

APPLIED SCIENCE.

PREPARATION OF FRENCH CHALK.—The substance generally known as French chalk, used by tailors for making marks upon cloth, is manufactured by rubbing ultramarine, ochre, &c. (according to the color desired) with pipe-clay softened with water. The mixture is then poured into molds, and dried in a slightly heated room.

LEATHER GLUE.—A substance known as "leather glue" is prepared by mixing ten parts of sulphide of carbon with one of oil of turpentine, and adding enough gutta-percha to thicken the mass. The leather surfaces to be united must be freed from oil, which is accomplished by subjecting them to pressure by laying the leather upon blotting paper and applying a hot iron. After tracking together the edges to be joined with the cement, they are to be kept under pressure until the glue is entirely dry.

IMPROVED ELASTIC BANDS.—The ordinary elastic bands, with rubber threads woven into them, lose their elasticity in a short time by action of the atmosphere; but bands free from this defect, and at the same time more elegant and stronger, are made at no greater cost by causing two strips of cloth, previously coated on the inner surfaces with a solution of india-rubber in benzine, and with a band of stretched rubber threads or a rubber band inserted between them, to pass through rollers, compacting the three by this pressure into a firm fabric.

IMPROVEMENT OF RANCID BUTTER.—According to Land and Water, rancid butter can be greatly improved in quality by washing it thoroughly in lime water, and then clearing out the lime water by a good washing in cold spring water. The lime water is easily made, by allowing a lump of lime the size of the fist to slake in a bucket of water, stirring it well, and afterward allowing the lime to settle. It is said that a large business is now done in England by sundry persons, who purchase rancid butter at low rates and sell it again at much higher prices, after manipulating it in the manner mentioned.

NEW PROCESS FOR PRESERVING MEAT.—According to The London Athenaeum, Mr. Mariotti has lately been called attention to a new process for preserving meat fresh. This consists in dipping the fresh meat into melted butter and then packing it in salt. The examination of the specimens furnished by him is said to have been quite satisfactory; but, in the opinion of The Athenaeum, it does not differ essentially from that of dipping the meat in paraffine, which answered for a temperate climate, but failed in a tropical region.

SURFACE HARDENING OF CAST-IRON.—The wearing of cast-iron surfaces exposed to sliding friction can be almost wholly prevented by tempering the surface with a mixture of 2 1/2 to 3 parts of water, 200 pounds of sulphuric acid, and 1,000 grains of nitric acid. The article should be heated to a cherry-red, and protected from the oxidizing effect of currents of air by a sheet-iron box. The process is especially adapted to the hardening of bearings of axles, which, while much cheaper than those of the usual alloy, will, when regularly lubricated, last as long, even when there is great rapidity of motion.

IMPROVED TRACING PAPER.—Puscher of Nuremberg has lately suggested a solution of castor oil in absolute alcohol for the purpose of manufacturing a tracing paper. The oil is to be diluted with one, two, or three times its bulk of alcohol, according to the thickness of the paper and the amount consequently required for rendering it transparent. This can be laid on by means of a sponge; and in a very few minutes after the application the paper will be dry, transparent, and ready for use. It will readily receive the mark of a pencil or India ink, and as by immersion in absolute alcohol the oil can be removed, the paper can be restored to its original condition, if desired.

SILVER-YELLOW AND WATER-GLASS.—The addition of a hot, saturated solution of bichromate of potash to a neutral solution of sesqui-chloride of iron produces, after heating for some time, a fine yellow precipitate of a basic chromate of sesqui-oxide of iron of definite constitution, which, when washed and dried, may be used under the name of silver-yellow as a pigment. This is not only suitable for an aqueous and rapidly drying color, but, when intimately ground with water-glass, it forms a coating that dries rapidly and hardens like cement into a stony incrustation, which running water does not affect. With ultramarine it gives a green pigment of similar properties. The following proportions are based upon the chemical reactions which take place in the preparation: Crystallized sesqui-chloride of iron, 435 parts, and bichromate of potash, 1,475 parts. After a long boiling of these constituents together in water, 778 parts of the basic chromate of the sesqui-oxide of iron, or sidler-yellow, separate, while 90 parts of water of crystallization are liberated from the sesqui-chloride of iron, and 1,040 parts of chromo-chloride of potassium remain in the aqueous solution with 389 parts of chromate of potash.

