

This is the theory of the katatype. Its practice is as follows:

The negative is flowed with an ethereal solution of peroxide of hydrogen. The peroxide is instantly decomposed more or less completely wherever it comes in contact with the silver film, and the evaporation of the resulting water leaves on the plate an invisible picture in unaltered peroxide which is densest where the negative is least dense, and is therefore a positive. As peroxide of hydrogen is both an oxidizer and a decolorizer and lends itself to many chemical reactions, the subsequent processes are of great variety. The simplest consists in transferring the picture by slight pressure to gelatine-coated paper which is flowed with ferrous sulphate, washed, and treated with gallic acid, the result being a dark-violet and very permanent picture—in fact, a picture in writing ink. Other tones may be produced by using various solutions in place of gallic acid. In another process the ferrous sulphate is replaced by a solution of manganese, the result being a picture in peroxide of manganese which may be toned in various ways. Or the invisible picture may be transferred from the negative to gum or gelatine pigment papers, not sensitized with bichromate, and developed in ferrous solutions.

The production of ferric salts in proportion to the density of peroxide makes the shadows insoluble and the lights are washed away with warm water in the usual way.

A similar process is employed for the production of gelatine plates for printing in lithographic ink.

The advantages claimed for the katatype are that it makes the photographer independent of the uncertainty of natural, and the inconvenience and expense of artificial light, and that it dispenses with all sensitized and therefore perishable papers.

The result is the same whether the plate is flowed in bright sunlight or in absolute darkness.

**NAMING THE VESSELS OF THE NAVY.**

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To the man-o'-war's man there is nothing about a ship so pregnant of meaning as her name. If the name is new, it is bright with hope; if old, proud with tradition. It looks as if we must soon return to our old service names, each one comprising in its less-than-a-dozen letters a bit of history fraught with courage, bravery, peril, fortitude, and right. The "Constitution," "Bonhomme Richard," "Hartford"—these mean a lot to the men that go to sea in the white ships with the long pennant.

Our law requiring us to give the names of States to ships of the first rate was a very wise law. When it was passed by Congress, the navy needed to be popularized, and since that time we have risen from nowhere on the list of sea powers to fifth in rank. But now of the names of States but five remain to be used, Utah, Delaware, North Carolina, South Carolina, and North Dakota. Consequently, the opportunity is now presented of reverting to the old names. Everybody seems to want them; and everybody knows them. In foreign navies the names of old ships are always perpetuated. In the British navy to-day we find some of the names of vessels that drove back the Armada. Think of it! And yet our own names are no whit less glorious. For our larger ships we could take the old frigate names, "Bonhomme Richard," "Constitution," "Constellation," "United States," "Essex." These bore the pennants of John Paul Jones, Hull, Truxtun, Decatur, Porter. They should be memorialized in the steel and steam navy of to-day. Why not? And just as well-known heroes flew the flag on board sloops and smaller craft. Now which is better—to keep our old names in the service, or keep on naming our cruisers and smaller craft after towns and cities? Why not name at least half of them after our old friends of 1776 and 1812? These names, for instance, should never be missing from our list: "Andrea Doria," "Alfred," "Ranger," "Raleigh," "Saratoga," "Alliance," "Enterprise," "Boston," "Hornet," "Wasp," "Peacock," "Niagara," "Eagle," "Ticonderoga." All of these and all the frigate names are the names of victors in sea fights. Then there are old honored names in the navy such as "President," "Hancock," "George Washington," "Congress," "Lexington," "Potomac," "John Adams," etc.

Names which stir up the most inspiring memories are those of vessels captured from the enemy or destroyed in open battle. These form an actual record of our past success.

Look at the big English ships with French names—the "Impérieuse," "Achille," "Pomone," "Barfleur," "Sans Pareil"—every one a Frenchman captured. And they even have our own "Essex" and "President" on their list; and as we still have on our list the "Alert," "Detroit" and "Boxer," taken from them. Now, what a glorious idea this is! Think of five battleships with the British names (frigates) "Serapis," "Guerriere," "Macedonian," "Java," "Constance," and the French "Insurgente;" in addition to the lately acquired names in Montojo's and Cervera's squadrons. These should be applied to our larger ships. For our small-

er ships we could be supplied from our long list of other captures. Those taken in hard-fought fight should come first, however. The chief of these are "Racehorse," "Drake," "Countess of Scarborough," "Savage," "General Monk," "Queen Charlotte," "Lady Prevost," "Epervier," "Cyane," "Levant," "Linnet," "Reindeer," "Penguin," "Nautilus," from the British; the "Berceau" from the French, and the "Daniel Webster" and "Lancefield" from the Japanese. Strange names, these last, for Japanese ships, but read about MacDougall in the "Wyoming" in 1863, and see what American sailors have done when boldly and skillfully led. Our list of captures is so large that we would never reach the end of it. From the British alone in equal combat we have caused the surrender of 5 frigates, 29 sloops and brigs, and 23 small craft, to say nothing of privateers—British, French, and Tripolitan. Of all our captures, there are at present on our navy list but five. "Detroit" (British flagship at Lake Erie), and the "Jason," "Frolic," "Boxer," and "Alert."

