

EARLY RAILROAD DAYS

First Charter in Country Obtained in 1822—Sails Attached to Engines.

ACCIDENTS WERE VERY COMMON

Barrier Cars as a Remedy—Difficulty in Getting Wood and Water.

In 1822, the first charter was obtained for a railroad in the United States. It was for a line from Philadelphia to a point on the Susquehanna river, but was never built. On the announcement of the project some one asked one of the Baltimore newspapers, "What is a railroad, anyhow?"

The editor was forced to reply that he did not know, but that "perhaps some other correspondent can tell."

Seven years later on the little wooden track along the Lackawanna creek the first locomotive had its trial. The experiment was far from successful, and for a number of years afterward the train on most of the railroads continued to be drawn by horses.

The first locomotive on the Baltimore and Ohio had sails attached. So did the cars. These sails were hoisted when the wind was in the right direction so as to help the locomotive.

The rivalry between the railroads using locomotives and those using horses was very bitter. In August, 1830, an actual trial of speed was held between a horse and one of the pioneer locomotives, which did not result in favor of the locomotive, the race was on the B. & O., the locomotive being one built by Peter Cooper, who also acted as engineer.

The horse, a gallant gray, was in the habit of pulling a car on a track parallel to that used by the locomotive. At first the gray had the better of the race, but when he was a quarter of a mile ahead Mr. Cooper succeeded in getting up enough steam to pass the horse amid terrific applause.

At that moment a hand slipped from a pulley and though Mr. Cooper lacerated his hands trying to replace it, the engine stopped, the horse passed it and came in the winner.

As there were no brakes on the early trains, they used to stop and start with jolts which threw the passengers across the car. The coupling was with chains having two or three feet of slack which the engine in starting took up with a series of fierce jerks. The shock on stopping was even worse and "never failed to send the passenger flying."

There were no whistles in the old days. Signals were given by pushing up the valve on the dome by hand and letting the steam escape with a loud hissing noise. On the New Castle and Frenchtown railroad when the signal was heard the slaves around the station would rush to the arriving train, seize hold of it and pull back with all their might while the agent stuck a piece of wood through a wheel.

There were so many collisions and explosions that some Southern railroads introduced what they called a barrier car between the locomotive and the passenger coaches of the train. This barrier car consisted of a platform on wheels upon which were piled six bales of cotton, and it was claimed it would safeguard the passengers in two ways—It would protect them from the blowing up of the locomotive and would form a soft cushion upon which the passengers could land in the event of a collision. There is no record of how this experiment worked out.

Horatio Allen states that when the South Carolina railroad was completed, with its 100 miles of track, operation over such an extensive line was then unprecedented. In making arrangements for this unusual undertaking one of the first things that occurred to him was that the locomotives would have to run at night as well as day, and in the absence of a headlight he built on an open platform car stationed in front of the locomotive, a fire of pine knots surrounded with sand, which furnished the requisite illumination of the route traversed.

On most of the other lines no substitutes for headlights were used. The trains traveled slowly through the dark. Night trips, however, were avoided as much as possible. The first headlight on a locomotive was used by the Boston and Worcester in 1840.

The original American locomotives were nearly all wood burners, and during a protracted period, before the invention of spark arresters, the flying sparks caused a great amount of damage and annoyance. Intertwined with this difficulty was a necessity for using smokestacks many times larger than those now in use—too high indeed to pass under overhead bridges or the roofs of covered wooden bridges.

To overcome this difficulty the smokestacks of many of the locomotives were jointed or hinged so that they could be lowered when trains were proceeding over or under bridges. This naturally greatly increased the danger of setting fire to the wooden bridges, and it was customary for a watchman to follow every train over or under the bridges, carrying a bucket of water for the purpose of extinguishing fires. Notwithstanding this precaution the burning of bridges was a common occurrence.

On most of the early railroads the

cars were at first entirely uncovered, being in fact merely platform cars with a row of seats along each side. The passengers were entirely unprotected from the sun, rain, smoke or cinders. A passenger who took a trip over the Mohawk Valley railroad when this company had opened its line between Albany and Schenectady thus describes his experience:

"They used dry pitch pine for fuel, and there being no smoke or spark catcher to the chimney or smokestack the volume of black smoke strongly impregnated with sparks, coal and cinders, came pouring back the whole length of the train. Each of the passengers who had an umbrella raised it as a protection against the smoke and fire.

