Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN. A. E. BEACH.

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One copy, six months, for the U. S., Canada or Mexico..... 1 50
One copy, one year, to any foreign country belonging to Postal Union. 4 00
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NEW YORK, SATURDAY, OCTOBER 19, 1895.

Contents.

(Illustrated articles are marked with an asterisk.)

Bicycle lubrication (6635)..... 253
Bicycle notes 247
Books and publications, new..... 253
Bridge, Brooklyn, station*..... 241
Business hints..... 246
Dream worth millions..... 246
English, teaching 250
Etching on skates (6637)..... 253
Exhibition, Paris, of 1900..... 242
Exposition, the Cotton States... 247
Eyesight, care of the..... 246
Factory, large, moving a..... 246
Filter, the Carter pressure*..... 245
Fish, sucking, the..... 245
Flowers, altering colors of..... 250
Flying machine, a new*..... 249
Galton, Sir Douglas*..... 250
Gilded fabrics..... 243
Gold production..... 245
Goodyear, how he became an inventor..... 252
Grecian remains, ancient..... 248
Hats, felt, stiffening (6638)..... 253
Horseless carriages in France.... 250
Hydraulic power supply..... 242
Inventions, recently patented... 252
Lighting by luminescence..... 243
Lightning, calculated power of.. 243
Luminescence..... 249
Motocycle contest, Chicago Times-Herald 242
Malpractice, medico-legal points 243
Mosquitoes overcome man..... 245
Notes and queries..... 253
Painting iron work..... 250
Patents granted, weekly record. 258
Pipe joint, Sexton's*..... 245
Printing press, a long run*..... 248
Railway speed, fast..... 243
Rubber stamp industry, the..... 247
Sash weight manufacture*..... 244
Scarf pin lock, Lutters'*..... 246
Science notes..... 247
Sheepskin mat making (6641).... 253
Solar system, size of the..... 251
Spider plant, the..... 245
Tannin plant, a new..... 243
Tempering drills (6634)..... 253
Toads, breeding habits of..... 248
Top, an artistic*..... 248
Turtles, feeding*..... 251
Wages of British workmen..... 246

TABLE OF CONTENTS OF

SCIENTIFIC AMERICAN SUPPLEMENT

No. 1033.

For the Week Ending October 19, 1895.

Price 10 cents. For sale by all newsdealers.

PAGE

I. ARCHITECTURE.—Church Erected to the Memory of Emperor William.—This fine church was built in four years at an expense of over $700,000.—1 illustration..... 16504
The New York Clearing House.—A description of the new building, which will house one of most powerful financial institutions in America.—2 illustrations..... 16504

II. BOTANY AND HORTICULTURE. The Cultivation of Pampas Grass.—A description of this small but interesting industry in California.—2 illustrations..... 16514
Campanula Vidali.—An interesting bell flower plant found in the Azores.—1 illustration..... 16515
Cherries.—By L. H. BAILEY and G. H. POWELL.—This installment treats of the sour cherries in western New York and the sweet cherry industry..... 16515
A Large Vine.—Details respecting a large black Hamburg grape-vine.—1 illustration..... 16514

III. CHEMISTRY.—A Short List of Books on Chemistry.—Selected and annotated by H. C. BOLTON, Ph.D., author of a "Select Bibliography of Chemistry, 1492-1892."—This useful list of books is now published for the first time and will prove of value in the selection of the best books on the subject.—The list is carefully classified under proper headings..... 16509

IV. FISH CULTURE.—Trout Farms in Bohemia.—A description of trout culture as carried on in Bohemia.—8 illustrations..... 16510

V. MARINE ARCHITECTURE.—A Large Railway Ferry Steamer.—This railway ferry steamer is intended for the Volga.—The steamer is intended to insure unbroken communication even in winter, when the ice is two feet thick.—The river is very swift, so the conditions were very severe.—2 illustrations..... 16505

VI. METEOROLOGY.—Weather Fallacies.—Address delivered to the Royal Meteorological Society by Mr. Richard Inwards, president..... 16512

VII. MISCELLANEOUS.—The Time in China by Sun, Water and Fire.—An interesting description of the various methods of measuring time which are employed in China, including the clepsydra and other instruments..... 16511
Burmese Women.—By H. FIELDING.—An interesting study of the position of women in Burma..... 16516
Herbert Spencer on the Nomenclature of Colors.—An extract from the unpublished autobiography of Mr. Spencer..... 16518
Incubation Among the Egyptians..... 16518

VIII. PHYSICS.—On the Electrolysis of Gases.—The first installment of a paper read at the Royal Society, by J. J. Thomson.—2 illustrations..... 16508

IX. TECHNOLOGY.—The Mother of Pearl Industry.—A description of a curious industry as carried on in West Australia.—5 illustrations..... 16506
Sand Blast Apparatus for Engraving Glass Globes.—A description of a machine for engraving spherical glass globes by the use of sand and water.—1 illustration..... 16507
The Tussah Silk Industry.—Details of the process of manufacture as carried on in India.—5 illustrations..... 16507

X. ZOOLOGY.—The Zoo Heronry.—The heronry is at the Zoological Gardens London.—4 illustrations..... 16511

THE PARIS EXHIBITION OF 1900.

