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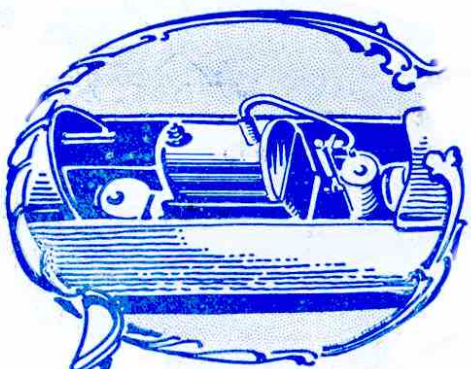
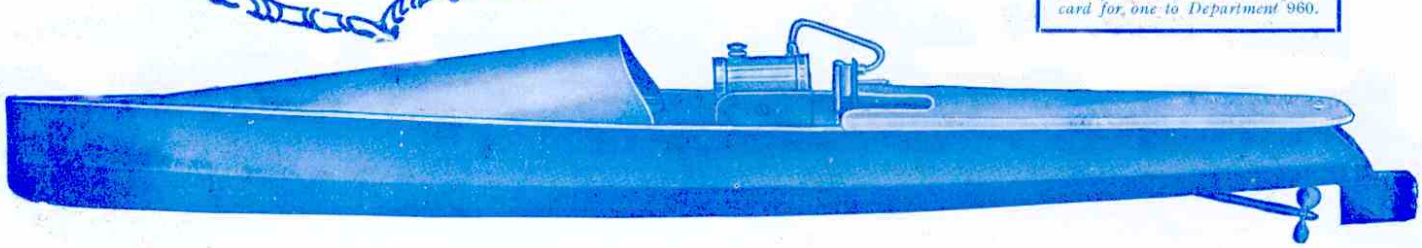


Free to Meccano Readers

A short pamphlet giving full details of the launch will be sent to any reader who sends a post-card for one to Department 960.



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NEXT MONTH: FRENCH, SWISS AND ENGLISH RAILWAYS COMPARED.

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PUBLISHED
IN THE INTERESTS
OF BOYS

Vol. X, No. 6

June 1925

With the Editor

Our Cover

Our cover this month shows a view on the Rigi Railway, one of the famous mountain railways of Switzerland. The electric coach is seen climbing a narrow track that runs along the edge of a precipice, as it winds its way up the mountain. Swiss Mountain Railways are described in a special article in this month's issue by Mr. H. J. Shepstone, F.R.G.S., the well-known author and traveller, whom we welcome as a new contributor to our pages. Mr. Shepstone has promised us several other interesting articles in the near future, including an account of the building of the Sennar Dam across the Nile. The construction of this gigantic work is a particular triumph for engineers because not only was the work carried out in the face of great difficulties, but the engineers literally had to race with Nature so as to get the dam completed before the annual floods of the Nile set in.

Next Month

The July issue will include the first instalment of an article comparing Swiss, French, and English railways. This article has been specially written for us by Mr. H. E. Underwood, who lives in Geneva, Mr. Underwood, who has been a member of the Meccano Guild for many years, has contributed interesting news items to the "*M.M.*" for some time past, and he is now acting as our special correspondent at Geneva. He is particularly interested in railways and has promised to send us some splendid articles dealing with Swiss Railways and engineering works. I feel sure that my readers will look forward to these features, which will be published as opportunity permits.

For Our Cycling Readers

Our contributor "Rover," next month commences a special serial article describing a tour in Somerset and Devon. Although it may not be possible for a large number of our readers to go over the same ground, I feel sure that all cyclists will be interested in reading the new series. They are written in a somewhat different style from that which "Rover" has hitherto adopted and they contain a good deal of helpful instructions to cyclists generally, as well as some reading in lighter vein.

Cycling tours are very similar no matter in what part of the country they are made, the only differences being the scenery, the nature of the road, and the incidents on route. "Rover" is a confirmed cyclist and has averaged 5,000 miles every year for many years. He thinks there is nothing like cycling to keep one fit! I hope that his enthusiasm for cycling will be infectious and that a large number of my readers will be persuaded to get out into the country on tour during the holidays this summer.

A "Fishy" Subject

This month I am commencing a special series of articles on Aquariums and, as a result, many readers will no doubt be tempted to set up a tank or a bell-jar and to stock it with interesting specimens. I feel sure that these articles will be appreciated. No doubt many who already have aquariums—or even who keep the humble stickleback or tadpole in a jam-jar!—will learn with surprise that there is such a thing as cruelty to fishes, and that it is as easy to be kind to creatures that live in water as to those that live on land. No doubt a good deal of pain is inflicted unknowingly upon the inhabitants of an aquarium, but after reading what our contributor has to say on the subject there should be no excuse for any form of "cruelty to fishes."

The Railway Centenary

As most of my readers know, this year is the Centenary of the steam locomotive, and special celebrations are being held in the north of England to commemorate this anniversary. Although the first train on the Stockton and Darlington Railway ran on 27th September 1825, the centenary celebrations are being held in July next at the particular request of the international Railway Congress, which represents the railways of the world. The Congress meets in different countries every year, and for 1925 the meeting was to have been held in Madrid. Owing to the reports of the centenary of British Railways, however, the Congress Committee suggested that if the centenary celebrations could be held in July they would hold their session in London. For this reason it has been decided to celebrate the birth of the railway systems of the world on the site of the original Stockton and Darlington Railway on the 2nd and 3rd July next, instead of holding the celebrations on the actual anniversary of the opening of the railway.