MOLDS FOR ELECTROTYPES.—The employment of graphite with gypsum and gutta percha molds for electrotype purposes causes much trouble and loss of time, because the graphite must be rubbed till it assumes a metallic luster, which, though a matter of no great difficulty with smooth, even surfaces, is very troublesome when irregularities occur. Better results are obtained when the gypsum mold, soaked in wax, is thickly covered over with a mixture of silver nitrate solution super-saturated with ammonia and alcohol, and then exposed to the action of sulphuretted hydrogen, whereby sulphide of silver is formed, which is a good conductor. The free ammonia in the solution causes it to adhere more readily to the wax, leaving, on drying, a uniform, unbroken covering of the silver compound.

When a somewhat powerful battery of four or five Daniell's elements is used, the layer of copper quickly diffuses itself over the whole surface, whereas, by employing a feebler current, a softer and less friable copper is obtained.

A good method of preparing the solution is as follows: dissolve 15 grains of lunar caustic in 30 of water, to which 42 grains of ammonia of sp. gr. 0.950 are to be added, and then 45 grains of absolute alcohol.

DIFFERENCE BETWEEN COLUMBE AND GALLINÆ.—Mr. Tegetmeier calls attention to the very great difference in many respects between the gallinæ and the columbe birds, considering it very remarkable that naturalists should so frequently unite them. Thus, he remarks that the pigeon never lays more than two eggs, and in many cases only one. The young, when hatched, are in the most helpless state that it is possible to conceive. Their legs and wings are of the most rudimentary character. Their eyes are closed, and for eight or ten days they are fed with a curdy secretion of the parent bird, which involves the necessity of the pairing of the old birds, and setting on the nest by turns. The young inserts its beak into the mouth of the old one and takes out either the secretion referred to, or grain or other food, previously swallowed by the parent and disgorged by it. The young pigeon grows with marvelous rapidity. In a month it leaves the nest, with a complete set of nesting feathers, and is capable of flight, which, within another fortnight, can be well sustained, and the bird shortly flies in pursuit of its own food. These nesting feathers are gradually changed, and, if the bird is early hatched, the adult plumage is completed in Autumn, the bird having changed its dress only once.

The gallinæ, on the other hand, always lay five or six eggs (for instance, the peacock), to eighteen or twenty, in some of the smaller kinds. These eggs are usually highly colored, instead of being white, as are those of the pigeon. The young bird is able to run about and feed itself as soon as hatched. The molt is entirely different from that of the pigeon. The quill feathers of the wings are the first to appear, becoming visible in two or three days after birth. Before a fortnight they begin to shed, and the second step is followed by a third, and this by the permanent, adult plumage of the Autumn. The

tail feathers change in a similar manner. Usually, in the pigeons, the sexes are nearly, or quite identical in color as well as in size, while in the gallinæ they always differ. There is also an essential difference in the structure of the skull, easily appreciable in any specimen.

INFLUENCE OF SULPHURIC ACID ON WINE.—Dr. de Martin, discussing the influence of sulphuric acid upon the formation of wine, assures us that by adding a single gramme (5 grains) of the acid to a quantity of wine equal to 25 gallons, the following results will be observed: First, the fermentation will be more rapid and more quickly completed, and the sugar rapidly transformed into alcohol. Second, the color of the wine will be more lively. Third, a careful chemical analysis reveals no more sulphuric acid in such wine than in other specimens prepared by the ordinary methods employed in the South of France. It is most probable, indeed, that, in consequence of the numerous reactions which take place between the mineral substances, organic salts, and the albuminoid and colloid substances of the wine, the small quantity of acid added is rendered fixed and insoluble.

