

# SERVANTS TO A QUEEN

THEY RANK VERY HIGH IN ENGLISH SOCIETY.

The Title of Servant to Her Majesty is an Ennobling one Indeed—John Brown's Memory Honored by Queen Victoria.

[English Correspondence.]

HERE IS TO THE English heart an enviable honor attached to the title of "servant to her majesty." It is a title of honor, and permission is given to persons not in the royal service to use the title. An exception has recently been made in the case of the Carl Rosa Opera troupe, who sang at Balmoral castle. They now go about the country with ten-sheet posters announcing themselves as her majesty's servants.

The widest known of all the queen's servants was John Brown, her majesty's Highland personal attendant, to whose memory her late Majesty leaves from the Journal of a Life in the Highlands is dedicated.

John Brown's birthplace is "The Bush," a farm lying to the north of Balmoral castle, a road much frequented as a drive for visitors. He was first employed in the stables of Balmoral, where Prince Albert found him, and, recognizing his excellent qualities, promoted him to the post of "gillie," an attendant upon gentlemen when hunting and fishing. In 1849 he was chosen by the queen and the prince to go with her majesty's carriage. In 1851 he began to lead the queen's pony in their frequent excursions over the hills. He, together with John Grant, head-keeper and also a much-trusted servant, always accompanied them on those expeditions taken incognito, in which the queen and Prince Albert delighted.

Born in this region and his forefathers before him for many generations, he was well known and respected throughout the Highlands. "Favorite servants," said a Decided Highlander to me, "generally gain their place by flattering the weaknesses of their employer and by underhand measures. But it was not in that way that John Brown gained his high place in the confidence of the queen. He was honest to bluntness; spoke his mind out to high and low." Did her majesty appear in a comfortable old cloak for her drive or other exercise John Brown was liable to remark with a plainness that would send a shiver down the back of a trained courtier: "And what kind of a thing is that you've got on to-day?" To this straightforwardness of speech and mind were united great kindness of heart and a desire to oblige. His fellow servants liked him and trusted him—a cool test—and when he came to his place of confidence of the queen he did much for their comfort.

All John Brown's brothers have come into the queen's service. Donald Brown is at Osborne, Hugh Brown is keeper of the kennels in the home park at Windsor, Archibald Brown is a page in the royal household, James Brown is the shepherd at Balmoral, and Wm. Brown lives in the house built by the queen at Balmoral for John Brown and which she has given to the Brown family in perpetuity. It is a large house of granite with stable attached. John Brown never



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occupied it in his lifetime, but his body rested there before burial. In the castle park, on a grassy bank near the cottage in which the queen breakfasts and writes, is a life-size bronze statue of John Brown. He is in the dress he always wore when in attendance upon the queen, except, of course, on state or dress occasions, it is same that he wears in the picture here. Two medals are upon his breast; the one conferred by the queen for long and faithful service, the other for saving her majesty's life. He holds his Glen-gary cap in his hand. The statue wears a smiling look, as though he were about to speak. Upon the granite pedestal is this inscription:

JOHN BROWN, Friend of his servant, Loyal, truthful, brave, Self less than duty Even to the grave.

John Brown is buried in the little Craithie graveyard, a green, well-kept spot, not far from the castle and the

Don't A headstone of gray granite marks the grave. Upon it is the following inscription:

This stone is erected in affectionate and grateful remembrance of JOHN BROWN, personal attendant and beloved friend of QUEEN VICTORIA. In whose service he had been For 31 years. Born in Craithie, 8th December, 1820. Died at Windsor Castle, 27th March, 1882. "That friend on whose fidelity you count, that friend given to you by circumstances over which you have no control, was God's own gift."

Her majesty's Indian empire is represented in her household. There are four of these Indians. Her Indian secretary, Hafiz Abdul Kaim, her personal attendant, who "gives" his arm to her coming down the stairs, etc., and their servant and "cook." A special part of the castle is assigned them, where are their kitchen and other apartments. Their food is prepared by their own cook in accordance with Indian customs and prejudices. The atmosphere of their portion of the castle is said to be delicious, of curry. The Indian secretary assists her majesty in her study of Hindustanee and all four accompany the queen abroad as well as to Osborne and Windsor.