A special Railway Centenary number of the "*M.M.*" will be published in September, and in addition to splendid articles on the history of the locomotive, modern locomotives, and other railway features, it will contain a full description of the Centenary Celebrations. A special representative is being sent to Darlington so that the events may be fully described and illustrated. Further particulars will be published later.

A Famous Author's Centenary

Speaking of centenaries, I read that the centenary of R. M. Ballantyne, the famous author of boys' stories, has recently been celebrated in Edinburgh. Robert M. Ballantyne was born on the 24th April, 1825, and when sixteen years of age received an appointment with the Hudson Bay Fur Co. Although his salary was only £20 a year, we imagine that a good number of our readers would have envied him, for his work lay among the traders and Red Indians in North America. The life was too severe, however, and so affected his health that he had to return to Scotland after six years of adventure.

In 1855, William Nelson, the famous Edinburgh publisher, suggested he should write a book for boys dealing with his experiences and adventures. Next year "*The Young Fur Traders*" was published and meeting with great success, was followed by two other books, which dealt with adventures in different parts of the world. The scenes were laid in countries that Ballantyne had never seen, with the result that in his third book "*Coral Island*" he made at least one great blunder. On this mistake being pointed out to him he determined never to write another book without first "obtaining information from the fountain head." With this maxim in mind he went to stay at Ramsgate and made friends with Jarman, the local coxswain, before writing "*The Life-boat.*" He visited the Bell Rock before writing "*The Lighthouse*" and for his splendid book "*Fighting the Flames,*" he served with the London Salvage Corps as an amateur fireman.

I hope that any of my readers who have not read Ballantyne's books will do so without delay, for they include some of the finest boys' stories that have ever been written. In this connection I wonder if any reader will be able to point out the blunder that appears in "*Coral Island.*" I shall award a cheque for a guinea to the sender of the first correct solution received before 31st August. Mark your envelopes "Coral Island" and do not forget to include your name and address.

Swiss Mountain Railways

Track-laying in Cloudland

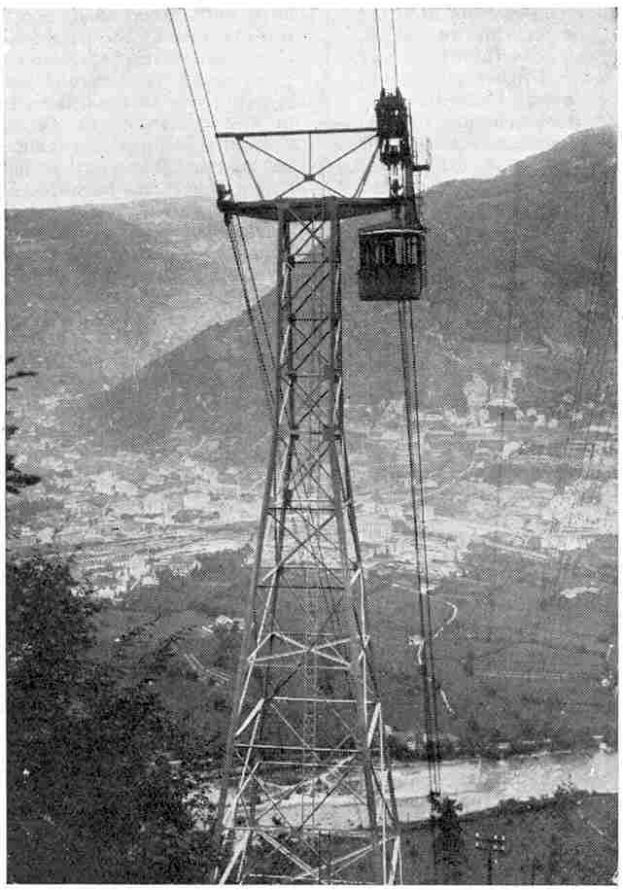
By H. J. Shepstone, F.R.G.S.

THE Alps have been the scene of many battles-royal between skilled engineers and the towering peaks with their everlasting snows.

One of these battles is now in progress on the Aiguille du Midi, the companion peak of Mont Blanc. The engineers are endeavouring to throw a cableway to the summit of this famous peak. Operations were commenced as far back as 1909, and by the time the Great War broke out and put a stop to the operations a height of 4,099 ft. had been gained. A strenuous attempt is now being made to carry through the original scheme, that is to construct an aerial line capable of carrying passengers to the summit of the Aiguille du Midi—12,608 ft. above sea level. The cables on which the cars will run, swinging in the air as it were, are being carried up the mountain side on steel towers varying in height from 38 ft. to 108 ft. Each of these cars will be designed to carry twenty passengers and the motive power will be electricity.

