger train a distinctive identity and generated attention for the railroad that owned it as it sped passengers between San Francisco and Los Angeles.

Know your Trains!

Encyclopedia Information for #30-4039

In the 1920’s, Southern Pacific rethought the standard approach to motive power; rather than the time-consuming practice of changing engines at division points, they wanted to develop an engine for use on extended runs. The route required that the engine be capable of pulling heavy loads (12-car, 626-ton trains) at high speeds over long distances and grades, and the SP's powerful Northerns were deemed the best engines for the challenging job. The 4-8-4's eight drivers allowed the engine to generate more power than engines with fewer driving wheels, and the four trailing wheels supported a larger firebox, increasing boiler capacity, which meant these engines could sustain higher speeds over longer distances than other engines available at the time.

CNJ Blue Comet Passenger Train
with 4-6-2 Pacific Steam Engine and Heavyweight Passenger Cars
Engine Cab Number: 831

In 1910 Halley's Comet streaked across the night-time skies of New Jersey. For many, the comet was a sign of danger and impending doom. Almost 20 years later, a comet returned to New Jersey, but this time it was in the form of a high-speed passenger train: the Blue Comet. Instead of fear and "Comet Pills," this comet brought first-class, high-speed passenger service to the route between Jersey City and Atlantic City. During its 12-year run, the Blue Comet was the pride of the New Jersey Central Railroad.

Know your Trains!

Encyclopedia Information for #30-4049

In its preferred consist, the Blue Comet comprised a blue G-3 Pacific steam locomotive pulling several blue heavyweight cars that were named after high-speed comets. The Great Depression, competition from the Pennsylvania Railroad and the proliferation of automobiles brought about the premature end of the Blue Comet in 1941. While it has been gone for almost 60 years, the Blue Comet will never be forgotten.

New York Central Fast Freight Set
with 4-6-0 Steam Engine
Engine Cab Number: 1242

In 1900 the 4-6-0 steam engine was the most common locomotive on American rails. The first 4-6-0 was introduced in the 1840s, and this engine type proved so successful that it was adapted with new technologies and used until well into the 1900s. This gives it a longer life than virtually any other wheel configuration in history. Called "Ten-Wheelers," the 4-6-0s were flexible enough to do virtually any job assigned them: mainline freight and passenger service, branchline service, and even occasional yard duties.

Know your Trains!

Encyclopedia Information for #30-4050

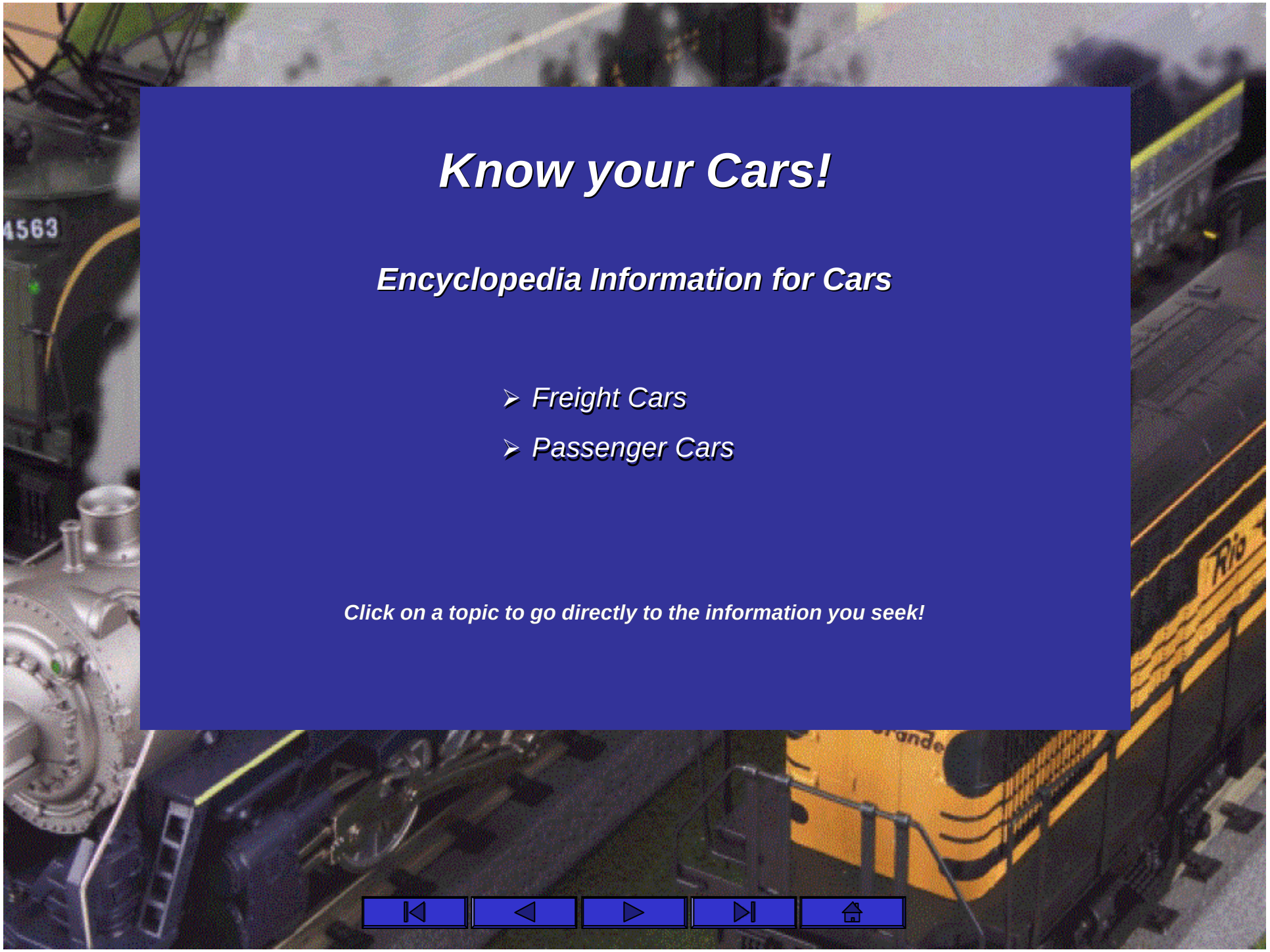
Union Pacific Freight Set
with 2-8-0 Steam Engine
Engine Cab Number: 1757

The 2-8-0 Steam Engine was first developed in the 1860s to provide power for heavy trains at moderate speeds, especially on steep grades. Alexander Mitchell, chief engineer for the eastern Pennsylvania coal-hauler Lehigh and Mahoney Railroad, designed the first 2-8-0. This engine type got its nickname, the Consolidation, in honour of the consolidation of this and other railroads into the Lehigh Valley Railroad.

Know your Trains!

Encyclopedia Information for #30-4050

Although the Consolidation was designed for work on railroads that ran a lot of coal trains, it quickly gained in popularity and became the standard freight hauler for railroads all over the country. Union Pacific owned 550 Consolidations, and at one point in 1924 the Pennsylvania Railroad claimed 3,335 Consolidations. It was not until 1910 that these popular engines were superseded by a larger, more powerful variety of steam engine for mainline work. But even after they lost their jobs as the primary mainline freight locomotives, these trusty engines continued to work hard at branchline, local way freight and even occasional switching duties. They remained in active service into the 1950s.



Know your Cars!

Encyclopedia Information for Cars

- Freight Cars
- Passenger Cars

Click on a topic to go directly to the information you seek!

Know your Cars!

Encyclopedia Information for Freight Cars

Trains move America's stuff-big heavy loads of raw materials or manufactured goods. There are special cars designed to protect and move every kind of freight safely. Most cars run in "manifest" trains with a variety of car types, but today we see a rising number of "unit trains" where one type of material is pulled in a number of similar cars all going to one location, such as a long coal train serving a power plant. You will find RailKing cars to serve every industry on your railroad.

Know your Cars!

Encyclopedia Information for Freight Cars

Boxcars – Page 1/1

The most common and flexible of freight cars is the boxcar. It really is basically a box on wheels, and will hold anything that will fit through its side doors. Early boxcars were wood, they changed to steel during the first part of the 20th century. Although the growth of intermodal traffic has made the boxcar less important, it is still a rare freight train that has no boxcars in its consist.

Know your Cars!

Encyclopedia Information for Freight Cars

Cabooses – Page 1/2

The most famous car in the freight train is the caboose. It served as a rolling office for the train conductor and gave him a place to watch the cars for any trouble and to stop the cars if a coupler broke and the train became separated from the engine. The caboose was often a rough ride, since it came at the end of the train and would get whipped around curves or lurch suddenly to a stop.

Know your Cars!