## WASPS AND BEES GET DRUNK.

The Former Provoked to Unprovoked Attack When "in a Condition." The argument against all and every use of alcohol which we used to hear much of years ago was based on the statement that it was not a product of nature and not used in any natural condition. The argument itself is a very unsafe one, even if the premises were correct, but they are not, and the plague of wasps has proved it. I have been watching the wasps with great interest and have noticed the acidity with which they attack certain fruit when fully ripe, rotting, in fact, and I have also noticed some of the peculiar results of their doing so. The sugar in some fruits which are most attacked by wasps has a tendency to pass into a kind of alcohol in the ordinary process of rotting, a fact which is easily ascertained by the use of a still not large enough to attract the attention of the excise authorities. On such fruits, particularly grapes and certain plums, you will see wasps pausing and fighting in numbers much larger than can be accommodated and you will see them get very drunk, crawl away in a semi-somnolent condition and repose in the grass for some time, till they get over the "out," and then they will go at it again. It is while they are thus affected that they do their worst stinging, both in the virulent nature of the stroke and the utterly unprovoked assaults of which they are guilty. I was stung last year by a drunken wasp, and suffered severely from symptoms of nerve poison for several days. In such drunken peculiarities they resemble their human contemporaries. It is evident, therefore, that those who use the argument about alcohol to which I have objected must give it up the more it is known that there are certain plants (orchids) whose cross-fertilization is secured by a regular system of public-houses in which bees are made drunk, for without inebriation the bees would not go through the antics by which alone the orchids can be fertilized. I am quite sure, however, that our best friends will deride arguments enough and awful examples quite sufficient from drunken wasps without the use of the argument I have disposed of. I can furnish them with one. Having found out how fond they were of alcohol, I provided them very abundantly with free "pubs," with swing doors and unlimited beer, and now we live in comparative comfort and view without compunction thousands of dead drunkards in our beer bottles.

## Clothing From Wood.

A Hungarian inventor claims to have made a discovery which will revolutionize the textile industry. He asserts that he is able to spin ordinary wool pulp or cellulose into yarn, from which all sorts of textile tissues can be made in the ordinary way, excepting in appearance, durability and fastness of color the best cotton goods. The method is not only applicable to cellulose, but also to every sort of short fibrous material—for instance, rags, scraps of cotton and linen goods. The fiber, whether paper pulp or textile refuse, can be dyed before being spun into yarn, so that the dyeing of the woven material is not necessary.

## Big Trees of California.

It is the testimony of those who have seen the great trees of California that much of the effect of astonishment is lost because the visitor approaches the trees through a forest of giants that gradually increase in size. Many pines ten feet in diameter are passed on the journey, and in this way the visitor slowly works up to trees that measure above thirty feet in diameter.

## Tobacco Habit.

Since the world-wide diffusion of the tobacco habit its earliest and perhaps original use has been in a great measure overlooked. With the aborigines of America smoking and its kindred practices were not mere sensual gratifications, but tobacco was regarded as a herb of peculiar and mysterious sanctity and its use was deeply and intimately interwoven with native rights and ceremonies.

## The Empress Augusta.

The Empress of Germany has become a magnificently handsome woman. At the review dinner which took place at the new palace in Potsdam recently she wore a gown of pale green brocade, with an extraordinarily high diadem of diamonds, and necklace and other ornaments of precious stones, and was the observed of all observers. The Emperor, in his uniform of the First Prussian Foot Guards, seemed a rather awkward sort of boy beside her. All Germany agrees that the empress is the most and handsomest woman who has ruled in Germany for several generations.



# MINES AND MINING.

COPPER ORE AND HOW IT IS REFINED.

The Michigan Exhibit in the Mining Building Illustrating the Processes—A State Famous for the Red Metal.

[World's Fair Correspondence.]

NE OF THE MOST interesting of the state exhibits in Mines and Mining building is that of Michigan. No pains have been spared to make an exhaustive as well as attractive showing and the result is satisfactory to the visitor, whether a state pride enters into his feelings or not. Copper, as the chief product, is made most prominent in the exhibit, and in respect to this metal as a specialty, the showing is as complete as that of gold by California, silver by Colorado, or coal by Pennsylvania. Entering the Michigan section through an arched doorway the visitor finds himself within a spacious porch. Above him, crowning the entrance, is a group of figures. In front of him is a frieze, in copper, showing a multitude of brownies engaged in sports and labors. Passing into the exhibit proper he sees that Michigan mining men make much of their most valuable product, for copper is everywhere.

