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Contents.

Table listing various articles such as 'Arclight dangers', 'Balloons, Prof. Lowe's experiences with', 'Bicycle holder and lock, Taylor's', etc., with corresponding page numbers.

TABLE OF CONTENTS OF SCIENTIFIC AMERICAN SUPPLEMENT No. 996.

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Table listing contents of the supplement, including sections like 'I. AGRICULTURAL CHEMISTRY', 'II. AGRICULTURE', 'III. ARBORICULTURE', etc., with page numbers.

THE NATIONAL CYCLE SHOW AT MADISON SQUARE GARDEN, NEW YORK.

During the week ending January 26, an extensive bicycle exhibition was in progress in Madison Square Garden in this city. It is the second exhibition of the kind which has been given here, and one which bids fair to become annual.

For years past man has striven to improve the rate of locomotion which he can maintain by his personal exertions. This led to the construction of various forms of velocipedes, until some years ago the conception arose that a two-wheeled cycle might be propelled by cranks on the forward wheel axle. The old velocipede was the result, and as a sport pure and simple, it attained considerable favor.

The safety came in, and ball bearings became a sine qua non on all good wheels. The tires used were of solid rubber and the tendency of the extremists was to make them very small. Then the pneumatic tire was invented, and the modern cycle saw the last step of its development.

The pneumatic tire, by equalizing strains, makes possible the use of a higher gear, so that a single revolution of the crank, involving one motion of each leg of the rider, in a modern road wheel may propel it twenty feet, or four times the distance which a corresponding movement of the legs would carry a pedestrian. By absorbing vibration also the pneumatic tire has enabled makers to build very light wheels.

The exhibition, which closed on the 26th ult., was of great mechanical as well as popular interest. The demand of the public for light wheels has brought about the most careful construction and the adoption of every possible modification which can reduce weight. Wooden and aluminum rims for the wheels, very thin tangent spokes, light tubing of large diameter for the frame re-enforced at the points of greatest strain, the use of saddle posts of thin tubing instead of solid steel, pedals of improved construction, aluminum and wire saddles, are all steps in the direction of lightness.

The majority of wheels now have wooden rims, aluminum rims being adopted by some very high grade wheels, and steel rims being used on the rest. Among the exhibits some most remarkable examples of wood bending are shown, the material under modern processes seeming to be as flexible as lead.

For a long time past all pedals have been of one type of construction, but not the least interesting feature of the exhibition was the variety of new pedals. Some are really elegant examples of mechanical construction, and are far lighter than the old ones.

Handle bars are made of much narrower span than hitherto, eighteen or twenty inches being an accepted dimension in place of the old span of two feet or more. Cork handles, or handles of cork and rubber combined, are generally used.

Brakes are generally dispensed with, back pedaling or pressure of one foot on the front tire being relied on to stop the wheel. Some very neatly constructed foot brakes were shown, which are attached to the crown of the front forks, and which act by being pressed by the foot.

The re-enforcing of the tubes of the frames near the joints is effected in various ways. A piece of tube may be brazed into the frame tube. In one make cross plates of steel, in another what is virtually an inner triangular tube is introduced.

The hubs of wheels are now, in many cases, turned out of solid tool steel, although very elegant drop forgings for hubs and other parts of the wheel were shown. The crank arms are made lighter, often round in section, instead of rectangular, and many new ways of attachment are shown. The almost universal type of frame is the Humber diamond. Several wheels with detachable sprockets for changing the gear were shown, and there were several examples of mechanism for changing the gear without dismounting. The cranks are brought as close together as possible, in order to secure what is termed a narrow tread.

Another very noticeable movement is in the direction of adjustable handle bars. Many wheels are now provided with mechanism enabling the rider, without dismounting, to raise or lower the handles.

Among the lanterns are two classes of electrical ones. One is supplied by a dynamo driven from a friction wheel bearing against one of the tires; the other is provided with a battery.

