Scientific American.

ESTABLISHED 1845.

MUNN & CO.. Editors and Proprietors. PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN.

A. E. BEACH.

TERMS FOR THE SCIENTIFIC AMERICAN

MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

The Scientific American Supplement

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pares, uniform in size with SCIENTIFIC AMERICAN, Terms of subscription for SUPPLEMENT, 55.00 a year, for the U. S., 'anada or Mexico, \$6.00 a year to foreign courtries belonging to the Postal Union Single copies 10 cents. Sold by all newsdealers throughout the country Combined Rates.—The SCIENTIFIC American and Supplement will be sent for one year, to one address in U. S., Ca ada or Mexico, on receipt of seven deliars. To foreign countries within Postal Union eight dollars and Mty cents a year.

Building Edition of Scientific American.

Haliding Edition of Scientific American.

THE BUILDING EDITION OF THE SCIENTIFIC AMERICAN is a large and splendid illustrated periodical, issued montbly, containing floor p ans and perspective views pertaining to modern architecture. Each number is illustrated with beautiful plates, showing desirable dwellings, public buildings and architectural work in great variety. To builders and all who contemplate building this work is invaluable. Has the largest circulation of any architectural publication in the world.

Single copies 25 cents. By mail, to any part of the United States, Canada or Mexico, \$2.50 a year. To foreign Postal Union countries, \$5.00 a year. Combined rate for Building Edition, Scientific American, and Supplies of the property of the Combined rate for Building Edition, Scientific American and Supplies of the property of the Postal Union countries, \$4.50 a year.

To foreign Postal Union countries, \$4.50 a year.

Export Edition of the Scientific American,

Export Edition of the Scientific American, with which is incorporated "LA AMERICA CIENTIFICA E INDUSTRIAL," or Spanish edition of the Scientific American published monthly, uniform in size and typography with the Scientific American. Every number contains about 5 pages, profusely illustrated I tis the finest scientific, industrial export paper published. It circulates throughout Cuba, the West Indies, Mexico, Central and South America, Spain and Spanish possessions—wherever the Spanish language is spoken. The Scientific Americal places throughout the world. 103% a year, post paid to any part of the world. Single copies 35 cents.

127 Manufacturers and others who desire to secure foreign trade, may have large and bandsomely displayed announcements published in this edition at a very moderate cost.

MUNN & CO., Publishers,

331 Broadway, New York.

The safest way to remit is by postal order, express money order, draft or bank check. Make all remittances payable to order of MUNN

The Readers are specially requested to notify the publishers in case of any failure, delay, or irregularity in receipt of papers.

NEW YORK. SATURDAY, NOVEMBER 30, 1895.

(Illustrated articles are marked with an asterisk.)

Alcohol, scientific teaching as to 342	Inventions, recently patented 348
Atlanta Exposition, the* 337	Land registration, improved 34
Bell, a great 339	Latitude not fixed 33
Bible, the largest 346	Moore, Hollis W 34
Cycle notes	Niagara Falls power plant 34
Bicycles, street car books for* 347	North star, the (CCCC)
Books and publications, new 348	Paracoutes, lifting power of (6665) 34
Bottle that cannot be refilled 338	Patents granted, weekly record 34
Boys. what they should know 341	Pipe cutter, Benade's* 34
Brick walls, damp (6661) 349	Railroad, mountain, India 34
Coal, the formation of 346	Railway accident Paris* 34
Copenhagen, new port of* 342	Railway car jack, Keller's*, 34
Electricity building. Atlanta* 337	Sand and cement
Electric funeral trains 344	School room gymnasium, a* 34
Electric traction, power required	Ship, sailing, a great 34
by 340	Spectacles, queer kinds of 34
Engineers' licenses 341	Spectrum, the invisible 34
Fish, putrid, poisons of 343	Staining wood black
Flowers, cut (a N. Y. Co.) 340	
Gases, liquefaction of 345	
Glassmakers, ancient 342	Temperature of lakes, the 33
Glass measures, graduating 316	Tobacco hoves
Hair lotion, a famous 342	Tornado hosts the new Ameri
Heavens, the, in December 339	101 pedo boats, the new Ameri-
House numbering345	Tree bridge, a*
	"The orige, a"
Indicator stop motion, Parch-	"Tug of war" strains (6663) 34
man's* 341	Vaux, Calvert
Insect flowers, Dalmatian 347	windmill, Schon's* 34

TABLE OF CONTENTS OF

SCIENTIFIC AMERICAN SUPPLEMENT

No. 1039.