These results, in the opinion of the writer, confirm the experiments of Professor Chancel, who has ascertained that whenever the must is alkaline, the sugar, instead of being transformed into alcohol, is converted into lactic acid, from which wine, of course, cannot be produced. The addition of the acid, however, counteracts the alkalinity of the must, and places the grape sugar in the conditions necessary to produce alcohol. In some instances, the precise source of the alkalinity referred to, although a serious matter, is not clearly understood; although Dr. de Martin suggests that it is possibly caused by the grapes becoming covered with mud in consequence of rain, which is thus accumulated in sufficient quantity to give an alkaline reaction to the liquid, resulting in a poor fermentation.

ACETATE OF SODA FOR PRESERVING FOOD.—A new process for preserving alimentary substances has lately been communicated to the Academy of Sciences in Paris, the essential feature of which consists in the use of acetate of soda instead of the common salt ordinarily employed. The substance to be preserved is to be placed in a barrel, with layers of one-fourth, by weight; and in Winter the proportion must be at least 68° F. After 24 hours, the barrel must be turned, and in 48 hours the operation is completed; the salt having then absorbed the water of the meat, which may be kept in the pickle or dried in the air. Any vacant space in the barrel, after heading up, are to be filled with brine, of the old pickle may be evaporated to half of the original bulk employed, and recovered, for subsequent use.

For cooking, the meat thus prepared is to be soaked from 12 to 24 hours in tepid water containing a mixture of 2 1/2 to 3 parts of water, 200 pounds of sulphuric acid, and 1,000 grains of nitric acid. The article should be heated to a cherry-red, and protected from the oxidizing effect of currents of air by a sheet-iron box. The process is especially adapted to the hardening of bearings of axles, which, while much cheaper than those of the usual alloy, will, when regularly lubricated, last as long, even when there is great rapidity of motion.

IMPROVED TRACING PAPER.—Puscher of Nuremberg has lately suggested a solution of castor oil in absolute alcohol for the purpose of manufacturing a tracing paper. The oil is to be diluted with one, two, or three times its bulk of alcohol, according to the thickness of the paper and the amount consequently required for rendering it transparent. This can be laid on by means of a sponge; and in a very few minutes after the application the paper will be dry, transparent, and ready for use. It will readily receive the mark of a pencil or India ink, and as by immersion in absolute alcohol the oil can be removed, the paper can be restored to its original condition, if desired.

SILVER-YELLOW AND WATER-GLASS.—The addition of a hot, saturated solution of bichromate of potash to a neutral solution of sesqui-chloride of iron produces, after heating for some time, a fine yellow precipitate of a basic chromate of sesqui-oxide of iron of definite constitution, which, when washed and dried, may be used under the name of silver-yellow as a pigment. This is not only suitable for an aqueous and rapidly drying color, but, when intimately ground with water-glass, it forms a coating that dries rapidly and hardens like cement into a stony incrustation, which running water does not affect. With ultramarine it gives a green pigment of similar properties. The following proportions are based upon the chemical reactions which take place in the preparation: Crystallized sesqui-chloride of iron, 435 parts, and bichromate of potash, 1,475 parts. After a long boiling of these constituents together in water, 778 parts of the basic chromate of the sesqui-oxide of iron, or sidler-yellow, separate, while 90 parts of water of crystallization are liberated from the sesqui-chloride of iron, and 1,040 parts of chromo-chloride of potassium remain in the aqueous solution with 389 parts of chromate of potash.

MOLDS FOR ELECTROTYPES.—The employment of graphite with gypsum and gutta percha molds for electrotype purposes causes much trouble and loss of time, because the graphite must be rubbed till it assumes a metallic luster, which, though a matter of no great difficulty with smooth, even surfaces, is very troublesome when irregularities occur. Better results are obtained when the gypsum mold, soaked in wax, is thickly covered over with a mixture of silver nitrate solution super-saturated with ammonia and alcohol, and then exposed to the action of sulphuretted hydrogen, whereby sulphide of silver is formed, which is a good conductor. The free ammonia in the solution causes it to adhere more readily to the wax, leaving, on drying, a uniform, unbroken covering of the silver compound.

When a somewhat powerful battery of four or five Daniell's elements is used, the layer of copper quickly diffuses itself over the whole surface, whereas, by employing a feebler current, a softer and less friable copper is obtained.

A good method of preparing the solution is as follows: dissolve 15 grains of lunar caustic in 30 of water, to which 42 grains of ammonia of sp. gr. 0.950 are to be added, and then 45 grains of absolute alcohol.