It is something to remember that ours is the oldest man-of-war flag now afloat. It was adopted in 1777. Next in age comes the man-of-war ensign of Spain (1785), then France (1794), Great Britain (1801), Portugal (1830), Italy (1848), and Germany (1871).

Now this subject of ships' names does not end here. There is a curious custom in our own and the British service. Whenever one of us lost a ship to the other, the name of that ship was not lost but was promptly applied to another ship, even though the captor might have adopted the new name.

On our own list to-day we have "Vixen," "Eagle," "Rattlesnake," "Scorpion," "Essex," "Raleigh," "Chesapeake," "Ohio," "Somers"—every one of these has been taken from us by the British. Likewise the British have the "Hawke," "Alert," "Druid," "Magnet," "Jason," "Boxer," "Hunter," "Reindeer," "Avon," "Constance," "Linnet," "Penguin," "Racehorse," "Caledonia"—every one of these we captured from the British. Some of our captures from the British, it will be noted, had been taken from the French, such as the "Guerriere," "Cyane," "Epervier," "Constance," "Trépassé." The following list shows what captured names we are entitled to:

From British: "Edward" (7), "Racehorse" (12), "Mellish" (10), "Druid" (14), "Drake" (20), "Serapis" (50), "Countess of Scarborough" (22), "Atalanta" (16), "Trépassé" (14), "Savage" (16), "General Monk" (20), "Little Belt" (22), "Guerriere" (38), "Frolic" (22), "Macedonian" (38), "Java" (38), "Peacock" (20), "Boxer" (14), "Detroit" (19), "Queen Charlotte" (17), "Lady Prevost" (13), "Hunter" (10), "Little Belt" (3), "Chippewa" (1), "Epervier" (18), tender to "Tenedos" (1), "Reindeer" (19), "Avon" (18), "Constance" (37), "Linnet" (16), "Chubb" (11), "Firsch" (11), 12 gunboats (17), "Penguin" (19), "Cyane" (34), "Levant" (21), "Nautilus" (14), a schooner (10), "Detroit" (6), "Caledonia" (2), "Duke of Gloucester" (14), "Eagle" (1), "Black Snake" (1), a schooner (14), tender to "Severn" (1), tender to "Cerberus" (1), "Hawke" (6), "Bolton" (12), "Fox" (28), a brig (14), a brig (4), "Alert" (20), "Simcoe" (12), "Highflyer" (6), "Julia" (2), "Growler" (2), "Mary" (2), "Drummond" (2), "Lady Gore" (2), "Picton" (14), "Magnet" (14).

From the French: "Insurgente" (40), "Berceau" (24), "Retaliation" (14).

From the Barbary States: "Tripoli" (14), a frigate (22), "Meshboha" (36), "Transfer" (16), "Estido" (22), "Mashouda."

From the Japanese: "Lancefield" (4), "Daniel Webster" (6).

From the Mexicans: A brig (12), "Libertad" (1), "Alerta" (1), a light squadron.

From Spain: "Reina Christina," "Castilla," "Marques del Douro," "Argos," "Cristobal Colon," "Pluton," "Elcano," "Reina Mercedes," "Don Antonio de Ulloa," "Don Juan de Austria," "General Lezo," "Infanta Maria Teresa," "Almirante Oquendo," "Jorge Juan," "Leyte," "Sandoval," "Alvarado," "Isla de Cuba," "Isla de Luzon," "Velasco," "Vizcaya," "Furor," "Callao."

It is but fair to our gallant adversaries to say that the British took 38 vessels from us, the French 1, the Tripolitans 1, and the Mexicans 1, 16 of the British vessels being in fights and 22 captured by superior forces.

Now a curious thing about our old adversaries and ourselves is the number of vessels of the same name borne on our respective navy lists. Truly blood is thicker than water. We and the British have the following ships' names in common: "Cæsar," "Hannibal," "Essex," "Cumberland," "Lancaster," "Amphitrite," "Fox," "Porpoise," "Jason," "Rattlesnake," "Pike," "Boxer," "Petrel," "Ranger," "Shark," "Vixen," "Alert," "Dolphin," "Vesuvius," "Hawke," "Adder," "Enterprise," "Buffalo," "Supply," "Terror," "Raleigh," "Intrepid," "Arethusa." But it is a strange mixture. We give our colliers the names of their battleships, and the rest are a hopeless mix-up. England is very careful of tradition in naming her ships. She has the "County" class, and the "Admiral" class, and

other classes. She gives her battleships the names of her great admirals, while our captains of the sea must be contented with torpedo-boat destroyers. The "Farragut" is 273 tons, the "Paul Jones" 420.