Encyclopedia Information for Freight Cars

Cabooses – Page 2/2

Although they were not always red (cabooses usually matched a railroad's diesel locomotives in colour) and did not always have a cupola on top (many had bay windows on the side), the caboose did always come at the end of the train, with signal lanterns glowing and a conductor waving out the window. Although cabooses have largely been replaced by flashing radio transmitters at the end of trains, they are not completely gone. All US Army trains require a caboose and they are often used in industrial or coal field operations, where long trains have to back up around curves.

Know your Cars!

Encyclopedia Information for Freight Cars

Flat Cars – Page 1/1

Flat cars are simply a flat platform on wheels for holding things too large to fit in the side of a boxcar. They often carry heavy machinery, construction equipment, and military tanks and trucks. In earlier times, they carried circus wagons from town to town. Today, flat cars usually carry trailers in intermodal service. A special kind of flat car is the depressed-center car, which has a lowered middle section for carrying extremely large loads (like a power plant generator) without bumping the roofs of tunnels or bridges on the trip.

Know your Cars!

Encyclopedia Information for Freight Cars

Hoppers - Page 1/2

Hoppers look like really tall gondola cars, with two differences. One is that the ends angle out at the top and the other is that the bottom has several V-shapes sticking out between the trucks. This is because hoppers are designed to carry loose materials and dump them out through the bottom. So the angled upper sides help gravity channel the loads out when the spouts in the bottom are opened.

Know your Cars!

Encyclopedia Information for Freight Cars

Hoppers - Page 2/2

There are two kinds of hoppers, open and covered. The open hoppers are used to haul coal, sand, gravel, woodchips, and the like. Ore cars are shorter-length open hoppers for carrying heavy metallic ores that weigh too much for regular size hoppers. Covered hoppers are used for materials that require protection from weather: grain, plastic pellets, concrete mix, chemicals.

Hoppers are often used in unit train service. Coal and ore trains service mines and factories year-round, while every harvest season sees long trains of covered hoppers hauling grain from farms to grain elevators and food processing plants.

Know your Cars!

Encyclopedia Information for Freight Cars

Tank Cars - Page 1/1

Tank cars are like a tin can on wheels. They hold liquid or slushy materials, such as oil, chemicals, corn syrup, or kaolin mud (a type of wet dirt used to make magazine paper shiny). Tankers come in a variety of sizes and with different numbers of domes on the roof depending on what materials they are to transport. A large volume of tank cars travel up and down the Mississippi river valley to the chemical plants on the Gulf of Mexico. Unit trains of tankers will sometimes service oil fields and refineries in Texas.

Know your Cars!

Encyclopedia Information for Passenger Cars

While long-distance train travel is now unusual, for over a century, it was the only reliable way to go. The first passenger trains across the US shortened New York to California travel time from 6 months to 7 days! Between 1900 and 1960, railroads competed for passengers by offering luxurious sleeping cars, gourmet diner meals, high speed express schedules (100 mph became commonplace), on-board maids and valets, rolling barbershops and baths, and glass dome cars for watching the scenery. Train travel is more like a cruise ship than an airplane or automobile trip. You can get up, stretch your legs, eat when you like, and meet new people in the lounge car. From your window you can see all the sights along the way. It is a comfortable, sociable, fun way to travel.

Know your Cars!

Encyclopedia Information for Passenger Cars

Heavyweights - Page 1/2

While nineteenth-century wooden cars were beautiful to look at and light to pull, they were dangerous. In wrecks or derailments, cars would collapse, telescoping forward and crushing passengers. Then hot coals from the heating stoves would ignite the cars, cooking anyone who hadn't been crushed. As a result, all-steel cars were developed during the first decade of the 1900s. These cars weighed much more than wood cars, but were much stronger.

Know your Cars!

Encyclopedia Information for Passenger Cars

Heavyweights - Page 2/2

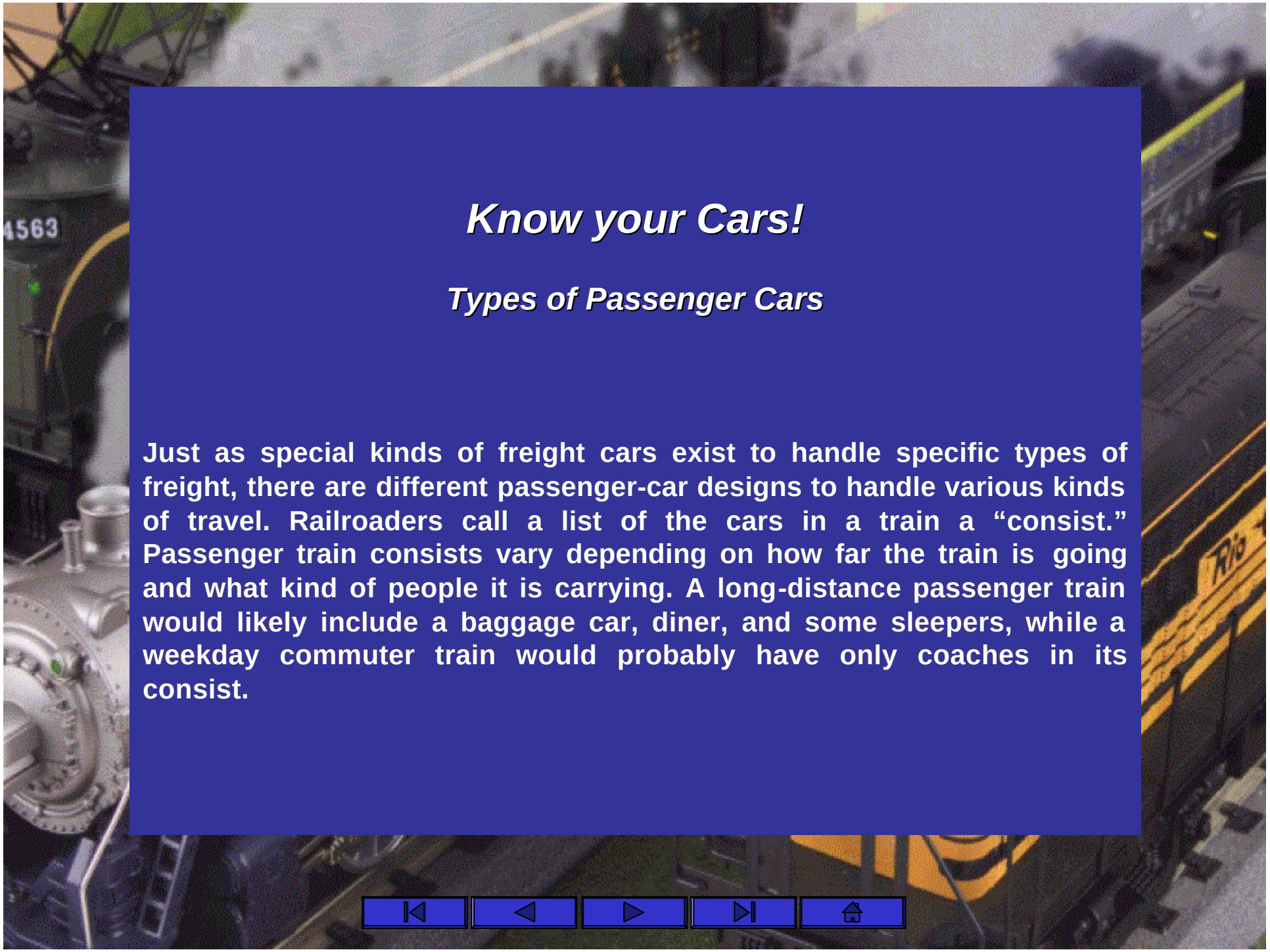
In fact, many contained a full concrete pad under the floor, to ensure a low center of gravity and smooth ride. To support these new “heavyweight” cars, the number of wheels on the trucks were increased from 4 to 6. They maintained the clerestory roofs (a central hump running the length of the car that allowed greater headroom over the central aisle of the car and had little windows, to let in light) and vestibules (the car-end platforms were enclosed and a rubber diaphragm connected the cars so travellers could pass through safely) of the earlier wooden cars, on longer, stronger bodies.

Know your Cars!

Encyclopedia Information for Passenger Cars

Streamliners – Page 1/1

In the 1930s, car builders combined the new technology of stainless steel construction with the current craze for “streamlined” art deco design. The resulting passenger cars were lightweight and stylish, with flattened roofs replacing the old clerestory hump and bright paint schemes replacing the old varnish or Pullman green colours. Through the 1940s and into the early 1950s, streamliners symbolized all that was modern, glamorous, and fast in railroading.



Know your Cars!

Types of Passenger Cars

Just as special kinds of freight cars exist to handle specific types of freight, there are different passenger-car designs to handle various kinds of travel. Railroaders call a list of the cars in a train a “consist.” Passenger train consists vary depending on how far the train is going and what kind of people it is carrying. A long-distance passenger train would likely include a baggage car, diner, and some sleepers, while a weekday commuter train would probably have only coaches in its consist.