DIFFERENCE BETWEEN COLUMBE AND GALLINÆ.—Mr. Tegetmeier calls attention to the very great difference in many respects between the gallinæ and the columbe birds, considering it very remarkable that naturalists should so frequently unite them. Thus, he remarks that the pigeon never lays more than two eggs, and in many cases only one. The young, when hatched, are in the most helpless state that it is possible to conceive. Their legs and wings are of the most rudimentary character. Their eyes are closed, and for eight or ten days they are fed with a curdy secretion of the parent bird, which involves the necessity of the pairing of the old birds, and setting on the nest by turns. The young inserts its beak into the mouth of the old one and takes out either the secretion referred to, or grain or other food, previously swallowed by the parent and disgorged by it. The young pigeon grows with marvelous rapidity. In a month it leaves the nest, with a complete set of nesting feathers, and is capable of flight, which, within another fortnight, can be well sustained, and the bird shortly flies in pursuit of its own food. These nesting feathers are gradually changed, and, if the bird is early hatched, the adult plumage is completed in Autumn, the bird having changed its dress only once.

The gallinæ, on the other hand, always lay five or six eggs (for instance, the peacock), to eighteen or twenty, in some of the smaller kinds. These eggs are usually highly colored, instead of being white, as are those of the pigeon. The young bird is able to run about and feed itself as soon as hatched. The molt is entirely different from that of the pigeon. The quill feathers of the wings are the first to appear, becoming visible in two or three days after birth. Before a fortnight they begin to shed, and the second step is followed by a third, and this by the permanent, adult plumage of the Autumn. The

TRANSIT TO THE SUBURBS.

IRON PATHWAYS OUT OF NEW-YORK.

FACILITIES FOR REACHING SUBURBAN RESIDENCES BY STRAM—THE COST OF DAILY TRAVEL AND THE RATES OF COMMUTATION—THE OVERFLOW MAINLY INTO NEW-JERSEY. The high prices of land and rent on Manhattan Island, and the absence of any means of rapid transit from the lower to the upper part have driven a large proportion of those doing business in New-York into the country to find homes, while many doubtless have chosen suburban residences voluntarily. All along the railroads leading from the metropolis towns and villages have sprung up within a few years, and are fast becoming united by the rapid settlement of the intervening country. This is especially the case on the lines of the railroads which have been managed in a manner to encourage settlement, by offering comfortable, rapid, and safe means of travel, and a generous rate of commutation of fares. The delay in reaching the steam trains penetrating Westchester County from the business parts of the city has served to retard settlement in a northerly direction, to the great advantage of New-Jersey and Long Island, though neither the ferry nor railroad accommodations of the latter are equal to the former. Of the 2,220,627 persons in metropolitan New-York, including the suburbs for forty miles in every direction, 6 per cent live in Westchester County, 23 per cent on Long Island, 24 per cent in New-Jersey, and 41 per cent live in New-York. Forty thousand more persons live within the distance named on Long Island, Brooklyn included. In the following article an effort has been made to show in brief space the character of the railroads leading out of New-York, the towns along the line of each, and the cost of daily travel to and from New-York.

NEW-JERSEY RAILROADS.

THE MORRIS AND ESSEX RAILROAD. This road is leased and operated by the Delaware, Lackawanna and Western Railroad Company. The hot region of the road formerly had on account of accidents occurring from faulty management is wearing away, and gentlemen using the road daily speak well of the accommodations afforded. The road is reached by the ferries at the foot of Barclay and Christopher streets. Starting from Hoboken it runs across the meadows, the Hackensack and Passaic Rivers, through Newark, by the base of the Orange Mountains, and through the Orange Valley, where are many favorite Summer resorts of New-York people. From Summit, on the side of Orange Mountain, a broad view is obtained of Elizabeth, Newark, and this city. The old Revolutionary town of Morristown is reached in one hour and 40 minutes. All the towns along the route are thickly settled and the price of real estate is comparatively high. At Roselleville a house may be bought for \$5,200 to \$25,000. At Orange, East Orange, Brick Church, &c., small houses may be bought for \$3,000 to \$4,000, while more pretentious residences range as high as \$50,000. Beyond Morristown, which is properly the end of suburban travel, the value of real estate rapidly diminishes, until it falls nearly to the level of that of Newark. It is six miles north of Newark, and Newark is the terminus at Montclair. It is a country through a healthy country, which is thickly dotted with handsome cottages and villas. The Boonton Branch is 31 miles long, and leaving Hoboken by an independent track, connects with the main road at Denerville. This road passes through the flourishing towns of Rutherford Park, Passaic, Clifton, and Paterson.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

MORRIS AND ESSEX RAILROAD.

