

### Military Bicycling.

The Connecticut National Guard has made an experiment in military bicycling. The men rode safety machines and carried Colt's lightning magazine 44 caliber carbines and Colt's regulation army revolver. When mounted each man carries his carbine slung across his back by means of a strap. The carbine has a capacity of 12 shots and the revolver of 6 shots, giving to the nine wheelmen a total of 162 shots to be fired without pausing to reload. The weight of the carbine is five pounds. The manual used by these wheelmen was compiled by Lieutenant Giddings from United States infantry and English cycle tactics. The Hartford Post thus describes a sham fight between the wheelmen and a detachment of infantry and a squad of cavalry:

The wheelmen appeared at the battery in a column of twos. Then they came to company front and advanced down the parade ground toward headquarters. About half way they encountered the infantry, who opened fire upon them. Instantly the command to halt was given, the wheels were dropped to the ground, and the line, deploying as skirmishers, fired several volleys, advancing about 20 feet each time and lying flat on the ground. The infantry retired and the recall to the wheels was sounded. When the wheels were reached the cavalry appeared, advancing at a full gallop to support the infantry. The wheelmen formed a "zebra" by inverting their machines and, kneeling or lying behind the whirling wheels, received them with their repeating rifles and revolvers. The cavalry used revolvers, and in a few moments, when the wheelmen had exhausted their ammunition, the order was given to retreat at double quick time. In a moment they were all mounted and "scooting" down the parade ground. They could not keep pace with the horsemen, however, who galloped in among the flying wheelmen and drove them to their tents.

The wheelmen were also tested as messengers, but the flag signaling with which the wheel messenger competed seems to have been very slow. Colonel Doherty, of the Second Connecticut Regiment, was supposed to be attacked on his flank when two miles away from camp. He sent a message of some ten or fifteen words to headquarters by means of the regular flag signal service, asking that a machine gun be sent to his assistance at once. At the same time he gave the message to one of Lieutenant Giddings' wheelmen for delivery. For the first half mile the message was carried for the regular service by a horseman to a house from whose roof the first flag began to wig-wag. The bicyclist reached his destination and delivered his dispatch in 10 minutes, while the same message did not get in until 40 minutes later through the ordinary signaling by flags. In fact, the gun had reached its position and was already firing in support of Colonel Doherty, two miles away, when the message asking for it reached headquarters according to the usual method.

### Remarkable Scene at a Revival Meeting.

A few weeks ago the Free Methodists began a series of revival meetings in Sydenham, Ontario, Canada, so says the New York World, and made many converts. As the number of converts increased so did the excitement, and the meetings, which were held in the town hall, grew so noisy that complaint was made to the authorities and the revivalists adjourned to a large vacant lot in the edge of town. Here they were addressed by J. F. Frasier, a revivalist, who sailed into the prevailing mode of female dress, and said women are born beautiful and die misshapen because of the wearing of corsets. Frasier is an earnest and powerful speaker and his words created great excitement among the women present.

"Throw off the accursed invention!" he cried, "throw it off and go to God as you left him! Burn them rather than burn yourselves in everlasting fire!"

This suggestion struck a responsive chord, and he had hardly ceased speaking when an enthusiast piled up material for a bonfire and applied a match. It was a weird scene, the dusky evening, the crowd of religious enthusiasts, quivering with excitement, surrounding a fire which shot up long tongues of flame.

"Throw off the garment!" shouted the revivalist.

"Burn them!" hysterically cried a feminine voice in the crowd, and pushing and panting a young woman of twenty-five forced her way to the center near the bonfire. She was tugging at her dress. There was a sudden gleam of white shoulders in the glare of the fire light and she flung her corset into the flames, saying she would die as God made her and not as she had made herself.

Her example was contagious, and in less than half an hour not a woman in the crowd wore a corset, and nothing remained in the blaze but a mass of grotesquely twisted corset steels, amid which the flames playfully flickered. The excitement was so great and the nervous strain so tense that several women grew faint, but they had burned their corsets and were happy.

The Free Methodists consider the revival a great success, and talk of carrying the war into the States.

### THE VANISHING LADY.

All that is necessary for the performance of this trick is a chair, a newspaper, and a shawl made of very light silk. The prestidigitator takes the newspaper, unfolds it and spreads it on the floor under the chair, so as to separate the latter entirely from the floor. A screen is placed a short distance back of the chair. After this has been done a lady enters dressed in any style of costume, but generally in a Roman or Greek dress, and takes her seat in the chair. She is then covered by the shawl which we mentioned above, as shown in Fig. 1, until she is entirely enveloped, even to

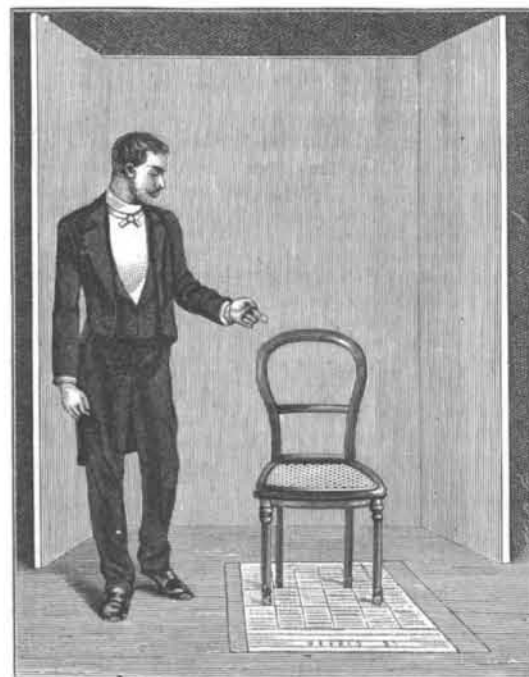


THE VANISHING LADY IS COVERED WITH A SILK SHAWL.

her knees and feet. The sleight of hand performer then withdraws and calls out solemnly "one, two," and at the word "three" the shawl and the lady disappear as if by magic, leaving only the newspaper and the chair, Fig. 2. The effect is very startling, and until the trick is explained it is almost impossible to believe one's eyes.

