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The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are *sharp*, the articles *short*, and the facts *authentic*, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

LEGISLATION TO PREVENT FOREST FIRES.

The frequency and seriousness of forest fires during the past autumn prove that the present laws for the protection of the forests are inadequate. We are of the opinion that negligence or inexcusable carelessness is responsible for the majority of the fires, not merely in the Adirondack regions, but also in the fire-swept districts of Minnesota, Michigan, and Wisconsin. If this carelessness be measured by the magnitude of the disasters of which it is the original cause, it takes on surely a strong flavor of criminality. For it is no excuse to say that the hunter who fails to extinguish his campfire, or the settler who leaves the edges of his clearing burning through the night in proximity to inflammable forest timber, does so without any thought of the loss of life or property which may result from his carelessness; for he is well aware of the fact that such smoldering fires may, and do, start great conflagrations, and that in these conflagrations it frequently happens that not one but many human lives are sacrificed. If such carelessness in the presence of this knowledge be not criminal, a new definition must be found for this last-named word.

Our attention has recently been drawn to the fact that in Canada there is a strong movement on foot, urging the government to follow a more definite course of action in the protection of the forests, and to make the breach of the forest-protection laws punishable by imprisonment, without the option of any fine. The object aimed at by the suggested legislation is, not merely to increase the number and enlarge the powers of the forest wardens, but also to compel every camper to either extinguish his fire or keep it under guard; to require every settler, railway contractor, or railway, in clearing lands, to maintain a guard by night as well as by day, so long as the stumps are burning, and to prevent any stumps or underbrush being fired within a reasonable distance of the standing timber; and finally, to make the railways and factories whose tracks or works are within the forest area responsible for the protection of the forest to a given distance on each side of the railway track or factory.

We commend this subject to the attention of the legislatures in those States most nearly affected. It is certain that legislation bringing the careless starting and neglect of fires within the range of the criminal law would prove a most speedy and effective check upon the present annual destruction of life and property.

NEWPORT CONFERENCE APPROVES DESIGNS OF NEW BATTLESHIPS.

The fact that the Newport Conference, which was composed of over fifty sea-going officers and only four officers of the Construction Corps, has approved of the design of the "North Dakota" and "Utah" classes, must be considered as the most complete refutation of the recent criticism of our navy that could possibly have occurred. There is no gainsaying the significant character of this Conference. In age, experience, and ability, and the varied rank represented, the Conference was broadly representative of the navy, and the people of the United States may accept its word of approval as final.

The motive for the Conference is to be found in that campaign of bitter criticism of our warships as built, building, and designed, which, originating about a year ago in an article that appeared in a monthly magazine, culminated in a recent letter of Commander Key, U. S. N., addressed to the Navy Department, which contained a criticism of the designs of the "Delaware" and "North Dakota." Commander Key's criticisms, briefly summarized, were as follows: First, that the 5-inch armor protecting the secondary battery should be removed as useless, and the weight devoted to turrets in which these guns should be emplaced, or, as an alternative, that the 5-inch guns should be mounted on the tops of the 12-inch gun turrets; that more protection should be given to the ends of the "North Dakota"; that the location of a certain magazine between the engine and fire rooms was inadvisable; that No. 3 turret should be placed abaft the engine room; and that Nos. 3, 4, and 5 turrets should be placed diagonally across the after deck, so as to secure axial fire aft for all three. The letter also directed attention to the supposed inferiority of American to foreign guns; to the question of the normal waterline and the depth of the armor belt; and to the overdraft of battleships already constructed.

We have before us a draft of the digest of the proceedings of the Conference, which the Acting Secretary of the Navy has issued for the enlightenment of the public upon this sadly confused question; and we must confess that, after a careful reading of the resolutions adopted by the Conference, we are impressed with the completeness with which it rejected the most important of the above-noted criticisms of the "North Dakota." Although the Conference recommended the thickening of the upper casemate armor from 5 to 6½ inches, it must be borne in mind that even this is quite unequal to keeping out large armor-piercing projectiles. Only too gladly would our naval constructors protect this secondary battery with 8 or 9-inch armor, could this be done without exceeding the limit of weight of 20,000 tons imposed by Congress. Commander Key's suggestion to place splinter-proof armor around the uptakes on this deck was adopted, and we think the suggestion is a good one; but this uptake armor would be useless were the 5-inch side armor removed as Commander Key suggests. The 5-inch (now 6½-inch) armor will serve to explode the heavy projectiles, and the splinter-proof armor will then have a good chance to stop the fragments. The suggestion to mount the 5-inch guns on the top of the 12-inch gun turrets is impracticable. The British "Dreadnought" mounts her corresponding guns in this position, and the critics seem to be obsessed by the "Dreadnought." But the fact that she mounts 12-pounders upon her main turrets is no guarantee that the far heavier 5-inch gun would give satisfaction if so mounted. It really looks as though the sea-going officers have, even at this late day, a lingering fondness for the double-deck turret idea. This, by the way, was one of their own suggestions, and it now has the distinction of being the most serious blunder ever committed in the arming of our ships.

Although the Conference decided that the 5-inch guns, if mounted on the gun deck, could not be fought under certain conditions of weather, the Conference perfectly well understood that this is the principal position in which they *must* be mounted, if they are to be carried at all. The Japanese, Germans, and Russians carry these guns on the same deck. They cannot be mounted on the main deck, since they would be in the way of the fire of the 12-inch guns; and, if carried at a higher elevation, it would involve a serious increase in weights, and greatly complicate the question of the stability of the ship.