THE NEW JERSEY CENTRAL RAILROAD. The Central Railroad of New-Jersey is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

TRANSIT TO THE SUBURBS.

IRON PATHWAYS OUT OF NEW-YORK.

FACILITIES FOR REACHING SUBURBAN RESIDENCES BY STRAM—THE COST OF DAILY TRAVEL AND THE RATES OF COMMUTATION—THE OVERFLOW MAINLY INTO NEW-JERSEY. The high prices of land and rent on Manhattan Island, and the absence of any means of rapid transit from the lower to the upper part have driven a large proportion of those doing business in New-York into the country to find homes, while many doubtless have chosen suburban residences voluntarily. All along the railroads leading from the metropolis towns and villages have sprung up within a few years, and are fast becoming united by the rapid settlement of the intervening country. This is especially the case on the lines of the railroads which have been managed in a manner to encourage settlement, by offering comfortable, rapid, and safe means of travel, and a generous rate of commutation of fares. The delay in reaching the steam trains penetrating Westchester County from the business parts of the city has served to retard settlement in a northerly direction, to the great advantage of New-Jersey and Long Island, though neither the ferry nor railroad accommodations of the latter are equal to the former. Of the 2,220,627 persons in metropolitan New-York, including the suburbs for forty miles in every direction, 6 per cent live in Westchester County, 23 per cent on Long Island, 24 per cent in New-Jersey, and 41 per cent live in New-York. Forty thousand more persons live within the distance named on Long Island, Brooklyn included. In the following article an effort has been made to show in brief space the character of the railroads leading out of New-York, the towns along the line of each, and the cost of daily travel to and from New-York.

NEW-JERSEY RAILROADS.

THE MORRIS AND ESSEX RAILROAD. This road is leased and operated by the Delaware, Lackawanna and Western Railroad Company. The hot region of the road formerly had on account of accidents occurring from faulty management is wearing away, and gentlemen using the road daily speak well of the accommodations afforded. The road is reached by the ferries at the foot of Barclay and Christopher streets. Starting from Hoboken it runs across the meadows, the Hackensack and Passaic Rivers, through Newark, by the base of the Orange Mountains, and through the Orange Valley, where are many favorite Summer resorts of New-York people. From Summit, on the side of Orange Mountain, a broad view is obtained of Elizabeth, Newark, and this city. The old Revolutionary town of Morristown is reached in one hour and 40 minutes. All the towns along the route are thickly settled and the price of real estate is comparatively high. At Roselleville a house may be bought for \$5,200 to \$25,000. At Orange, East Orange, Brick Church, &c., small houses may be bought for \$3,000 to \$4,000, while more pretentious residences range as high as \$50,000. Beyond Morristown, which is properly the end of suburban travel, the value of real estate rapidly diminishes, until it falls nearly to the level of that of Newark. It is six miles north of Newark, and Newark is the terminus at Montclair. It is a country through a healthy country, which is thickly dotted with handsome cottages and villas. The Boonton Branch is 31 miles long, and leaving Hoboken by an independent track, connects with the main road at Denerville. This road passes through the flourishing towns of Rutherford Park, Passaic, Clifton, and Paterson.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

MORRIS AND ESSEX RAILROAD.

THE NEW JERSEY CENTRAL RAILROAD. The Central Railroad of New-Jersey is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

NEW JERSEY CENTRAL RAILROAD (NO SUNDAY TRAINS).

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE NEW JERSEY CENTRAL RAILROAD.

