GENERAL NEWS.

The Gunboat *Hydra*, mounting a 13½ ton gun on the Moncrieff system, was to enter the Thames, on its way to Holland, during July. This, the first war vessel in which the Moncrieff hydro-pneumatic system has been applied, has been designed and constructed for the Dutch government by the firm of Sir William Armstrong and Company, of Newcastle.

Arrangements have been made for the conduct of field manœuvres on an extended scale in the Italian army during the months of July and August. A division will be assembled for that purpose at Castiglione, under General Poninski; another at Somma, under Lieutenant-General Ferrero; and a third at Santa Maurizio, under Lieutenant-General Franzini. It is also proposed in the course of the year to assemble two or three brigades of cavalry with a few battalions of bersaglieri, and some guns, for the practice of light manœuvres and out post duty on a large scale. To secure a suitable supply of draught and other cattle in the event of a mobilization of the Italian troops, a census of all horses and mules is to be taken every second year, and those considered to be available for military purposes in case of a mobilization, are, on such grounds, to be exempted from taxation. On the 1st of January of the current year the strength of the Italian regular army was 149,193 of all ranks, The number on the rolls of the reserve was 295,983. The total strength of the Italian army would therefore appear as 445,175 of all ranks. This is exclusive of the National Guards, who, as at present constituted, number 191,738, and of 20,400 gendarmes. Twenty years ago the strength of the Sardinian army was 58,500 men. The upper military schools have at present 472 students, including officers from all arms of the service.

William Harvie, a coppersmith of Glasgow, is the originator of improved ship signel lights, which has, the *Scientific American* informs us, come into extensive use for steamships and sailing vessels. He employs lenses on the dioptric system, of pressed glass, and has succeeded in getting a paraffine light to burn brightly in any weather without a glass chimney, by so dividing the lamp that the inside chamber forms the chimney proper, the air for maintaining combustion passing down the upright tube, entering upon a false bottom. The funnel by which the products of combustion escape from the lamp is so protected that no blow down can take place; indeed, it seems that the Harvie lamp burns better in a storm than otherwise. When subjected to a photometric examination in the public gas-testing office, Glasgow, the Harvie patent signal lamp was found to give, in front, a ray of light from the centre of the lens equal in intensity to that given by ninety-eight standard sperm candles, and at the side a ray of light from the centre of the lens equal to the light of sixty-seven candles; while the common lamp in front gave a light equal to eight candles, and at the side the light of three candles. And while the naked light of the patent lamp was equal to eight and a *half candles, that of the common lamp* was only equal to three candles. Hence, not only are the rays of light thrown in the proper direction, but the increased illuminating effect of the light is due both to the lens and the lantern itself.

In an article on the fortresses in Alsace-Lorraine, the Cologne *Gazette* says that, as the expense of erecting new fortresses would be very heavy, the German government decided last year to pull down the smallest and weakest of the fortifications in the province, and thus to obtain materials for the more important ones. The fortress of Pfalzburg was accordingly dismantled in 1872, and that of Schlettstadt in the present year. The building materials furnished by those fortresses have been used for the construction of six land forts and three water forts at Strasburg. As to the fortresses of Thionville, Metz, and Bitsch, which cover the approaches to the Rhine province of Prussia and the palatinate of Bavaria, it was as necessary to reconstruct them as those of Strasburg and Neubreisach, they having been left by the French in the same state as they were in before the recent improvements in artillery, etc. Metz alone had been adapted to the modern system, a number of outworks having been erected at a considerable distance from the walls of the fortress. When the war of 1870 broke out these forts were not ready, it is true, but they were useful for the defence of the place. In the other fortresses, Strasburg especially, there were no outworks; the detached works (lunettes) in front of the wall of Strasburg could not properly be so called, as they lay so near the fortress that they could not protect it from bombardment. The new forts to be built for the fortresses of Metz and Strasburg, on the other hand, will be so placed that a bombardment of the town from the first line would be impossible. They are all, on an average, from ten to twelve kilometres distant from the town; they are formed with long-range guns, and if the attacking party had even the best guns, of the kind it would have to place its first batteries at least four kilometres from the forts. They are provided with bomb proof chambers large enough to contain the whole garrison, with a sufficient store of provisions; and the men are further enabled to reach the wall in safety, without crossing the court-yard round the fort, by means of a bomb-proof staircase erected for the purpose.