The Avalanche Danger

The engineers have undertaken to reach an altitude of 9,080 ft. next year, but after that progress will prove exceptionally difficult. The work is extremely risky in many respects, but above all there is the danger of avalanches which are very frequent on the higher reaches of this peak. Geologists who have studied this mountain tell us that these avalanches frequently contain as much as 150,000 cubic yards of snow, stone and earth!



The Kohlerer Mountain Aerial Railway

This is by no means the first attempt to construct a passenger cableway up the steep sides of a great mountain. The Kohlerer Mountain Railway in the Austrian Tyrol, for instance, has been in constant operation for some years. In this case, however, the mountain is only 4,000 ft. high and has only two stations, one at the base and the other at the summit. Shortly before the war an aerial line was built to the edge of the Wetterhorn, its object being to raise passengers some 2,000 ft. to the Upper Glacier. Owing to the war this project failed to pay its way and to-day its cables and machinery are disused and covered in rust.

Snowdon Rack Railway

Whether these aerial lines will supersede the rack railways for scaling dizzy heights is doubtful. Rack railways are now in successful operation in almost all parts of the world where there are mountain ranges. We have an example of this system at Snowdon, where a little rack railway climbs about 2,000 ft. in just over four miles. There was a disastrous accident on this line shortly after it was opened and for a time tourists were very shy of it. To-day, however, the accident is forgotten and the line is in great demand as a saver of time and bodily fatigue by those who are anxious to reach the highest point in England and Wales.

As regards difficulty of construction and altitude obtained, the Snowdon line is a mere toy compared to the wonderful rack railways that carry passengers up Pilatus, Rigi, Zermatt, Jungfrau and many other mountains in the Swiss Alps.

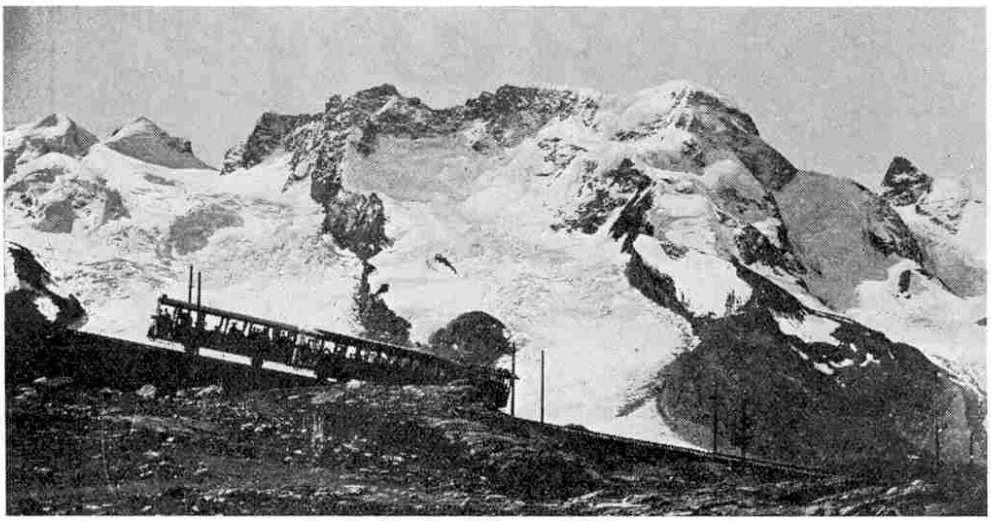
Conquest of Pilatus

Take, for instance, the Pilatus Railway, which, although it only attains an altitude of just under 7,000 ft., is nevertheless one of the most remarkable of the whole group. This rugged, serrated mountain, called Pilatus from the legend that the spirit of Pontius Pilate is condemned to roam its heights for ever in solitary contemplation of his sins, looks down upon the beautiful shores of Lake Lucerne. It is not by any means the loftiest of the Alpine peaks, but its great sides and naked rocks, its terrible precipices and its cliffs which rise so grandly into the air made the scaling of it a daring feat on the part of the engineer.

Pilatus is ascended to-day by the iron horse by means of a series of short tunnels and steep outside tracks. The gradient in some places is as much as one foot in every two. The Italian workmen who built the road frequently had to work while suspended at the end of ropes 100 ft. long. Sections of the track had to be hauled up by ropes and then fastened to convenient

rocks until they could be spiked into position. The work in fact was both dangerous and exhausting.

The wildest part of the road is reached at the point where it enters the rugged escarpment of the Esel. Here it passes round the fantastic blocks of the Mattalp under the very edge of the enormous mass of the Esel, whence a panoramic view is had of the Matterhorn. From there, describing a sharp curve, the line boldly mounts the ridge that connects the two summits. At this point the line lies at an altitude of 6,230 ft. above sea level, and it seems to cling to the very edge of the wind-swept, grim, grey peak of the Esel as it mounts slowly upward. Below, the Bernese Alps, lakes, towns and villages can be seen in every direction. Men working on this part of the line had to labour in a most unfriendly climate while toiling against engineering difficulties that were almost insuperable.