Since this trick was first introduced it has been more or less perfected or modified in its form, but the following description states the methods generally employed in performing the trick.

If the newspaper is carefully examined, it will be found to be made of India rubber and to contain a large rent at about the center. The paper is placed directly over a trap door and the chair is placed upon it and in such a position that the trap will open directly under the feet of the lady as she sits in the chair. While the lady is being enveloped in the shawl an invisible frame is raised which sustains the shawl, and gives it the form of the figure. When the shawl is finally in place, the lady tilts the seat of the chair and passes between the legs, through the paper, into the trap



THE SHAWL AND LADY HAVE VANISHED.

opening which has been prepared for that purpose, and slides under the floor. At the same instant the chair tilts back to its original position, and at the word "three" the shawl is suddenly drawn behind the screen by means of an invisible thread. It appears as if it were the woman and the shawl which both suddenly disappear, as the movement of the shawl cannot be followed by the eyes of the spectator. The frame disappears at the same time, leaving nothing behind but the chair and the paper. The rubber newspaper returns to its

natural form and leaves no trace of the opening beneath.

We are indebted to *La Nature* for the article and the engravings, as well as for the article on a somewhat similar trick which was described in the SCIENTIFIC AMERICAN of April 25, 1891. In this latter article the lady was placed in a palanquin carried on the backs of four men, and at a certain part of the performance the curtains were dropped and in an instant were raised again, when it was discovered that the lady had vanished.

### Molasses as Fuel.

Our Louisiana crop of molasses is about 450,000 barrels, and will be a constantly increasing quantity; a large part of it is of superior quality which finds a ready market, and the lower grades are constantly increasing; for these lower grades there is now scarcely any market, and their value has fallen so low that the question of the fuel value of such goods has arisen; the lower grades will increase in quantity comparatively, as the more thorough the manufacture of sugar is, the lower the grade of the resulting molasses.

The analysis of low grade Louisiana molasses indicates 32 per cent sucrose, 25 per cent glucose, 23 per cent other solids not sugar, and 20 per cent water. We thus have an article containing but 20 per cent of water, and the rest of it largely carbon, and it would seem, theoretically at least, to have a comparatively good fuel value. Its present market value leaves its value on the plantations at about 2 cents per gallon, or \$3.33 per ton, which price per ton is about the present value of coal. If it could be demonstrated that such molasses has a fuel value equal to or about to coal, pound for pound, it would quickly solve the problem which is now exciting much attention in Louisiana.

The distillation of molasses into alcohol may be a more profitable method for its disposition, but as no experiments have been made here in that direction for many years, we are comparatively in the dark there also. If our correspondent would make some tests with molasses and be prepared to give guarantees that his apparatus [device for burning liquid fuels] would successfully burn it, and with adequate economic results, he would certainly have no trouble in introducing it into Louisiana.—*La Planter*.

### American Iron for Canada.

The *Monetary Times*, of Toronto, says: Our market reports indicate that the iron and steel trade of Canada with Great Britain is undergoing a marked change. Ontario is now importing pig iron largely from the United States, where a year or two ago she bought exclusively from Great Britain. Bar iron, too, she is beginning to buy from the Americans. Steel boiler plate tubes she still buys from the old country, but the Londonderry Works, in Nova Scotia, manage to keep out the cheap steel. It is worth while to notice that the Canadian duty on bar iron is equal to \$14.56 on a gross ton of bar which costs £5 10s.; also that the duty on common steel is 60 cents per 100 lb. There are hardly any stocks of pig held in Montreal or Toronto now. A large proportion of the pig iron sold in Canada nowadays is American; this is especially true of Ontario, which is the nearest province to that market. Quebec still buys from Great Britain. The American "drummers" from New York and Philadelphia and a firm representing furnaces in Buffalo, Cincinnati, and Chicago, are canvassing Ontario cities every week. They sell pig iron in Toronto which comes all the way from Alabama, and which is probably the cheapest in the market.

### The Eastern Boundary of Alaska.

A government coast and geodetic survey party, which has been two years in Alaska, has recently reported that the Yukon gold fields, which have thus far attracted the most attention, are in Canadian and not in United States territory, as had hitherto been supposed. The boundary line is the 141st meridian of west longitude, but its location had not before been marked by the surveys, and will now have to be more exactly fixed by a joint commission of the two governments. There were several hundred miners in the district, and the upper Yukon territory lying just along the border line is said to be attracting large numbers of seekers for the precious metals.

### The Densities of Oxygen, Hydrogen, and Nitrogen.

The densities of the three gases are within less than 1-10,000 part.

Hydrogen.....	0.0695
Oxygen.....	1.1050
Nitrogen.....	0.9720

From these values the mean centesimal proportion may be deduced as 23.235 by weight and 21.026 by volume. According to these experiments, the atomic weight of nitrogen would be 13.99, and that of oxygen 15.905.—*A. Leduc*.