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 1/7

Head-end **cars are various cars that go right behind the locomotive, and carry packages rather than passengers. The most important of these is the** ***baggage car*****, which holds passengers' luggage. Trains sometimes used combine cars which had a baggage compartment up front and passenger seating area in the rest of the car. Often these cars were designated smoking areas.**

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 2/7

Since passenger trains travel quickly and according to strict schedules, they have often been used to carry *mail cars*. Today, these are often just boxcars full of letters for a particular town. However, up until the 1970s, passenger trains often carried *Railway Post Office (RPO)* cars. These cars were full-fledged post offices on wheels, with workers sorting mail as the train rolled down the line. At station stops, people could walk up to the car and mail letters by dropping them in a slot on the outside of the car. For stations where the train did not stop, a mailbag was thrown off the car, for the stationmaster to provide to the local postman. The stationmaster could also hang outgoing mailbags on a pole, for the passing RPO to pick up with a hook, carrying the mail on its way.

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 3/7

For many years the railroads did a profitable business in “express,” meaning individual packages that need to be delivered quickly. Many passenger trains carried a reefer car at the head end, to handle express packages, usually for the Railway Express Agency, a company owned by several railroads that offered overnight package delivery, similar to Federal Express or United Parcel Service (UPS) today.

Coaches **are the most common kind of passenger car. Coaches have a row of seats on either side of a central aisle and are the lowest-cost cars to ride on. Typically, a restroom is provided at each end of a coach.**

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 4/7

Diners **are cars where passengers can eat a meal. During the first half of the 20th Century, railroads vied to offer the most luxurious dining service to their passengers. Fine china, gourmet meals, lace tablecloths, and waiters in white tuxedos gave passengers the royal treatment. Today's diners are decidedly less fancy, but still offer hot meals on wheels to travellers. The kitchen or galley on board a diner is a masterpiece of efficient design, allowing full meals to be prepared in a space about the size of a walk-in closet.**

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 5/7

Sleepers, **often called Pullmans after the company that operated so many, have seats by day and sleeping berths by night. Some designs offer passengers the comfort of a private room, for a higher fare.**

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 6/7

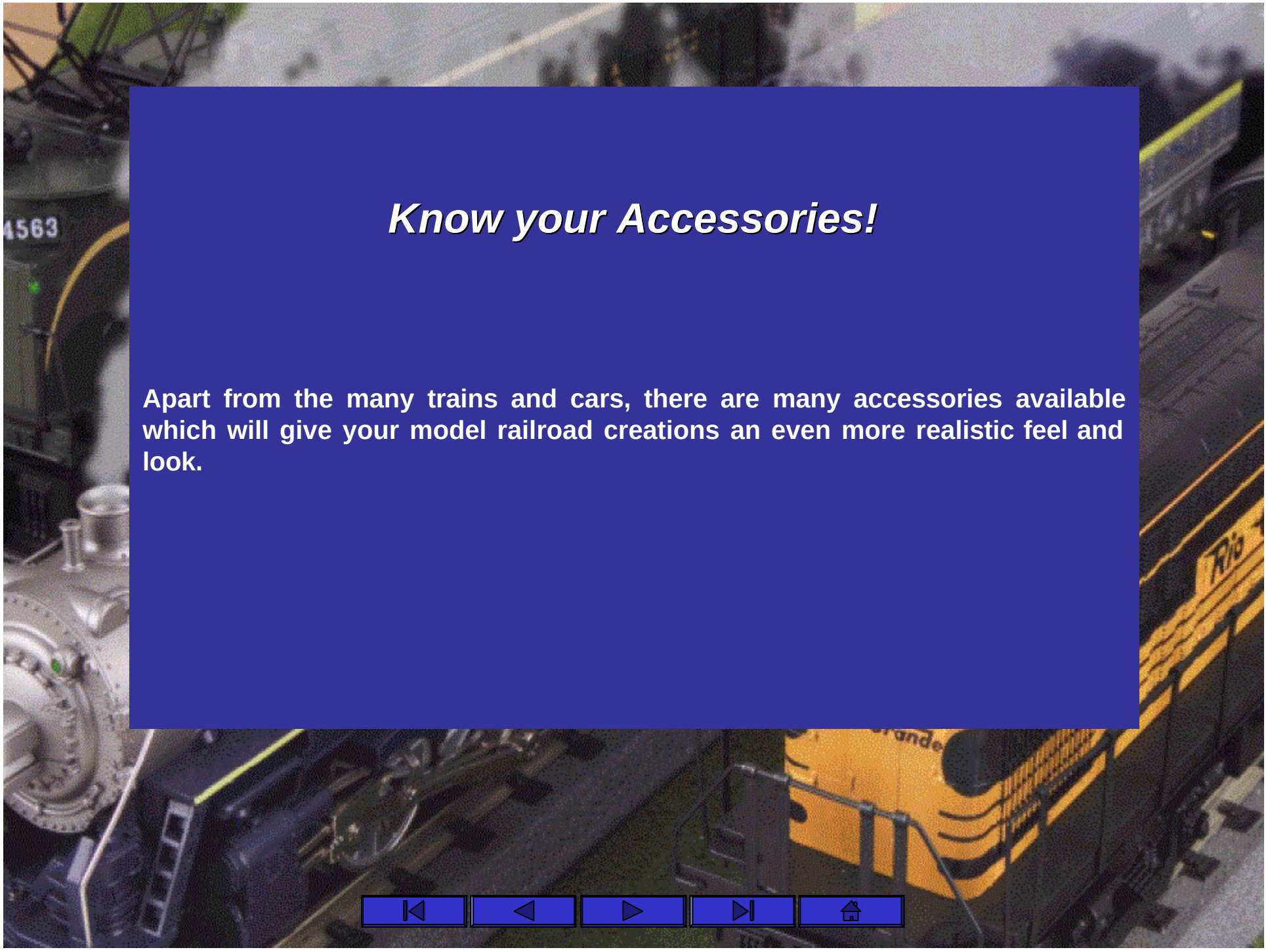
Just as a caboose traditionally ended each freight train, an observation or tail car usually marked the tail of passenger trains. The earliest observation cars came at the end of the first vestibule trains. Instead of a vestibule to nowhere, these cars featured an open platform on the rear, a balcony for people to sit on and watch the miles roll past.

Know your Cars!

Encyclopedia Information for Passenger Cars

Types of Passenger Cars– Page 7/7

When streamliners were introduced, the open platform was replaced with a rounded-end car with windows on all sides and comfortable chairs, so that travellers could take in the panoramic views. The most spectacular tail car was the “skytop” design built for the Milwaukee Road’s Hiawatha express trains. The rear half of these cars was composed of glass, multiple panes running from roof level down nearly to the floor. This meant riders could see straight up and out the rear for an uninterrupted look at the amazing Rocky Mountain scenery on the Olympian Hiawatha’s climb over the Continental Divide.



Know your Accessories!

Apart from the many trains and cars, there are many accessories available which will give your model railroad creations an even more realistic feel and look.

Know your Accessories!

Encyclopedia Information for #30-9105

Mel’s Diner

Before self-service restaurants sprouted up across America, drive-in diners were king. With their promises of a hefty meal at a small price and the convenience of attentive carhops to cater to every customer’s need, America was parked in diner’s lots.

In 1947, when San Francisco was already a hotbed for such open-air eateries, Mel Weiss and Harold Dobbs teamed up and created a diner in the city known for its trolleys - a diner that made people stop and take notice - Mel’s Drive-In.

Know your Accessories!

Encyclopedia Information for #30-9105

Between popular songs, an on-the-scene radio personality would appeal to motorists to swing over to Mel's. And in its 30,000 square foot parking lot, Mel's 14 carhops served those customers as they pulled up, radios blaring and stomachs growling. The atmosphere of the San Francisco location was contagious - it spread to eleven other locations in Northern California.

Know your Accessories!

Encyclopedia Information for #30-9105

Mel's reigned for two decades, but fast food franchises finally wrested the crown from the neon adorned drive-ins. Just before demolition of the original Mel's, filmmaker George Lucas chose to use it as a backdrop for his 1973 film, American Graffiti. The movie was released and the building was scrapped. Yet, the spirit of Mel's continued through the son of Mel Weiss. In 1985, with partner Donald Wagstaff, re-opened Mel's at 2165 Lombard Street in San Francisco. It began a revival of the drive-in restaurant in California. Presently, there are locations in San Francisco and Los Angles, CA.

Know your Accessories!

Encyclopedia Information for #30-9124

Operating Gas Station

Most of today's gas stations have grown up to become hybrids of self-serve fuel pumps and convenience/fast food shops. The message is clear: you can get what you want and get it fast - whether it be a fill-up on pump 3 or a bag of chips.

