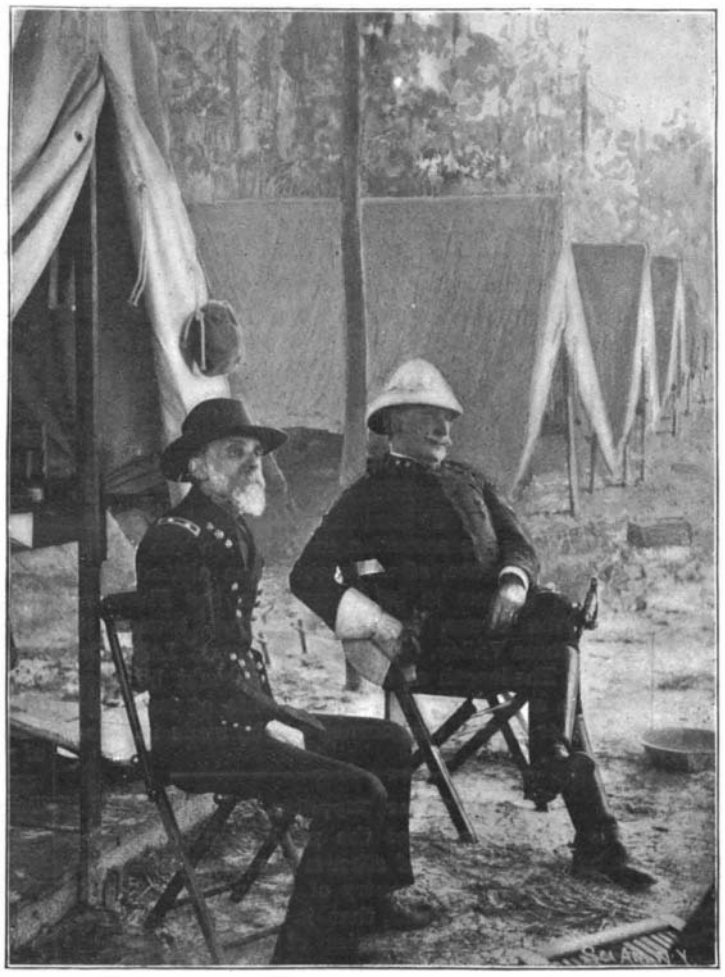
MAJOR-GENERALS MILES AND WHEELER.

The accompanying photograph represents Major-General Miles and Major-General Wheeler in conference before the tent of the latter.

Major-General Nelson A. Miles, who commands the army, was born in Massachusetts in 1839, and is not a graduate of the Military Academy at West Point. He was made captain of the 22d Massachusetts Infantry in 1861 and was honorably mustered out in 1862. In the same year he again enlisted, and was appointed Lieutenant-Colonel of the 61st New York Infantry. He became a Colonel in September, 1862, and was made a Brigadier-General in May, 1864. In October, 1865, he was made a Major-General, and was honorably mustered out on September 1, 1866. Up to this time he was in the volunteer army, but he was accepted as Colonel in the regular establishment of the 40th Infantry on July 28, 1866, and was made Brigadier-General in December, 1880, and Major-General April 5, 1890. General Miles has a long and honorable record. He fought at Fair Oaks and Malvern Hill and commanded a brigade in the Wilderness, Spottsylvania, and Fredericksburg. Since he entered the permanent establishment he has been very successful in waging war against the Indians on the Western plains. Personally, he is much liked, and is considered the true type of the gentleman-officer. He was chosen to take part in the Queen's Jubilee in 1897. He was also with the Turkish army in the Græco-Turkish war in order to observe the war maneuvers.