The Zermatt-Gornergrat Railway

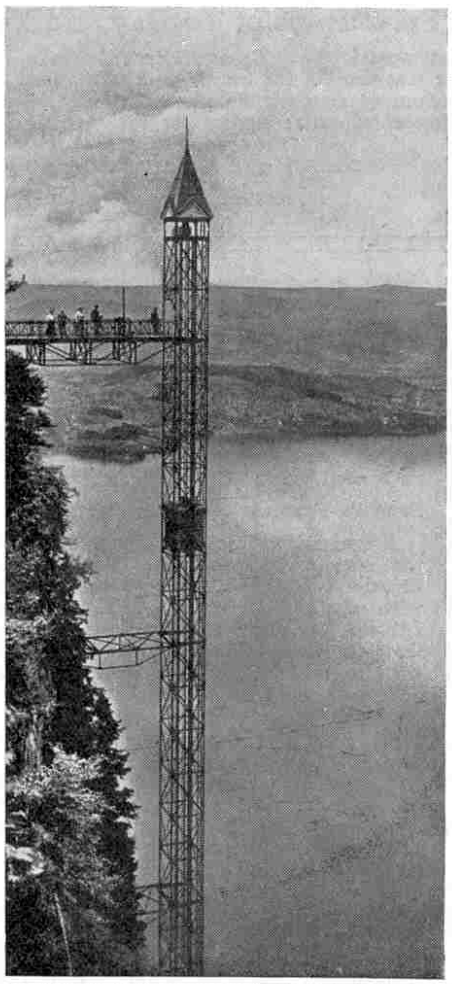
A Narrow Escape from Death

An incident that occurred during the building of the railway up the Rigi provides a good example of the dangers of this kind of work. During the operations some workmen loosened from the mountain side a gigantic block of stone weighing over 20 tons, and this went crashing down the narrow road, threatening death and destruction to anything in its path. Five workmen saw the huge stone falling and dashed away into shelter. They were not a second too soon, for just as they reached safety the great block thundered past them! During the construction of the railway to Zermatt one hundred tons of snow from the mountain fell upon the toilers, burying them so deeply that it took a gang of experienced men many hours to dig them out.

Gales spring up very suddenly on these mountains, and as may be imagined the force of the wind on an exposed slope is terrific. For this reason men who are employed at work close to the edge of steep precipices are always roped, and this precaution has been the means of saving many lives. When a great wind has sprung up men have been blown over the face of the cliffs, there to dangle in mid-air until their comrades pulled them up, safe but bruised and bleeding from cuts received from the jagged points of the rocks. Without ropes these men would have been hurled to a terrible death.

A Wonderful Lift

As I write, the engineers are busy erecting a wonderful lift up the last section of the Jungfrau. Until fairly recently it took two or three days' climbing, including some glacier work, to gain the summit of this peak which towers 13,670 ft. into the air. By means of the railway, however, one can ascend in comfort to a height of 11,340 ft., that is about 2,330 ft. below the summit. From this point it is quite probable that a lift will be constructed to carry passengers up the remaining portion of the mountain.

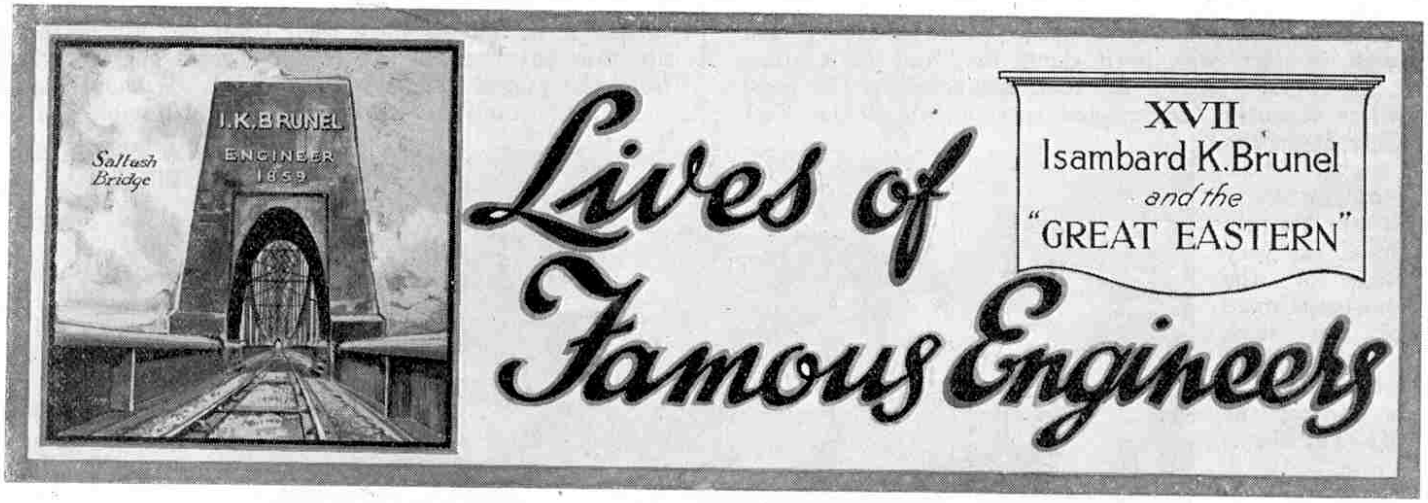


This Elevator, on the Burgenstack Mountain Railway, has a perpendicular rise of 500 ft. up the face of the mountain

The Jungfrau Railway is a daring piece of work. It starts at the Little Scheidegg, 6,770 ft. above sea level, and climbs up in the open to Eiger Glacier station, 7,620 ft. high. Here one can step out and explore the glacier and even in midsummer indulge in tobogganning, as the writer did during the heat wave in July last year. From this point the railway plunges into a succession of tunnels between which the traveller gets glimpses of splendid prospects, round the southern face of the Eiger and then across a rocky neck to Eismeer and along the ledges to the Jungfraujoch station—cut in the solid rock—to a point 11,340 ft. above sea level—the highest railway station in Europe.

