

EVERY DAY SCIENCE.

Reasons for Better Railway Speed in England Than America.

MAKING GREEN LEMONS YELLOW.

A Preparation That Enables Dishonest Men to Sell Stale Milk.

KEROSENE FOR CLEANING BOILERS

(PREPARED FOR THE DISPATCH.)

Concerning the speed of English railway traveling, Julia Ralph says: "It is true that here it is faster traveling in England than here? Yes, there is faster trains and more of them. The run from London to Liverpool is 200 miles, and it is made in 225 minutes, or at the rate of a mile in a minute and 27 seconds, which, when the stops are taken into account, is very nearly an average of a mile a minute. The run to Edinburgh on two railroads is made in the same time. These are world-famous instances, but they are by no means the only ones.

Mr. Ralph gives a very clear explanation of the cause of the perfection in English railroad building. England is a small country densely populated. Her cities were built up before the roads were constructed, and to construct them was to make certain of enormous traffic. From end to end England is only 285 miles long; from side to side, at the broadest part, it is only 280 miles wide. Illinois and England are about the same size. Building railroads there was a different thing from building them here. Their profits naturally go toward perfecting their plants, as ours have gone toward lengthening our systems out into the West. Our railroads have mainly developed their own business, while theirs had their business already developed and awaiting them. A comparison of English business with ours shows that England in 50 years has built only 18,000 miles of railroad, but in 1882 those roads carried 563,000,000 passengers. We in 30 years have built 150,000 miles of railroads, but in 1889 we carried only 381,000,000 passengers. In those facts and figures lies reason enough for the superiority of the English railroad plant. "Give us the same conditions," adds Mr. Ralph, "and we will do as well."

Crossing of Wood.

Large quantities of wood for railway purposes are crosscut in France. The sleepers are first seasoned in the open air and then sized and bored by a special machine, loaded on trucks and run into a drying oven, where they remain 24 hours or more. After drying at a temperature of about 170° Fahrenheit, they are run into a metal cylinder 6 feet 3 inches in diameter, and 36 feet long, which is hermetically closed. The air is then exhausted, and a partial vacuum is maintained for about half an hour. Communication is then opened with reservoirs of dead oil, which is allowed to flow at a temperature of 170° Fahrenheit, under pressure, and this pressure is afterwards increased by a force pump to 83 pounds per square inch, and is maintained for over an hour. The wood used is principally oak and beech, the oak sleepers absorbing from 2.4 to 2.7 quarts per cubic foot, and the beech sleepers from 8.7 to 10 quarts. The whole operation occupies about four hours. In testing the question of durability it was found that after 15 years' service the sleepers taken out by the Eastern Railway Company of France have been 15 per cent for crosscut oak and 20 per cent for crosscut beech.

Pavements in Paris.

Considerable attention has been recently paid by the city authorities of Paris to experiments of various kinds of paving, notably wooden and asphalt, but so far granite and macadam seem to be the most favorably regarded. Macadam pavement in Paris is restricted to streets where few vehicles pass and to drives in the public parks, such as the Bois de Boulogne. In repairing such roads of late years it has been customary in some places to mix old asphalt fragments with the broken stone. The results, as regards wearing qualities, show little improvement over the unmixed stone. The great advantage of the process lies in the fact that such a pavement keeps remarkably clean during the dry weather and does not become so muddy as the true macadam style during rainy seasons. In the middle of summer, however, an unpleasant odor arises and the surface has a dirty, black color.

Decay in Fabrics.

A Belgian chemist is said to have devised a method of rendering fabrics proof against the ravages of decay for an indefinite period. Noting the fact that resin played an important part in the wonderful preservation of Egyptian mummies, he made numerous experiments with substances extracted from birch bark, to which the peculiar aroma of Russia leather is due. He found that the green tar which is left over after the oil used in tanning has been extracted from the white bark of the birch tree is a powerful acid and not alkaloid, and that in solution with alcohol it forms a liquid of remarkable fluidity, which has the power of resisting, when dry, the action of even alcohol. It is claimed that this preservation possesses the property of imparting with the most delicate and brilliant color, and rendering them apparently imperishable.

An Opening for Capitalists.