In addition to the recommendations regarding the 5-inch battery, the Conference recommended that means of refrigeration be applied to all magazines; that two fire-control masts, similar to those tried on the "Florida," be installed; that ventilating pipes and funnels be kept as low as possible; and it also made minor suggestions regarding the location of searchlights, the provision of bridge facilities for navigation, and the arrangement of torpedo-control stations.

The Conference decided that the 45-caliber guns now afloat in our navy are equal to the latest 12-inch guns afloat in the British navy, and that no change in the number and type of the main battery guns of the "North Dakota" and "Delaware" is desirable at present. In regard to the much-debated position of waterline armor, the Conference decided that the lower edge of the armor should be placed with reference to that waterline at which the ship is most likely to float when engaging in battle. It decided that this most probable waterline is that at which the ship would float with full supply of ammunition and two-thirds supply of stores and fuel on board. It was further resolved that the lower edge of the waterline belt should be placed 6 feet below the most probable fighting draft as defined by the Conference, and that the lower edge of the armor belt of the "North Dakota," being within a few inches of that line, is substantially correctly placed.

Perhaps the most reassuring to the general public of the resolutions adopted by the Conference as to the excellence of our battleships, is the following: "Resolved, That the votes of the Conference upon resolutions based upon several characteristics of the design of the 'North Dakota' are not to be considered in any way as adverse criticism of the design of the 'North Dakota' as a whole, as it is recognized that material sacrifices of weight and space have to be made in order to place five two-gun, 12-inch turrets on the middle line and to attain a speed of 21 knots, which should give an offensive 12-inch broadside fire to the 'North Dakota' equal to that of any other warship afloat or known to be designed at the present time. Passing from the consideration of specific minor defects, the Conference believes that the design of the 'North Dakota' and 'Delaware' is an excellent one. The Conference recommends, that the present arrangement of turrets of the 'North Dakota' be adhered to in the 'Florida' and 'Utah.'"

Limitations of space prevent our notation here of other resolutions, which recommend that the thickness of the belt and casemate armor of the "Florida" and "Utah" be the same as on the "North Dakota" and "Delaware"; and that to carry out the President's instructions to "submit recommendations for the 'Utah' and 'Florida' that will involve practically no delay in their plans," the Conference recommended that the designs of the "North Dakota" and "Delaware" be accepted for the "Utah" and "Florida," subject to certain minor modifications.

It is significant that in spite of the fact that the plans for the "North Dakota" and "Delaware" were approved eighteen months ago, and that many advances and improvements in naval material and ideas have taken place during that period, these plans were approved after a most searching examination and criticism by naval officers, and were found to be so far satisfactory that they were adopted with minor modifications, for our two latest ships, the "Utah" and "Florida."

A significant tribute, furthermore, to the good work being done in our Bureau of Construction is the fact that the latest designs for ships of the "Dreadnought" type by foreign naval constructors show a strong tendency to copy the leading characteristics of our two "Dreadnought" classes, the "South Carolina" and the "Michigan." We refer to the placing of all guns on the center line of the ship, and arranging them in pairs, so that the guns of one turret may fire above the roof of the adjoining turret. A reference to the drawings of recent battleships, as published in our later articles on the Leading Navies of the World, will show how widely this distinctly American plan is being followed.

DETECTION OF SULPHUROUS ACID IN FOODSTUFFS.

Commercial gelatine sometimes contains sulphurous acid, which may be detected and estimated as follows: 20 parts by weight of dry gelatine are immersed in 500 parts of water in a glass flask. After standing 12 hours, the flask is heated on a steam bath until the gelatine is dissolved. To the neck of the flask is fitted a cork through which pass three glass tubes. The first tube, which extends to the bottom of the flask, is connected with a carbonic acid generator. The second tube ends immediately beneath the cork and is connected with a Will's tube fitted with a solution of iodine and potassium iodide (5 parts iodine, 7.5 parts potassium iodide, 1,000 parts water). The third tube dips below the surface of the liquid in the flask and bears a funnel, provided with a stopcock. The stream of carbon dioxide is first allowed to flow through the unheated apparatus for ten minutes. The flask is then heated to a temperature not exceeding 158 deg. F., and 25 parts of a 10 per cent solution of phosphoric acid are introduced through the funnel.

The sulphurous acid combines with oxygen, derived from the phosphoric acid, and forms sulphuric acid which is carried over to the Will's tube by the stream of gas. The operation is continued for an hour and the sulphuric acid is then estimated in the usual way from the change of tint of the iodine solution. The presence of sulphurous acid in other foodstuffs can be detected by the same method.

Several months we described the method of extracting venom from *Lachesis trigonocephalus*, a deadly serpent popularly known as the lancehead viper, and of preparing the venom for homeopathic purposes. The medical use of lachesis venom was first suggested in the latter half of the last century by Dr. Constantine Hering, and all the venom in homeopathic use up to last year was of his extraction. Hering, in his published writings, repeatedly reiterated that the venom he used for the remedy, Lachesis, was obtained from the *Lachesis Trigonocephalus*, but since there is in the Museum of the Philadelphia Academy of Natural Science a mounted specimen of *Lachesis Mutus*, labeled with Dr. Hering's name, it was supposed by some that the *Mutus* and not *Trigonocephalus* was the variety he employed. In order that both preparations might be available, the venom of a *Lachesis Mutus* (Bushmaster) has now been extracted by Messrs. Boericke and Runyon and prepared for homeopathic use.