"They were found to be but a momentary protection, for I think in the first mile the last one went overboard, all having had their covers burnt off by the flames, when a general melee took place among the passengers, each whipping his neighbor to put out the fire. They presented a very motley appearance on arrival at the first station."

Telegraphic service available for railway service was not established until about 1850. In the absence of the telegraph and the lack of any established system of signaling the early railroads adopted novel methods for conveying information.

The New Castle and Frenchtown railroad had a primitive telegraph in operation as early as 1837. A description of it says that "the poles were of cedar, quite like those now in use, and had cleats fastened on them, forming a sort of Jacob's ladder."

The operator would go to the top of the pole forming his station and with his spy-glass sight the next station in the direction of the approaching train. If the train was coming and the signal showed a flag, it meant that all was well, and the operator would pass the signal along to the next station below.

If a ball was shown, and no train in sight, it signified an accident or a delay of the connecting steamboat. These signals were methodically exchanged until an understanding was had all along the road.

The facilities furnished by the railroads were at first much more fully appreciated by travelers than by the shippers of freight. The speed of the trains, amounting at times to as much as twenty-five or thirty miles an hour, was a source of unabated wonder to the passengers, who had hitherto traveled on the slowly moving canal boats and stage coaches.

In the matter of freight traffic the railroads were at first unable to compete with the canals. Of a prominent Massachusetts railroad it is said that a motion was made at an annual meeting to let the privilege of carrying freight on its lines to some responsible person for \$1,500 a year.

There are many accounts of the pitiful state of impecuniosity to which some of the railroads were reduced. Cash being exhausted, and receivers' certificates having not been invented, when operations proved unprofitable there was no basis for credit.

Men were sometimes put on the tender with a sawhorse and saw, and when the engine ran out of wood these men would take up their saw and cut up a new supply of fuel from the nearest woods. Often the passengers would get off the train and help in the cutting of the wood.

The railroads were often too poor to pay for the fuel thus secured, and there are many stories in the old newspapers of encounters between train crews and the farmers who caught them cutting down their trees. The complaints of the high-handed methods of the grasping railroad corporations, their defiance of the law of the land and the rights of others, sound strangely familiar to-day.—Van Norden Magazine.

EAT SOUR MILK AND LIVE LONG

Doctors Dwell on the Merits of Zoghurt, a Bulgarian Food.

The latest producer of long life discovered by European physiologists is zoghurt, a preparation of sour milk, says the Washington Star. Prof. Elias Metchnikov of the Pasteur Institute, was the first to direct attention to it, but no sooner had he done so than Prof. Reinhardt of Vienna announced that he had known all about it for years and that it was a food in general use in country parts of Bulgaria.

Prof. Metchnikov's theory is that the ferment contained in the milk attacks certain bacteria which develop in the human system and have poisonous effects. He has proved by experiment, he says, that the zoghurt has an absolutely disinfecting influence and that by destroying the poisonous germs it not only prevents actual disease, but also arrests the process of aging.

In a paper published in the Austrian Review Dr. Reinhardt tells how the Bulgarians prepare the zoghurt. Cow's or goat's milk is boiled in an open vessel until it is reduced to about half its original volume.

Then it is cooled and when it reaches a temperature of about 115 degrees some zoghurt already prepared is stirred into it and it is left to ferment. The germ, which the doctor calls maya fungus, acts quickly and the zoghurt is ready for use in a day.

Dr. Reinhardt thinks the health-giving qualities of the preparation are amply proved by the fact that Bulgaria, in a population of 4,000,000, has 3,800 zoghurt eaters of 100 years of age and upward, while in the whole German empire, with 61,000,000 people, there are only seventy-one centenarians.

SAYS ERRORS IN NAVY UNFIT IT FOR BATTLE

Expert Declares the Boasted Fighting Ships Are Merely Death Traps.

ARMOR BELT IS TOO LOW.

Defects in Construction Pointed Out and Promotion System Is Scored.

Henry Reuter Dahl, associate of the United States Naval Institute and American editor of "Fighting Ships," is the author of a startling article on "The Needs of Our Navy" in the January McClure's. Mr. Reuter Dahl's expertness on naval matters is not disputed and neither is his patriotism. He agrees with President Roosevelt that a navy must be built "and all its training given in time of peace" and with this in view he exposes defects in our first-class battle ships and armored cruisers which all but make them useless as efficient units in a fleet on heavy sea and in real action.