PAGE

For the Week Ending November 30, 1895.

Price 10 cents. For sale by all newsdealers.

tions
A New Rubber Industry in Lagos, Africa.—(Kickxia africana, Benth.)—6 illustrations
Tree Culture—An Interesting Experiment.—This article, by C.
A. Dana, gives details of some interesting experiments carried on at Utrecht, Holland.
The Winter Cantaloupe.—Details of the winter varieties of this

III. CH EMISTRY.—The Synthesis of Proteids

IV. ELECTRICITY.—The Electricity Works of the Great Northern Railway Company, Holloway, N.—This plant uses the Mordey-Victoria dynamo and alternator, driven by compound Corliss non-condensing engines. 2 illustrations.

Electrification and Diselectrification of Air and Other Gases.—Abstract of a paper by Lord KELVIN (Sir WILLIAM THOMSON), MAGNUS MACLEAN, and ALEXANDER GALT, read before the British Association.—Some interesting experiments.—2 illustrations. 16608

tions.

V. GEOLOGY.—The Volcanoes of Hawaii.—By EDWARD EVERETT.
—This article describes the ascent of Kilauea and gives details of the present condition of the crater.

VI. HOROLOGY.—A New Keyless Watch.—A simple winding and setting arrangement devised by a Brazilian.—1 illustration.

VII. MECHANICAL ENGINEERING.—Hydraulic Ejector.—A de scription of the new hydraulic ejector or water jet pump.—I illus

tration Machine.—A 16 inch shaping machine for

heavy work.

VIII. MEDICINE AND SURGERY.—The Treatment of Fevers Without Food, Antipyretics or Alcohol—With Records of Varicus (1888). By A. MONAE LESSEM, M.D. WICH AND SURGERY OF THE EYE. BY WILLIAM OLIVER MOORE, M.D.—This article gives details of the modern advances in dealing with diseases and maiformations of the eye.

The Physiological Action of Acetylene.—By Dr. W. H. BIRCHMORE.—This paper gives the results of many experiments on the new illuminant. 16612 16614

new illuminant.

IX. MISCELLANE OUS.—Horse Ranching in Queensland—Breaking in Warrisals (Wild Horses).—Spirited engravings, showing the methods employed —4 illustrations.

X. NATURAL HISTORY.—Luminous Animals.—By The MAS R. R. STEBBING.—The second installment of this interesting subject...
XI. PHOTOGRAPHY.—The Photographic Deceration of Glass and Porcelain.—Ful directions for producing a hard waterproof enameled picture on glass or porcelain.

XII. SCIENCE.—The Sun's Heat.—An interesting article by Sir Redeat Ball.
Scientific Knewledge of the Ancient Chinese.—Give the result of some interesting studies on the science and civilizat on of the ancient Chinese

XIII. TECHNOLOGY—A Visit to the Holyoke Paper Mills.—Describes a visit made to the mills by the members of the American Chemical Society 16605 . 16601

Chemical Society

XIV. T & AVEL AND EXPLORATION.—The Massacres in Armenia.

— A description of Trebizond, where 500 Armenians were recently massacred.—I illustration.

