

THE MUMMIFICATION OF CATS IN ANCIENT EGYPT.

BY W. S. HARWOOD.

While the Egyptian children no doubt had as great regard for cats as the children of to-day, the parents had a still higher regard, rising into worship. So great was this regard that the cats came to be looked upon as sacred, and cat worship became a part of the religion of the race, while this worship found expression in great temples erected in honor of the cats who died. Shaving the eyebrows on the death of a cat in the family was a favorite means of showing the distress of the household.

So it was but natural to believe that in the future life the cats would live again with their young masters and mistresses, contributing to their happiness in the celestial land. On the death of the tabby, all due ceremony was observed, and with tender care she was embalmed and placed with the mummies of her family. You may see such mummies in the British Museum, wrapped in their cerements, fo'ld upon fo'ld enswathing the body with as great solicitude as though it were the body of the child who had owned the cat for its companion.

The cases in which the cats were placed after embalming were capital representations of the cat in life. Many of them were of carven wood, remarkably lifelike affairs, the form and even the individuality of expression being admirably preserved. Now and then some cat belonging to some more aristocratic family, when it departed for the heavenly cat land, received a case of bronze, beautifully ornamented and in all ways more in keeping with the standing of the family. Some of the cat cases are curiously decorated, and some of the faces are fitted out with queerly made eyes, inlaid with obsidian, or rock crystal; others are done in colored paste, the effect frequently being decidedly grotesque. The object in giving eyes to the case was that the spirit cat might have an opportunity to look out. An opening down the center of the case divided it into halves, so that the cat, when embalmed and ready for her last long journey to the land of the blessed, could easily be inclosed.

I found it quite difficult, indeed, impossible, to get a good light upon the darkish corner where the mummied cats were kept, for a London fog was abroad, and London, even at its brightest, is not a photographic paradise; but with some care and patience the cats came out of their sleep of the centuries and consented to show themselves to the camera.

The utmost care was given to these friends of the little children, that their lives might be prolonged to a ripe old age. Their food was prepared so that they might not only receive the most gustatory pleasure possible, but so that they might be richly nourished. One favorite dish was bread soaked in milk and mixed with chopped fish; surely no more tempt-

ing viand could be placed before the most exacting feline. In many cases, cats were kept in and about the temples which were sacred to the many gods of Egypt, and greater care could not have been given to human beings than that which was accorded to the cats. In



MUMMIES OF CATS IN THE BRITISH MUSEUM.

the current SUPPLEMENT the Mummification of Children is described.

A NEW method has been brought out for lighting incandescent gas-burners of the Welsbach type, by which the accidents, due to the use of alcohol or gasoline, are avoided. It has been introduced by the French company which controls the Auer system of burner, and consists essentially of a small metal box in which is placed a plate composed of platinum sponge or platinized asbestos; this has the property of becoming incandescent upon contact with the gas, and is thus utilized for lighting it. The box is fixed upon the end of a metal rod, after the same manner as the gasoline reservoir formerly used; in the case of burners placed upon high posts a long pole is used, containing at the end the usual arrangement for turning on the gas.

UNITED STATES BATTLESHIP "GEORGIA" AND CLASS.