Mr. Reuter Dahl's criticisms appear to be the more amazing on account of the contention that most, if not all of the weak points he emphasizes, will be acknowledged by sea-going officers, "or, if the reader is sufficiently interested, by the testimony of his own eyes."

His principal points are the following: That the shell-proof armor of the American battle ships is virtually below the water line where it will do no good, leaving the broad side of the vessel exposed to the shells of the enemy. That this defect has been pointed

A BLOT ON THE LAST CHAPTER.



out time and again; that other nations years ago recognized it as fatal and now have armor wrapped around the sides of their war vessels from five to seven feet above the water line.

That, despite repeated accidents on board our ships, the Navy Department year after year has approved of plans by which the greatest guns on the ships are directly above an open shaft leading to the powder magazine.

That other nations long since recognized the criminal stupidity of thus endangering the lives of officers and men and have remedied the defect by use of common sense and ordinary precautionary measures.

That, without regard to the protests of experts, our battle ships have been built so low that if the sea is heavy and ships are in action, the sea would wash over the vessels, render some of their most effective guns useless and practically leave the ship to the mercy of the enemy.

The officers in the American navy who command the battle ships and squadrons are too old; that under existing conditions young men cannot attain command, and that the service is badly crippled as a result.

That there is too much "bureau management" in Washington; too much red tape in the Navy Department; that American genius is stifled because of the bureau's immersion in details, and that with the Secretary of the Navy a civilian, he should have a board of expert advisers.

Other matters are dwelt on, but the foregoing are by far the most important. An afternoon's fight on water sealed Russia's fate in the recent war with Japan, says Mr. Reuter Dahl, and the same may well be true of the next war into which this nation is plunged. The issue is so important and the stake so tremendous that the sea power which is prepared in every respect to meet the crisis will be the victor.

Muensterberg on Charity. Prof. Emil Muensterberg, head of the public charities of Berlin, was the principal speaker at the celebration of the twenty-fifth anniversary of the New York Charity Organization Society at Carnegie Hall, recently, along with Mayor McClellan, Gov. Hughes and others. Prof. Muensterberg said that charity work had to be undertaken now in "the twilight of widespread egotism and selfishness," but that the work had changed from a purely philanthropic to a social conception. He finds that private charity does in this country the work done by the government in Germany.

DISASTROUS MINE ACCIDENTS IN RECENT YEARS.

Year	Location	Lives lost
1894	Aldon colliery, South Wales	290
1902	Fraterville, Tenn.	506
1902	Rolling Mill mine, Pennsylvania	105
1903	Hanna, Wyoming	175
1904	Lackawanna mine, Pennsylvania	16
1904	Tercio, California	21
1905	Virginia City, Ala.	152
1905	Ziegler, Ill.	35
1905	Welsh coal mine	120
1905	Diamondville, Wyoming	18
1905	Kurtisk, Russia	390
1905	M., K. & T. Coal Company	13
1905	Princeton, Ind.	13
1905	Coal mine in Prussia	55
1905	Wilcox, W. Va.	53
1906	Bluefields, W. Va.	23
1906	Johnston, Pa.	23
1906	Century, W. Va.	15
1906	Durham, England	25
1906	Dutchman mine, Blossburg, N. M.	15
1906	Courriere mine, near Calais, France	1,096
1906	Japan	250
1906	Oakhill, W. Va.	28
1906	West Fork, Va.	75
1906	Quarto, Colo.	22
1907	Saaria, Prussia	22
1907	Primerio, Colo.	20
1907	Fayetteville, W. Va.	80
1907	Saarbruck, Prussia	200
1907	Las Esperanzas, Mexico	123
1907	Forbach, Germany	70
1907	Monongahela, Pa.	30
1907	Toyoka, Japan	470
1907	Tsing Tau, China	112
1907	Negaunee, Mich.	17
1907	Monongah, W. Va.	308
1907	Yolande, Ala.	81

FARMING IN A DESERT.

There Are Colonizing Possibilities Even in Death Valley.

The craze of "homesteaking" which is seen to have reached its limit in the choice of Death Valley as a colonizing possibility. With the idea of transforming the most arid and most desolate portion of the great American desert into farm land, a number of tracts have been homesteaded, irrigation systems have been planned, and other preparations are now in progress for beginning the reclamation of Death

Valley. A railroad is already built from Greenwater, at the southern end of the valley, to the borax works owned by the celebrated "Borax" Smith of 20-mile team fame, and there is an automobile stage line through the valley.