A great mass of the native metal, carrying conglomerates, is shown. The weight is 3,400 pounds, and the Beck's mine was the producer. Near by is a specimen of copper being amygdaloid, from the Atlantic mine. On a car is a great ingot of native copper weighing 8,500 pounds. Adjoining is a jagged ingot, weighing upward of three tons, from the Central mine. These enormous ingots, not to be duplicated in any but a Michigan mine, are of a dark brown color, where

when heated by friction. In the production of these valuable alloys pig iron, ferro-manganese, chromium and tungsten are melted together in graphite crucibles under such charcoal and calcined brax, the tungsten and pig iron being melted in clay crucibles together with the bar iron, the nickel, copper and aluminum being subsequently added. The metal is at this time covered with stick charcoal only, and the alloys are cast in sand moulds in the usual manner. For nail cutting blades, cutting blades for various machines, cutting-out tools and similar employments the alloy consists of a certain combination of pig iron, Swedish bar iron, ferro-manganese, chromium, tungsten, aluminum, nickel and copper.

## Habits of the Springbok.

The springboks of South Africa migrate in vast herds, moving in a compact and carrying every thing before them. If a flock of sheep be in the line of march (as sometimes happens) it is surrounded, enveloped and becomes, willingly or unwillingly, part of the springbok army. An African hunter tells of seeing a lion in the midst of the antelopes, forced to join the march. It is supposed that the lion had sprung too far for his prey, that those upon whom he alighted recoiled sufficiently to allow him to reach the ground, and then the pressure from both flanks and the fear prevented him from escaping from his strange captivity.

## Ada Rehan's English Home.

Charming Ada Rehan is enjoying a long vacation for the first time in several years. It is in the green country side, close by Muncaster castle, in one of the most beautiful sections of England that her "bungalow" has been established. And a very delightful one it is. Lord and Lady Muncaster took such a fancy to our winsome American actress that they determined to give her a beautiful summer house as a surprise. So they had it built just under the castle's shadow, and it was completed in less than three weeks. "A rather fancy," says Lord Muncaster, "that your American carpenter couldn't do any better than that, don't you know?"



THE MINNESOTA STATE BUILDING.

the surfaces are as they were when the metal was buried deep in the mother earth. Edges that have been sawed or cut are bright, but of a much darker tint than is that of copper fresh from the mill. Ingots of copper, native, or the result of reduction processes, are shown that are of a deep hue. In cases along the east side of the section serious formations in native copper are shown. Foliated copper, a curious leaf-like formation, is attractive from



MICHIGAN SECTION, MINES AND MINING BUILDING.

its oddity, fern copper being another variety. Perhaps the most curious of the native formations is the variety known as fan copper. On this a number of flat leaves, razor shaped, are united at one extremity, thence spreading out like a folding fan. Of copper minerals there is endless variety. The common blue and green of azurite and malachite are seen in many specimens, while of red oxide ores there is a good showing. A beautiful mineral is labeled needle iron. Those who delight in exalting the labors of the ancients have long cherished the idea that the aborigines of the Lake Superior region possessed the art of producing hardened and tempered copper. It has been claimed that weapons and tools have been discovered that no file could dull. Thousands of inventors have spent more or less of their time in their endeavors to revivify this "lost art." The Smithsonian institution, it has been said, has specimens of tools of hardened copper found on the shore of Lake Superior. The presence of a number of arrow heads and knives of copper, used by natives in early times, displayed in one of the cases, opened the subject of tempered copper.

It is the testimony of those who have seen the great trees of California that much of the effect of astonishment is lost because the visitor approaches the trees through a forest of giants that gradually increase in size. Many pines ten feet in diameter are passed on the journey, and in this way the visitor slowly works up to trees that measure above thirty feet in diameter.