General Joseph Wheeler is an ex-Confederate officer and was appointed Major-General of Volunteers, by President McKinley. General Wheeler was born in 1836 and entered the Confederate army at the age of twenty-five. He was successively promoted to the command of a regiment, brigade, division, and army corps, and as early as 1862, when he was only twenty-six years old, he was made Major-General and had been assigned to the command of the Confederate cavalry corps of the Tennessee army. He commanded Gen. Bragg's cavalry at Green River and at Perryville; he led the cavalry at Murfreesboro and at Chickamauga. In a raid in Tennessee, in 1863, he destroyed national stores to the value of $3,000,000. He engaged at Knoxville, Missionary Ridge, and Lookout Mountain. He harassed General Sherman in his march to the sea and fought at Atlanta and Aiken. He was elected to Congress from Alabama as a Democrat, and has served continuously since 1885.

One of the interesting features of the war is the drawing together in the bonds of unity those who, only a quarter of a century ago, were facing each other in hostile array. Such political sections as the North and South no longer exist, and the public has a like interest in our military leaders irrespective of the part of the country from which they come.



CONFERENCE BETWEEN MAJOR-GENERALS MILES AND WHEELER.

CARD CRICKET.

BY W. B. CAULK.

One of the most effective and pretty tricks performed by the celebrated English magician Mr. Devant is known as "Card Cricket." In this trick the performer shows his hands empty, and takes a pack of cards and requests three ladies to take one card each, and to remember what the cards are. The cards are then replaced in the pack, which is well shuffled and cut by one of the audience. The performer then passes for inspection an ordinary cricket bat, which on its return he places on a table in full sight of all. He then asks if any one in the audience can bowl, and requests the gentleman who can to come and have a game at cricket.

The performer now asks the gentleman to take the pack of cards and bowl at him, and he will be the player or one at the wicket. The performer picks up the bat and says "Play." The cards are bowled at him, and he hits the pack with the bat as the cards are in the air, and, to the astonishment of the audience, the chosen cards are seen sticking to the bat. This very pretty card trick is quite simple to work.

In selecting the cards the ladies were under the impression that they exercised their own free will, but such was not the case. The pack of cards was what is known to magicians as a forcing pack, that is, consisting of only three cards, which for convenience sake we will say are the ace of clubs, five of hearts, and nine of spades, one-third of the pack being composed of only one of these cards. The pack being thus made up, it is very easy for a skillful performer to present to the first lady the portion of the pack containing only ace of clubs, to the second lady the part consisting solely of five of hearts, and to the third lady the part that contains only nine of spades. By using such a forcing pack the performer is sure to have the proper cards selected.

While the ladies are examining their cards the performer steps to his table on some pretense and slyly changes the forcing pack for an ordinary one consisting of the usual cards, with the exception of the five of hearts, ace of clubs, and nine of spades. This pack he hands to some member of the audience and requests them to have replaced the selected cards and shuffled.

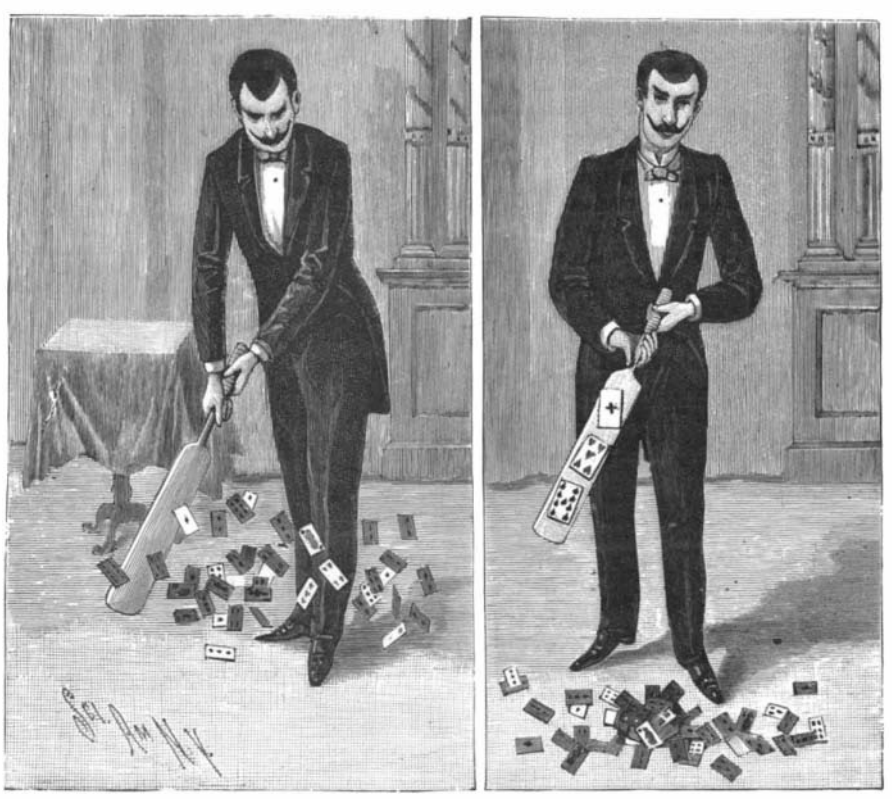
The cricket bat is an ordinary one, which, after being examined by the audience, is laid on a table until the performer finds a gentleman who will bowl the pack at him.