The construction of this remarkable mountain railway presented enormous difficulties. Five years were spent in surveying the route owing to the extreme difficulty of finding stations for the instruments. As the railway progressed upward only the hardiest and strongest men could endure the fatiguing work. Oxygen is scarce at such a height and the workmen soon became exhausted. After two hours' toil long periods of rest had to be taken before the men could start work again.

The rarified state of the atmosphere at high altitudes is a serious hindrance to mountaineers, especially in such undertakings as the climbing of Mount Everest.



LAST month we gave an account of the work of I. K. Brunel as a railway engineer, and this month we must turn to his equally great achievements in steam navigation.

The use of steam in the direct voyage across the Atlantic made by the American ship "*Savannah*," in 1819, drew general attention to the possibilities of the steam engine for purposes of navigation. Little advance in this direction was made, however, until 1835. In that year at a meeting of the Board of the Great Western Railway Company, one of the directors spoke of what he considered to be the "enormous length" of the proposed railway from London to Bristol. Brunel immediately exclaimed, "Why not make it longer and have a steamboat to go from Bristol to New York and call it the "*Great Western?*"

The suggestion was treated as a joke, but afterwards some of the directors discussed the matter with Brunel and ultimately became quite enthusiastic about his scheme. It was not long before a company was formed in Bristol, called The Great Western Steamship Company, and the construction of a ship, the "*Great Western*," was commenced, mainly under the direction of Brunel.

A Trans-Atlantic Controversy

About this time a serious controversy arose in regard to the possibility of successful trans-Atlantic navigation by steam. At a meeting of the British Association in Bristol in 1836 a Doctor Lardner gave an address on "Trans-Atlantic Steam Navigation," in which he made the following remarkable statement:—"Let them take a vessel of 1,600 tons provided with 400 horse power engines. They must take 2¼ tons for each horse power, the vessel must have 1,348 tons of coal, and to that add 400 tons, and the vessel must carry a burden of 1,748 tons. He thought that it would be a waste of time, under all the circumstances, to say much more to convince them of the inexpediency of attempting a direct voyage to New York, for in this case 2,080 miles was the longest run a steamer could encounter; at the end of that distance she would require a relay of coals."

Launch of "Great Western"

This statement was widely circulated and made a deep impression, but in spite of all adverse criticism the construction of the "*Great Western*" was proceeded with and she was launched on 19th July 1837. While she was anchored in the Thames she was crowded with visitors who were astonished at her size.

Her engines having been installed, great efforts were made to get the ship to Bristol to commence her voyage across the Atlantic before the departure of the "*Sirius*," a vessel bought by the St. Georges Steam Packet Company in order to anticipate the "*Great Western.*" The latter vessel started for Bristol on 31st March 1838, but in about a couple of hours a serious fire broke out in her engine room and the vessel was immediately run ashore on a mud bank.

Brunel's Remarkable Escape

A remarkable incident occurred during the extinguishing of this fire. Captain Claxton was at work in the engine room with a fire hose when something heavy fell on him from above. On recovering from the blow he looked to see what had hit him, and found a man lying insensible on the floor with his head covered to the ears with water. Captain Claxton called for a rope, the almost lifeless body was hauled on deck, and it was then seen that the man who had fallen was Brunel himself! He had a very narrow escape from death, but after two or three days he had largely recovered from his injuries.

The fire having been subdued, the ship resumed her voyage to Bristol, arriving there on 2nd April. She started on her first voyage to New York on 8th April with seven passengers on board and arrived at New York on 23rd April, having consumed three-fourths of the coal she had taken on board. She found that the "*Sirius*" had arrived before her, but the latter vessel had left Cork eight hours before the "*Great Western*" left Bristol, and had only arrived at New York a few hours before her. Another point of importance was that while the "*Great Western*" had nearly 200 tons of coal left, the "*Sirius*" had not only consumed all her coal but also almost every article on board that would burn, including—according to rumour—a child's doll!

The "*Great Western*" commenced her return voyage with 68 passengers and made the trip in 14 days. From that time she ran regularly between Bristol and New York until the end of 1846. In the following year she was sold to the West India Mail Steam Packet Company. She was broken up in 1857 and Brunel was among those who went to take farewell of her before she finally disappeared.

The principal dimensions of the "*Great Western*" were as follows:—Extreme length 263 ft.; breadth (including paddle boxes) 59 ft. 8in.; engines 450 h.p.; diameter of paddle wheels 28 ft. 9 in.; total tonnage 1,321 tons.

