

Pt. Madgett.....	29	30	16	75
Sgt. C. Spencer.....	31	27	25	75
Pte. Miller.....	23	28	23	74
Capt. Zealand.....	28	26	30	84
Sgt. Garson.....	29	33	25	87
Capt. Ross.....	29	28	14	71
	270	292	232	794

77TH BATTALION.

Pte. H. Lee.....	34	28	27	89
Lt. J. M. Robert.....	27	24	22	73
Sgt. Vance.....	29	29	21	69
Bug. P. Metzar.....	19	29	27	75
Pte. Reid.....	27	26	23	76
Pte. Mullock.....	30	27	24	81
Pte. English.....	28	28	24	80
Pte. Emery.....	30	31	24	85
Pte. Harvey.....	26	25	29	80
Capt. Knowles.....	23	7	9	39
	263	254	230	747

Another Successful Armor Test.

In our issue of June 2 we noticed the test of an 18-inch armor plate which ended in the complete failure of the plate. Another test, of a 17-inch plate, was made at the Indian Head proving ground on June 12, and is of peculiar interest. The plate was made by the Bethlehem Company, and upon this test depended the acceptance of 600 tons of 17-inch Harveyized nickel steel plates for one of the barbettes of the Massachusetts. From side to side the plate measured 12 feet and from top to bottom 8 feet 3 inches. Unlike the former plate it was the same thickness throughout. The total weight of the plate was about 35 tons. As this plate had been treated with the same hardening process as the former worthless plate, the makers protested against the severity of the tests. The department, however, refused to reduce the requirements, but allowed a secret test to be made in the presence of representatives of the government. A 12-inch breech-loading rifle was used for the test and was placed 300 feet from the plate. Carpenter armor-piercing projectiles weighing 850 pounds were used.

The velocity at the first shot was limited to 1,416 feet per second, on condition that no cracks should be made on the plate, and the second shot was to pass the plate if the projectile failed to pierce the entire 17 inches. The first shot resulted in the shattering of the projectile, which failed to enter more than 7 inches. The force of impact generated so much heat that the end of the projectile was welded to the steel plate. The second shot had a velocity of 1,858 feet per second, the powder charge being 400 pounds. The projectile penetrated only nine inches and the point was welded in as before. A slight crack was visible, but it did not extend in very deep, probably not more than half the thickness of the plate. The backing remained intact and none of the bolts started. The test of the 17-inch plate proved the efficiency of the Harvey process of treating steel, which had been doubted since the previous test. As the steel is only affected by the Harvey pro-

cess to a depth of three inches, there was at no time any just cause for alarm.

When the short range, the charge, and the unfavorable position of the gun in relation to the plate are considered, it will be seen that the barbettes for the battle ships will be practically invulnerable. Battle ships would almost never come within three hundred feet unless they were going to ram, and the probabilities are that the range would be from a half mile to a mile, so that guns of larger caliber would be placed on the same plane as a smaller gun at closer range. With such armor, the Massachusetts and the Indiana will be placed in the first rank of the war vessels of the world.—*Scientific American*.

An Important Conference.

The approaching conference at Ottawa is likely to prove the most important meeting of representatives from the great self-governing colonies that has been held since 1887. At one time it was proposed to limit the discussion to matters connected with the Pacific cable and the new Atlantic line of steamers. Now it is suggested that the question of Samoa should be considered, and it may be that other subjects, such as the defence of the colonies' interests and the protection of commerce in time of war, will find a place in the programme which is now being prepared. It will, however, be difficult to debate the affairs of Samoa without the presence of delegates from the United States and Germany, since, in the absence of the views entertained by these nations it would be impossible to come to any conclusion that could possibly be acted upon by the Imperial Government. The conference will probably pass a resolution calling upon the mother country to enter into negotiations with the others Powers concerned with a view to restore the trade of Samoa and secure the safety of the inhabitants. No doubt the question of New Zealand taking over the islands will be warmly debated, and it is possible that a less unanimous resolution will be passed in favor of such a course being pursued, New South Wales, and perhaps another colony, not voting. It is now some weeks since we drew attention to the fact that self-governing colonies did not contribute to the cost of the Imperial Navy, and since that date correspondence on the subject in the press has still further brought the matter before the public. We should be glad if the question could be raised at the coming conference, and some conclusion arrived at by which Australia, Canada, and South Africa, according to the amount of trade protected, might subscribe their portion to the expense of keeping up an Imperial fleet. We are told that no opportunity has been given to the colonies for expressing an opinion upon the subject. Ottawa provides the opportunity; and it only remains to see whether the colonies will take advantage of it. That a Pacific cable would be of infinite value as a

strategic agent cannot be denied; at the same time it will increase the value of merchant vessels requiring protection on that route, and the immediate advantage will be an intercolonial one. It is difficult to see how the colonies can hold back from subscribing. There is a close connection between Samoa and the cable question which cannot be overlooked. With the islands in the hands of a tripartite protectorate it is not possible to have an intermediate station there for strategic purposes, whereas if the place was in the hands of the British only, then it might be made the important centre of the line. The only way to gain this advantage is to give Germany some compensation, and the best way to compensate Germany is to hand over Tonga in exchange for Samoa. We are well aware that the bulk of the trade at Tonga is British, but some sacrifice must be made if we are to secure our ends, and, after all, the natives of Tonga are not so opposed to the rule of Germany as the natives of Samoa. No doubt arrangements can be made with the King satisfactory to both parties, and if we lose the important harbours in Tonga we gain good anchorage at Salnafata and other places in Samoa. Pago-Pago is a first-class harbour, and it is possible that the United States may not be disinclined to give it up for a less advantageous position, or some arrangement could be come to with Germany to give the Americans a harbour of refuge quite as good as Pago-Pago, and one that will answer their purposes just as well. We commend these suggestions to the delegates who are about to assemble at Ottawa.—*Naval and Military Record*.

Naval Policy.

The expiration of the period covered by the Naval Defence Act, the agitation, now past, for an increase of the Navy, and the course pursued by the Government in this regard, seem to point to the opportuneness of a review of the broad grounds of naval policy. The time has surely gone by in which the pedantry of financial administration, warring with the fitful pressure of public opinion, and presided over by a Premier who, perhaps, like Mr. Gladstone, does "not anticipate the Navy of the coming year or the year after," should control the fate of the Empire. The principle of continuous action is that for which we must strive, and, as a writer upon "Naval Armaments" in the *Edinburgh Review* says, "the man who finds out the means of rendering the adoption of this principle permanent will have gone far to earn for himself the name of statesman." But no continuous action can suffice unless it be based upon a right and just political direction. We must know what we are going to do. There is very much in Mr. Spencer Wilkinson's new volume, "The Great Alternative" published by Messrs. Sonnenschein, with which we agree; but we differ from him wholly in