16510

THE BOTTLE THAT CANNOT BE REFILLED.

our city papers, in which the statement was made revolution of the axis of rotation were true, low tide that a large reward had been offered by wealthy dis- at any spot should occur when the pole of rotation lay tillers and brewers for the production of a new inven-nearest that spot—a suggestion with which the above tion, such as that above mentioned, namely, a bottle tidal observations fully agree. which, after the contents have been extracted, cannot be again refilled. The article we alluded to stated that distillers suffer great losses from the refilling of their bottles by unauthorized persons, who imitate E., in a paper recently read at the annual convention both bottles and trademarks of standard makers without detection.

of reward to any reliable source and think it doubtful the taking of readings at any considerable depth has if it was ever positively made. But there is no doubt been rendered difficult and tedious on account of the the invention is needed and would command a hand-unsuitability of the ordinary mercurial thermometer some figure, it all the conditions could be realized and for such work. The invention of the thermaphone a non-refillable bottle could be produced adapted to by Messrs. H. E. Warren and O. C. Whipple enables the general wants of the trade. As an evidence of this the observer to take in a few minutes a more accuwe give an extract of a letter recently received by us rate reading than was formerly possible after an from the proprietors of one of the largest whisky es-, hour's careful work. tablishments in the country. This letter reached us of the alleged great reward:

have been in the market for years for a bottle that sired depth. The two arms which complete the cirthe conclusion that we cannot obtain such a bottle; which takes the place of the customary galvanometer. for if a bottle was made so perfect that you could The theory of this very sensitive and accurate instrunot refill same through the neck of the bottle, the bot- ment is based upon the fact that different metals have tle could be drilled or cut, and then refilled and closed different electrical temperature coefficients. Δ circuso as to avoid detection."

LATITUDE NOT FIXED, BUT VARIABLE.

latitude.

childhood's "geography lesson" that abides ever with the radial contact arm is moved back and forth over us, it is this: that "the earth turns upon its axis." And now we are told that it does not, and that, as a consequence, it is literally true that the parallels of creases as the hand passes a certain point on the dial. latitude are perpetually shifting-not much, it is true; By continually moving the hand, a point will be found but sufficiently to make it comically possible, as was at which the sound ceases altogether. The reading at once suggested, that certain dwellers in the proximity this point indicates the temperature of the distant coil. of the Canadian border line never know for more than six months together in which country they be depended upon to much less than 0.1° F., and a

the axis of the earth's figure, is an imaginary line, point observed." passing through the center of the earth, and termiposed that the earth rotated about this axis. If this as far back as the last century, that there was a slight, but perceptible, variation. The latitude of a given ent times, would be found to vary.

from time to time been made, and, after a careful water works at Lake Cochituate.

pole of the earth's figure.

and 434 days; that of the larger between 361 and sixty-five feet. ! 369¼ **d**ays.

The radius of the smaller circle is 14 feet. The center of the circle itself travels in an ellipse, the agitation by the wind keeps the water at an even temmajor axis of which is about 25 feet, and the minor

A remarkable verification of Dr. Chandler's disextending over 35 years, two of which were taken on the Pacific Coast and one on the Atlantic. These show a mean time of oscillation of the sea's level of quires a disagreeable smell. 431 plus or minus 4 days, which agrees remarkably

with the period of revolution as mentioned above. We published not long ago a quotation from one of Newcomb had pointed out that if the theory of the

THE TEMPERATURE OF LAKES.

According to Desmond Fitz Gerald, M. Am. Soc. C. of the society, the observation of the temperature of the water in lakes and reservoirs is attended with We have been unable to trace up the alleged offer more difficulty than is generally supposed. Hitherto

The thermaphone is based upon the principle of the during the progress of our search to find the offerers. Wheatstone bridge, and it enables the temperature to be read at the surface of the water, the two met-"In reply to your favor, we beg to state that we als which form the circuit being suspended at the decould not absolutely be refilled; but we have come to cuit at the surface are connected with a telephone lar slide wire is connected to the two coils of dissimilar metal, which are lowered to the desired depth by means of two leading wires. This slide wire is wound It will now and again happen to the seeker after around the edge of a disk, which carries a dial, gradknowledge that he will have to unlearn as well as to uated in degrees of temperature. A leading wire conlearn; but it will be a rare experience for him to nected with the junction of the two metal coils conhave to call in question such a supposedly fundanects with a telephone receiver and terminates in a mental truth as that of the invariability of the earth's radial contact arm, which travels upon the above mentioned disk. The ends of the slide wire are put in If there is one fragment more than another of our circuit with a battery. In reading the temperature, the dial, and the telephone is held to the ear.