"Great Britain" Laid Down

The directors of the Great Western Steamship Company, encouraged by the success of the "*Great Western,*" decided to lay down a second ship, and further, they determined that the new vessel should be the largest afloat and should be constructed according to the very latest theories. At first it was intended that the new ship should be built of wood, but afterwards the company decided that she should be built of iron. This decision met with almost general condemnation by the public, but the directors of the company persevered. Brunel's second vessel, the "*Great Britain,*" was therefore laid down.

By this time the superiority of the screw to paddles was gradually being demonstrated and already several small vessels had been fitted with screws and had proved very successful. So far, however, no attempt had been made to build a screw steamer large enough for ocean voyages. The Great Western Company had intended that the "*Great Britain*" should be a paddle steamer, but they soon became convinced of the superiority of the screw

Giant Steamships of To-Day and Yesterday

Brunel's last vessel, the "*Great Eastern,*" was a failure largely because she was too big for her day. The advance that has been made in steamship construction since that time is well shown by the following comparative figures for the "*Great Eastern*" and the "*Majestic*":—

	"Great Western"	"Great Eastern"	"Majestic"
Length	263 ft.	693 ft.	956 ft.
Breadth	59 ft. 8 ins.	83 ft.	100 ft.
Gross Tonnage	1,321	18,915	56,551

and without hesitation they ordered the design of the vessel to be altered so that a screw could be fitted.

Building Difficulties

The building of this vessel was attended with great difficulties. Her total length was 322 ft. and her beam 51 ft. Her total depth from the underside of the upper deck to the keel was 31 ft. 4 in., and her tonnage was 3,500 tons. At that time no shipbuilder had any experience upon which to draw for the construction of such a vessel, and shipbuilders generally were not at all keen on commencing the construction of iron ships. In addition there was a very general belief that a vessel of the size of the "*Great Britain*" could not be built of iron. The directors were unable to find a contractor for the vessel and were therefore obliged to instal their own plant for building the ship and her engines also. She was constructed under the supervision of Paterson of Bristol, as was also the "*Great Western.*"

The "*Great Britain*" was launched in 1843 after various more or less serious difficulties in regard to getting her afloat. She sailed for London in January 1845 and although she experienced bad weather she made an average speed of 12½ knots. Her arrival at Blackwall caused intense excitement and thousands of people flocked to see her. She remained five months at Blackwall, during which time she was visited by Queen Victoria, and she then left for Liverpool with about 80 passengers on board.

On 26th July, 1845 she left the Mersey on her first trans-Atlantic voyage and arrived at New York on 10th August having made the passage in 14 days 21 hours. On a subsequent voyage she broke one of the blades of her propeller and got home under canvas after 18 days of very rough weather. She was fitted with a new screw and various improvements were made to increase the supply of steam from her boilers, and early in 1846 she again commenced her Atlantic crossings. In the following September she ran aground in Dundrum Bay on the coast of Ireland and was not refloated until 11 months later. She was so strongly constructed, however, that she was little the worse for this long ordeal. Ultimately she was brought to Liverpool and subsequently placed in the Australian trade.

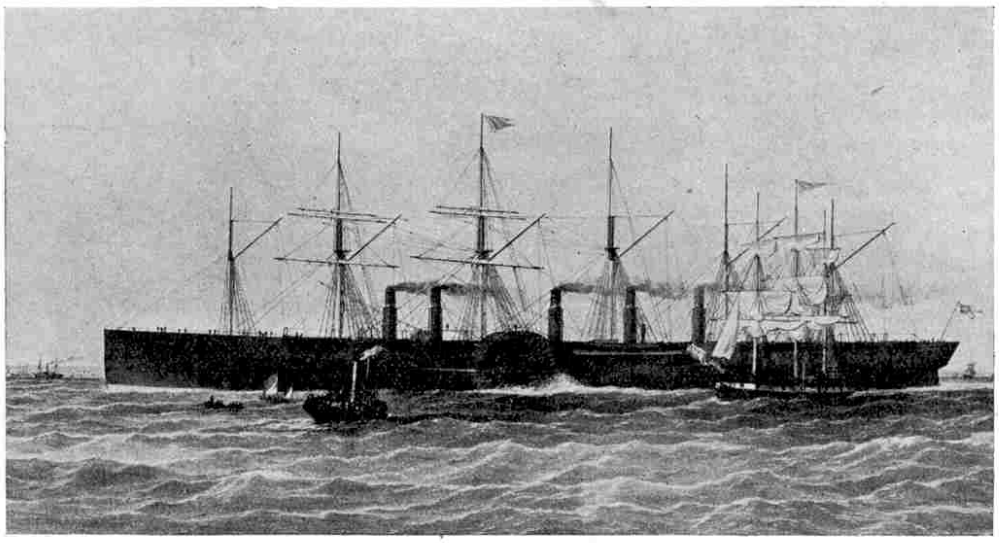
Brunel and the Screw Propeller

Soon after Brunel had taken the bold step of recommending the adoption of the screw propeller in the "*Great Britain*" he was invited by the Admiralty to take charge of certain experiments regarding the screw that were about to be made. These experiments were carried out on a fairly extensive scale and were so successful that the Admiralty ordered a number of vessels to be fitted with the screw, and from that time the paddle wheel was gradually abandoned. Brunel thus had the satisfaction of knowing that he had been mainly instrumental in introducing the screw propeller into the Mercantile Marine, and also in securing its adoption in the Navy.