Gas stations were born out of necessity. As the 1800s came to a close and the interest in automobiles increased, so did the need for a reliable way to get the fuel to make the locomotive go. Back at the turn of the 20th century, motorists had to literally hunt for gasoline. It was only offered by bulk fuel distributors who set up camp on the outskirts of high population centers. Many a motorist who ran out of gas on their quest for more were often pulled the rest of the way by a smug horse and buggy driver.

Know your Accessories!

Encyclopedia Information for #30-9124

By 1904, horse-drawn tanks of gas were on the move, making it available in more places, but it still wasn't the most efficient solution. Whatever the case, once the fuel was found, which was often in cans or bulk containers, the dangerous process of getting it into the car began. It was a job nobody wanted. The highly flammable vapours could ignite in a split second if just one thing was done wrong.

Know your Accessories!

Encyclopedia Information for #30-9124

All of this changed in 1905 when the Automobile Gasoline Company was formed by Harry Grenner and Clem Laessig in St. Louis, MO. History credits the company with erecting the first gas station - a small building of tin construction which housed two gas tanks. The fuel was pumped from the tanks with the aid of a simple garden hose. The tanks were placed on pedestals so the gas would flow from the hose thanks to gravity. ACG took the design to the bulk fuel distribution centers first, and gas stations of this sort began to mushroom across the country. The gas station attendant was born.

Know your Accessories!

Encyclopedia Information for #30-11023

Semaphore

Stop. Go. Caution. The red, green and yellow lights correspond respectively along with a distinctive mechanical arm. The signals are used to let locomotive engineers know how they should proceed. Some semaphores are still in use today by railroads across the country, but the bulk of them have been replaced by newer technology such as simple coloured light signals which are basically like those used to conduct street traffic.

Know your Accessories!

Encyclopedia Information for #30-11023

The demise of the semaphore is not a new phenomenon. An article in the February 15, 1930 edition of Railway Age, pointed to a gradually decreasing number of semaphores. It noted that 1923 was the first year that colored light signals exceeded semaphore numbers across the United States and Canada. The article suggested that one reason for the semaphore's demise was the fact that it required maintenance and repairs for its moving parts, which could often cause delays in rail service.

Know your Accessories!

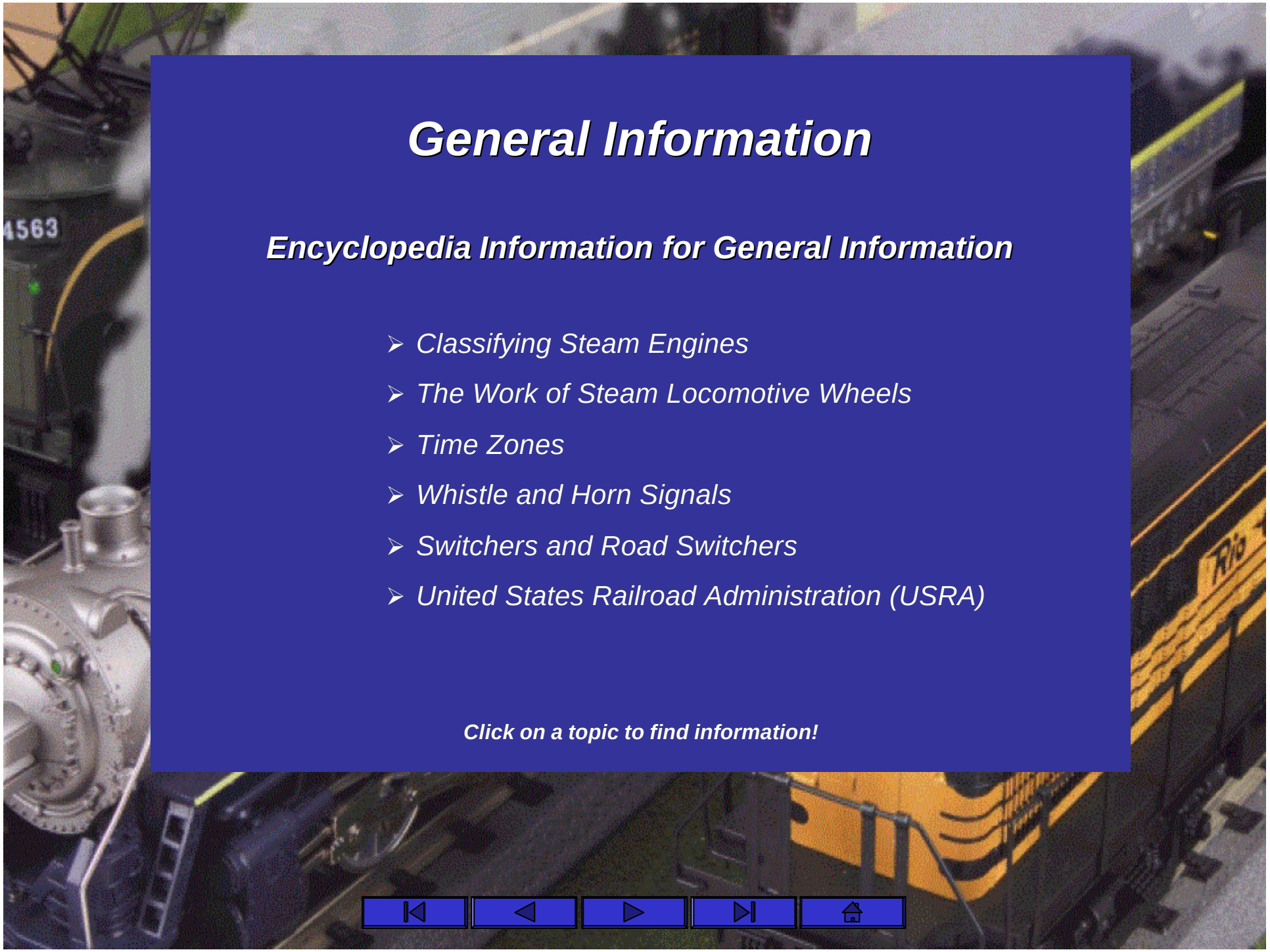
Encyclopedia Information for #30-11028

Water Tower

In the age of the steam, which basically lasted from the late 1700s to the mid-1900s, water towers and steam puffing locomotives went hand in hand. There was just no separating the two. Early towers were of wooden construction and took on different shapes.

Two of the more common styles were either a rounded or octagonal building, elevated by a framework of timber. The tower was situated close enough to the tracks so that the steam engine could position itself next to the structure and guzzle a good drink of water, often by means of a arm that could be lifted and raised to administer the water.

By the late 1950s, railroads began to switch to diesel-powered locomotives, making water towers, as a companion to locomotives, obsolete.

