

minutes the silver is reduced and precipitated on the article to be metal-plated, and the process of electroplating in the ordinary manner may then be taken up.

FURTHER NOTES ON THE STAR AND CRESCENT.

BY LT.-COL. C. FIELD, R.M.L.I.

A good deal might be added to the interesting little article on the "Origin of the Star and Crescent," which appeared in the *SCIENTIFIC AMERICAN* for May 9, 1908. For instance, it is related in the Book of Judges (viii, 21-24) that Gideon took from Zebah and Zalmunnah, kings of Midian, ornaments like the moon that were on their camels' necks. The Midianites were Ishmaelites and thus ancestors of the Turks, so it is not improbable that the symbol was derived from them and in use long before the taking of Constantinople in 1453. What lends some confirmation to this theory is the fact that Richard Cœur-de-Lion adopted this badge after he returned from the Crusades, having assumed it, it is said, in commemoration of the victory which he with his galleys gained over the great Turkish dromon off Beyrout in the year 1191. This, practically the first English naval victory, was celebrated both in song and history by the chroniclers of the period. They seem to have been greatly impressed with the enormous size of the Turkish ship, which must have been a very "Dreadnought" of her day. She was bigger, they say, than anything ever seen at sea, gaudily painted in yellow and green, and carried no less than 1,500 men, among whom were seven Emirs, and 80 chosen Turks, for the defense of Acre, and was laden with bows, arrows, Greek fire in jars, and "two hundred most deadly serpents prepared for the destruction of Christians." Possibly these "serpents" were a species of firework or rocket. The "serpentine" was a very early and very small piece of ordnance. King Richard's galleys attacked her in vain for a long time, as their crews could not climb up her lofty sides despite the encouragement held out to them by their royal leader, who promised to crucify the last man to board her. Eventually several galleys drew off, and putting on full speed rammed the big dromon together in the same spot with such effect that she began to sink. The English were now able to get possession of her and to throw overboard and drown the remainder of her crew according to the pleasant custom of the days of chivalry.

Portsmouth at this time was, as now, one of the principal naval ports, and when in 1194 King Richard set sail from thence at the head of a fleet of 100 ships, he as a special honor bestowed the royal crescent badge upon the town as its coat of arms. "A crescent of gold in a shield azure with a blazing star of eight points or rays of silver between its horns" is the exact description of the device which to this day meets the eye everywhere in the municipality. Thenceforward, too, the crescent and star became the official badge of the admiralty and was used as such up to the year 1545, when it was superseded by the anchor. The old badge is thus described by a writer in the reign of Henry VIII: "Ye Badge of Ye Admyraltye ys a Cresante with Burninge Fyre."

Possibly the old badge is accountable for the constant recurrence of the name "Crescent" for a ship of war, not to mention the "Moon," in Elizabeth's navy, Hudson's "Half-Moon," and the "Three Half-Moons" of Portsmouth, captured by the Turks in 1563.

The crescent, too, is frequently met with in English heraldry, being generally used to denote the second sons of families, and there have been more than one Christian Order of the Crescent, notably that founded by Charles I, King of Naples, in 1268, and another instituted by René Duke of Anjou in 1448, neither of which, however, had a very long existence. The Turkish Order of the Crescent was of very much later date; not being instituted before 1799, the famous Lord Nelson in 1801 being the first person to receive it.

In addition to its official use as a badge and in heraldry, the crescent and star, according to Boutell ("Monumental Brasses and Slabs"), would appear to have been a favorite device in England. He is inclined to think that it may have been connected with Masonry. He mentions a monogram upon a brass in Cambridgeshire which he supposes to be that of the artist by whom it was executed. "It consists of the letter N, above which is a mallet having on one side a half-moon and on the other a star or sun. It is worthy of remark that the same device (without the letter) is found on a seal attached to a deed of the 5th of Edward I, wherein one Walter Dixi, Cemenarius de Bernewelle, is conveying certain lands to his son Lawrence." The half-moon and star also appear upon a brass in Trunch Church, Norfolk, and, says Boutell, "is continually found in both public and private seals." It seems possible that what the writer terms a "mallet" may be intended for a cross which in combination with the crescent and star may have some special religious significance.