"Great Eastern" Planned

In 1851 Brunel again became connected with the construction of steamships, in the capacity of engineer to the Australian Mail Company. He advised the directors, in order to carry out their contract for the conveyance of mails to Australia, to build ships of from 5,000 to 6,000 tons, in order that they need only touch for coal at the Cape. Two ships were built under Brunel's direction by Mr. J. Scott Russell. These vessels, the "*Victoria*" and the "*Adelaide,*" were a financial failure, largely on account of the fact that they could not carry enough fuel. This failure led Brunel to attempt to design a vessel large enough to carry her own coal for the voyage. In 1851 the Eastern Navigation Company was formed and decided to build a giant steamer in accordance with Brunel's views. This steamer was the famous and ill-fated "*Great Eastern.*" The lines of the vessel were designed by Scott Russell, who also built the hull, and the general details of construction were settled by Brunel and Russell.

The proposal to build such an enormous ship was received by the public with the greatest enthusiasm and excitement, and all kinds of wild and absurd rumours were floating about in regard to the actual dimensions and estimated speed of the ships.



Courtesy of] [*T. H. Parker*

The "Great Eastern"

The Vessel's Dimensions

The "*Great Eastern*" was provided with both paddle wheels and a screw propeller. She was built of iron with an inner skin from the keel to the water line and was thus a double-hulled vessel. Her chief dimensions were as follows:—Extreme length 693 ft.; breadth 83 ft.; depth 58 ft.; gross tonnage 18,915 tons. Her paddle engines were of 1,000 nominal horse power and weighed 836 tons. The four cylinders were 74 in. in diameter with a stroke of 14 ft. Each paddle wheel was operated by a complete double-cylinder engine and could be revolved without the other wheel if necessary. Steam was supplied at 24 lb. pressure from four double-ended tubular boilers each 17½ ft. long, 17 ft. 9 in. wide and 13 ft. 9 in. high. Each boiler weighed 50 tons and contained about 40 tons of water. The engines for the screw propeller were of 1,800 nominal horse power and weighed 500 tons. They were supplied with steam at 25 lb. pressure from six double-ended tubular boilers. The propeller was a four-bladed cast iron screw of 24 ft. diameter and 44 ft. pitch, weighing 36 tons. The vessel's speed under paddle wheels alone was about seven knots and under screw alone about nine knots. Using both screw and paddles her calculated speed was 15 knots.

Launching Troubles

The launching of the "*Great Eastern*" was fixed for 3rd November, 1857 but on that occasion the great ship moved only a few feet and then stuck fast, and it was not until 31st January, 1858 that she actually took the water. Her launch was attended with enormous difficulties and dangers, very largely due to the fact that she was launched broadside on to the river. In this matter Brunel certainly made a great mistake, and one which added £120,000 to the cost of the vessel and practically ruined the company.

"Great Eastern's" Career

The "*Great Eastern's*" bad luck began with her first trial in September 1859, for an explosion occurred which resulted in the death of six men and injuries to several others. Her first voyage was across the Atlantic. She left Southampton on 17th June, 1860 with 36 passengers and arrived at New York on 28th June. Her appearance at New York caused intense excitement and we are told that practically the whole city turned out to see her. On this trip the ship's best day's run was 333 miles and her maximum speed about 14½ knots. On the return trip she carried 212 passengers and a considerable amount of cargo, and made the trip in 9 days 11 hours.

In 1861 she successfully carried over 2,000 troops to Quebec and returned to Liverpool with about 500 passengers. On her next voyage, however, she encountered a great gale in which her steering gear was put out of action, and she was for a time in serious danger of being lost. In 1865 she was employed on laying the Atlantic cables and she continued on this work at intervals until 1886. This cable laying was the most successful work accomplished by the "*Great Eastern*" and next month her share in this gigantic undertaking will be described in our article on "The Atlantic Cable."

In 1886 the vessel was bought by a firm

(*Continued on page* 286)

Famous Locos under Test

G.W.R "Castle" Locos and L.N.E.R. "Pacifics"