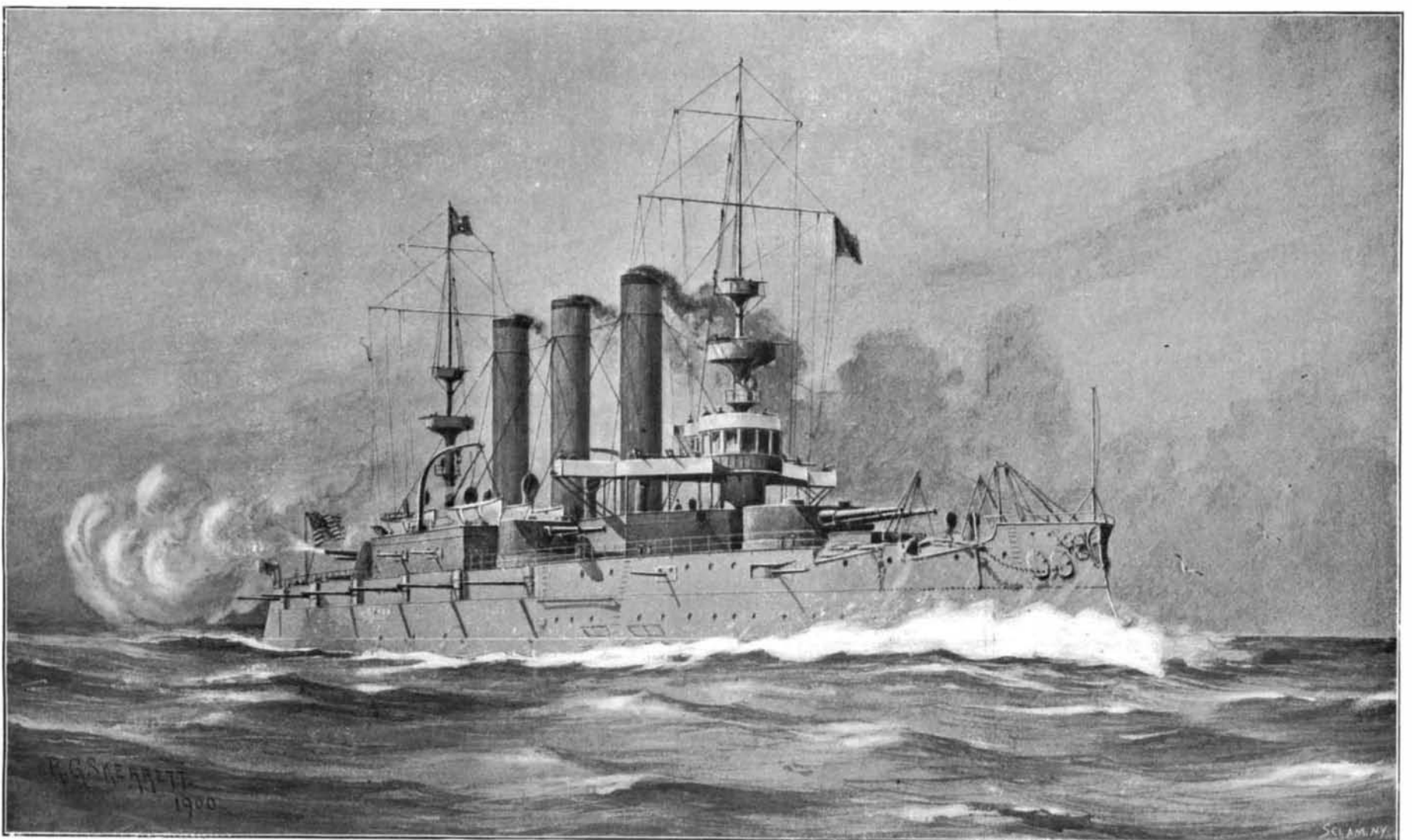
Whatever doubts the public may have had during the past fourteen months as to the character of battle-ships to be turned out under the act of March 3d a year ago, they are now dispelled by the circular recently issued to the various bidders by the Navy Department. From it we learn that the "Georgia" and her classmates, the "Pennsylvania" and "New Jersey," are to be ships of which any nation may well be proud and the fighting peers of any of their class built or building anywhere in the world. The general features and principal dimensions are:

Length on load water line.....	485 feet.
Beam, extreme, at load water line.....	76 "
Trial displacement.....	14,650 tons.
Mean draft at trial displacement.....	24 feet.
Greatest draft, full load, about.....	25 "
Coal carried on trial displacement.....	900 tons.
Coal bunker capacity.....	1,900 "
Maximum indicated horse power.....	19,000 "
Speed, contract, per hour.....	19 knots.
Complement, officers, seamen, and marines.....	708

The ships will have the usual double-bottom and water-tight compartments. All fire mains will be carried below the protective deck, with risers leading therefrom up to the stations on the decks above. Woodwork will be fireproofed and will be limited to the indispensable minimum. The only planked deck will be the main deck, and the planking will be laid over a complete metal deck. The other decks in the living spaces will be covered with linoleum. The freeboard of the ships will be 20 feet, and will extend uniformly from bow to stern, yielding, especially, better accommodations for the officers—allowing their quarters to be placed without the armored region, thus permitting air-ports and natural ventilation in each state-room. The space in the superstructure will also be turned to advantage.

The armor protection to the hull will consist first of a complete water-line belt, which will have a maximum thickness of 11 inches amidships, and will taper to 4 inches at the bow and stern. Above this belt there will be a 3-foot cellulose belt reaching completely around the ships.