The magnitude of the labor involved in the preparation for a first-class international exhibition may be judged from the fact that already the French people are actively engaged in the preliminary work of organization, although the opening day of their great enterprise is nearly five years distant. It is estimated that the preparation of the grounds, erection of buildings and general maintenance of this exhibition will absorb a round sum of $20,000,000.

How to raise this vast sum is a serious problem, and this is how the directors propose to do it: The Ville de Paris has granted a subvention of $4,000,000. A like sum will probably be obtained in the form of a state subvention, which two sums together will amount to two-fifths of the required amount.

For the remaining $12,000,000 an appeal will be made to the public, and bonds will be offered on some such conditions as attached to the issue of bonds in connection with the Exposition of 1889. In the present instance the exhibition bonds will have a face value of $5, and to each bond will be attached twenty admission coupons.

Each bond, moreover, will entitle the holder to certain lottery privileges, and it will guarantee him a reduction in railroad fare between his place of residence and the Exhibition grounds. This privilege will be graduated according to the distance at which the bond holder may reside from Paris.

From a distance of 200 kilometers from Paris he will be entitled to three special trips; from 200 to 400 kilometers he can claim two such trips; and if he reside more than 400 kilometers away, he will be entitled to one special trip.

To meet the case of those who live in Paris, the bond holder will be given a reduced rate on the admission fee to what are known as the "side shows" and to the theaters and concerts.

It does not seem at first glance as though these incidental and rather questionable benefits would have a very laxative effect on the congested savings of the thrifty Gaul. The response may be slow at first; though it is certain that when it is seen that the success of the Exhibition and the prestige of France is at stake, the French people will respond with that patriotic generosity for which, among the nations of the earth, they stand pre-eminent.

THE ECONOMY OF HYDRAULIC POWER SUPPLY.

In the course of a paper read at the recent summer meeting of the Institution of Mechanical Engineers, at Glasgow, the author, Mr. E. B. Ellington, gave some very significant figures regarding the cost of running the London Hydraulic Power Supply. This is by far the largest municipal supply in the country. It includes 75 miles of mains, carrying a pressure of 750 pounds to the square inch, which deliver 9,500,000 gallons of water at this pressure per week. This serves to operate 2,300 machines. This plant has now been in operation for twelve years, and it yields an annual revenue of $250,000.

In active competition with this scheme is the Westminster Electric Supply Corporation, and a comparative table, drawn up from the records of the running expenses of these two systems, shows a remarkable economy in favor of the hydraulic plant. It appears that the cost of the hydraulic power was 10·34 cents per 1,000 gallons at 750 pounds to the square inch; whereas the cost of an equal amount of electric power measured by the same standard was 18·03 cents per 1,000 gallons.

This economy of the hydraulic system was indorsed by Mr. R. C. Parsons, the engineer who had planned the hydraulic power supply for the drainage of the city of Buenos Ayres; a scheme that cost altogether $30,000,000. The use of electric and of pneumatic power was carefully considered in the preliminary estimates. The electric system was rejected, on the ground that they would have to reduce the speed in order to work the pumps; and, as compact machinery was a necessity, it was seen that in this respect the hydraulic system was greatly superior. It was proved that the compressed air system gave a very low efficiency; and furthermore, owing to the fact that the various lifts, in pumping the drainage, were not of the same height, it was necessary for efficiency that they should have varying pressures. This was not obtainable under the compressed air system. The hydraulic plant, as put in, consists of several small automatic pumping stations supplied from a central station.

As in part explaining the large difference in cost between these two systems of supply, it was suggested that a part of it might be due to the fact that the electric supply station was situated at a distance from the river, and the expense of cartage increased the cost of coal some ten per cent. Another loss of possibly 10 per cent was due to the fact that a large part of the engine power at the electric station was non-condensing. Another source of loss lay in the fact that though they frequently were running with only 55 to 70 per cent of their full load, the speed of the engines was not reduced. At the hydraulic station the speed could be regulated according to the work to be done.