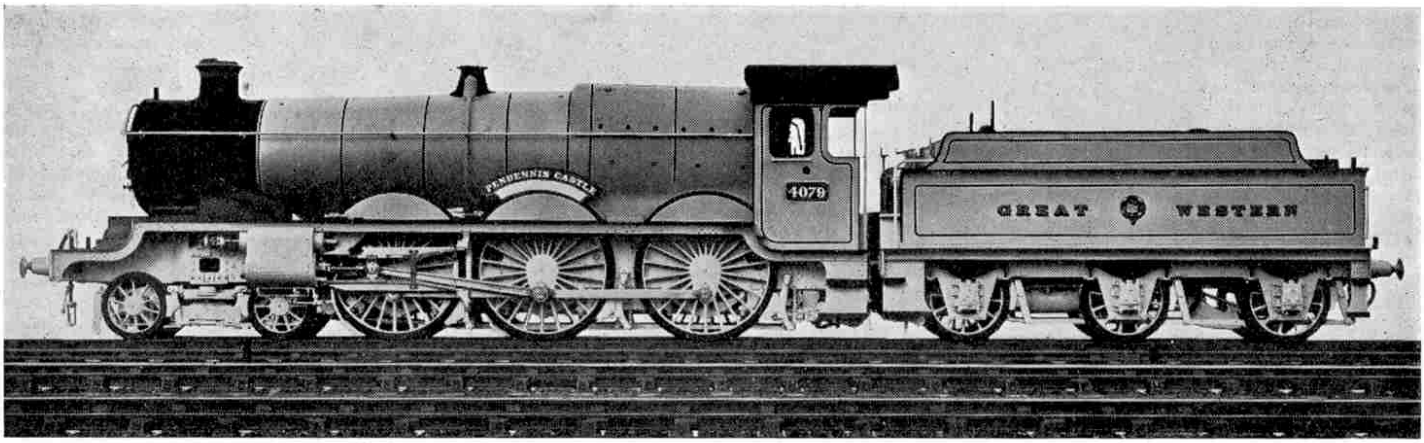


Photo courtesy] [*G.W.R.*

"The Pendennis Castle"

ONE of the most interesting recent events in the railway world is the exchange of locomotives between the G.W.R. and L.N.E.R., by which locomotives of the respective companies carried out a series of trials on the other company's line. The trials were arranged in order to enable the engineers of the two companies to obtain technical information that will be of considerable value and which, no doubt, will not be without some influence in future design.

The 1909 and 1910 Trials

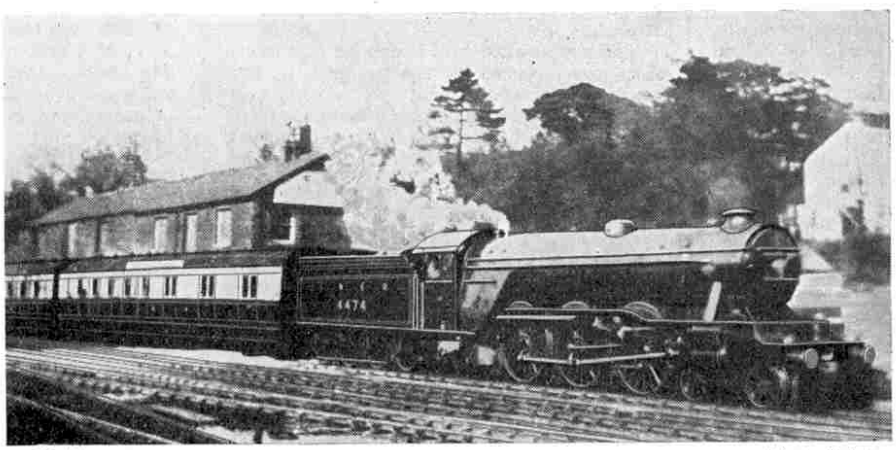
This is by no means the first occasion on which comparative trials of a similar nature have been held. Two that readily occur to the writer are those of 1909, arranged by the L. & N.W., G.N. and Caledonian Railways, and those held from 15th—27th August 1910 between L. & N.W. and G.W. locos.

For these latter trials the G.W. sent their 4–6–0 loco No. 4005, *"Polar Star"* to the L. & N.W.R. who ran it between Euston and Crewe, train and train with their 4–6–0 loco No. 1455 *"Herefordshire."* During the week each loco hauled the 12.10 p.m. from Euston, with an average of 17½ coaches, three times, and the 10 a.m. train twice. The procedure was reversed, in the second week of the trials, the 10 a.m. being hauled three times and the 12.10 p.m. twice.

The L. & N.W. sent their loco No. 1471 *"Worcestershire"* to the G.W. who worked it with No. 4003 *"Lode Star"* as a comparison. On the Monday of the trials No. 1471 worked the 9 a.m. from Paddington to Bristol and returned with the 5.5 p.m. On Tuesday it hauled the 11 a.m. via Bath and returned with the 5.54 p.m. On Wednesday it took the 10.30 a.m. to Plymouth and returned 8.30 a.m. Tuesday, and on Friday it took the 11.50 a.m. to Plymouth, returning next day with the 9.16 a.m. train. In order to make a better comparison, a G.W. (No. 4003) ran on the same services alternately with the L.N.E.R. No. 1471, and the programmes were repeated during the second week, in the reverse order.

The Recent Trials. "Castles" v. "Pacifics"

The recent trials, which commenced on Monday, 27th April, were between G.W.R. and L.N.E.R. locos and each railway company selected one of their most powerful express passenger locomotives. In both cases these were similar to the locos exhibited at the British Empire Exhibition at Wembley last year, where, no doubt, many of our readers will remember seeing the G.W.R. *"Caerphilly Castle"* and the L.N.E.R. *"Flying Scotsman."* Although these famous locos were not used in the trials, the locos actually used were of the same type and similar in every respect.



Photo] [*G. A. Hallett*

A reader's photo of L.N.E.R. 4–6–0 No. 4474 entering Exeter (St. David's) Station the week before the Trials, during a preliminary run