in excess of what would now be found; but there is still a distinct preponderance of the right-hand, which, however originated, has sufficed to determine the universal dexterity of the whole historic period.

In the French literary section, Abbé Tanguay read a statistical paper on the French population of Canada from 1608 to 1631.

At the closing general meeting on the 29th, the election of several new ordinary members was confirmed, and Prof. T. G. Bonney was elected as a corresponding member. Dr. D. Wilson and Rev. T. E. Hamel were elected as president and vice-president for the next meeting.

PREVENTING COLLISIONS WITH ICEBERGS IN A FOG.

The recent accident to the steamer City of Berlin emphasizes the importance of devising practical methods of ascertaining the proximity of icebergs in a fog. The precautions adopted by Capt. Laud, though they saved the lives of more than fourteen hundred passengers, and prevented serious damage to the vessel, did not prevent contact with the berg. Even the 'look-outs' were unaware of the proximity of the iceberg until it was actually upon them.

Under these circumstances, the method proposed by Mr. Frank Della Torre of Baltimore deserves consideration. His experiments indicate the possibility of obtaining an echo from an iceberg when in dangerous proximity to a ship. Mr. Della Torre believes that even an object offering so small a surface as a floating wreck may in this way be detected during a fog in time to prevent collision. However this may be, it is certain that his method is worthy of a careful trial at sea, and that preliminary experiments, recently made in the presence of Professor Rowland of Johns Hopkins university and the present writer, have demonstrated the feasibility of producing well-marked echoes from sailing-vessels and steamboats at considerable distances away.

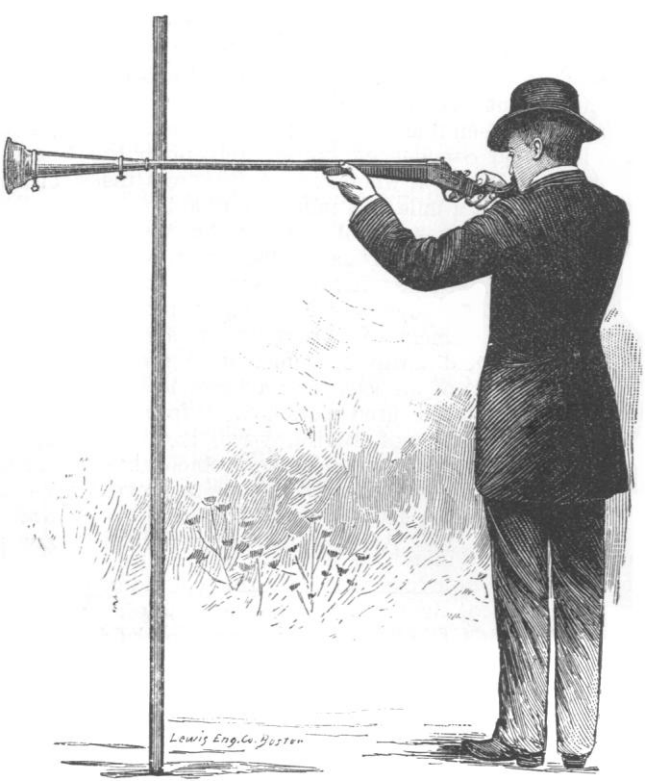
These experiments were made on the River Patapsco, near the head of Chesapeake Bay, at a point about seven miles from the city of Baltimore. The party proceeded down the river in a steam-launch to the selected place, where the distance from shore to shore appeared to be about three miles.

The launch was kept so far from land as to prevent the possibility of mistaking an echo from the shore for one produced by a passing vessel.

The apparatus employed consisted of a musket to the muzzle of which a speaking-trumpet had been attached (see the illustration). This gun was aimed at passing vessels, while blank cartridges were fired. After a longer or shorter time, according to the distance of the vessel, an echo was returned.

The ordinary river-steamboats, and schooners with large sails, returned perfectly distinct echoes, even when apparently about a mile distant. At shorter distances the effects were, of course, still more striking.