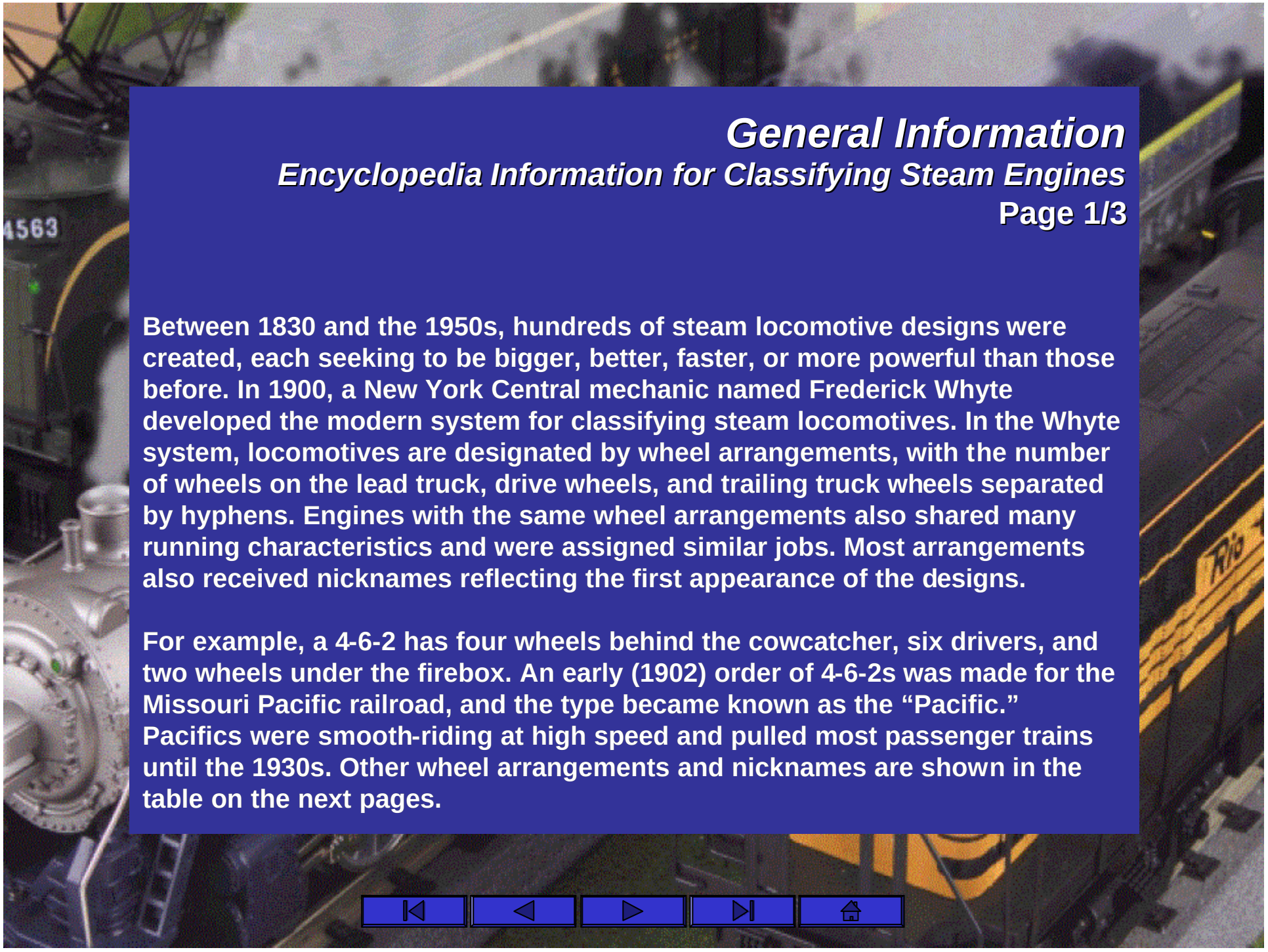


General Information

Encyclopedia Information for General Information

- Classifying Steam Engines
- The Work of Steam Locomotive Wheels
- Time Zones
- Whistle and Horn Signals
- Switchers and Road Switchers
- United States Railroad Administration (USRA)

Click on a topic to find information!



General Information

Encyclopedia Information for Classifying Steam Engines

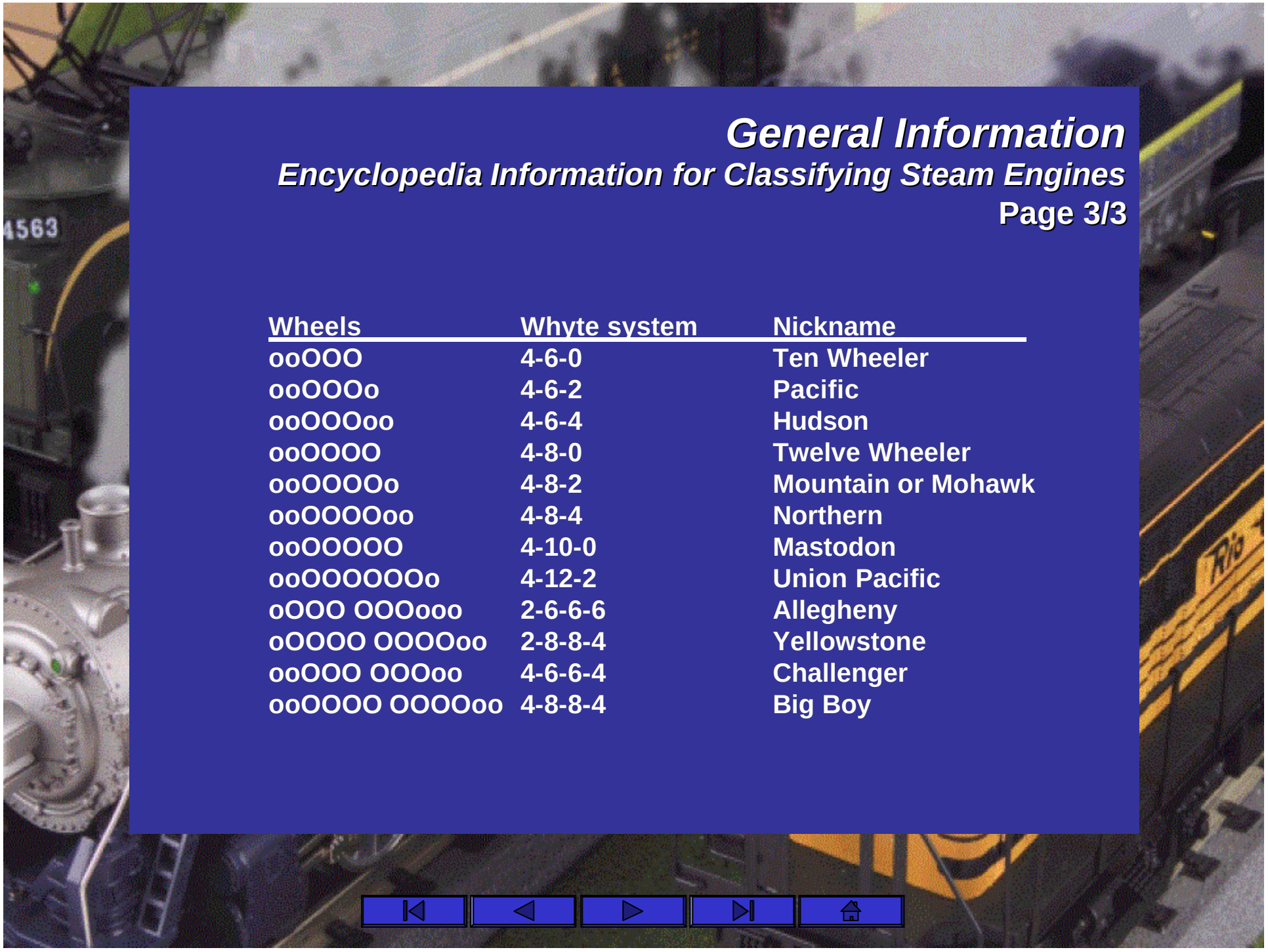
Between 1830 and the 1950s, hundreds of steam locomotive designs were created, each seeking to be bigger, better, faster, or more powerful than those before. In 1900, a New York Central mechanic named Frederick Whyte developed the modern system for classifying steam locomotives. In the Whyte system, locomotives are designated by wheel arrangements, with the number of wheels on the lead truck, drive wheels, and trailing truck wheels separated by hyphens. Engines with the same wheel arrangements also shared many running characteristics and were assigned similar jobs. Most arrangements also received nicknames reflecting the first appearance of the designs.

For example, a 4-6-2 has four wheels behind the cowcatcher, six drivers, and two wheels under the firebox. An early (1902) order of 4-6-2s was made for the Missouri Pacific railroad, and the type became known as the “Pacific.” Pacifics were smooth-riding at high speed and pulled most passenger trains until the 1930s. Other wheel arrangements and nicknames are shown in the table on the next pages.