In this simple act of laying the bat on the table we find the principal secret of the trick.

Previous to beginning the performance the magician has placed face down on the table, in a line with each other, an ace of clubs, five of hearts, and nine of spades. The back of each of these cards is lined with cloth similar to the covering of the table, thus preventing anyone noticing the cards when placed face down on the table. On the cloth covering of each of the cards is smeared a dab of soft adhesive wax. In placing the bat on the table, care is taken to lay it directly over the three cards, the wax on the backs adhering tightly to the bat.

After the gentleman who has consented to bowl the pack of cards at the performer is in place, the performer picks up the bat, steps back a few feet, and says "Play." The instant the flying cards touch the bat the performer turns it over, bringing into view the side of the bat to which the three cards are sticking, which appear to have been caught on the bat from the flying cards.

Until the pack of cards are thrown against the bat, the magician exercises the greatest care not to turn the side of the bat to which the cards are sticking toward the spectators. Properly presented, this trick has proved most illusive.



CARD CRICKET.

The Umbrella Industry.

More than one-half of the umbrellas used in this country are produced in Philadelphia, and the distinction of the Quaker City in this respect is no new thing, for it has passed almost into a proverb throughout the United States that "when the Quakers come to town, it is going to rain." Very few persons have any correct idea of the extent of the umbrella business in the United States, says The New York Sun. It amounts in a year, taking the retail figures, to $25,000,000. There are in this country five hundred umbrella factories, having an invested capital of $6,000,000, of which more than $3,000,000 is in the city of Philadelphia alone. New York, Massachusetts, Maryland, and Ohio are the other States which are largely represented in the manufacture of umbrellas, while all the States are represented, though unevenly, in their sale.

For many years some of the best umbrellas were imported from abroad, especially from England, and the rate of duty upon them prior to 1890 was 50 per cent ad valorem if covered with silk or alpaca and 40 per cent if covered with any other material, cotton or linen included. Under the tariff of 1890—the McKinley bill, so called—American umbrella manufacturers were favored by an increase in the duty of 5 per cent, the rate upon silk and alpaca covered umbrellas being 55 per cent and on those covered with other material 45 per cent. Since then the importations of English umbrellas have declined, though this change is not to be ascribed wholly to the workings of the tariff, but rather to the fact that American-made umbrellas are decidedly cheaper and quite as serviceable as those imported from other countries. Moreover, they have the additional advantage of being lighter and less cumbersome, and are not constructed to meet the requirements of hard and continuous usage, as is the general custom abroad; for the number of those who always carry umbrellas is materially larger on the other side than it is here. The American plan is to carry umbrellas only when it is raining or seems likely to rain, and it is a matter of common observation in American cities that there are more men who neglect, omit, or are unable to get umbrellas on rainy days than there are men who carry umbrellas when the weather is fair. This condition is exactly reversed in most European cities, where it is no uncommon thing to see many umbrellas carried on a bright, clear day. The average rainfall in inches is 25 in London, 23 in Paris, 24 in Berlin, 20 in Vienna, 17 in St. Petersburg, and 44 in Glasgow. The average in New York is about 40 inches, but the number of days in which there is some rain is larger abroad than it is here.