The buzzing sound in the telephone increases or de-

"This instrument is so accurate that its results can series of temperatures throughout the vertical can be The axis of the earth, or, to speak more accurately, taken with an allowance of about a minute for each

Surface Temperatures.—During the winter, from the nating at its two flattest points, known as the North latter part of December to the breaking up of the ice and South Poles. Up to the year 1888, it was sup- in the spring, the temperature of the water under the ice is 32° F. The water then warms at a uniform rate had been true, the latitude of any given spot, as de- to 72° F. in the middle of June. From that time to the termined by observation, should have been invaria- middle of August it varies between 73° and 78°, and ble. As a matter of fact, it had been noticed, even ithen falls regularly to 37° in the middle of December.

Bottom Temperature.—In a pond less than 25 feet deep the bottom temperature varies very little from spot, as shown by two observations taken at differ-that at the surface. In the deeper lakes very interesting phenomena occur, which have an important bear-Between the years 1884 and 1888, Dr. S. C. Chan-ing upon the question of domestic water supply. The dler gathered together all the observations that had observations were taken in connection with the Boston

analysis, was able to prove that these variations are | The point of maximum density of fresh water is accounted for by the fact that the earth does not 392° F. This is about the temperature of the bottom rotate about its axis of figure, as above described, but of the lake when the surface freezes. "The several about another axis, which he called the axis of rotal stratalie in their order of density, decreasing gradually tion. This axis of rotation bisects the axis of figure until within a few feet of the surface, when they sudat its center, and always preserves the same direction denly fall to the freezing point adjoining the ice." in space; but its poles slowly describe a circle about The body of water remains unchanged throughout the poles of the axis of figure. From this considera- the winter. At the breaking up of the ice, the surface tion it is evident that the parallels of latitude do water warms up to the temperature of the bottom not preserve the same planes relative to space; but layers; the whole body is thrown into "unstable equihave an oscillatory motion. Hence the variation. | librium," and circulation takes place from top to bot-The motion is fairly well illustrated by a spinning tom. As soon as the surface is 5°F, warmer than the top, whose center of gravity remains in the same ver-bottom, circulation ceases. Although the temperature tical line, while the peg and the head describe two of the surface continues to rise, "the bottom remains circles about this vertical line. The motion of any at exactly the same temperature throughout the long 16601 parallel lines on the top will roughly approximate to period of stagnation," covering about seven months, 16606 the motion of the lines of parallels of latitude on the during which time it varies only a few tenths of a earth's surface. The above illustration will only ap- degree. From this it is evident (1) that the agitation set proximately show this motion of the earth, for the up by the winds at the surface does not penetrate 18006 reason that the latter is complex, being made up of very deep (experience shows fifteen feet to be about two superposed motions. The pole of rotation moves the limit); (2) that there are no convectional currents 16613 in a small circle which is itself moving around the at work to effect a change of temperature; and (3) that water is such a poor conductor of heat that the The period of the smaller circle is between 423 hottest sun's rays are not perceptible at the depth of

Weekly observations of temperature in Lake Cochituate for a period of four years show that the surface perature for the first ten feet of depth, and that below fifteen feet the effect is very slight.

The Effects of Stagnation.—The deeper, quiescent covery was afforded by a series of tidal observations layers of water gather the organic matter from the waters above, and "decay goes on until the oxygen is used up." The water becomes dark in color and ac-

Commenting upon these facts, Mr. F. P. Stearns

stated that these lower strata of water, which are un- ing attained her greatest western elongation at the able to get any fresh supply of oxygen from the air, end of November, she is now approaching the sun accumulate free ammonia and other solid and gaseous again. On the 1st she is about five degrees from products of decomposition. Hence it is desirable that | Spica, or α Virginis, and at the end of the month she the domestic supply should be taken from near the will be in Libra, near the borders of Scorpio. She surface and waste water drawn off from the bottom. will be near Saturn in Libra on the 22d, and for a few In this way the evil effects of summer stagnation may be partly overcome and the whole body of water improved at the autumnal overturning.