Several novelties appear, such as a bicycle with bamboo substituted for the steel tubes of the frame. Another is adapted to be driven by both hands and feet, the handle bars being attached to a lever that is pushed and pulled by the arms, and which connects by a clutch to the crank axle. The same wheel can

have the clutch attachments removed and be ridden by the usual foot propulsion. A motor cycle, driven by a gasoline explosion engine, and a duplex cycle, in which the two riders sit side by side, excited much attention.

The great interest taken in cycling was shown by the very large attendance, and under the improved auspices of modern construction, the cycle is becoming more and more widely used. The industry has attained such dimensions that it has led to new processes, to the invention of special machinery, and many other trades are now tributary to it.

ON THE CHOICE OF A CAREER.

The profession of a mechanical engineer, to the uninitiated, holds forth big inducements, and the young man who starts in college works his way along, graduates, and nine cases in ten is assigned a position over the drawing board. Draughting, in its higher forms, is one of the most interesting subjects in existence, especially when other conditions are such as to promote the interest. It rests in the hands of the draughtsman whether the machine will be pulled down several times in order to correct mistakes, and in many cases whether the machine goes to the "scrap heap" or is shipped away a success.

One of the first conditions of good work is a comfortable place to work in. How many concerns in the country, manufacturing machinery, have even a decent place for their draughtsmen? The average is a dirty, badly ventilated, dimly lighted room without proper heat in the winter, frightfully hot in the summer; yet educated men are supposed to go there, use their brains, avoid mistakes, and rush through their work, turning out machine after machine; having a highly heated gas jet within two inches of the top of their heads; yet invariably if a man be taken ill, may be from standing in a draught strong enough to blow a tracing off a table, he is "docked" for the time he is away. It would be interesting to obtain a list of the firms that give their men a holiday without taking a day's pay from their already magnificent remuneration.

The draughting profession at present is a delusion and a snare, as regards the general machinery business, and the old plea that a man is "learning something" is no excuse for a firm paying their head draughtsman \$18 per week. A man can keep on "learning something" until he is ready to die of old age, living on small pay. So many people say, "It is so hard to find a good draughtsman." Why, most men who arrive at the age of 30 either get away from the board or out of the business, driven to desperation by the "learning something" basis of pay. Suppose, through nothing but competency, he secures a very remunerative position. Invariably he is obliged to isolate himself from civilization in some small country village, or in some swamp, where many concerns locate their works; and once there he stands a good chance of staying there, unless he is "fired." Some companies, heaven bless them! realize that draughtsmen are human beings, and a roll of honor should be framed for them. There should also be a list of firms that should be avoided by any man who has any regard for fair treatment and health. Long hours, rushing, driving work, contemptible pay, and hopeless prospects take away all interest in the profession, which is certainly on the decline.

"CONDENSATION."

A Trolley Telephone.

A writer in the N. Y. Sun states that passengers riding on the electric railway between West Farms and Mount Vernon have the privilege of listening to an acoustic manifestation that in a remarkable manner illustrates some of the earlier experiments in developing the telephone. The track is a single one and the potential of the current is high; its amperage is also considerable. As a result, when a car is waiting on a switch for one coming in an opposite direction, the approach of the latter is audible at the distance of a mile to the passengers in the waiting car. The sound vibrations are carried along the wire, through the trolley to the wooden roof of the car. This acts as a diaphragm, which faithfully reproduces the rumble of the approaching car. A mile away the noise of the wheels is distinctly audible, and at the distance of 1,000 feet the sound becomes a loud roar. Outside the car, however, practically nothing is heard until the moving car is within a few hundred feet of the switch.

Arc Light Dangers.

Over the street doors of one of our most extensively patronized dry goods stores arc lights are suspended for purposes of illumination. Throngs of ladies are constantly passing to and fro under these lights. We noticed a narrow escape for a lady the other evening. Fire fell from the arc lamp and just grazed her dress as she passed under the lamp. The inflammable nature of women's apparel is such as to render it dangerous for them to stand or pass under arc lights. There should be a law to prohibit the use of open arc lights. It would be easy to arrange a glass basin or plate under the lamp to catch and arrest any falling bits of the ignited carbon.