The English Industries states that a novel industry, resting strictly on chemical principles, and needing nothing but a little capital and a dash of dishonesty to develop it, is said to be practiced in Florida. It consists in avoiding dependence upon the slow and imperfect ripening of lemons by the use of a mixture, by picking the fruit while green and exposing it to the fumes of burning sulphur, whereby its color is changed to a rich golden yellow, infinitely more attractive than the natural color. The result is that the interior of the lemon is practically free from juice, a fact which the hypercritical might reckon a slight drawback; but this is, after all, a trivial matter, affecting only the customer, "is the salve applied to the conscience.

Sparkle of the Diamond.

A jeweler's journal explains the ceaseless motion of the diamond, which is so unaccountable to the uninitiated. The secret of this motion is in the setting of the diamond, and the method is patented. The patentee is reaping a royalty of \$20 every year manufacturing jeweler to whom he sells the privilege of using it. The stone is set in the usual manner, except that a hand-like appliance with a curved spring steel of the result is what scientists call a condition of unstable equilibrium, and the twinkling goes on and greatly enhances the flashing beauty of the gem.

Tramcar Starter.

The strain put on street car horses every time the car is started from a state of rest is well known to be very severe, and to tell heavily upon the life of the animal. The devising of a means of giving an initial start to the tramcar has been attempted by several engineers, and is said to have at length been successfully accomplished by an English engineer. The principle of the invention consists in utilizing the spring power given off from the working of the brake springs and storing that power for the purpose of facilitating the re-starting of the car.

New Manna.

From Asiatic Turkey comes the story of the discovery of a curious farinaceous substance during a hailstorm. The substance is described as "new manna," resembling the mulberry in shape and size, although the

mulberry is not cultivated in that region. The Kurds, according to the informant, have given it the name of "medial grain," and it was sold in the market place.

Microbilizer.

The usual method of disinfecting drains is simply to pour the disinfectant down and leave it to do the best it can for itself. An apparatus, named the "microbilizer," is now used in England, which leaves nothing to chance in the matter of perfect disinfection. The apparatus consists of a small hand pump fitted with flexible suction and delivery hose. When in use the suction is connected with a pail or other vessel containing the disinfectant, and the delivery, which is perforated for a certain portion of its length—is inserted in the pipe or drain to be cleaned. The apparatus is simple in construction, and can be used by any domestic servant. It is capable of pumping from 10 to 12 gallons per minute of disinfecting fluid with great force over the internal surface of the pipes, removing the impure matter and washing it away into the main sewer or cesspool. It is made entirely of copper and gun metal, so as to be free from rust and chemical action, and is fitted with a novel form of jet distributor, with spigots, which, being flexible, can be passed through any drain pipe or winding drain. A smaller form is made for use in the case of cleaning and disinfecting a sink pipe. It will force any stoppage in the sink or other pipe without fear of bursting it.

A Nailless Horseshoe.

The periodical nailless horseshoe has cropped up again. The latest form of it can be secured firmly to the hoof without either nails or screws. It is provided with clipping plates, or flanges, which project upward at an inclination from the base of the shoe, which latter is open at the back, the opening being bridged by a clamping screw. The shoe is applied to the hoof, and the flanges are dressed down upon it. The screw at the back is then operated to bind the shoe firmly to the hoof. Split or cracked hoofs are thus done away with. The shoe can be put on in the morning and taken off at night, thereby resting and cooling the hoof.

Cleaning Boilers With Oil.

It is stated that in recent experiments the cleaning of boilers with oil has been found economical and effective in preventing rust scale, besides exerting a cleansing influence on the pipes. The best results were obtained by the use of two quarts per week on boilers four feet in diameter, and 12 feet long, and three quarts a week for boilers five feet in diameter. The kerosene is introduced through a quarter-inch branch to the suction pipe of the feed pump, leading to the boiler containing the oil, so that any quantity, large or small, could be put into the boiler simultaneously with the usual feed.

Stale Milk.

The New York Medical Journal draws attention to the fact that a preparation named preservine is being sold to milk dealers to enable them, by adding it to their milk, to palm off stale milk on their customers. It is supposed to consist mainly of borax or salicylic acid. The persons concerned profess that the milk is not made injurious by this procedure, but it is quite obvious that conditions may arise under which the contrary may be the case. It is fortunate that the State Dairy Commission has taken the matter up.