It is possible in the summer to sink a bottle to the water, and, at the same time, fill another bottle with 20th the planet will pass behind the sun. water from the surface that is 80° in temperature. In suggests that any one living near a deep lake could southern Ophiuchus. obtain very pure ice-cold water during the summer through a coil of pipe placed in the cold stratum of water at the bottom.

Observations of Lake Superior, taken in August, show a bottom temperature of 38.8° F. in 158 fathoms, the surface temperature being 50° to 53° F.

Prof. Le Conte. in August, 1873, found Lake Tahoe, in Cali ornia, to be 39.2° at 1,506 feet; 41° at 772 feet, the middle of the night. and 67° at the surface.

Nine soundings, taken in Lake Thun, in 1848, to a 40.7°.

The Lake of Geneva, which is 1,000 feet deep, shows a mean temperature of 41.2°, as the result of seven years of observation.

As the result of his own and other observations, the author arrives at the conclusion that "in a lake of the first order, like that of Geneva, the winds produce Neptune on the 2d; Jupiter on the 6th; Venus on the criminally in case of accident. If he recklessly runs a mechanical mixture of the layers to a considerable 12th; Saturn on the 13th; Uranus on the 13th; Mars his wheel against a pedestrian, he is liable for assault depth below the surface;" "the smaller the lake the less on the 14th; Mercury on the 15th. This rapid series and battery. Recklessness will sometimes supply the these mechanical effects are felt," "but that this heat- of conjunctions of the moon with Venus, Saturn, ing is not due to conduction seems to be proved Uranus, Mars and Mercury shows, in a striking manby the fact that, at 65 feet depth, conduction has ner, how those five planets are just now strung along be convicted of manslaughter. no effect in seven months' time on the bottom temperature of Lake Cochituate."

THE HEAVENS IN DECEMBER.

brightening of the eastern heavens upon the entry of almanac. Orion and his splendid neighbors Taurus, Auriga, Gemini and Canis Major. One of the finest pageants that Nature affords to the contemplative observer is the vast procession of these starry magnificoes of the in Brooklyn, N. Y., November 21. sky. Whenever they are visible there is nothing on the earth or in the dome that can take precedence educated at the Merchant Tailors' School, afterward before them. I should be very sorry if my memory studying architecture under Lewis N. Cottingham. could ever lose the impression that they made upon At the suggestion of Andrew J. Downing he came to this my eye and mind one morning before sunrise on the country in 1848, became Mr. Downing's partner, and Princess Victoria of Schlesweig-Holstein, eldest daughter peak of Etna, last September. Even the great crater was engaged with him in landscape gardening and on whose broken edge I stood, with its strange fires architecture, the firm having laid out the ground surglowing and moving mysteriously in the depths, and rounding the Capitol and the Smithsonian Institution the immense circle of the horizon sweeping 800 miles at Washington. across sea and land, were spectacles less commanding than that of Orion and his company sentineling the Frederick Law Olmsted and with him presented to the pastime, and other crowned bicyclists are the purple-black heavens.

winter have rendered the out-of-door use of a tele- examination, which had been suggested by Mr. Vaux. scope inconvenient and uncomfortable, to study the During the work upon Central Park Mr. Vaux was the starry treasures that cluster in the constellations consulting landscape architect of the Department of just named. The Pleiades in Taurus and the Hy- Public Parks. His reputation as a landscape archistellation, are superbly beautiful objects for the opera Park was laid out in Brooklyn, in 1865, it was Gotha. glass. Is Aldebaran, the chief star in the Hyades, and after designs made by his firm. Subsequent to this one of the most beautiful anywhere in the sky, rose the firm designed the public parks at Chicago observers differ, and every amateur not color blind is Falls. Mr. Vaux was afterward appointed land-

star Rigel in the foot of Orion and enjoy the sight of Legislature, and are now in process of preparation. | the weary rider: "Wheelmen will find drinking water its little blue comrade. Try ζ , the left hand star in He was probably the best known landscape architect at the right of the church." the Belt of Orion, with a little larger telescope. It in this country, and was consulted as an expert in Out in the fields of a suburb of Brooklyn, a land imhas a companion whose color is one of the curiosi- matters of that kind by architects all over the country. provement company has erected a comfortably covered apparently, knows. The distance between the two signed many country residences in Newport and elseiga, too, has many telescopic beauties which lack of tural book entitled "Villas and Cottages." space prevents my describing, but to which such a book as Webb's "Celestial Objects" gives a clew, and Gemini presents to us the wonderful twin Castor, | yielding its duplicate charm to the smallest telescope.