Above the main belt, for a distance of 245 feet, the space occupied by the main, broadside and rapid-fire battery of six 6-inch guns, the sides will be guarded by 6 inches of armor, reaching all the way up to the main deck, on which are the turret guns. This upper and lower casemate armor turns inboard diagonally, and terminates against the forward and the after 12-inch barbettes, but the lower course, reaching from the protective up to the gun deck forward, is inclined—forming a stout glacis to oppose an enemy's raking bow fire. There is a continuous protective deck from bow to stern. On the flat, over the engines and boilers, it will be 1½ inches thick, and on the slopes, from



Displacement, 14,650 tons. Speed, 19 knots. Maximum Coal Supply, 1,900 tons. Armor: Belt (continuous), 11 inches to 4 inches; gun positions, 11 inches to 6¼ inches; deck, 1¼ to 3 inches. Armament: Four 12-inch B. L. R.; eight 8-inch B. L. R.; twelve 6-inch rapid-fire guns; twelve 8-inch rapid-fire guns; twelve 8-pounders; eighteen automatic and machine guns. Torpedo Tubes, two (submerged). Complement, 708.

UNITED STATES BATTLESHIP "GEORGIA" AND CLASS.

the barbettes forward and aft to the bow and the stern, respectively, it will be 3 inches thick and decidedly curved. The forward end terminates in the ram.

The main battery will be composed of four 40-caliber 12-inch breech-loading rifles and eight 45-caliber 8-inch rifles mounted in pairs in six turrets. The 12-inch turrets and barbettes will have a general thickness of 10 inches, with port plates of 11 inches. These turrets will be of the elliptical and balanced type. The 8-inch turrets and barbettes will be generally 6 inches thick, with port plates of 6½ inches. They will be circular and balanced. The face plates of all of the turrets will be flat and sharply inclined, so as to afford an elevation of twenty-odd degrees, greatly increasing the possible bombarding range of these pieces.

The secondary battery, or main rapid-fire battery, will consist of twelve 50-caliber 6-inch rifles, housed behind 6 inches of armor and carrying heavy shields. Each pair of guns will be separated by a 2½-inch nickel steel splinter bulkhead. These guns are arranged in recessed ports, which permit of the guns being turned in pairs, within the side line—one of each pair turning aft, while the other turns forward. These guns have arcs of fire of 110 degrees. The 12-inch guns train through arcs of 270 degrees, while the 8-inch guns train from dead ahead or dead astern back toward the beam through arcs of 145 degrees. The ammunition hoists will be under electrical control, as will also be the rammers, the elevating gear and the ventilating fans for the turrets.

Based upon the rate of ammunition supply, the 12-inch guns will each be able to fire every minute and a half, the 8-inch guns every fifty seconds, and the 6-inch guns three times a minute. Each of these pieces is vastly superior to the same guns of older caliber on any of the finished battleships, both in power and rapidity of fire. The auxiliary battery will be composed of the following high-powered pieces:

3-inch (14-pounder) rapid-fire guns.....	12
3-pounders.....	12
1-pounders (automatic).....	4
1-pounders (single-shot).....	4
3-inch field guns.....	2
Gatlings.....	2
73-caliber automatics.....	6

Four of the 14-pounders will be mounted on each side of the gun deck, two forward and two aft of the 6-inch battery, while the four remaining, two on each side, will be mounted in broadside up in the superstructure on the main deck. All of the 14-pounders, besides their shields, will be sheltered behind broad plates of 2-inch armor. Two of the automatic 1-pounders will be placed in each of the lower military tops, and two of the single shot 1-pounders will be mounted in each of the upper tops. The other small rapid-fire guns, excepting the field pieces, will be mounted on the bridges and advantageously on the superstructure deck. There will be two submerged torpedo-tubes located well forward of the beam, and the firing stations, which will be directly overhead on the deck above, will be guarded against rapid-fire shot up to 6 pounds. The ships will each be driven by triple expansion engines actuating twin screws. These engines will be of the four-cylinder type and they are expected to make 120 turns a minute when developing the maximum 19,000 indicated horse power. Twenty-four straight-tube, water-tube boilers will supply the steam at a working pressure of 250 pounds to the square inch.

With her bunkers full, either of these ships, consuming about 75 tons of coal daily when jogging along at a ten-knot cruising speed, will be able to do at least 6,000 knots of uninterrupted steaming. They will carry three months' stores and provisions.

Thirty-six months is the maximum time which will be allowed in which to build the ships. There will be no speed premiums; but \$50,000 a quarter knot will be deducted for speeds below 19 and not less than 18½. From 18½ to 18, \$100,000 a quarter knot will be deducted, while below that, the department may either reject or purchase at its own figure.