A large part of the difference was due to the difference in "wages and salaries." In the hydraulic installation this item amounted to $43,135 and in the electric to $74,465. This wide difference is probably due to the fact that the electric machinery requires a more skilled class of mechanics than the hydraulic for its operation and maintenance.

After making the above allowances, there yet remains a large amount of leakage that is unexplained.

It should be mentioned that in the table of comparison of these two systems the boiler installations showed a remarkable efficiency, burning only 2 pounds of coal per horse power per hour.

The facts brought out in Mr. Ellington's paper make out an excellent case for hydraulic power supply at high pressures. The installation recently opened in Glasgow, to which we referred in a recent issue, has not been long enough in operation for any accurate estimate of its revenue earning capacity to be made; but the London hydraulic company last year paid the handsome dividend of 6½ per cent.

THE CHICAGO TIMES-HERALD MOTOCYCLE CONTEST.

Less than four months ago the enterprising proprietors of the Chicago Times-Herald newspaper announced that a contest of automobile conveyances, or motocycles, would take place on November 2, and that they would give $5,000 in prizes to the winners of the race.

The only thing which now menaces the success of the contest is the large number of contestants, for though it is expected that a considerable number of those who have entered will fail to put in an appearance on November 2, still the number of contestants will probably be quite large.

The course to be traveled is from Chicago to Waukegan and return. The official route has been announced and comprises almost exactly 100 miles of the best roadway in the West. There are some stretches of ordinary country road, but any practical motocycle will have no trouble in making good time for the entire distance. Signboards will be placed at the intersection of the various roads for the guidance of those who wish to familiarize themselves with the route in advance of the day of the contest. An officer of the contest will be placed at all points where a turn is made, to direct the carriages.

The official list of the contestants who have made entries for the race is as follows:

Arnold, B. J., 1541 Marquette Building, Chicago.
Andrews, A. B., Center Point, Iowa.
Ames, D. J., Owatonna, Minn.
Ames, A. C., 8630 Essex Avenue, South Chicago.
Bradley, Wheeler & Co., Kansas City, Mo.
Bowman, E. Wirt, Evanston, Ill. Mr. Bowman intends to enter four types of vehicles.
Barrows, C. H., Willimantic, Connecticut. Mr. Barrows enters two vehicles.
Barcus, N., 550 East Tawes Street, Columbus, Ohio.
Brown, W. H., Postoffice Box 108, Cleveland, Ohio.
Beck, C. W., 2572 Lakewood Avenue, Chicago.
Chicago Fireproof Covering Co. H. C. Todd, 48 Franklin Street, Chicago.
Chicago Carriage Motor Company. C. O. Hansen, 342 Center Street, Chicago.
Cook & Gowdey, 6324 Madison Avenue, Chicago.
Conklin, Oliver F., Dayton, Ohio.
Carpenter, H. H., 1037 Monadnock Building, Chicago.
Cross, E. D., M.D., 8149 Indiana Avenue, Chicago.
Cronholm & Stenwall. 319 Le Moyne Street, Chicago.
Clapp, Henry W., Sheridan Avenue, Springfield, Mass.
Davis Gasoline Engine Company, Waterloo, Iowa.
Daley, M. H., Charles City, Iowa.
De Freet, Thomas M., Adjutant-General's office, Indianapolis.
Duryea, Charles E., Springfield, Mass., or Peoria, Ill. Mr. Duryea will enter two and possibly three vehicles.
De la Vergne Refrigerating Machine Company. George Richmond. Foot of East 138th Street, New York. This firm enters four machines.
Elrick, George, 904 Irving Street, Joliet.
Elston, R. W., Charlevoix, Mich.
Feerrar, J. C. W., Lock Haven, Pa.
Gawley, T. R., Aurora, Neb.
Guilford, R. W., Auburn, Ind.
Hildebrand, J. A., 308 State Street, Chicago.
Hartley Power Supply Company, 21 Monadnock Building, Chicago.
Hertel, Max, 454 Lincoln Avenue, Chicago.
Hill & Cummings, 232 South Clinton Street, Chicago.
Hall, John W. & Sons, per Harry Lee, Jacksonville, Ill.
Haynes & Apperson—Indiana Natural Gas Company, 23 Buckeye Street, Kokomo, Ind.
Hagaman, J. D., 52 Riverside Avenue, Adrian, Mich.
Holmes, Lyman S., Gloversville, N. Y.
Haviland, Frank W., 210 West 123d Street, N. Y.
Holton, Milton E., 375 Drayton Street, Chicago.
Kappe, W. J. H., Quincy, Ill.
Lewis, George W., 32 Willis Court, Chicago.