"I do not believe such a thing exists," said the gentleman in charge of the exhibit. "Copper can be hardened and some of the alloys are very hard, although in no form can a successful competition with iron be sustained. It is claimed by several that tempered copper is now being placed on the market, but if the art is ever to be discovered it has not been achieved so far. I have investigated and am sure of the facts. I have heard of men who have heard of men who have seen weapons or tools of the aborigines that would turn the edge of a steel chisel or dull a file. Personally I have never come closer to tempered copper than third hand. Neither has any officer of the Smithsonian Institution, for I have made inquiries." So is another fraud delusion banished.

One of the great mining companies shows a cross section of its property, the various levels being exhibited by means elucidating the methods of timbering and working. Ore and surrounding rock are represented by actual specimens. Another company shows a horizontal view of its mine. Each level illustrated by a sheet of glass on which is marked the location of tunnels and drifts. These are shown in all looking through the seven sheets of glass, one sees the mine as he would if air were being mined, all being transparent excepting the workings. Each "level" represents the point at which, from the shaft, a tunnel extends, with drifts or smaller tunnels radiating in various directions to provide for taking out the ore.

Mining and milling machinery is shown in a number of attractive exhibits. There are model shafthouses, mills and reduction works. A series of oil paintings surround the booth, showing views of various properties, while photographs help in the education of the inquiring visitor.

## Horax and Cutting Tools.

The announcement is made in the English journal of some new alloys for the manufacture of boring and cutting tools, the claim being made for the new substances that they possess a hardness equal to that of tempered steel, with the additional advantage of not losing their hardness

# FIELD OF SCIENCE.

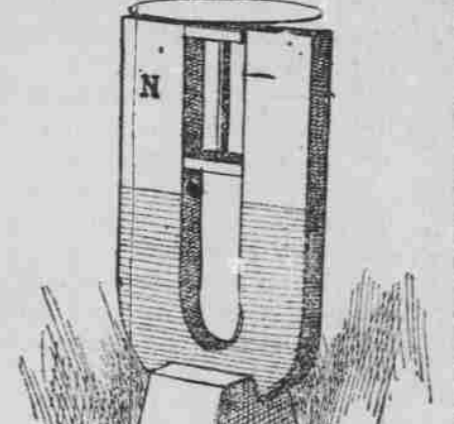
LATEST DISCOVERIES IN INDUSTRIAL FIELDS.

Modern Magnetism Under New Developing Processes—A Device to Teach Spelling—Scientific News Gathered from Many Climes.

[World's Fair Correspondence.]

Experiment Showing Magnetic Lag. Most students of electricity know theoretically what is meant by magnetic retardation, or magnetic lag, and electrical engineers and manufacturers of electrical machines understand the causes and effects of this action in the armatures of dynamos and motors; but to most people, and especially to students who really desire to fix an idea in their minds, an experimental demonstration is more valuable than any amount of theory, writes George M. Hopkins, in the Scientific American.

It is of course impossible to see what goes on in an armature while moving, but it is known that the armature core becomes a magnet by induction, and that its poles are of the opposite name to the adjoining poles of the field magnet. It is also known that time is required for the magnetization and demagnetization of the armature. The time element is



SHOWING MAGNETIC LAG.

thus seen to be one which cannot be left out of the calculation in designing dynamo-electric machines.

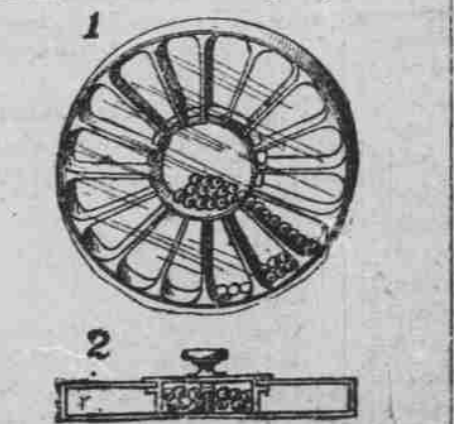
A very simple experiment, which helps to an understanding of what magnetic lag is, is shown in the annexed engraving. A perforated block is inserted between the polar extremities of a U-magnet to receive a pointed spindle attached to a soft iron disk held near the poles of the magnet. The pointed end of the spindle rests upon a cross bar inserted between the arms of the magnet. The disk, which turns very freely, absorbs the magnetic lines and becomes strongly magnetic. When the disk is at rest, poles are developed in the disk in the direction of the rotation of the magnet, but when the disk is turned ever so little, the poles in the disk are carried forward in the direction of rotation. This is proved by the action of the disk when it stops. It immediately moves a short distance in a retrograde direction, showing that the points of greatest magnetic density in the disk lie beyond the poles of the magnet in the direction of the rotation of the disk, and that these points are attracted toward the magnet poles. Owing to the friction of the bearings of the spindle, and to the almost immediate readjustment of the magnetic lines in the material of the disk, the return movement does not represent the entire lag, but it shows in a striking manner what lag is.