THE CENTRAL RAILROAD OF NEW-JERSEY is one of the best equipped and generously managed roads running out of this city. Many of the towns along the route have been laid out by the stockholders and directors of the road, and the land is taken special care to improve the roads, and thus to attract settlers. The rails are of steel, the cars are modern, well lighted and heated, and everything is done for the comfort of passengers. Over 500 trains are run daily over the main road, and some 500 over its leased branches. The railroad is reached by ferry from the foot of Liberty-st. From Jersey City it extends for six miles along the shore of New-York Bay. All the towns on this route are rapidly building up, though good houses within moderate distances of the stations can be obtained for from \$5,000 to \$25,000. Elizabeth, 35 minutes' ride from New-York, has increased in population from 10,000 to 25,000 in the last 10 years. The town is laid out, and has a large proportion of elegant and costly residences. Plainfield, on the base of the Blue Range of Mountains, is a picturesque and beautiful town, one hour and ten minutes from this city. There are many pleasant small towns and villages on the line of the road. The Newark and New-York Railroad is leased and operated by the Central road. It is approached by the ferry of that Company from the foot of Liberty-st. From Jersey City it follows the line of the Central for a mile and a quarter, until, passing Communipaw Station, it turns to the east, and, running through West Bergen, it crosses the Hackensack and Passaic Rivers, and enters Newark at Broad-st.

restricted to one night a week, in which they could pass the evening in New-York and return the next night. A few new cars have been introduced recently, but most of those used for local travel are dingy and worn. Very little regard seems to be paid to the comfort of travelers.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE HUDSON RIVER RAILROAD.

The country through which the Hudson River Railroad passes, insures for it a regular local business. The towns on the eastern bank of the Hudson River are rapidly increasing in size, their population being largely composed of men of wealth and comparative leisure. Commutation rates are nearly one-half higher than on the principal road of New-Jersey, and the cars used for local travel—conspicuously those of the Yonkers special—are old, worn, and dingy. Driven along the line are led to live there from the many attractions offered by the locality, certainly not by the inducements afforded by the railway company under whose auspices they travel to and from their homes.

HUDSON RIVER RAILROAD.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

NEW-HAVEN AND HARTFORD RAILROAD.

The New-Haven, New-Haven and Hartford Railroad is the result of the consolidation of the New-Haven and Hartford Roads, which was consummated in August of last year. During the year 1872, the road carried 1,925,775 passengers, and 185,575 tons of freight were carried by it, although the road has carried, since 1855, more than 28,000,000 passengers, not a single accident has occurred. This road has been for a few years past substituting steel rails in place of iron ones. At present there is not a rail between this city and New-Haven which is not steel or has not at least a steel rail lying beside it to be put down as soon as the frost is out of the ground. This substitution has involved an expense of \$1,000,000 in gold, after deducting the value of the old rails. The commutation rates on this line to places in Westchester County are soon to be lowered.

NEW-YORK, NEW-HAVEN AND HARTFORD RAILROAD.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

LONG ISLAND RAILROADS.

Apparent complications are met in considering the Long Island railroads. Whether owing to a similarity of names, such as the North Side and South Side, or to the fact that the lines of the construction and location of a number of small branches diverging from all the main lines at intervals of every mile or two help to make time-tables almost unintelligible. Directly opposite the depot of the Long Island Railway at Hunter's Point is the depot of the Flushing and North Side and the Central railroads of Long Island. The latter road is more commonly known as "Stewart's Rail," having been built by A. T. Stewart. The present terminus of the line is Hempstead, but the work of extending the line is going on. The annexed table gives the scale of commutation both upon the Flushing and the Central roads:

FLUSHING AND NORTH SIDE RAILROAD.

Table with 4 columns: Stations, Miles, Average Rate, Fare. Lists stations from Newark to Paterson and Rutherford Park.

THE LONG ISLAND RAILROAD.

The Long Island Railroad is the longest of the island. It was originally built as a new route, or rather part of a route, between New-York and Boston, and connected at Greenport with steamers. The road starts at Hunter's Point, and besides the main line to Greenport, includes branches to Sag Harbor, Rockaway, Port Jefferson, Hempstead, and Glen Cove. The regular system of commutation by the quarterly half-yearly and yearly