The *Sonn und Montag Zeitung* of Vienna, of June 16, in an article on Russian artillery in the Vienna Exhibition, says—"In the armament of their artillery, and especially in the manufacture and production of cannon, Russia has of late made immense progress. The rifled breech loading guns for fortifications and coast defence were introduced in Russia somewhat later than in Prussia; but the Russians were not able to manufacture modern warfare, and with their purchases in foreign countries they were very unlucky; so a large number of cast-steel cannons were purchased for fabulous sums of money from Krupp, in Essen, which were intended for coast defence. Krupp has gained his fortune by the enormous prices he demands. His productions are dear beyond measure, and far from being faultless. Several of the heavy guns manufactured by Krupp burst on occasion of a trial at Cronstadt, in October, 1870; of course the Russian government was not tempted to have any more cannons from that quarter. The Russians now saw what a great disadvantage it is for a country to be obliged to purchase its ordnance in foreign parts. They tried, therefore, to perfect *their manufactories, and they succeeded* very well, by inducing German technologists and laborers to come to their country, chiefly from Westphalia, and even from Krupp's establishments. Since 1870 the Russian factories not only turn out the heaviest pieces of cast steel and bronze guns, but produce projectiles (chilled) which have such enormous hardness that the form is not altered against iron shields. Hardcast is a composition of eight parts copper and one part tin, and has been in use in the Prussian artillery for a long time, not for screws. The Oberkhoff cast steel factory, near St. Petersburg, exhibits a monster breech loader gun, calibre 12 inches, with 36 grooves, diameter 1 feet, weight 890 cwt. The largest gun from Krupp does not weigh more than 930 cwt. For transportation they were obliged to construct a special wagon, with three axles of uncommon strength. The gun is strengthened with three rings according to a system adopted in the Prussian army; the iron carriage is also formed after the Prussian pattern. For the charge 51,6 kilogrammes of prismatic powder, and a shot weighing 294.8 kilogrammes is used. The initial velocity of the shot is 42[illegible] metres.

The Germans did not tarry long to profit by the experiences of the late war, the Paris *Presse* notices, but began towards the end of last year a thorough reorganization of their artillery by separating the light from the heavy artillery, and by increasing *the number of batteries and regiments, also* by modifying the material of the guns, which although not yet generally carried out, has received the official approbation. The present state of the German field artillery is given by the *Presse* as follows:—15 artillery brigades divided into 35 regiments, the latter again divided into 89 field sections (feld abtheilungen), so that one corps artillery regiment forms 2 field sections to 3 heavy (9 centimeter) batteries and one mounted field section to 3 mounted (8 centimetre) batteries. A division artillery regiment consists of 2 field sections to 2 heavy and to 2 light (8 centimetre) batteries. Each battery has six guns drawn by six horses. The field sections form separate tactical bodies under the command of a field officer, whereas the corps artillery forms artillery brigades under the command of a general. The German artillery forms, therefore, in all, 175 heavy batteries, 77 light batteries, and 40 mounted batteries (horse artillery); total, 295 field batteries, with 1,788 cannons, to which number 672 pieces in reserve must be counted for the reserve batteries of the Landwehr in time of war. The material of the breech loading field gun is either cast steel or bronze. In the different army corps there are only 8 and 9 centimetre cannons, the first belonging to the light and mounted, the second to the heavy batteries. The light gun has 12, the heavy gun 15 parallel rifles, growing narrower towards the mouth; the first weighs from 391 to 538, the latter 774 Vienna pounds. The shots are granate (exploding shells), and grape shot. The furthest range is 5,000 paces. The wooden carriages are of a different construction. The light and mounted batteries carry 107, the heavy batteries 134 rounds per gun. The men are armed with swords or brittle-brads and pistols. The new Prussian breech-loading field gun has the following dimensions; Calibre, 8 centimetres; weight of shot, 5 kilogrammes; weight of the gun, 430 kilogrammes; length of the cylindro-ogival formed projectile, 24 centimetres. At an angle of 15 degrees a range of 4,800 metres is attained. The iron carriages belonging to this gun are now being tested by the Eighth and Tenth regiments of artillery.

Private letters report that an insurrection broke out in Khiva during the absence of General Kaufmann. General Kerefikin quelled the rebellion and destroyed Khiva. Khokund is quite. Russians exactions have been levied on 600 leaders of the late movement.