General Information

Encyclopedia Information for Classifying Steam Engines

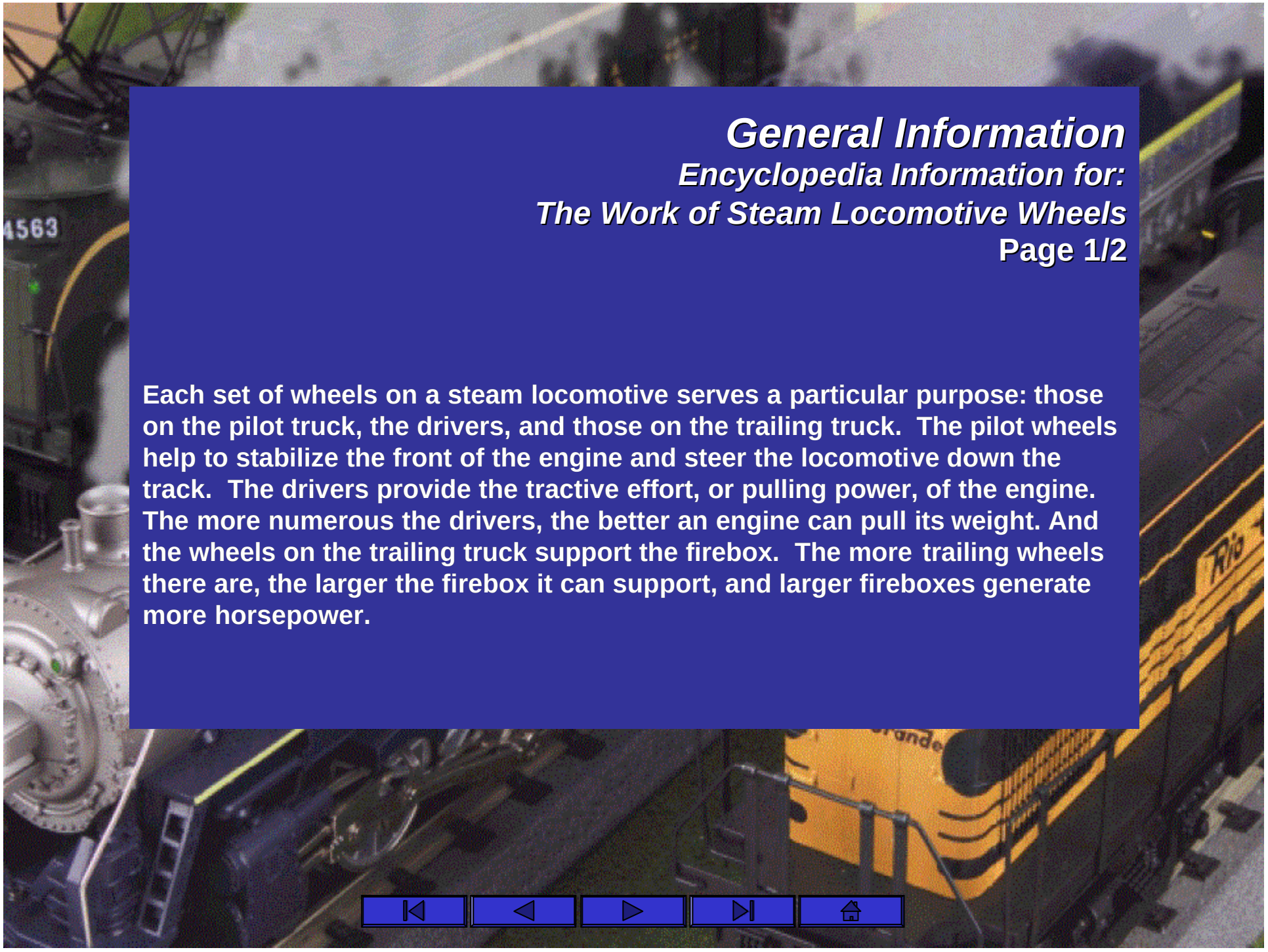
Wheels	Whyte system	Nickname
OO	0-4-0	Four wheel switcher
OOO	0-6-0	Six wheel switcher
OOOO	0-8-0	Eight wheel switcher
oOOO	2-6-0	Mogul
oOOOo	2-6-2	Prairie
oOOOO	2-8-0	Consolidation
oOOOOo	2-8-2	Mikado
oOOOOoo	2-8-4	Berkshire
oOOOOO	2-10-0	Decapod
oOOOOOo	2-10-2	Santa Fe
oOOOOOoo	2-10-4	Texas
ooOO	4-4-0	American
ooOOo	4-4-2	Atlantic



General Information

Encyclopedia Information for Classifying Steam Engines

Wheels	Whyte system	Nickname
ooOOO	4-6-0	Ten Wheeler
ooOOOo	4-6-2	Pacific
ooOOOoo	4-6-4	Hudson
ooOOOO	4-8-0	Twelve Wheeler
ooOOOOo	4-8-2	Mountain or Mohawk
ooOOOOoo	4-8-4	Northern
ooOOOOO	4-10-0	Mastodon
ooOOOOOOo	4-12-2	Union Pacific
oOOO OOOooo	2-6-6-6	Allegheny
oOOOO OOOOoo	2-8-8-4	Yellowstone
ooOOO OOOoo	4-6-6-4	Challenger
ooOOOO OOOOoo	4-8-8-4	Big Boy

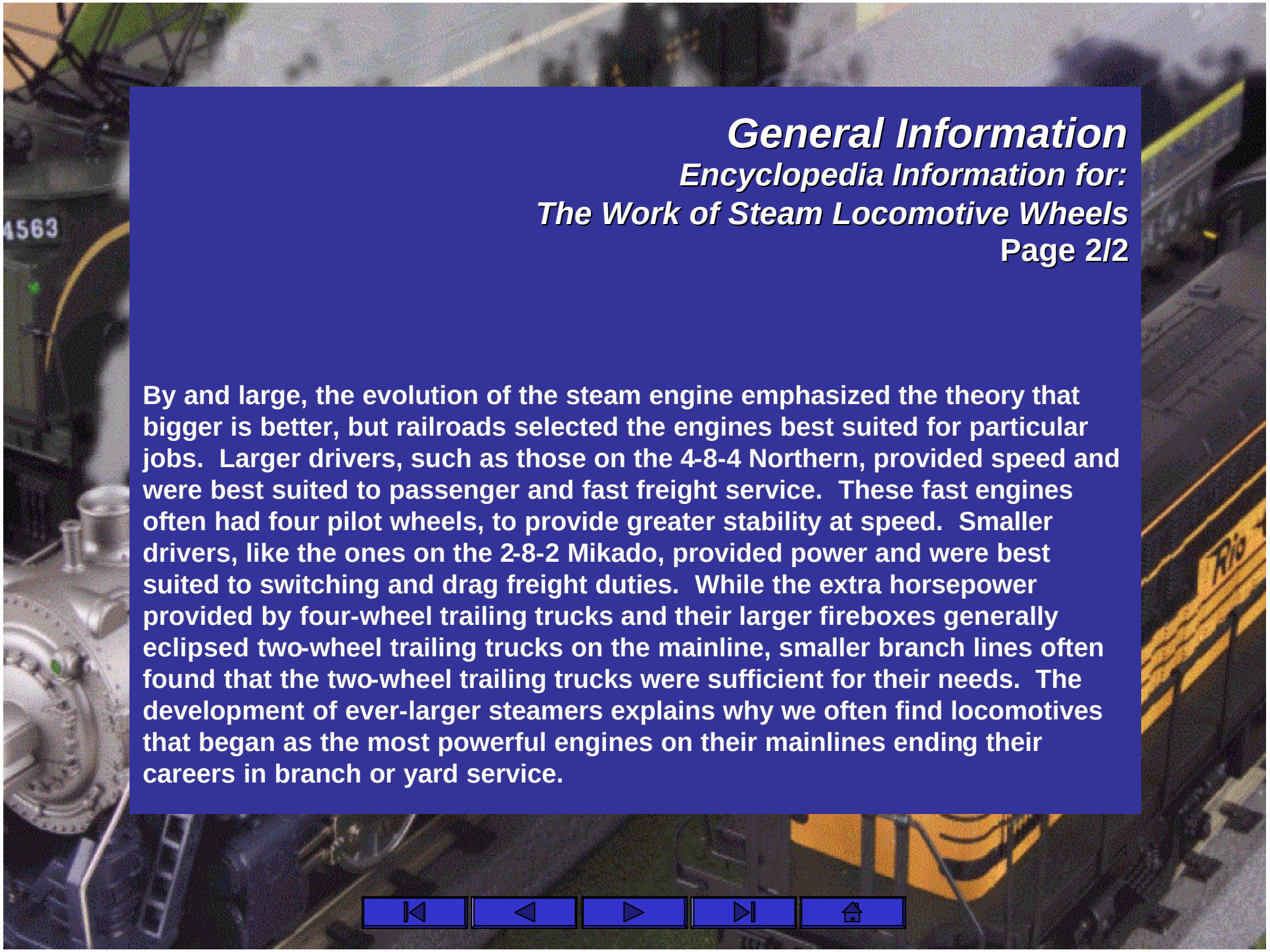


General Information

Encyclopedia Information for:

The Work of Steam Locomotive Wheels

Each set of wheels on a steam locomotive serves a particular purpose: those on the pilot truck, the drivers, and those on the trailing truck. The pilot wheels help to stabilize the front of the engine and steer the locomotive down the track. The drivers provide the tractive effort, or pulling power, of the engine. The more numerous the drivers, the better an engine can pull its weight. And the wheels on the trailing truck support the firebox. The more trailing wheels there are, the larger the firebox it can support, and larger fireboxes generate more horsepower.

