so low a temperature as to lie quite flat in the finished product. The corrugated roller may be adjusted to give it any desired depth in the glass.

Sheets of wire glass six feet long, two feet wide and three-eighths of an inch thick have been rolled at the experimental plant in thirty-five seconds.

The American Wire Glass Co., of Tacony, Philadelphia, Pa., has been formed to exploit this invention. By the beginning of next year they expect to have in active operation their factory already alluded to, with a daily capacity of about 5,000 square feet of wire glass. The most improved appliances are to be used, so as to render the operations as nearly automatic as possible. Gas fuel will be used and the rollers will be heated by the same.

The new product has other uses than those mentioned. It is to some extent burglar proof. It is not known what is the heaviest wire which can be used, but it is obvious that glass several inches thick with one or two sheets of heavy steel wire gauze embedded in its center would be very resistent to any attacks by burglars. For pavement lights it is also applicable, as it has great weight-sustaining power. A heavy man can walk and jump on one of the sheets made in the experimental works. Last not least is its power of resisting projectiles. It can be made so that a pistol

livered by Dr. Bowles, of Folkestone. The lecturer commenced by welcoming the new students, and urging them all to preserve the tradition that "a St. George's man is expected at all times and under all circumstances to be a gentleman." The apprenticeship system was announced to be dead—defeated by the rapid march of science. This led to the main subject of the address, "the application of physics to physic." It was pointed out that all changes occurring in physiological and pathological processes, formerly supposed to depend on that unknown quantity, "vital force," were really nothing more than the action of the recognized forces of nature on the organs and structures of the body. Coughing, sneezing, snoring, etc., were all shown to have immediate origin in physical conditions. Surgery is the proper application of the laws of physics; injured parts and broken limbs are kept at rest, dislocated parts are placed in their natural positions, redundancies are removed, and natural deficiencies often well supplied; crooked paths are made straight, and blocked and narrowed ones made patent; stiffened joints are made to move, crooked limbs put into shape, eyes are made to see that would not, and ears to hear that could not.

Surgery is a department of physics—a physical art. Medicine, formerly the region of the unknown and the happy hunting ground of quacks, is rapidly following in the same lines. The so-called practical man and the believer in dogmas and nostrums are rapidly giving way to minds trained in the laws of physics. Physielegy, Medicine's forerunner and its handmaid, is steadily, step by step, and without prejudice, elucidating the ways and doings of animal life. By instruments of the most elaborate and delicate nature, by patient and continuous observation, by anatomical and histological searchings, and by the application of the laws of gravitation, chemistry, heat, light and electricity, always by ways and means connected with physics, we are getting to understand better and more surely the movements and functions of respiration, of circulation and digestion, of secretion and excretion, and finally we hope to understand the most subtile and mysterious of all functions—the operation of the nervous system.

The lecturer then reviewed the rapid progress made in late years in the studies on which the medical art is based. Schroeder in Germany and Pasteur in France, by their investigations on fermentation and putrefactagia, have opened up an entirely new world. We have now not be the particular nature of conhave now not only to study the causes as well as the changes of the disease in the body, but also the doings of the bacteria outside the body and within it. In view of the more scientific methods of modern phar- v. METALLURGY. - The Cohesive Property of Gold-Its Character, macology and therapeutics, students were cautioned against long and complicated prescriptions. Not a single drug ought to enter the body except under clear intention of what object it is to fulfill there. Compounds may be good cookery, but do not form scientific medicine. Finally, students were warned against mistaken views of materialism. The students of the physical and biological sciences are emphatically the servants of nature. The man of science interprets the physical laws, and equally with the teacher of religion tells us of the greatness and grandeur of the Creator. Every discovery of the scientist can only tend to increase our wonder at the omniscience and perfection of the ways of God.

PROFESSOR C. A. YOUNG announces that the fifth satellite of Jupiter has been seen by his assistant. Mr. Reed, with the 23 inch equatorial, at Princeton.

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NEW YORK, SATURDAY, NOVEMBER 5, 1892.