ted for observation. It is in Cancer, a few degrees work was completed. It is the largest bell in the headlight oil, also add a piece of gum camphor about southeast of the cluster of stars called the Beehive, United States, and fifteen tons of bell metal were the size of a small egg, which, being broken in small and, about midnight, will be found half way up the eastern slope of the Zodiac. Not much that is new concerning Jupiter has been learned of late, but the dimensions of the bell are: Diameter of the ring, 9 out. face undergoes lend value and interest to all care-; Swung in the tower, the bell is to cost \$10,000. For portation can be purchased in Paris for one franc.

Venus continues to adorn the morning sky, but, hav- Scientific American of September 7, 1895.

mornings before and after that date, and the conjunc-large stone), provided he is not guilty of contributory tion should be a sight worth getting up before sunrise negligence. A city is under no special obligation to to see.

Mercury is in the eastern edge of Libra at the bebottom of Lake Cochituate and bring up ice-cold ginning of the month, moving sunward, and on the riding on Sunday for pleasure or business cannot re-

Mars is also in the eastern part of Libra and too view of this great difference in temperature and the near the sun for satisfactory observation. At the close driver or owner of a vehicle who willfully or negligentpurity of the surface water, the author of the paper of December it will be among the star clusters of ly causes a collision or damages his wheel while left

Saturn, on the 1st, is about 2° north of α Libræ, rismonths by taking it from the surface and leading it ing near 5 o'clock in the morning. At the end of the possible, and he cannot recover damages if his own month it will rise soon after 3 A. M.

> Uranus is near Mars at the beginning of the month, plained of. and will remain in Libra, being in conjunction with Venus on the 28th.

Neptune is still between the starry horns of Taurus, rising in the afternoon and crossing the meridian in

December opens with a full moon, the phase occurring early on the morning of the 2d, when the moon a foot passenger has a right to walk in the highway, depth of 550 Swiss feet, show a mean temperature of is in Taurus. Last quarter occurs on the morning of and is entitled to cross the street where he may elect. the 9th in the constellation Virgo. December's new but is guilty of negligence if heattempts to cross ahead moon falls on the 16th, about 1:30 A. M., first quarter following in Pisces on the morning of the 24th, and the second full moon of the month occurring on the evening of the 31st in Gemini.

> The moon passes the planets on the following dates: the zodiac in the morning sky.

winter begins about 8 P. M. on the 21st. It is noticea-circumstances.—Detroit Free Press. ble that the astronomical seasons accord better with The first hours of a December night witness a visible the character of the weather than do those of the civil GARRETT P. SERVISS.

Calvert Vaux

Calvert Vaux, the eminent landscape architect, died

He was born in London, December 20, 1824, and was

Afterward Mr. Vaux became associated with a plan for the laying out of Central Park in this city, King of Portugal, the King of Spain, that daring hun-This is a good time, before the heavy snows of mid-their design having been accepted after competitive red or orange red? That is a question about which and Buffalo and the State Reservation at Niagara august tribunal may be seen almost daily spinning entitled to have an opinion of his own concerning the scape architect in the Park Department in this Riverside and Morningside Parks, as well as for the their inspection of the streets. Look with a three-inch telescope at the bright white many small parks which were authorized by the

ties of the sky, but just what that color is nobody, In addition to his landscape work, Mr. Vaux de-shed with racks for wheels and a large ice water cooler. stars is about 2.5", and their magnitudes are 3 and 6.5. where, as well as public buildings in this city; the opposite the great city, is accessible to New Yorkers, And do not neglect the Orion nebula hanging below Belvedere, the graystone tower which stands at the and affords a fine fourteen mile run. the belt, an object whose interest for astronomer, or lower end of the reservoir in Central Park, being a wayfarer among the stars, never becomes less. Aur- specimen of his work. He also published an architec- many samples are using the bicycle in Texas, as they

A Great Bell.