Even enthusiasts do not claim that piping water from Telescope Peak across the Funeral range into the valley is also under consideration.

Money is suffering from bad circulation. An Aurora (Ill.) physician has discovered that peanuts are a beauty diet. This ought to be a circus for some people.

An Eastern banker says, "We want more common sense." We want also more dollars, which are not so common now.

If prices of bread and meat keep on coming down, pretty soon the average man can afford to eat three meals a day.

Chief Spryback, the Indian who drank a quart of blue paint, is carrying the "decorative interior" fad to an extreme.

With 1,300,000 divorce suits in ten years, the United States is plainly in need of a national "Stay-Married Association."

After a while it may dawn on the army recruiters that the average soldier doesn't look upon \$13 a month as any great graft.

Pennsylvania miser who spent only 3 cents last year is dead. He just couldn't bear the increase in living expenses.

Secretary Cortelyou is trying to impress us with the fact that stockings were made to be worn and not to hoard money in.

James J. Hill says the railroads need billions of dollars. From present prospects, it will be some time before they get 'em.

An Italian count one American hearse married turned out to be an ex-convict. Some of the other counts haven't yet been convicted.

To Produce Socialistic Plays. The Socialist Stage Society of New York City has for its object the production of plays in which socialism is the keynote. Its manager, Mr. Hood, says that when the society is in good running order it will be able to assure a manager an audience of 5,000 at the start for a satisfactory play. In the meantime it intends to produce its own plays, which it is claimed can be done for a very small actual cash outlay.

THE WEEKLY HISTORIAN



1282—Llewellyn, the last Welsh Prince of Wales, killed at Llandewey.

1614—The Dutch erected a blockhouse near the present site of Albany, N. Y.

1620—Pilgrim fathers landed at Plymouth Rock.

1642—New Zealand discovered by Tasman.

1653—Meeting of the first General Assembly of the people of New York.

1690—Swedes defeated the Muscovites at Narva.

1738—First bank post bills issued in England.

1775—America Congress determined to build a navy of thirteen frigates.

1776—Continental Congress adjourned to Baltimore, on the approach of the British.

1778—John Jay of New York elected president of Congress.

1781—The British evacuated Charleston.

1786—Sierra Leone founded as an asylum for destitute negroes from the United States and West Indies.

1795—Charles Lee of Virginia became Attorney General of the United States.

1798—King of Sardinia abdicated.

1811—American ship Essex captured British packet Neoton, with \$55,000 on board.

1813—Burning of Niagara at the instance of the American forces.

1816—Indiana admitted into the Union as the nineteenth State. First savings bank in the United States opened in Boston.

1817—Mississippi admitted into the Union as the twentieth State.

1824—Peruvians achieved independence by defeating the Spaniards at Ayacucho.

1830—National Republican party, at Baltimore, nominated Henry Clay for President.

1833—Jamaica abolished slavery.

1838—"Atherton Gag" law passed by the House of Representatives.

1844—Bill for the annexation of Texas introduced in both houses of Congress.

1845—British war against the Sikhs began. Ended with annexation of the Punjab in 1849.

1848—Louis Napoleon elected President of the French.

1850—Many killed and injured in boiler explosion on steamer Anglo-Norman at New Orleans.

1856—Victoria bridge, Montreal, opened.

1860—Lewis Cass of Michigan resigned as Secretary of State.

1861—The Prince Consort, husband of Queen Victoria, died. Large section of Charleston, S. C., destroyed by fire.

1862—Gen. Burnside repulsed at battle of Fredericksburg.

1866—Oaks colliery disaster in England, with loss of 330 lives.

1868—House of Representatives announced its purpose to pay fully the national debt.

1871—Alarming illness of the Prince of Wales, now King Edward VII.

1876—Wade Hampton declared Governor of South Carolina.

1877—Osman Pasha surrendered with his entire army.

1880—Congress commemorated the centenary of the inauguration of President Washington.

1890—North Albania reported to be in a state of sanguinary anarchy.

1895—William O. Bradley inaugurated as first Republican Governor of Kentucky.

1897—Strike of cotton mill operatives at Atlanta, Ga.

Sea Test of Gyroscope.