There are in the United States more than eight thousand persons (the larger number of them men) engaged in umbrella manufacture, and the total wages paid in a year in this branch of American industry exceeds $4,000,000. What peculiar merit the city of Philadelphia offers to umbrella makers is not easily stated. The materials which enter into umbrella manufacture are not procurable with any unusual advantage in Philadelphia, and the chief market of sale is New York.

IN a work on the algal flora of the Hamburg waterworks, Herr O. Strohmeyer states that the green algæ—Cladophora, Spirogyra, Enteromorpha, Stichococcus, etc.—have a very powerful effect in purifying water by the destruction of bacteria through the agency of the oxygen which they exhale. Those algæ, on the other hand, which are inclosed in a mucilaginous sheath, especially diatoms, have a very prejudicial effect on drinking water, by stopping the filters through which it passes.

Terrestrial Coronium.

As we briefly noted in our issue of July 30, Prof. Nasini, of Padua, who has been working in conjunction with Signori Anderlini and Salvadori, communicates the following note to the French Academy:

"We have for a considerable time been occupied with an extensive study of the gases emanating from the earth in various parts of Italy, with the object of detecting the presence of argon and helium, and possibly of other elements they may contain.

The first part of this work has already been published ("Gas delle terme di Abano," Gazzetta Chemica Italiana). We are now completing the study of the gases of the Solfatara di Pozzuoli, Grotta del Cane, Grotta ammoniacale, and of Vesuvius. In the spectrum of those of Solfatara di Pozzuoli, which contain argon, we have found a sufficiently bright line with the wave length 531·5, corresponding to that of corona, 1474 K, attributed to coronium, an element not yet discovered, and which should be lighter than hydrogen. This line has never before been observed in earthly products. Besides, we have noted the following lines: 653·5, 595·5, 536·2.

In the spectrum of the gases gathered from the fumarole of Vesuvius, we have observed the lines 769·5, 631·8, 572·5, 536·5, 441·5, and again 595·5. These lines do not all belong to the spectrum of argon or helium; they show a coincidence or proximity only with some unimportant lines of various elements, such as iron, potassium, and titanium. Considering the conditions of our experiments, the presence of these elements in the gases we have studied is not probable. The line 572·5 is near to one of nitrogen, but, being the only visible line of the spectrum of this gas, it cannot be attributed to it. Besides coronium we have thus probably other new elements in these gases.

We are diligently pursuing their investigation."

This is an announcement of the highest interest from a scientific point of view, as at once confirming the results of spectroscopic examination of the sun and adding another proof of the substantial identity of materials in the sun and the earth. Hitherto nothing has been known of the substance which produces the coronal line 1474 K. It has not been observed anywhere in nature except in the corona, its supposed identity with the auroral line having long ago been disproved, although it may possibly be asserted here and there in a text-book not written up to date. Coronium would seem, however, to be a substance with a vapor density far smaller than that of hydrogen, which is by far the lightest body with which we are familiar. Some have suggested that it is only one of the elements known to us, modified in some unknown way by conditions differing enormously from those that obtain on this planet. But against this hypothesis has to be set not only its occurrence at a distance from the sun's body estimated at 300,000 miles, where it is difficult to believe that the vapors of the suggested elements can predominate, but also the fact that in the midst of solar disturbances, in prominences or near sun spots, when the lines of hydrogen and other known elements are contorted, this coronal line remains sharp, fine, and straight. From these and other considerations it has been held that the green coronal line is due to a permanent component of the solar atmosphere totally distinct from any element known to terrestrial chemistry. That unknown substance appears now to have been found just where, if anywhere on earth, it might be expected—i. e., in the gases from volcanoes or the springs and minerals subject to volcanic action. It will be observed that even with this addition to the list of known elements the lines in the spectra of the volcanic gases cannot be completely accounted for. It is therefore probable that coronium will be found to be associated with other gases as yet unnoticed.—The London Times, July 20, 1898.

