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NEW YORK, SATURDAY, DECEMBER 10, 1892.

Contents.

(Illustrated articles are marked with an asterisk.)

Almonds, sweet, oil of 3	u
Armor plate machines*	3
Books and publications, new	3
Business, stick to legitimate	3
Canary birds from Germany 3	d
Carriage builders' school, a 3	u
Cement.waterproof and fireproof	ì
Check box Williams'*	3
Check box, Williams'*	ú
Cod liver oil, manufacture of 3	3
Columbus drinking fountain,	
Drake's	ì
Comet, another Brooks 3	ċ
Cotton harvester a new* 9	2
Danforth case the	ú
Danforth case, the	Š
Earthquakes, American 3	ď
Fire escape, McCollom's*	3
Fog lighting in London	'n
Fire escape, McCollom's* Fog lighting in London Gould, Jay, tomb of* Gum arabic, artificial Hemorrhage, hot water for	Š
Gum arabic artificial	2
Gum arabic, artificial	š
Hydraulic ram, a large	ì
Inventions, recently patented	3
Lemon, essence of	3
Lysol	ì
D , 501	

 389
 Menthol
 389

 371
 Mosquitoes, capturing
 389

 378
 Nicaragua Canal convention, the 389

 375
 Nose and throat
 370

 389
 Notes and queries
 379

 380
 Oak, to darken
 363
 Oak, to darken

Patents granted, weekly record.

70

Paint, iron cinder.

70

Planers and slotters, large*

71

Railroads of the world.

71

Railway appliances, some new.

72

Railway speed, fast.

73

Roads, good.

73

Rubber shoe manufacture*

74

School, Louisville manual training. School, Louisville manual training.
Schuylkill Valley industries....
Trees in French cities Trees in French cities 376
Trip to a fixed star, a 375
Varnish, rubber 376
Watch, statistics of running a 373
Wooden bucket, Reese's 376
World's Fair buildings, painting 370
Well, a 3,000 foot. 376

TABLE OF CONTENTS OF

SCIENTIFIC AMERICAN SUPPLEMENT

No. 884.

For the Week Ending December 10, 1892.

Price 10 cents. For sale by all newsdealers.

- PAGE I. ARCHÆOLOGY.—The Old Stone Mill at Newport.—By J. P. MACLEAN—The origin of the old stone mill.—A probable solution of the problem of its origin.

- IV. BOTANY.—Cycads at Kew.—An unrivaled collection of cycads, now cultivated in England.—1 illustration......

- VIII. HYGIENE.—Safe and Perilous Occupations.—Popular resume of the chances of life in different occupations......
- MATHEMATICS.—Radii of Curvature Geometrically Determined.—By Prof. C. W. MACCORD.—The conchoid and methods for determining its radii of curvature.—4 illustrations.....
- XII. TECHNOLOGY.—The Manufacture of Liquors and Preserves.

 —By J. DE BREVANS.—A continuation of this exhaustive treatise, giving the distillation of strong liquors.—4illustrations.. 14126

THE DANFORTH CASE.

Danforth was an assistant engineer on the U.S.S. Philadelphia on a recent voyage. On the morning of November 5, he was in charge of the engine room and ment. The subject has been lifted up from the limited engaged in testing the capstan steam pipe with steam up. While his men were distributed at their stations presented before Congress looking to the establishment here and there among the machinery, the master-atarms, a subaltern in the marines or police of the ship, suddenly appeared, and, without a word to Engineer Danforth, forthwith arrested one of his machinists un- The formation of a national association for the ender orders from the deck, when Danforth interposed, in- couragement of the building of good roads has been sisting that an engineer in charge should be informed effected. The probabilities are that the next ten years that one of his men was to be taken from his post, so will see a great change-almost a revolution. The era that he could put another man in his place. The of bad roads is certainly approaching its close. master-at arms quitted the engine room to report that he had been interfered with, and, in the meantime, Danforth, having relieved the machinist that was wanted, sent him on deck to obey the order of arrest. Then came an order for Engineer Danforth to appear on deck forthwith. Engaged as he was in superintending a test with steam up, so he testified, he for the advance of technical education, related to the could not leave at once. "I dared not leave my post establishment of a carriage builders' technical school. at once," he says, "knowing that the chief engineer, For some time past a school has been maintained in my superior, would hold me to a strict accountability New York City for the education of young men emif mishap should come, and believing that the officer-of-ployed in the carriage factories, apprentices and methe deck only wanted to see me in reference to the chanics who work during the day. These young men case of the arrested machinist and was not aware that I was seriously engaged.

"I sent him word that I was testing the capstan steam pipe and would come just as soon as I could tion, however, felt that more was required, and advofind some one to relieve me. Then a peremptory order cated the establishment of a true technical school. came and, leaving everything, I went on deck. Within an hour after I had, with perfectly honest intentions and a conscientious belief that I was doing my duty, sent the message to the officer-of-the-deck, I had been reported in writing and had been refused any opportunity to make an explanation to any one of the term. Its graduates are not only familiar with the three officers who were to make and forward the reports against me."