ACCORDING to the experiments of Valenta, it appears that red glycid is an excellent sensitizer for the blue-green rays. This product enters into the composition of a bath which is added to the ordinary gelatinobromide emulsion for the preparation of panchromatic plates. The bath is prepared according to the following formula:

Alcoholic solution of cyanine, 1 to 500.....	3 c. c.
Alcoholic solution of erythroine, 1 to 500.....	2 c. c.
Alcoholic solution of saturated glycin.....	10 c. c.

The mixture is incorporated into the emulsion at the moment of applying it to the plates. The experiments seem to prove that by the use of these plates the rendition is exact for all the radiations which extend from the red to the violet of the visible spectrum.

As the Dneiper River takes a southwesterly direction in order to discharge itself into the Black Sea, it passes a succession of rapids, and it is proposed to utilize the power of the rapids for the generation of electricity.

Paris Exposition Notes.

The United States pavilion at the Paris Exposition was opened to the public on May 12 with appropriate ceremonies and a formal reception in which the United States was congratulated upon the splendid showing made at the Exposition.

The total number of entries to the Exposition for the 10th of May has been 73,565, including the Vincennes Annex, of which at present the entries of workmen make up the principal part. The entries by ticket reached 35,471, those by card, 21,009 and the entries of service 14,085. At this date the admission has been established as follows: From 8 to 10 A. M., two tickets; from 10 to 6, one ticket; from 6 to 11, the closing hour, two tickets. The price of tickets is 12 cents.

The electric railroad and the elevated moving platform, which are among the attractions of the Exposition, are furnished with current by a handsome station erected within the grounds of the Westinghouse Company. This is located near the series of national buildings along the Seine. The station contains two sets of Westinghouse dynamos, one of these being used as a reserve. Each set includes a three-phase motor direct-connected to a direct current generator of 650 kilowatts, giving 500 volts, and a rotary current of 450 kilowatts, which transforms the current at 5,000 volts received from the central station at Moulineaux to 500 volts. A handsome marble switchboard of 13 panels occupies the central part of the station, and contains the devices for operating the road and platform. The station contains also six transformers of 120 kilowatts each and two small generating sets. A number of the machines intended for this station were on board the missing vessel "Pauillac," but other machines have been procured, and, owing to American enterprise, the station was running as early as the 10th of April. It has supplied most of the current for lighting the grounds, while waiting for the large dynamos in the Electrical Palace.

A new type of phonograph is shown at the Paris Exposition, this being the invention of a Danish engineer, Valdemar Poulsen. It works upon an entirely new principle, and the record, instead of being made in wax by a stylus, is made upon a steel wire by the action of a magnet. A cylinder is wound full of steel wire about one millimeter thick, the wires touching each other. In front, in a position analogous to that of the stylus, is a small electromagnet whose polar ends are brought out and are reduced to a small diameter to embrace the upper half of the steel wire. It is supported upon a horizontal rod, and the lateral motion obtained by a guide which travels between the wires. The magnet is connected with a telephone transmitter and battery, and the sound waves cause a variation in intensity of the electromagnet, and this in turn acts upon the steel wire passing before it, leaving a permanent impression. When the action is reversed, the wire reacts upon the magnet and the sound is heard in the telephone. The magnetic trace may be obliterated by passing a continuous current in the electro-magnet and turning the cylinder. The apparatus is to be seen in the Danish exhibit, and will be in working order within a short time; another form will be shown, in which the record is made upon a thin steel band wound upon a drum.

The University of Paris has an important exhibit in the Palace of Letters, Science and Art, containing a number of reproductions of photographs of the moon and of the heavens, covering a wall space of 18 meters long by 4 high. The large photographs of the moon are especially fine, and are presented to the public for the first time. They have been taken by Messrs. Loewy and Puisseaux with the large telescope of the observatory; the photographs are shown in small size in order to appreciate the fineness of detail obtained by the instrument, then a series of browse enlargements is shown by which they are more clearly seen. One of the remarkable photographs is that obtained by taking two plates of the moon at ten and at twenty days after new moon; these have been enlarged sixty times the surface; and placed side by side with great care, the result being an image of the whole hemisphere of the moon with a direction of light which brings out the relief and shows the details of the craters and mountainous region in a striking manner. Messrs. Loewy and Puisseaux have developed their ideas upon the formation of the moon, as deduced from the photographs, in four memoirs which form a part of the exhibit, and to illustrate this are a number of photographs in which the details have been greatly enlarged. The Observatory of Paris, which has undertaken the map of the heavens in connection with other observers, has obtained for this a fine series of photographs with new equatorial of 18 meters focal distance, and has already published 117 sections of the map, containing 50,000 stars. Two of these sections are shown, enlarged to one square meter; each plate is exposed three times, being slightly moved, thus giving three images of each star to avoid errors. Another star-map shows a part of the ecliptic and belongs to a series taken at the observatories of Paris and of Algiers. Besides these is to be seen a photograph of the spectrum of Sirius taken by Prof. Henry.

