

discharge of the guns, singly or in pairs, when fired right ahead, or right astern, or on either beam, either on the flying or hurricane deck, inside the turrets, or within the armoured walls of the breastwork enclosing the cases of the turrets, although the projectiles fired weighed each 69lb., and the powder charge was in the greater number of instances 110lb. of pebble powder to each shot. In training the turrets forward and aft to get a fire as nearly as was possible to the ship's line of keel, the amount of concussion felt was sensibly increased on the flying deck, inside the turrets, and in the stoke-holes and cabins below; but still, even under these severe conditions of trial, the actual amount of appreciable concussion was wonderfully small, and no damage was done beyond the breaking of a few panes of glass, the dislocation of one of the turret stay-bolts, and a shaking of the light plating under the gun ports, fixed there to protect the oaken deck planking from the flame on the gun's discharge. There was one other piece of damage, which may be, perhaps, considered as due to the concussion, and this was of a rather curious character. Down in the store room in the after part of the ship some of the officers' wine is stored, and some bottles of this were broken. No doubt they were broken at the time when a pair of guns were fired together at extreme elevation. The deck in many parts bore scoring marks from the pebble powder, and gave indisputable evidence that studs had been detached from the shot as soon as, or rather before, the latter had got clear of the mouth of the gun. In one instance of firing along the superstructure deck and underneath the flying deck the whaler gig, which hung at long and outer davits from the flying deck, jumped in its slings from the wave of concussion thrown out overboard its mast and sail, three out of its five oars and one of its gratings. The boat itself was not damaged. Some of the hammock cloth coverings around the edge of the flying deck were split at the same time; but from first to last, no iron nor wooden-work, beyond the trifling matters already mentioned, in any part of the ship's structure on deck or below was found to have been injured in the slightest degree by the day's firing.—*Broad Arrow*, 19th July.

#### A RIVAL TO THE WOOLWICH INFANT.

The authorities in the Gun Factories of the Royal Arsenal, Woolwich, contemplate the introduction into the Service of a new gun for land or harbour defence. It will probably weigh about 38 tons, and will be three feet longer than the Woolwich Infant, which weighs 35 tons. Experiments will be carried on by the committee on explosives to determine whether its bore shall be 12 or 12½ inches in diameter, and also to ascertain how much powder and how heavy a projectile it will fire. In conjunction with these experiments specially large-grained pebble powder will be tried, manufactured for guns of the largest calibre. The new gun will undoubtedly stand a greater velocity, and perhaps with greater certainty. The penetrative power of the Woolwich infant is equal to piercing an armour plate 14½ inches in thickness at fifty yards, while at the distance of 1000 yards or more the 700lb. shot will go clean through the side of Her Majesty's armor-plated ship *Ugades*, the iron walls of which are twelve inches thick. These results are obtainable with a powder charge of 80lbs. or 90lbs., but provided the charge is increased to 100lb.

or 110lb., no corresponding difference in the velocity is attained, as much of the powder is then blown out of the muzzle unburnt. The manufacture of guns of the size of the new one about to be constructed will, of course necessitate the use of machinery of stupendous character, and the new 30-ton Nasmyth steam hammer about to be erected, the largest ever made, which, with a full jet of steam, will be capable of striking a blow equal to the weight of 300 tons, will be found of great service. The building is now being roofed in, and the foundations for the anvil block, which are of the most solid description, consisting of immense blocks of iron and oak baulks laid alternately, weighing about 650 tons, have been completed. This hammer will be about twice as powerful as any other in the Royal Arsenal, the 12 ton hammer in the same department having a falling mass of about 15 tons. In the new building a 60 ton travelling crane is also to be fixed, and furnaces are in course of construction capable of heating bars of iron 820 feet long for coiling the heaviest and largest guns.—*Broad Arrow*, 19th July.

#### ARMY BANDS.

(From the *Galaxy* for July.)