Card Shuffling Machine.

A novelty which will be welcomed by all but a fortunately very limited section of the community is a card shuffling machine. The action is quite simple. Two side springs are grasped between the finger and thumb of the left hand, and the cards are placed with the right hand in a receptacle at the top of the machine. The springs are released and the cards will automatically shuffle themselves, the process being almost instantaneous, and the shuffling perfect.

Preserving Fence Posts.

A new method of preserving fence posts has been adopted in Germany. The posts to be treated are allowed to get thoroughly dry, and are then placed for several days in a tub of lime-water, so that the end to be set in the ground may be thoroughly saturated. After removing them from the lime-water they are dried and then painted with dilute sulphuric acid.

Canada Ice, \$6 Per Ton

On track in Pittsburg. Address H. B. Hopson, Mayville, N. Y.

For a finely cut, neat-fitting suit leave your order with Walter Anderson, 700 Smithfield street, whose stock of English suitings and Scotch tweeds is the finest in the market; imported exclusively for his trade.

Exposition Visitors

Do not fail to call at Lies' popular gallery, 10 and 12 Sixth street, and have your picture taken. Good work, low prices, prompt delivery. Cabinet photos \$1 per dozen.

PUSHES for wrap sleeves one of the newest ideas, new lines now ready.

TSSA HIGGS & HACKE.

For reliable kid gloves go to Rosenbaum & Co.

FURNITURE KEPT for storage and shipment. HAUGH & KEENAN, 34 Water st.

QUENTHER'S ORCHESTRA

Furnishes Music for Concerts, Weddings, Receptions, etc.

Lessons on Flute and Piano given by PROF. GUENTHER, 97 Fifth ave., and His Violin, room 502.

29-30

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NEW ADVERTISEMENTS.

Bijou THEATRE UNDER THE DIRECTION OF R. M. GULICK & CO.

WEEK OF SEPTEMBER 8, Matinees, Wednesday and Saturday.

THE COMEDIAN, MR. FRANK DANIELS,

"LOOK OUT FOR YOUR BUTTONS," AND HIS BIG COMEDY COMPANY,

MISS BESSIE SANSON,

"ONLY A FEW OF US LEFT," THE COMPANY:

- George H. Wood, Arthur E. Moulton, Edward Morris, Robert Evans, William White, Charles Zimmerman, Thomas Kiernan, James Grant, Oliver Howe, Miss Jessie Oliver, Miss Annetta Zelna, Miss Kate Allen, Miss Rose Chesnean, Miss Fannie Johnston, Miss Louise Beaumont, Miss Zoe Steele, Miss Henrietta Holland, Walter Long, Charles Walker.

"YOU ARE ALL RIGHT, DOCTOR!" THE NEW LITTLE PUCK!

Universally conceded the very best Farce Comedy written. Everything brand new this year—Music, Songs, Dances, Company, not to mention the Dog! All New!

BIJOU PRICES: 75, 50 and 25c. RESERVED SEATS.

September 15—Bartley Campbell's "Siberia."

EXPOSITION. SECOND WEEK. UNRIVALED ATTRACTIONS IN ALL DEPARTMENTS. INNES' INCOMPARABLE BAND. Special Musical Programmes Afternoon and Evening. Exhibitors Eclipse All Former Efforts. Magnificent Art Galleries. Do not fail to see the Glass Plant in practical operation, and the grand Illumination with Incandescent Lights every evening. Open from 9 A. M. to 10 P. M. ADMISSION—Adults, 25c. Children, 15c.

HARRY WILLIAMS' ACADEMY MONDAY EVENING, SEPT. 8. Matinees, Tuesday, Thursday and Saturday.

GRIEVES' BUBLESQUERS AND GIGANTIC SPECIALTY COMPANY.

AND THE LAUGHABLE BALSQUE. A SALE OF A MASCOTT! Sept. 15—Jack's Creole Barytessque Company.

HARRIS' THEATER. Week Commencing Monday, Sept. 8. Every Afternoon and Evening.

DAN MCCARTHY'S TRUE IRISH HEARTS CO. The Greatest of All Irish Picturesque Plays.

NEW MUSIC, NEW SONGS, NEW DANCES. Songs in Real Irish Language. A Genuine Irish Bag Pipe Player. Week Sept. 15—"ONE OF THE FINEST" NIGHT.