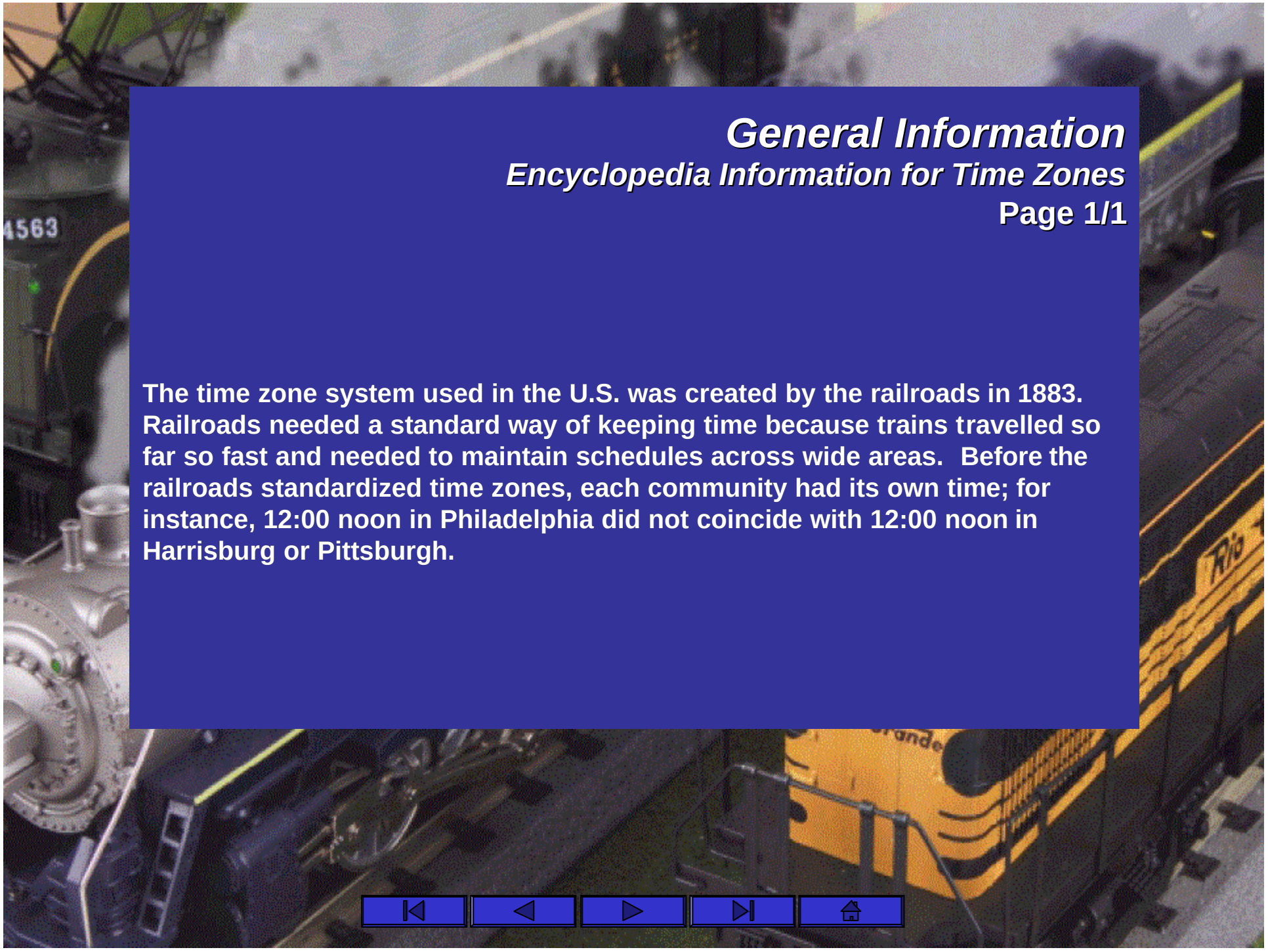


General Information

Encyclopedia Information for:

The Work of Steam Locomotive Wheels

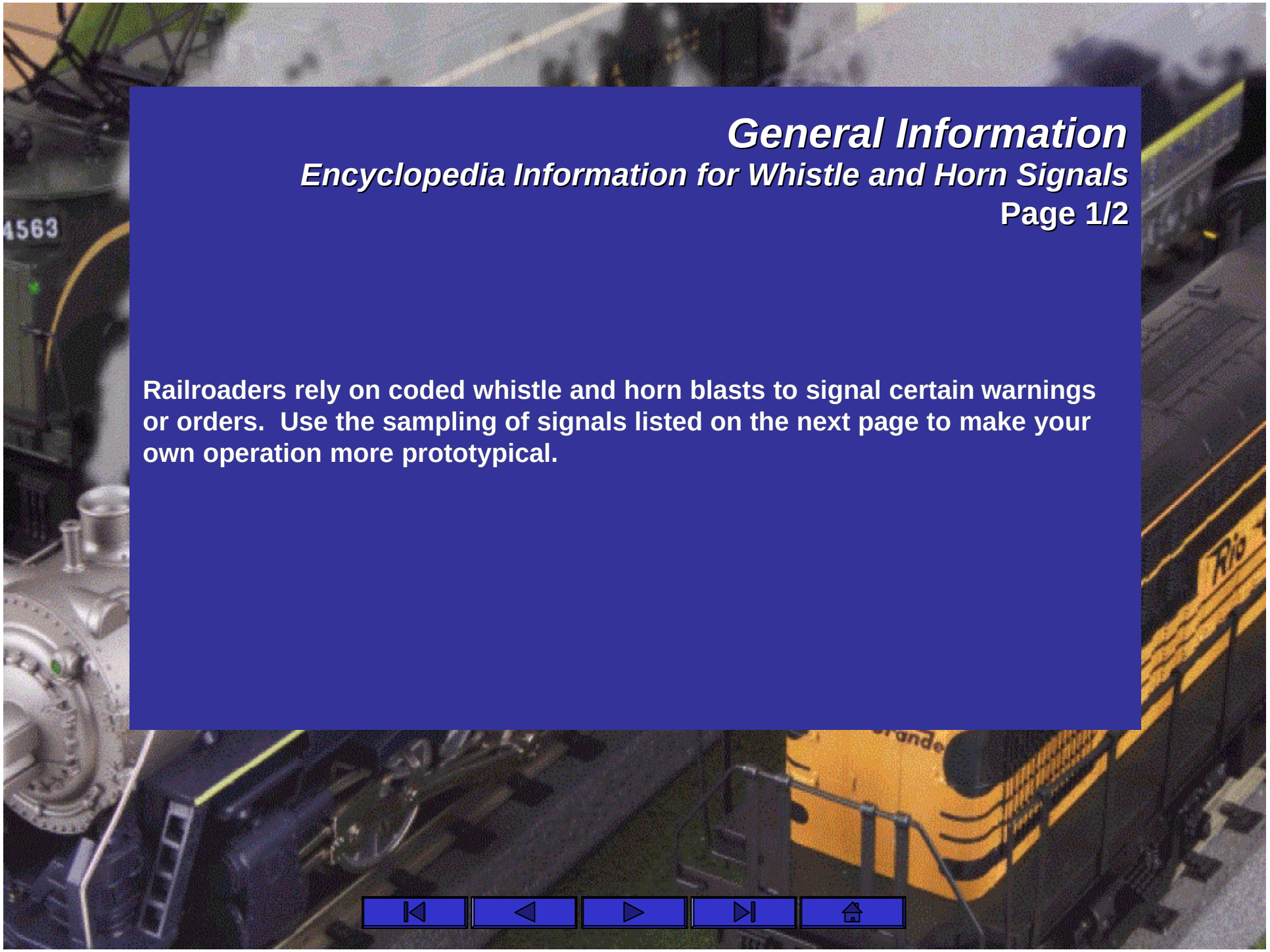
By and large, the evolution of the steam engine emphasized the theory that bigger is better, but railroads selected the engines best suited for particular jobs. Larger drivers, such as those on the 4-8-4 Northern, provided speed and were best suited to passenger and fast freight service. These fast engines often had four pilot wheels, to provide greater stability at speed. Smaller drivers, like the ones on the 2-8-2 Mikado, provided power and were best suited to switching and drag freight duties. While the extra horsepower provided by four-wheel trailing trucks and their larger fireboxes generally eclipsed two-wheel trailing trucks on the mainline, smaller branch lines often found that the two-wheel trailing trucks were sufficient for their needs. The development of ever-larger steamers explains why we often find locomotives that began as the most powerful engines on their mainlines ending their careers in branch or yard service.



General Information

Encyclopedia Information for Time Zones

The time zone system used in the U.S. was created by the railroads in 1883. Railroads needed a standard way of keeping time because trains travelled so far so fast and needed to maintain schedules across wide areas. Before the railroads standardized time zones, each community had its own time; for instance, 12:00 noon in Philadelphia did not coincide with 12:00 noon in Harrisburg or Pittsburgh.



General Information

Encyclopedia Information for Whistle and Horn Signals

Railroaders rely on coded whistle and horn blasts to signal certain warnings or orders. Use the sampling of signals listed on the next page to make your own operation more prototypical.