A French officer, General Cremier, has lately taken strong ground in favour of the abolition of bands in armies. His argument is an extended one, and, we may add, somewhat humorous. Briefly stated, it urges first, that the French term of services prevents the musicians from ever becoming accomplished in their art, and that they only learn to play well when their term of discharge is at hand, secondly, that a large body of men is thus detached from the effective force of the army, and a large increase made in army expenditures, while much additional cost and conscription are imposed upon a country which already complains of the rigors of military law and the size of the military budget; finally, he declares that bands are merely luxuries for peace time, and chiefly for officers' quarters, while in war they are of no use, their instruments being hard to carry on a march, or perpetually getting out of order, and never heard in battle, in spite of the traditional power of music to inspire a brilliant charge or a stubborn defence. All these and other points effectively brought out, and the officer claims that he never under fire heard any band music whatever, except, of course the drum and fife. In a satirical vein General Cremier suggests that all the present uses of a band might be supplied by the substitution of a regimental "hand-organ," and a saving of men and money thereby effected. But, on the other hand, we shall beg leave to cite from a private letter received half a dozen years ago from an officer who had been a distinguished corps commander in the Army of the Potomac. The same question of abolishing bands having come up, this officer wrote: "On the Peninsular campaign, during the battle of Williamsburg, things were looking blue enough, when I espied a drummer and ordered him to beat. His drum was wet, and sounded too much as if muffled. I immediately stopped him, and called to some men of a band near by to play. They replied they could not that all were not there. An officer of my staff collected enough, and referred to me to know what to play. I replied that I did not care. They struck up a national air, and the effect was magical." It is clear, therefore, that there are two sides not only to the question of bands in the

army, but even to that of their use in active campaign. But, by the way, even the bugle and the drum and fife are threatened with a curtailed sphere of employment, for in France they appear to have been partly replaced by the whistle in skirmishing practice. Several battalions of *Chasseurs à pied* have lately been drilled with this novel instrument—novel, however, only in war, since on shipboard its varied calls are as familiar as those of the bugle in the army. The experiments are said to have been succeeded so well as to promise the general adoption of the whistle in skirmishing. Still, the time honored, "spirit stirring" and "piercing" drum and fife are doubtless destined to a long career, despite the "reformatory" and "uneconomical" projects to abolish bands and to introduce in their places jawsharps and whistles.

A writer in the "Jahrbuch für die Deutsche Armee und Marine," advises abolishing the cuirassier cavalry of the present day. He says among other things:

'Away with the cuirass, this obnoxious piece of armor, which tires the rider and makes him clumsy, which puts dead weight into the saddle, and which constitutes a most welcome target for the enemy's fire, besides hindering the use of an effective weapon in the hands of the cuirassier.' He advocates taking from the cuirassier the heavy, shining helmet, and the impracticable white collar (both as prominent targets for the enemy as the cuirass), the pistol and lastly, the long water boots, substituting for them an equipment a trifle heavier than the Uhlan's, with the lance, sword and carbine for arms.

One of the finest collections of arms and armors ever seen is exhibited at Vienna, scarcely a country in the world being without its representation. Weapons used in all ages are included in the collection from the bow and arrow to the 1,000 pounder Krupp. Sweden has sent armor plates for ships and forts over four inches in thickness and which have been pierced by steel projectiles fired from guns made in the same country. An Austrian firm has contributed armor plating for black houses, sanitary wagons, munition wagons, etc., which has thus far stood all trial.

A stained glass window in memory of the officers and men who perished through the foundering of the British iron clod *Captain* in September, 1870, has been fixed in the north transept of Westminster Abbey. A brass plate will shortly be laid in front of the window. Two other memorial brasses, recording the names of all who were drowned on the occasion, will also be placed in St. Paul's Cathedral.

It is said that the Sultan of Atchin studied in Holland, and that his army is commanded by a Dutchman formerly an officer in the Dutch service.

REMITTANCES Received on Subscription to THE VOLUNTEER REVIEW up to Saturday the 16th Inst.

KINGSTON, O.—Capt. and Adj. W. Ballou (to June, 1873) 2.00  
 PORT ROYAL, O.—Capt. Jas. Ryan (to May, 71) 5.00  
 (For Colonel Lovelace.)

STRAIGHTON, O.—Major W. Johnston (to March 30, 73) 2.00  
 ST. CATHARINES, O.—Dr. A. Jukes (to July 75) 1.00  
 MONTREAL, Q.—Capt. F. Kingston (to Jan. 74) 2.00  
 (For Mr. F. Balfour (to Nov. 73) 2.00  
 Lieut. W. Dupont (to Aug. 73) 2.00  
 Capt. F. Mackenzie (to June 73) 2.00