Ballooning in the High Alps.

An interesting attempt in behalf of science will be made this summer by Capt. C. Spelterini to cross the high Alps of Switzerland in a balloon, for the purpose of making meteorological and topographical observations, says J. T. Du Bois, United States Consul-General at St. Gall. The Swiss weather bureau and many Swiss scientists are interested in the venture. If successful, it will be the first air ship that has ever crossed the high Alps.

The principal parts of the balloon have already been constructed in the factory of George Basacon, at Paris, and the basket, network, and other features are being perfected as rapidly as possible. The dimensions of the balloon are as follows: Diameter, 60·39 feet: contents, 115,414 cubic feet; weight of balloon basket and network, about 2,020 pounds; carrying power, 7,400 pounds.

The movement of the balloon is to be ascertained by topographical and barometrical observations; one registering aneroid barometer and one controlling quicksilver barometer will be used for this purpose. At the time of the journey frequent observations are to be made at the Swiss meteorological stations, and by this plan the coexisting differences of the direction and rapidity of the wind in the various high strata of air are hoped to be obtained. Careful observations are to be made from the air ship as to the humidity and temperature, as well as to the color phenomena of the atmosphere, strata of vapor, formation of clouds, etc. One of the most important and interesting results expected is the photographing of mountains from the balloon. The point of view from which these photographs must be taken in order to be of the greatest use for cartography, geography, geology, as well as for best execution, has been carefully planned; and important results are confidently expected. The science of photography is also to be used in the study of the formation of vapor and clouds in high Alpine altitudes.

The question of from what point and in which direction the aerial journey shall be made has been thoroughly studied by some of the best known Swiss scientists. Government meteorologists stationed at the highest possible altitudes in Switzerland claim that it is impossible for a balloon to sail over the high Alps from north to south or from south to north, because the south winds are not strong enough to reach the higher air currents, and the strong north winds are so rare that no dependence can be placed upon them. The prevailing wind in the high Alps is from the southwest, and Capt. Spelterini claims that, in nearly all of his aerial expeditions in Switzerland, he has been driven northeast whenever he passed an altitude of 10,000 feet. By this experience, he is satisfied that by ascending in Lugano he would, as soon as he had reached the altitude of 10,000 feet, be driven into the Tyrol Mountains. It has therefore been decided that he shall make the ascension at Sitten, in the Canton of Wallis, whence, after reaching an altitude sufficient, he expects to be driven over the Finsteraar group, the Urner, and Glarner Alps, toward the Upper Rhine Valley, between Sargans and Lake Constance. The length of this journey would be about 130 miles, and, if the wind is at the rate of from 19 to 32 feet per second, the journey will be made in about 8 hours.

Ether Tippling.

It is well known that the production of intoxication by the drinking of ether is a vice especially prevalent among the peasantry of the north and northwest portions of Ireland, that it obtains in some degree in the western counties of England, and also that it sometimes finds its way into the boudoirs of titled and aristocratic dames; but until recently it was held to be strictly confined to the United Kingdom, except, perhaps, in rare and isolated instances. In Viertehjahrsschrift für Gerichtliche Medicin, the medical officer of health for the district of Heydekrug in Lithuanian Prussia draws attention to the fact that ether tippling is there excessively prevalent and constantly increasing—a condition he ascribes to recently increased excise duties advancing the price of spirits and practically inhibiting their use by the lower classes, who are chiefly of the Slav race. It is added the vice is an importation from Russia, it being in some districts of the Muscovite empire "perniciously prevalent." "Mere children," it is declared, "often come to school exhibiting signs of having imbibed ether before leaving home; mothers give to their offspring to relieve abdominal pain; and on market days the odor of the drug is perceptible everywhere in the respiratory exhalations of the peasantry, of both sexes, and when a vehicle occupied by them is encountered on the highway, a cloud of ether seems to float along."