Over in Ireland, still further to the west, this eastern emblem has left its mark. The crescent and star is to be seen among the carved decoration over the

stalls occupied by the dean and precentor in St. Patrick's Cathedral, Dublin, and in the old cathedral was on the eastern side of the whole of the prebendal stalls. This device is said to be traceable to King John's connection with the cathedral, that monarch, as well as his successor Henry III, having adopted the royal badge assumed by Richard Cœur-de-Lion and which, according to some authorities, represented the Star of Bethlehem between the horns of the Mussulman crescent. Thus we find the star and crescent on King John's Irish coinage. A peculiar ornament representing the crescent and star in a different context was dug up in Dublin in 1884 and may possibly date from the days of King John. From its appearance it evidently was intended to be hung to some trapping or other, very likely in combination with many others of a similar pattern and altogether it is very reminiscent of the "ornaments like the moon" that the Midianites long, long ago hung round their camels' necks as related in the Book of Judges.

THE KAISER'S SILVER FLOTILLA AT THE BERLIN SHIPBUILDING EXHIBITION.

Berlin is to have an exhibition illustrative of the art of shipbuilding. The German Emperor, who is greatly interested in the enterprise, will be an exhibitor. The Emperor's exhibit will consist of fifteen solid silver models of ships and yachts and a number of sailing prizes won by him. Each of the models exhibited represents a definite type of sailing craft of past centuries. A viking's war barge, dating from about 900, is the oldest. The craft that it was patterned after was 95 feet long and 16½ feet wide, was of 50 tons displacement, had a sail surface of 70 square meters, and her complement was 80 men. The model coming next in age is a Norman ship of the twelfth or thirteenth century and of almost twice the above magnitude. Then there is a galley, from the Mediterranean, a Hanseatic "cog," a Hamburg convoy ship, and the English man-of-war, "Great Harry," of the thirteenth to sixteenth century era. Germans will be particularly interested in the model of the first important Brandenburg-Prussian war frigate, bearing the imposing name of "Mounted Prince-Elector Frederick William." This model weighs upward of 58 pounds, and was a silver-wedding present to the Emperor from the Shipbuilding Society on February 27, 1906. Not less interesting is the model of the most famous of sailing ships, the "Victory," the flagship of Admiral Lord Nelson, on which this naval hero met his death in the moment of victory at the battle of Trafalgar, October 21, 1805. A model of the schoolship "Grossherzogin Elizabeth" represents the modern sailing type of the twentieth century. Four other models show the "Welle," "Romet," "Iduna," and "Meteor," sailing yachts. There is also a model of a Chinese war junk, a present from Prince Henry, and a lifeboat of the German Life-Saving Society, with complete regulation outfit, which completes the collection.

OFFICIAL METEOROLOGICAL SUMMARY, NEW YORK, N. Y., JUNE, 1908.

Atmospheric pressure: Highest, 30.38; lowest, 29.81; mean, 30.04. Temperature: Highest, 93; date, 24th; lowest, 56; date, 3d; mean of warmest day, 80.5; date, 24th; coolest day, 64; date, 3d; mean of max. for the month, 80.2; mean of min., 63.0; absolute mean, 71.6; normal, 69; excess compared with mean of 38 years, +2.6. Warmest mean temperature of June, 72, in 1888, 1892, 1899, 1906. Coldest mean, 64, in 1881, 1895. Absolute max. and min. for this month for 38 years, 97 and 45. Average daily excess since January 1, +1.5. Precipitation: 1.70; greatest in 24 hours, 1.63; date, 15th and 16th; average of this month for 38 years, 3.21. Deficiency, -1.51. Accumulated excess since January 1, +2.52. Greatest June precipitation, 7.70, in 1887; least, 0.86, in 1894. Wind: Prevailing direction, south; total movement, 6,852 miles; average hourly velocity, 9.5 miles; max. velocity, 42 miles per hour. Weather: Clear days, 13; partly cloudy, 15; cloudy, 2; on which 0.01 inch or more of precipitation occurred, 6. Thunderstorms, 15th, 23d, 24th, 29th.

THE CURRENT SUPPLEMENT.