In order to test the effects under the most disadvantageous circumstances, blank cartridges were fired in the direction of an approaching tugboat. The surface presented was, of course, much smaller than if the boat



had presented its broadside to the launch. As the boat approached bow on, it corresponded to a target somewhere about six feet square, presenting a convex surface to the impinging sound-wave. Even in this case a feeble echo was perceived when the boat was at a considerable distance (estimated to be nearly one-quarter of a mile). That any echo should have been perceived at all under such circumstances, was a surprise. The sound was heard only by the closest attention, but in the case of larger vessels the effects were very distinct and striking.

Experiments were made which demonstrated the fact that the speaking-trumpet attached to the gun was of material assistance in giving direction to the sound-impulse, and in intensifying the audible effect.

Mr. Della Torre claims that a steam-whistle or siren, combined with a projecting apparatus like a speaking-trumpet, will prove as efficient as the gun.

During the experiments on the Patapsco River, a curious rumbling effect, like the rolling of thunder, was often observed, which continued for some seconds. A similar sound was also noticed, as an echo from a well-wooded shore; but the effect alluded to above could not have been due in any way to the land, as the sound commenced immediately upon the firing of the gun, whereas the shore was distant at least a mile or a mile and a half.

The sound was probably due to the presence of ripples on the surface of the water, as the effect was much less marked when the surface was smooth. Such a sound might prove a disturbing element of importance in a rough sea, but would hardly be sufficient to prevent the detection of an echo from a large iceberg. Had shots been fired periodically from the bow of the City of Berlin, it can hardly be doubted that the presence of an obstacle ahead would have been discovered in time to prevent the collision that actually occurred.

ALEXANDER GRAHAM BELL.

SOME PECULIARITIES IN THE AGE STATISTICS OF THE UNITED STATES.

SHORTLY after the issue of the present census reports, attention was called to the peculiar fact that very many more persons were recorded as being just 20 or just 50 years old than were as being 19 or 49. It is easy to see that there ought to be more persons living at any one year of life than at the next, — more at 7 than at 8 years of age, more at 19 or 49 than at 20 or 50. Of all the infants less than a month old at the present moment, quite a large number will die before completing their first year; many of those then surviving will die before the end of their second year; and so on, there being fewer left in each year than in the preceding year.

But all this is true only when certain conditions are satisfied. The growth of the population, it is assumed, is by natural increase alone, or nearly so. The number of foreign-born inhabitants, for instance, between the ages 10 and 15, will be smaller (that of native Americans, of course, very much larger) than the number between the ages 20 and 25, because so very many of the immigrants are, on arrival, between 20 and 25 years old. So, too, a war, or an epidemic which is particularly fatal to persons between certain ages, might be the cause of an exception to the general rule, at least until the generation so affected had died out.

But the effect of any such circumstances on the census figures which are here dealt with, may, without hesitation, be regarded as insignificant. The preponderance of the number of persons at the ages containing round numbers, over the number at the age immediately preceding (this being rather an 'odd' number), must be ascribed to an entirely different kind of influence.

Before going farther, it is necessary to appreciate how enormous the attraction towards round numbers really is. Very naturally this attraction is greatest towards the ages containing multiples of 10, for then the numbers are 'roundest.' Subtract the number of persons recorded as 9 years old from the number recorded as 10, and express this excess in percentage of the number at 9 years. Do this for the excess of the number at 20 over the number at 19, of 30 over that at 29; and so on, the last being the excess of the number at 90 over the number at 89 years of age. The average of the 9 percentages thus obtained is what I will call the average '10 exaggeration,' any one of the percentages of which it is composed being spoken of as the '10 exaggeration' at 20 or 30 or 60 years, as the case may be. This average for the total population of the United States is $71\frac{1}{4}$ %; and the several percentages of which it is the average vary from 9.5 % to 126 %. This means, that instead of finding fewer persons recorded at any such 'round' age as 20, 30, etc., than at the age immediately preceding (19, 29), you would find, on the whole, nearly $1\frac{3}{4}$ times as many. You might find only $1\frac{1}{10}$ (an excess of 9.5 %)