It is not, however, the commercial drug, or that prepared for purposes of anæsthesia, that is employed, but the compound spirit, known as "Hoffman's Anodyne" or "anodyne drops," which is merely commercial sulphuric ether diluted with three parts of alcohol. The exhilaration produced is declared to be much more pleasurable than that accruing to alcohol; the drug is not only less expensive, but requires a less amount to produce intoxication; and that the subsequent depression and discomfort ("katzenjammer") are less marked. It might be added, also, that the stage of exhilaration is much more transient and leads to more frequent imbibition.

One thing is notable, viz., that outside of surreptitious employment, the use of ether as a beverage and intoxicant is confined to peoples whose social and hygienic conditions leave much to be desired, people with whom complete intoxication rather than mere stimulation is the desideratum.

That ether as a beverage and intoxicant is much more pernicious than alcohol, may be imagined; it is also much more seductive in its influences, once the individual is habituated thereto. The injuries accruing to the habit are more rapidly induced, and generally farther reaching than those derived from beverages of purely spirituous nature; chronic catarrhs that are absolutely irremediable, fatty degeneration of the heart, calcification of the great blood vessels, "hobnail" liver—a cancerous condition—softening of the brain and other cerebral troubles leading to great mental debility and even to complete idiocy, are the common sequels claimed to obtain to this vice. In any event, the injurious effects are such as to warrant the restriction of the sale of ether, whether the commercial article or in the form of "Hoffman's drops," and also to requiring these drugs to be classified with opium, arsenic, chloral, chlorodyne, cocaine, Indian hemp, and other concomitants of the chemist's shop that are not permitted to be dispensed save on the prescription of a qualified medical practitioner. Practically the same should also accrue to chloroform, the seductive odor of which has led in many instances to its inhalation by drug clerks to secure an intoxicating effect.

The startling, increased, and general consumption of substitutes for alcoholic beverages, and the vast market found for cheap and drugged spirits, raises again the pertinent question whether the restriction placed upon the sale of absolutely pure products does not work harm rather than good; whether the enforcement of laws insuring purity will not better serve the cause of temperance. Possibly acts that will combine the two measures will produce the best results. It is known that, since the embargo on home-brewed ales has been in force, the consumption of spirits has greatly increased in Great Britain, and far beyond any ratio of increase in population; that more public houses are in existence; cologne drinking, chloral and cocaine taking, ether tippling, and the consumption of narcotic drugs generally, are in common vogue and daily, almost hourly, assuming enlarged proportions. Here is one of the greatest problems of our sociology, one that is, apparently, as far from solution as it was a century ago. The outward appearance as regards consumption is more seemly, but the surreptitious consumption of narcotics is in no way mitigated, but rather the contrary. The thanks and honors of the world await the individual who can formulate a scheme of reform that will be alike practicable and effective.

The Current Supplement.

The current SUPPLEMENT, No. 1180, is of rather more than usual importance, as it contains a number of papers on a variety of subjects of very present interest. "A General Description of the Whitehead Torpedo" is an article which is illustrated with elaborate and detailed drawings, showing the intricate and ingenious mechanism by which the torpedo is driven and guided. It is accompanied by fifteen engravings. "The English Dumdum Bullets" describes the bullet which is used by England against savage nations. The bullet becomes distorted on striking a soft body and produces wounds which are very serious. "A New Bulkhead Door" describes the Kirkaldy bulkhead door which seems to afford entire immunity from accidents. "Engines and Boilers of H. M. S. 'Europa'" illustrates the engines of the new first-class protected cruiser of 11,000 tons. "The Present Status of the United States Navy" is accompanied by tables giving a full list of cruisers and yachts, steamers, colliers, revenue cutters, and also the vessels under construction, together with the names of all of the new vessels. "The Development of the Calcium Carbide Industry" is a full paper giving the entire history of the industry. The "Analysis of a Horse's Motions by Chronophotography" is an article from the pen of Prof. E. Marey, who is a great authority on the photography of moving objects. The different gaits of a horse are studied in detail. "How to Select a Telephone" is a practical article by Mr. H. P. Clausen.

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