Automobile News.

An automobile service has been started between the Senegal and the Niger. The automobiles are run by Frenchmen and are of French make.

M. Krieger at present holds the record of electric automobiles, having covered a route of 152 kilometers at 16 kilometers per hour, without recharging the batteries. In all probability this record will be contested in the near future by Messrs. Bouquet and Garcin, who have lately made a trial trip with an automobile of their manufacture, from Paris to Evreux. It appears that they have covered the distance, forward and back, in 11 hours 15 minutes, which makes a speed of a little over 16 kilometers per hour. There is no doubt that an official contest will be made shortly over the route Paris-Dijon, which has been generally selected for this purpose.

There have been several serious accidents recently with automobiles in New York city. A doctor's page was killed by a head-on collision with an automobile. The boy was riding on a bicycle. One of the most prominent citizens of Binghamton was thrown from a runaway automobile, and sustained fatal injuries. The machine began running from side to side, refusing to respond to the controlling lever. When it reached a speed of 30 miles an hour it struck the curb, throwing the two occupants out. The machine continued its erratic course down the street, and was finally stopped by obstructions thrown in front of it by pedestrians. The wheels continued to churn the air for some time; the vehicle itself was not injured.

The motor car exhibition, which was held in London for a week from April 16th to the 21st, was a bitter disappointment to the hundreds who are now interested in the question of automobilism. Many of the stands were empty, but atonement was somewhat made for this deficiency by the comprehensive exhibits by several well known firms, such as the Daimler. At the close of the exhibition, a race was run upon a triangular course, through Great Britain, a total distance of 1,000 miles. This great trial was organized by the Automobile Club of Great Britain and Ireland and some eighty cars entered the contest. The object of the trial is to see how many types of British motors were in existence that were able to stand the test of such a long journey.

M. G. Pierron, president of the road committee of the Automobile Club of France, has recently published a year-book of routes which presents many points of interest. After giving information as to custom-house regulations to which the various types of automobiles and moto-cycles are submitted in the different countries of Europe, the year-book gives a number of formulae and instructions of different kinds; then follow the rules for the circulation in the city and on the road. The year-book proper contains a list of all the towns and villages in the country, arranged in alphabetical order, with conventional signs to indicate the size and nature. The nearest railway station is indicated, also the existence of post-offices, telegraph and telephone services. Another series of signs show whether doctors or druggists are to be found in the locality, with indications as to hotels, etc. Mention is made of the places where gasoline may be procured, with indications of the different brands. The list gives also the distances from Paris and the number of inhabitants. This volume will no doubt prove of great service to automobilists.

The fourth annual Criterium race of moto-cycles has been one of the important automobile events of the season in France. It took place on the 10th of May, over the route from Etampes to Chartres and back, covering a distance of 100 kilometers. The weather was very favorable, and the race was carried out successfully; of the fifteen runners all but one came back to Etampes without difficulty. The results for this year show remarkable speeds, that of Marcellin, the winner, being 1 h. 24 m. 58½ sec., with a moto-cycle of two cylinders; the second speed was made by Baras, also with a two-cylinder machine: 1 h. 25 m. 8½ sec. Beconnais came third with 1 h. 27 m. 25½ sec., after having made the best time from Etampes to Chartres, or 50 kilometers in 37 m. 24 sec. The record made by Marcellin is inferior to that of Beconnais over the Arles-Salon route, 1 h. 22 m. 34½ sec., but far surpasses any yet made over the present route. The record of last year, made by Teste in 1 h. 56 m. 32½ sec., is not only beaten by 32 minutes by Marcellin, but also by eleven of the fourteen arrivals, showing the remarkable progress made by the moto-cycles. These three runners have carried off the honors of this year; Marcellin is victor in the Pau races, Beconnais in those of Nice, and Baras at Paris-Roubaix. In order to show the progress made in the last four years, the figures for the four Criterium races may be compared:

1897.....	Viet.....	3 h. 9 m. 5½ sec.
1898.....	Bardin.....	2 h. 21 m. 47½ sec.
1899.....	Teste.....	1 h. 56 m. 32½ sec.
1900.....	Marcellin.....	1 h. 24 m. 58½ sec.

The figures show the remarkable increase in speed due to the constant improvement of the moto-cycles.