General Information

Encyclopedia Information for Whistle and Horn Signals

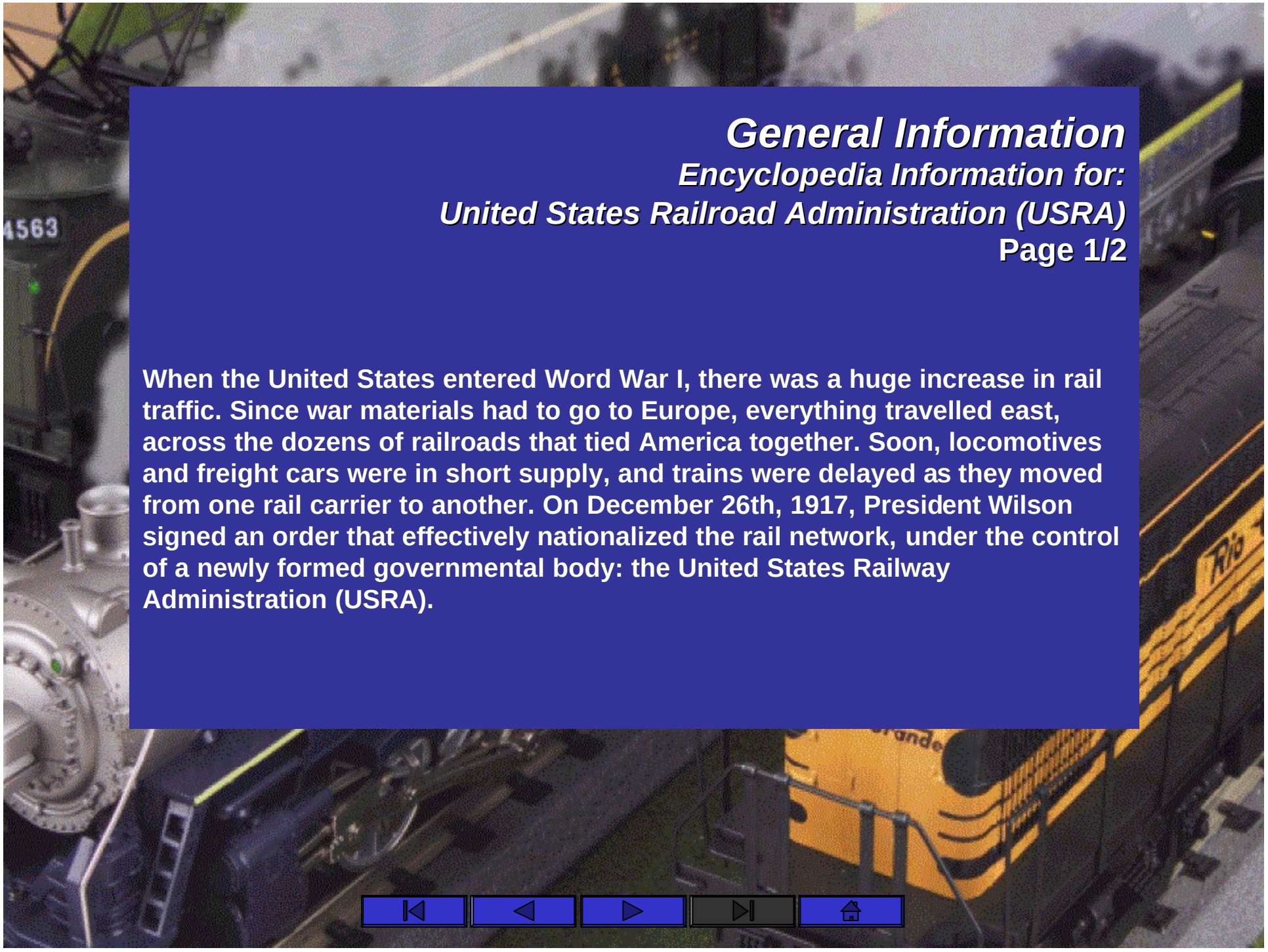
O = a short blast; - =a long blast.

Codes	Meaning
O	Apply brakes or stop
- -	Start or proceed
- (very long)	Approaching stations or junctions
- -O	Approaching meeting or waiting points (sounded 1 mile out)
OOO	When stopped, back up; when running, stop at the next station
- O	Warning whistle when approaching spots with an obscured view
- OOO	Flagman protect rear of the train
- - - -	Flagman return from West or South
- - - - -	Flagman return from East or North
OOOOOO (no set number)	Alarm for people or animals on the track

General Information

Encyclopedia Information for: Switchers and Road Switchers

While switchers are small engines that are most often used in rail yards to move cars from one track or shed to another, road switchers are slightly larger and more flexible engines (1500 hp or more) that are small enough to perform yard duties but powerful enough and equipped to carry loads at speed on the mainline, too.

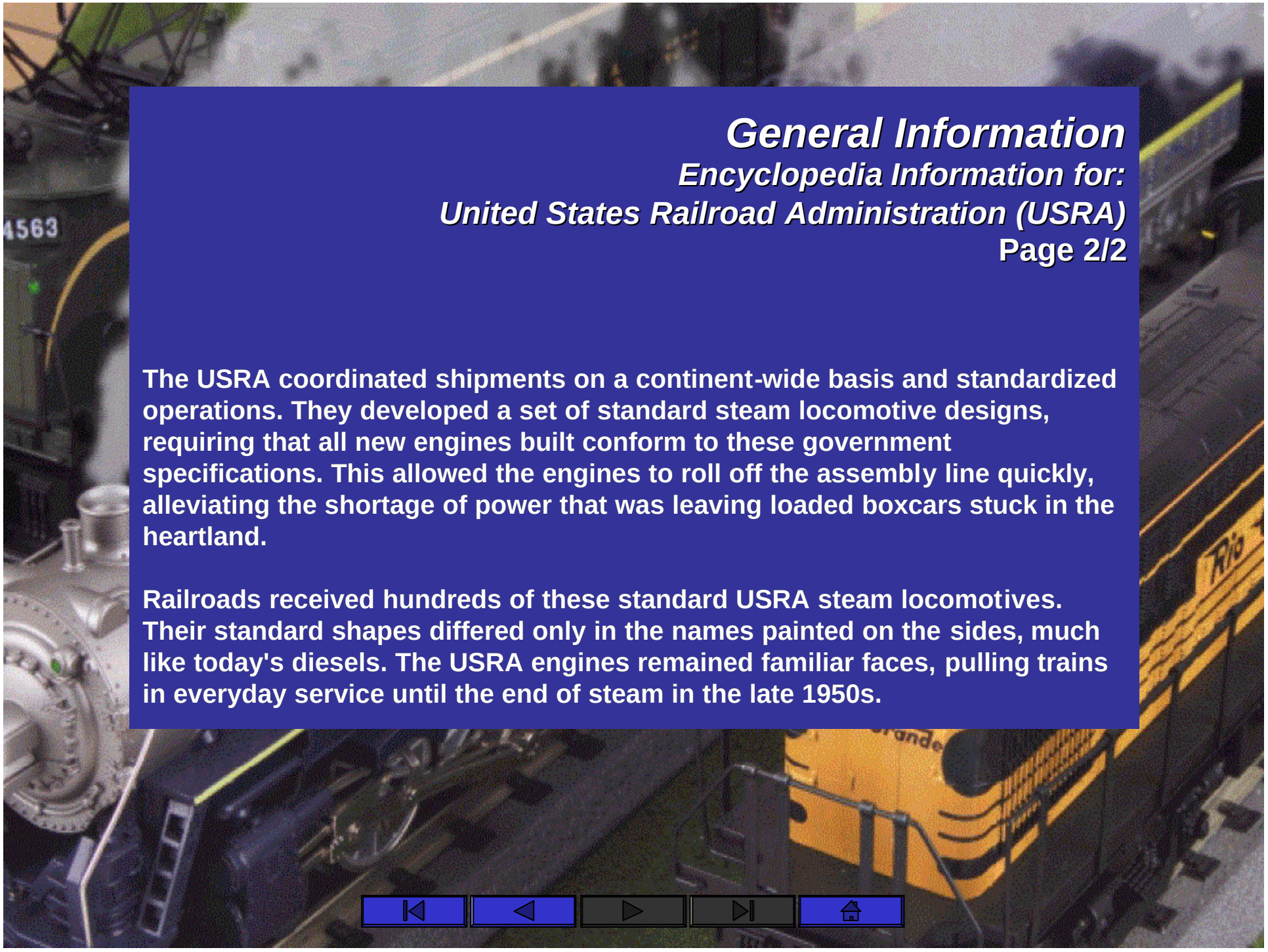


General Information

Encyclopedia Information for:

United States Railroad Administration (USRA)

When the United States entered Word War I, there was a huge increase in rail traffic. Since war materials had to go to Europe, everything travelled east, across the dozens of railroads that tied America together. Soon, locomotives and freight cars were in short supply, and trains were delayed as they moved from one rail carrier to another. On December 26th, 1917, President Wilson signed an order that effectively nationalized the rail network, under the control of a newly formed governmental body: the United States Railway Administration (USRA).



General Information

Encyclopedia Information for:
United States Railroad Administration (USRA)

The USRA coordinated shipments on a continent-wide basis and standardized operations. They developed a set of standard steam locomotive designs, requiring that all new engines built conform to these government specifications. This allowed the engines to roll off the assembly line quickly, alleviating the shortage of power that was leaving loaded boxcars stuck in the heartland.

Railroads received hundreds of these standard USRA steam locomotives. Their standard shapes differed only in the names painted on the sides, much like today's diesels. The USRA engines remained familiar faces, pulling trains in everyday service until the end of steam in the late 1950s.