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NEW YORK AND BROOKLYN BRIDGE CABLE RAILWAY OPERATIONS DURING THE WEEK OF THE COLUM-

Never was the bridge so crowded with people as during the gala days of the Columbian anniversary. Commencing on Sunday, October 9, 453 trains were dispatched, 392 of which had a headway of from 3 to 2

On Monday 549 trains were dispatched, 120 of which had but 1½ minutes' headway. Tuesday, 558 trains, 212 at 1½ minutes' headway. Wednesday, the rush day, 697 trains were dispatched, of which 346 were on 1½ minutes' headway. The number of passengers carried was, on Sunday 99,309, Monday 188,677, Tuesday 158,085, and on Wednesday 223,625, gradually falling off to the normal number at the end of the week. The whole number for the week was 1,091,539. The greatest rush was from Wednesday, 8:15 A.M., until Thursday, 8:15 A. M., 24 hours' continuous run of the cars carrying 258,593 passengers.

The speed of the cable is 10½ miles per hour; it is 1½ inches diameter, and 12,000 feet long. It wears out in about 15 months, having a haulage service of about 20,000,000 ton miles. The greatest recorded work of the cable engines is 1,093 horse power. Cars weigh from 17 to 19 tons, and there are 60 in service, 48 running during rush hours. The above enumeration only includes railway passengers riding by ticket. The immense throng by the foot and roadway can only be estimated, and probably reached the number of 200,000 or more, making the total travel over the bridge on Wednesday, October 12, nearly half a million people. Not the slightest accident is known to have occurred. When we consider that one-half of the immense train service of Wednesday was run on 11/2 minutes' headway, without a break, we cannot but accord the highest praise to its management.

PHOTOGRAPHY AT THE WORLD'S FAIR.

When the question of granting photographers the right to photograph, for a small fee, at the World's Fair grounds was submitted to the Ways and Means Committee last spring, it was announced that no such privilege would be permitted, as it would interfere with the parties who might secure the sole right to photograph, from whom large payments were expected.

As soon as this announcement was made, a movement was inaugurated by the editor of the American Amateur Photographer to obtain the sentiments of the various photographic clubs and societies on the proposition to exclude the camera of the amateur photographer, which resulted in nearly every organization disapproving the idea and urging the authorities, through special petitions, to reconsider their decision, on the ground that more money would be raised by admitting the camera at a small fee than could be derived by restricting the privilege to a few at a higher charge.

We are gratified to be able to state that the desires of the amateur photographers have been substantially acceded to. It was officially announced on the 25th of October by the official photographer of the World's Columbian Exposition, Mr. C. D. Arnold, that on and after that date "Hand cameras using plates up to and including 4×5 inches, without tripods, will be allowed within the grounds of the World's Columbian Exposition, on payment of a fee of two dollars in addition to the regular price of admission for each day. Cameras using stereoscopic lenses will not be admitted, however small the plate may be."

This decision practically opens the grounds to photographers and will enable those desiring to secure photographs for themselves from their own point of view to do so. It is we think very creditable to the Wc "ld's Fair authorities that they have decided to grant some concessions to the amateur photographers, and will undoubtedly be the means of greatly increasing the amount of free advertising the fair will get, while the manufacturers and dealers in photographic materials will also greatly profit by the increased demand for

Photographing the Sound of Vowels.

At the recent International Congress of Physiology at Liege, Professor Hermann demonstrated his method of photographing the sound of vowels. The vowels were sung out before one of Edison's phonographs. Immediately afterward they were reproduced very slowly, and the vibrations recorded by a microphone. The latter was furnished with a mirror, which reflected the light of an electric lamp upon a registering cylinder, covered with sensitized paper and protected by another cylinder with a small opening which gave passage to the rays of light from the reflector. By this means was obtained very distinct photographic traces, and the constancy was remarkable for the different

A MINE ON FIRE SINCE 1858.—The burning mine at Summit Hill, near Mauch Chunk, Pa., has been on fire