This testimony was not impeached before the court martial nor was it denied that Danforth is a faithful giving them a course in practical mechanics, so that and efficient officer, his record being, up to now, without blemish. Notwithstanding this, the jury, com- leave the college there is no need for them to spend posed it should be said for the most part of line officers, a year or more in the shop. This part of their educabrought in a verdict against him; the Secretary of tion is included in their college course. the Navy approving the same and condemning the engineer to a year's suspension on half pay.

service; the engineer officers, or at least those who to its force, the Stevens Instituteof Technology might have expressed their opinions in the public prints, supply the needed college for carriage builders. Evelooking upon the verdict as unjust and unmerited; ning classes in drawing and designing should be kept though only what might have been expected from a up for the benefit of workmen and apprentices. Instrict application of the old cast iron rules to what struction in connection with the regular course in must be regarded as altogether new conditions.

the old rules must stand, that a little common sense be mixed with them.

GOOD ROADS.

American nation appears to be gradually awakening to the fact that the bad roads of this country are unwhat bad roads bring about when we read of mud blockades. Large districts of country are rendered imlose freight, and the speculators seize the opportunity nology to establish the special course designed. to advance prices of produce.

or region directly affected, the railroads traversing it, ferries both up and down town in this city. Its pe-... 14130 and the country at large may all suffer for it. To avoid culiar fitness as a center of such instruction has been such occurrences we need no lessons from modern already explained. A carriage builders' school estabtimes. It is true that the nations of Europe put us to lished there will have the advantage of a score of years' the blush. But we may go back two thousand years preceding work done at the Institute, for into the for our instructors. The Roman engineers won their work of the course will enter the experience of the enfame largely as road makers. The roads which they tire faculty. The work done by a regular student in built are to-day their monuments.

roads. It is stated that in Illinois alone the loss to the of the plant of the Institute and of the long years of the bites of wild dogs.—8 illustrations...... work of its faculty. \$16,000,000. If this ratio were taken for the whole | Carriage building is rapidly developing and bids fair country, it would give a loss of \$300,000,000. At three to become a true profession. The past year has wit-the total wealth of the country.

. 14125 on a new aspect.

taken by the League of American Wheelmen. This is bility for the future. In carrying out these and many an association of bicyclists. On bad roads the bicycle other impending changes the educated technologist rider is at a great disadvantage. Doing his own pro- will find in carriage building full scope for an engipelling, he quickly appreciates a change in the road neer's education.

surface. The agitation began to spread. The carriage builders have justly felt that good roads would give them an enlarged market, and have joined the movebicyclist's platform to a national one. A bill has been of a national highway commission. Special laws have been passed by States for the construction of roads. The effect of such laws has already been widely felt.

A CARRIAGE BUILDERS' SCHOOL.

The National Association of Carriage Builders held their 20th anniversary recently in Buffalo, New York. Among the subjects treated a particularly important one, and interesting in view of the general movement gave three nights each week in the carriage builders' school to learn carriage drawing. This is the work that has been done. The Carriage Builders' Associa-

As the representative of practical technics in this vicinity the Stevens Institute at Hoboken afforded an obvious opening for the foundation of such a course. The Institute for many years has graduated from its curriculum engineers in the true, practical sense of the mathematics of the subject, with the theory and scientific aspect of their work, but are also practical workmen when they leave it. Special provision is made for they may learn the absolute use of tools. After they

The faculty of the college have taken a special interest in the carriage builders' school, such as it is. It The case has excited much interest throughout the seems very natural, therefore, that by a slight addition drawing and descriptive geometry would be included It is time this kind of thing was put a stop to, or, if in such lines as are required in carriage building. Under applied mechanics the application of the principles of statics and dynamics to suitable problems in carriage building would be given. In shop work the joints used in carriage construction and the tempering The subject of good roads is now occupying a great of springs are two suggested topics. In the experideal of attention on the part of the public. The mental course special examples in testing the strength of springs, joints, and frames would be introduced.

Such in general, with added lectures by specialists, is worthy of its position among the nations. We learn the programme as suggested by Dr. Henry Morton, the President of the Institute. To carry it out, money is required, and the collection of such money is now being passable by mud. Almost an entire State is brought attended to by the association, and they seem to beinto a condition of siege by the muddy roads. The lieve that they will succeed in raising sufficient capifarmers cannot transport their produce, the railroads talization to enable the Stevens Institute of Tech-

The situation of the Stevens Institute of Technology This is what a mud blockade may mean. The State is particularly available, being so readily reached by that department will to a great extent be the same as Thus we find ourselves very archaic in the matter of that done by all, so that he will receive the full benefit

wagons, and it is hard to believe that the day is not The subject of deserted farms has been a subject of near at hand when vehicles of luxury will be thus concern in the New England States. A farm whose equipped. In the structural department electricity is outlets in the spring and fall months are but canals of already playing a part in the welding of tires and in mud and cobblestones is justly unattractive to the the welding and brazing of joints in general. All this young. They find the enforced isolation unendurable. indicates the invasion of the old field of handiwork But replace the bad roads by macadamized or telford- and apprenticeship by the highly trained mechanic ized surfaces, which do not feel the spring thawing and technologist. The carriage factory may yet be and which are always passable, and which are dry a called upon to supply electrically propelled vehicles. few hours after a rainstorm, and the country will take Many experimental vehicles of this type have indicated the possibility of future success. In the use of The agitation for good roads was originally under- oil fuel and of naphtha engines there is also a possi