But, in conclusion, there is still a word to be said about ships' names that perhaps is the most soul-satisfying of all, and that is the custom of having in a ship prominently displayed on turret, bulkhead, or beam, the names that belong to that name.

Suppose we had a big battleship called the "Constitution." We round under her stern in our boat in coming alongside, and the very name thrills one. But on stepping over the gangway, there on her turret in letters of gold are: "1812, H. M. S. 'Guerriere'; 1812, H. M. S. 'Java'; 1814, H. M. S. 'Picton'; 1815, H. M. S. 'Levant' and H. M. S. 'Cyane.'" Everyone knows what that means, and those who do not can ask. Nearly all foreign ships have such names on them, or if taking part in some bombardment, boat action, or similar expedition, blazon the names on board for all to see, and to make Jack proud of the ribbon on his cap. Of the names at present on our navy list, these are ships entitled to such honors: "Raleigh," 1777, "Druid" (14); "Ranger," 1778, "Drake" (20), "Jason" (20); "Alliance," 1781, "Atalanta" (10), and "Trépassé" (14); "Constellation," 1799, "Insurgente" (40), 1800, "Vengeance" (50); "Enterprise," 1800, French privateers, "Seine" (4), "Citoyenne" (6), "Agile" (10), "Flambeau" (12); 1801, "Tripoli" (14), 1813, "Boxer" (14); "Boston," 1800, "Berceau" (24); "Wasp," 1812, "Frolic" (22), "Reindeer" (19), "Avon" (18); "Hornet," 1812, "Peacock" (20), 1815, "Penguin" (19); "Lawrence," 1813, Lake Erie; "Scorpion," 1813, Lake Erie; "Somers," 1813, Lake Erie; "Rattlesnake," 1814, "Mars" (14); "Eagle," 1814, Lake Champlain; "Preble," 1814, Lake Champlain; "Porpoise," 1827, "Comet" (10); "Grampus," 1822, "Pandrita" (14), "Palмира" (9); "Wyoming," 1863, Shimonoseki, 1867, Formosa; "Potomac," 1832, Qualla Battoo; "Columbia," 1838, Qualla Battoo; "Petrel," 1846, Peruca; "Hartford," 1867, Formosa; "Colorado," 1870, Corean Forts; "Mohican," 1870, Forward; "Detroit," 1894, Rio de Janeiro; "Portsmouth," 1857, Barrier Forts.

What an inspiration to the new recruit is the contemplation of such names! There is so much in a name, especially a ship's name, and more than all in such ships' names as belong to us and our naval history.

**SCIENCE NOTES.**

The name Corosos, or Corozos, is apparently applied to several fruits, although in this country usually applied in commerce to the palm seed yielding vegetable ivory, i. e., *Phytalephas macrocarpa*. The fruit of *Blæis melanocarpa*, Gaertn., is called on the Pacific seaboard *Corozo colorado*, and on the Atlantic side of South America the fruit of *Attalea Cohune*, Mait., is known as *Corozo gallinazo*.—Journ. d'Agricult. Trop.

Capt. Lamb, I.M.S., has made a series of experiments upon the action of the venoms of the cobra and of Russell's viper (*Daboia Russellii*) upon the red-blood corpuscles and upon the blood plasma (Scientific Memoirs of the Government of India, New Series, No. 4). Both these venoms are shown to have a marked hæmolytic action, both *in vivo* and *in vitro*. Cobra venom never induces intra-vascular clotting; in fact, it rather diminishes blood coagulability, while *Daboia* venom causes extensive intra-vascular clotting. *In vitro* cobra venom prevents the clotting of citrated blood or plasma which ensues on the addition of a soluble calcium salt; *Daboia* venom, on the other hand, increases the tendency of citrated blood and plasma to coagulate. In conclusion, Capt. Lamb considers that his experiments do not support Martin's hypotheses that all snake venoms contain at least two toxic proteids, one being a neurotropic and the other a hæmotropic poison, and that the action on blood coagulability is due to a setting free of nucleo-proteids.—Nature.

In a paper recently read before the Académie des Sciences, M. Yves Delage states that he has made a series of experiments upon artificial fecundation of eggs of some of the inferior animals, particularly marine specimens, and has been successful in certain cases. In the case of some species he was able to replace the natural fecundation by the action of carbonic acid gas. Non-fecundated eggs which were treated with sea water charged with the gas were observed to develop normally. It is to be remarked, however, that all the eggs are not adapted to develop by this process. To do so it is necessary that the eggs should be in the act of performing a certain physiological function which is required for all eggs to render them capable of fecundation. This action consists in the emission of "polar globules." The eggs which have already completed this function are no longer sensitive to the action of the carbonic acid. This latter phenomenon he observed in the case of sea-urchins. M. Delage states that at present he is able to sensitize these eggs and also to render them capable of being developed by the action of carbonic acid. This he accomplishes by shaking them up in a closed vessel and heating them to 30 degrees.