At a few minutes past nine o'clock, October 30, the Jupiter is still the only planet conveniently situa-| metal was continued for about two hours before the | thirds full of the best lard oil, and the balance with used in the casting. In addition to this, the clapper, unceasing and evidently violent changes that its sur- feet; diameter of crown, 5 feet. It is 7 feet high. ful observations of its appearance in the telescope. | illustrations of the mode of casting such bells see

Cycle Notes.

Bicycle Law.-Summing up the law pertaining to bicycles in a general way, it may be said:

- 1. Municipal corporations or cities are liable to a bicyclist for injuries incurred by reason of defective roads (namely, unguarded embankment, a deep rut, a wheelmen, and the defect must be such as to cause injury to vehicles in general. A bicyclist injured while cover in States where "Sunday laws" are in force.
- 2. A wheelman has a right of action against the standing by the street curb or roadside. It is the duty of a wheelman, however, to avert collision if negligence is the proximate cause of the injury com-
- 3. A traveler riding on the left hand side of the road probably assumes all risk, and is prima facie guilty of negligence.
- 4. Vehicles going in the same direction, the hindermost may pass on either side.
- 5. Sidewalks are exclusively for foot passengers, but of a vehicle. And the fact that a vehicle is on the wrong side of the road is no evidence of negligence in an action for injury to a pedestrian.
- 6. A bicyclist employing an immoderate rate of speed on a highway or street may be liable civilly or place of criminal intent, and if a bicyclist kills a human being while going at a dangerous rate of speed he may

The term "immoderate rate of speed" cannot be The sun enters Capricorn and the astronomical accurately defined. It depends upon time, place and

> The list of royal cyclists is now so lengthy as to represent every European court, and with the exception of the Princess of Wales and the King of the Belgians, each of whom rides a tricycle, the word "bicyclists" may be substituted for "cyclists."

> In the British royal family the list includes the Duke and Duchess of Connaught and their daughters, the Princess Louise (Marchioness of Lorne), the Princess Beatrice, who has only recently learned to ride; the Princess of Wales, the Duchess of Fife, the Princesses Victoria and Maud of Wales, the Duke of York and ter of Prince and Princess Christian.

On the Continent there is no better friend to cycling than the King of the Belgians, who takes the most paternal interest in the wheelmen of his dominion.

The Emperor of Germany has just betaken himself tress the Empress of Austria, the King and Queen of Italy, the King of Greece, and last, but not least, the Czar and Czarina, for whom two tandem bicycles have been made in Nottingham, England.

Of Continental princes and princesses devoted to ades, forming the V-shaped figure in the same contect was then firmly established, and when Prospect the bicycle, the list would savor of the Almanach de

The bicycle craze has invaded the precincts of the Supreme Court of the United States. A member of this down the asphalt streets of Washington.

The foremen of the New York Department of Street color of that great sun in Taurus, a sun far grander city, and with Mr. Olmsted prepared the plans for Cleaning have been mounted on bicycles to facilitate

In Brookline, Mass., a sign reading as follows greets

The new Hudson County Boulevard, in New Jersey.

Commercial travelers who do not require to carry do not have to wait for trains between towns.

Australia imported \$400,000 worth of bicycles from England last year.

A correspondent in the L. A. W. Bulletin presents casting of the great bell for the tower of St. Francis the following formula as a proper mixture of oil for de Sales Church, Cincinnati, began, and the flow of lamps: Take a bottle which will hold a pint, fill it twopieces, easily dissolves. This preparation gives a nice which is already cast, weighs 640 pounds. The main white light, does not char the wick, and will not jolt

Folding wooden or wicker crates for bicycle trans-

The tenth anniversary of the safety bicycle was celebrated by a banquet in London, a short time ago.