The current SUPPLEMENT, No. 1697, opens with an illustrated article on the South African stope drill competition, which will net the two winners \$20,000 and \$5,000, respectively. Prof. C. V. Boys explains the theory of Diabolo. In the twenty-first installment of his "Elements of Electrical Engineering," Prof. A. E. Watson discusses protective apparatus. With the object of illustrating in a condensed form the value of far as a by-product to both the gas and coke industries, Carroll Miller gives a résumé of the many products which can be manufactured from coal tar. Moving pictures have conquered the theaters of the world. For a few cents one can witness miracles. How these miracles are performed is entertainingly set forth in an instructive article by Gustave Babin, with the help of many amusing pictures. A cooling installation for hot countries is

described by Dr. Gradenwitz. Our Paris correspondent concludes his article on Korn's new telephotographic system.

NO AWARD OF THE PRIZE FOR HUMANE SLAUGHTERING.

No award will be made for some time in the competition for a humane slaughtering device for which a prize of \$500 was offered by the American Society for the Prevention of Cruelty to Animals. Of the numerous inventions submitted in the competition, none came within the exact provisions of the competition. A large consignment of new inventions is expected from Europe in a few days, and will be given a complete and careful trial before a final report is published.

Some progress has been made from the very fact that general attention has been directed to the subject, and the committee hopes within a short time to determine which, if any, of the inventors is entitled to the \$500.

The competition was instituted by the A. S. P. C. A. in these words: "Painfully conscious of the cruelties inflicted upon animals by the present methods of slaughtering, and desirous of preventing, as far as possible, the sufferings of animals at the moment of giving up their lives for the benefit of mankind, the American Society for the Prevention of Cruelty to Animals, through its board of managers, offers a reward of \$500 for the device or apparatus not now in use which will best accomplish the humane destruction of animals for food purposes."

As a result a great number of models and drawings were submitted prior to June 1, on which date the entries were closed.

Some years ago a German woman offered a reward of \$3,000 for the best method of killing food animals, and this had proved a great stimulus to invention. Then the German government undertook the supervision of all abattoirs, as the American government has since done, appointing specialists of distinction to various posts created for safeguarding both humanity and the dumb creatures, taking the advice of skilled veterinarians, and compelling the strictest observance of the laws enacted to govern abattoirs. Among other inventions the "Behr pistol" was brought forth as an instrument for quick and humane destruction, and this weapon is now generally employed throughout the German empire.

In France, where government supervision is now equally strict, what is called the "Bruneau mask" is placed over the head of the animal to be slain, buckled behind the ears, and a blow from a mallet drives a chisel held in the mask into the animal's brain, causing instant and painless death.

In Spain the spine of the animal is severed with the thrust of a spear, and this is the method in Cuba and other Spanish speaking countries, except that a dagger is sometimes substituted for the spear.

In Great Britain, where the matter of a reform in abattoir methods was agitated some years ago by the Royal Humane Society, an admiralty commission was appointed to make an investigation, and in due time this commission reported in favor of the pole ax, which is also employed in Austria-Hungary.

In no other country on earth which makes a pretense of civilization do such methods as those now in use in America prevail.

An amazing variety was shown in the devices submitted in this competition. The guillotine idea had obsessed many of the inventors, but it was adapted to the use of the abattoirs in several instances with great ingenuity. Rapidity is a prime essential in the big packing houses. The guillotine is not fast enough.

Aeronautical Notes.

The new Bleriot monoplane at its first trial on June 29, made a flight of 600 meters (1,968 feet).

After remaining 6¼ hours in the air during its second test on June 29, the new airship "Zeppelin IV." two days later made its first real voyage. On this occasion, starting out at 8:30 A. M. from its floating shed on Lake Constance at Friedrichshaven, the airship rose to a height of about 1,000 feet and laid its course for Zurich, passing over Constance, Frauenfeld, and Winterthur. At Zurich it circled around the cathedral, and then turned southward toward Lucerne, which was reached at 12:30. After performing a series of evolutions above Lake Lucerne, the airship made a circuit of it and then, heading northward, started on its return journey. Lake Constance was reached again at 6:30 P. M., and then the dirigible made a trip to Bregenz in Austria-Hungary. Upon its return to Friedrichshaven it executed various evolutions above the town and descended to within 100 feet of the roofs of the houses. The voyage lasted 12 hours, and the distance covered was about 248 miles. The airship developed a speed of 34 miles an hour. Its greatest elevation was 2,460 feet. Count Zennelin expects to make a 24-hour voyage to Mayence and back soon. Upon the making of this trip depends the purchase of the airship by Germany for \$500,000.