The claim made some time ago that steadiness might be imparted to ships at sea in heavy weather by means of a gyroscope was received with some incredulity by practical mariners. Recent dispatches from London, however, indicate that the matter has been put to a thorough test, with most gratifying results. The experiments were made in the North Sea, off Tyne-mouth, under the direction of Dr. Schlick, the inventor. The vessel used was a boat of the torpedo class, the Seebär, 116 feet long. The water during the three days of the test was such as to cause considerable rolling of vessels of even greater dimensions. The effect of the gyroscope was most remarkable. While the vessel heaved up and down with the waves, the deck remained almost horizontal. It is said that arrangements are being made to install the apparatus on several commercial lines.

Bell's Aeroplane Flies.

According to reports from Baddeck, C. B., the tetrahedral kite Cygnet, invented by Prof. Alexander Graham Bell, made a successful ascent on December 6. While it is intended to have the kite, or aeroplane, propelled by a motor, this motor had not been supplied; therefore the machine was mounted on a platform floating on the waters of a small lake, and was taken in tow by a steam launch. As the speed of the launch increased the apparatus left the platform and soon soared to a considerable height.

Putting Him Next.

"Papa, what is a hardship?" "An armored cruiser, son."—Houston Post.

Nature seldom stores a lot of brains behind a pretty face.

SCIENTIFIC STUDY OF BRAINS.

Man's Intellectual Superiority Explained by Dr. Edward Spitzka.

A work that scientists in all parts of the civilized world have been awaiting with eagerness has just been issued under the imprint of the American Philosophical Society of Philadelphia. It is a study of brains, by Dr. Edward Anthony Spitzka, professor of general anatomy in Jefferson Medical College, formerly demonstrator of anatomy in Columbia University, and an authority of world-wide recognition upon scientific study of the brain.

Omitting the scientific terminology some of the most important of Dr. Spitzka's statements may be thus expressed:

The white matter of the callosum, or band connecting the hemispheres of the cerebrum, in great measure determines the quality of human intellect. The cerebrum is that portion of the brain which lies in front of the skull, and is generally accepted as the seat of the mind. Heretofore the quantity of the gray matter of the brain was supposed to determine the fineness and usefulness of the brain.

The fibers of the callosum are the telephone wires connecting and associating the brain centers. Disease or injury in these is attended by profound weak-mindedness or downright idiocy.

Contrast of the brain of Dr. Joseph Ledy with that of Prof. E. D. Cope shows that it is possible not only to differentiate between the learned and the



Brain of George Francis Train



Brain of a Papuan, Savage



Brain of a Chimpanzee



Brain of a Hamster

ignorant, but that abstractive reasoning produces one kind of a brain, while observation and concrete philosophy produces another form.

Such abnormalities as left-handedness, partial deafness and defects of vision leave their indelible imprints upon the brain.

The brains of various kinds of thinkers show specialized developments; thus musicians' brains are richly convoluted in the auditory association area.

The average weight of the brain of an adult male is 1,400 grammes. The average weight of a woman's brain is 1,200 grammes. The brain of Cuvier, the naturalist, weighed 1,330 grammes, that of Turgenev, the novelist, 2,012 grammes, and that of Daniel Webster, 1,897 grammes.

Smallness of the occipital are (the curvature at the back of the head) signifies superiority of brain development. This measurement in centimeters, the metric divisors of a 90-degree are as follows:

Average man 20.8
Average woman 21.7
Drang-outang 23.2
Chimpanzee 24.2

Concerning the question of weight, Dr. Spitzka says:

"The fruitful investigations of many anatomists have resulted in the tabulation of thousands of brain weights drawn from all the social and intellectual classes, among which more than 100 are of men of intellectual eminence.

"Men of the kind who never remain steadily employed and who usually fail to even learn a trade stand lowest in the scale. Above them come the mechanics and trade workers, the clerks, the ordinary business men and common school teachers.

"Highest of all we find men of decided mental abilities; the geniuses of the pencil, brush and sculptor's chisel, the mathematicians, scholars and statesmen."—Philadelphia North American.

Stack to His Word. "Of course Dubley's married. Didn't you know that?" "No. Why, he said he wouldn't marry the best woman on earth."

"Yes, and he kept his word."—Philly adelpia Press.

Fish With Four Eyes.

Fishes have been discovered in Guaiamaia with two pairs of eyes. One pair does duty above water and the other below, the fish thus being able to see equally well in two elements.

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