NEW ADVERTISEMENTS.

WORLD'S MUSEUM-THEATRE GEO. CONNOR, MANAGER. EDW. KEENAN, BUSINESS MANAGER.

THE POPULAR AMUSEMENT RESORT FOR LADIES AND CHILDREN. It is with a knowledge of the appreciation of the amusement public for a first-class entertainment that we with pleasure announce the following high-salaried leading attractions for

WEEK BEGINNING MONDAY, SEPTEMBER 8, THE MARVELOUS MUSCULAR MASTODON,



MR. LEWIS HANSON, SURNAMED COWBOY SAMSON.

Performing the wonderful feat of allowing a horse, weighing 1,000 pounds, to rest on a plank placed across his breast, holding his body rigid, supported only by placing his head on one chair and his heels on another.

THE LADY WITH A BREAST OF IRON, MISS MILLIE MAZIE,

Allows huge stones to be smashed to pieces on her breast with SLEDGE HAMMERS.

MISS LILLIAN DE LAND,

Who weighs 100 pounds, is 5 feet 5 inches in height, and squashes herself together, with a hundred miscellaneous articles, into a trunk 16x28 inches, in full view of the audience. HOW DOES SHE DO IT?

Several other new and interesting features in Curio Hall.

THEATER.

ROACH AND CASTLETON'S MAGNETS,

A splendid company of first-class artists.

ADMISSION, 10c. CHILDREN, 5c.

Two matinees every afternoon at 2:15 and 3:30. Two performances every evening at 8:15 and 9:30. Next week—WORLD'S OWN SPECIALTY COMPANY.

CASH CREDIT. KEECH'S 923 and 925 PENN AVENUE, NEAR NINTH ST.

FIRST SECOND

We wish to say a few words to our country cousins visiting the Exposition. We cordially but earnestly request all to come here and see Pittsburg's Great Furniture and Carpet Emporium. Our newly-enlarged place and increased facilities, together with our truly enormous Fall stock will be an enjoyable and instructive sight for them. Those who make purchases will profit largely, for Keech's prices are matchless.

THIRD FOURTH

Comes our large stock of Bedroom Suites, Sitting Room Furniture, Dining Room Tables and Chairs, Sideboards, Wardrobes, Chiffoniers, and, above all, FOLDING BEDS. All the new, good and handsome styles are to be found at Keech's. Others we don't keep. Contemplating purchasers should not fail to make a survey of our goods and prices. It pays housekeepers to post themselves before buying. "Always look before you leap."

FIFTH SIXTH

We shall print a few lines about our Housefurnishing Goods Department. It is stocked with a fresh and complete line of Queensware, Tinware, Woodenware, Stoves, Ranges, Refrigerators, Lamps, Silver Tableware, Cutlery, etc. Buy whatever you please, and you cannot help making a snug saving of money. There is always something wanting in these goods in every home, and shrewd housekeeper will need no urging to supply their demand from Keech's unequalled stock.

And last, but by no means, comes our Clothing Department. It is rapidly filling up now with new Fall and Winter Styles, which we ask you to step in and see. In our Cloak Department, too, many novelties in Jackets and Wraps have lately put in an appearance, while the CLOSING OUT SALE OF OUR ENTIRE STOCK OF DRYGOODS is still in full blast. We are going to abandon the Drygoods Department. This, therefore, is a genuine reduction sale.

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NEW ADVERTISEMENTS.

HARRY DAVIS' FIFTH AVENUE MUSEUM! ROOF GARDEN THEATER! Visited by 25,000 People the First Week! A Complete and Beautiful Amusement Temple!

COMMENCING SEPT. 8,



The Venetian Lady Troubadours!

7 ACCOMPLISHED ARTISTS! 7 BEAUTIFUL MUSICIANS!

FROM THE CITY IN THE SEA! ONLY LADY MANDOLIN ORCHESTRA IN THE WORLD!

SALARY \$400 A WEEK! All the popular features retained. An entirely new stage entertainment, introducing

Truehart, Dillon and Saville's

Vaudeville Combination.

12 -|- Refined Specialty Artists -|- 12

DOORS OPEN 1 and 7 P. M.

ADMISSION, 10 Cts.