## Artificial India Rubber.

Artificial india rubber from cottonseed oil is one of the latest industrial products and claimed to possess commercial adaptations of peculiar practical value. The manufacture involves a process not yet given out to the public by the discoverer, who states that, while experimenting with cottonseed oil to produce a varnish for paintings, he obtained a substance entirely foreign in its make-up and properties to what was sought—not a varnish, but rubber. So simple is the process, as alleged, that it is not within the protection of a patent—the only safeguard being, therefore, in the secrecy of the process, by the use of which, it is asserted, only 15 per cent is required of the genuine rubber to produce an article which can in no way be distinguished from the ordinary crude india rubber. It is said, even by experts in the handling of the latter article. Arrangements have been made for its extensive manufacture and its application to the various purposes so long peculiar to the natural material.

## A Kindergarten Teaching Device.

An exceedingly simple educational device, adapted for use in the kindergarten method of instruction, is shown in the illustration. A light cylindrical



DEVICE TO TEACH ARITHMETIC.

case, with a glass front, is divided by radial ribs into numerous compartments open at their inner ends, where there is a central recess, in which is placed a circular pocket. This pocket is revolvable by means of a knob or handle at the back of the case, as shown in the sectional view, Fig. 2, and has in one side a slot to permit the balls to pass through, one by one, into the several compartments between the ribs. By permitting one or more balls to pass through the slot as shown in Fig. 1, the pupil may be taught to add and multiply as the balls are distributed, counting being taught as the balls are dropped one by one through the slot. The device is also designed to serve to some extent to amuse small pupils.

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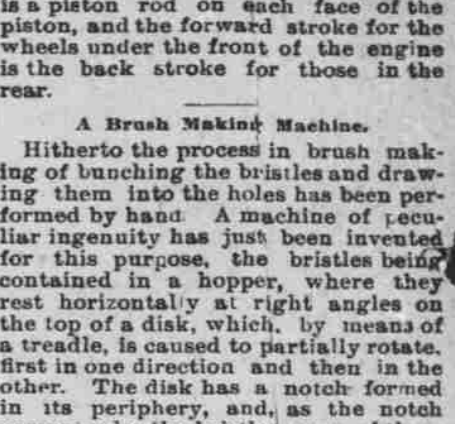
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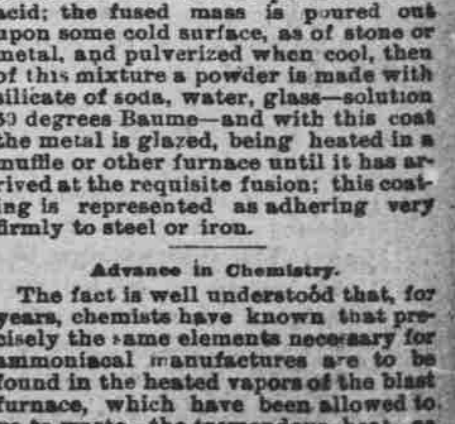
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## Advance in Chemistry.

The fact is well understood that, for years, chemists have known that precisely the same elements necessary for animal and vegetable life are to be found in the heated vapors of the blast furnace, which have been allowed to go to waste—the tremendous heat, as Prof. Markie puts it, seeming to negate their utilization, but under pressure of necessity a means to that end has been found which, it is declared, is a commercial success. In Scotland, especially, the progress within a comparatively short time has been very rapid in this line, a host of new uses of the furnaces in that country having been "capped," the heated gas being carried through miles of condensers and the products saved. The magnitude and value of this important advance in chemistry may be judged by the fact that the plant to reclaim the waste products is greater in cost than the blast furnace itself, and in some of the furnaces the big iron is in reality the waste product, while the tar and gas products are of great value.