

In the next experiment, targets were arranged to represent a company of infantry drawn up as skirmishers, supports, and reserve, with a mounted officer, the details and the dimensions of the target being identical with those used at Lechfeld.

The guns brought to bear on them were six bronze breech loading 8 centm. guns (Swiss model), on iron field carriages. The ammunition was common shell with Gressly percussion fuzes (pattern 1872), and shrapnel shell with time fuzes (pattern 1873). The battery was brought into action in strict accordance with the regulations, and opened fire at 800 metres, commencing with common shell, the flank divisions engaging the supports, the centre division firing of the skirmisher, afterwards sub-division 2 and 5 engaged the reserve; shrapnel was then substituted, the flank pieces firing at the supports, and the others at the reserve, finally all six guns cannonaded the whole front.

The duration of firing was 18.5 minutes; 36 common shell and 53 shrapnel were fired, there having been one miss fire. The estimated number of fragments is not shown. The hits were 487 in number, distributed as follows:

Skirmishers, 170; supports, 83; company commander, 13; reserve, 221; total, 487.

The hits on standing figures were to those on the kneeling in the proportion of 3 to 2.

So many skirmisher targets were thrown down by the shells that no correct estimate could be formed of the effect of the subsequent shrapnel practice.

In the third experiment, the same six guns were fired at a battery target, similar to that used in experiment No. 1.

The range was the same, 800 metres; the expenditure of ammunition the same, 36 common shell and 45 shrapnel shells; the duration of the firing was, however, 12.5 minutes only.

The number of hits, counting fragments, was 2,753—2,238 on the figures of the men and horses, and 515 on the guns and limbers.

The Turkish Government is having trouble with its subjects in Crete. The Christians and Mussulmans are arrayed against each other, and a strong garrison is required to keep the peace. The Christians demand that full political rights be accorded them, and complain that they are oppressed by the Turks with impunity in presence of the troops. Both parties are willing to be rid of Turkish rule. The Christians favor annexation to Greece, while the Mussulmans want to be under the protection of Egypt. Conciliation is believed to be impossible, and a serious outbreak, it is said, may occur at any moment.

During the past year M. Ernest Stamm, an Alsatian engineer, has devoted much time and care to the study of the question of a connection between France and Italy independently of Swiss territory. With this object the idea of tunnelling Mont Blanc is advocated by him in a paper which has been read by M. Stamm before the Societe Industrielle de Mulhouse. A survey proves that while Chamounix is 3,445 feet above the sea level, and Entreves, on the south, 4,216 feet, a tunnel between the two points would not be longer, nor its gradients more difficult, than the Mont Cenis tunnel.

Man's duty to God and man's duty to man are the hinges upon which man's happiness depends—the corrosion of one is the canker of the soul; a flaw in the other imperils man's happiness.

ABOLISHING THE DESERT.

Few engineering propositions of modern times are more stupendous in their plan, or likely to involve more momentous consequences, than that of converting a portion of the great desert of Northern Africa into an inland sea. The idea has been entertained at various times previously, but simply as an indefinite notion, without any special attempt at determining the possibilities.

A line of levels made in 1873 by Messrs. Roudaire and Noi, captains in the French army, in connection with certain geodetic operations required by the measurement of the meridian of Biskra, first gave weight to the project. This operation enabled them to ascertain that the Lake, or Chott Melghigh, is at its north eastern border 27 metres below the level of the Mediterranean, thus deepening at the rate of one fourth of a meter to the kilometer to the westward. This was the first indication of the absolute elevation of any point around Lake Melghigh, a vast depression in the soil, which formerly received the waters of the Igharghar, a river at that time 1,200 kilometres in length, which transported the tropical rainfall from the mountains of Ahaggar to the Algerian Sahara, in the Province of Constantine.

Captain Roudaire, with this hint, began a careful study of the topography of Eastern Algeria, supplementing this by an investigation into certain records bearing upon this depression in Tunis, as published by Guerin and embodied in certain manuscript notes of Captain Pricot de Sainte-Marie, and he came to the conclusion that about 450 years before the Christian era the Mediterranean extended westward to a considerable distance, and that the salt lakes of El-Djerid, El-Gharsa, Sellim, and Melghigh are simply the remainder of the great bay, which, in his opinion, became dry by the formation of a sandy isthmus of about 26 kilometres in extent to the north of the Gulf of Gabes, and of the place where Triton Bay connected with the Mediterranean. He also found reason to believe that the Wady of El-Aporil represented the channel which formed the connection between the dried portion of this bay and that which still exists under the modern name of the Gulf of Gabes.

The date of this change in the physical conditions of Northern Africa, in his opinion, was scarcely anterior to the beginning of the Christian era, and the cause of it he refers partly at least to the action of the current of the sea in the Gulf of Gabes which by some change in its physical conditions, deposited this large amount of sand and mud, ultimately ending in a permanent obstruction which prevented the connection of this inland sea with the Mediterranean. This separation once effected, it did not require a great length of time for the intense heat of Northern Africa to dry the interior basin, leaving only a few salt ponds here and there.

Assuming, with Recluz, that the mean annual evaporation from the surface of the Mediterranean amounts to about twenty inches per annum, it would not be long before this result was accomplished; and the actual filling up of the bay with saline matters, while still connected with the Mediterranean, was only prevented by the immense volume of fresh water which was received from the Aowras Mountains. The ancient bay, according to Roudaire, was 30 kilometres long and 60 wide, and required from the Mediterranean a supply of water equal

to a current 1,000 meters in width, 5 in depth and running at the rate of 11 meters per minute.

For the purpose of re-establishing the ancient communication between the westernmost of these salt lakes, El-Djerid, and the Mediterranean, it is apparently only necessary to open an isthmus of 18 kilometres length thus renewing the ancient bay, and totally changing the physical and commercial conditions of the interior of Africa.

Already reference has been made to the fact that the French Government has authorized a certain expenditure for additional observations looking towards this work, and speculations have been presented as to its probable consequences. According to some, the result suggested of closing the Sirocco winds of the desert, which now cross the Mediterranean and exercise a very appreciable effect upon the Alps, will be extremely detrimental to the interests of Switzerland; while others ridicule the idea as preposterous. Again, it is objected that this evaporation of the water (which will necessarily occur to a very great extent) will thereby result in forming an immense mass of salt, which will soon fill the bed of the sea.

To this, however, the experiences resulting from the construction of the Suez Canal are brought forward in opposition, to show that in all probability the ancient rainfall along the slopes of the mountains will be restored, and that not only will a sufficient volume of fresh water be brought down to supply the waste by evaporation, but that a large extent of country now a barren desert will be rendered fertile, and the whole face of Northern Africa altered for the better.

So diligently have the Germans used their possession of Metz that the great works which the French first projected in 1867, after Sedan, have been not only carried to full completion, but their original conception much improved on. This is more particularly the case with Fort St. Quentin, which every traveller now recognizes as dominating the hills on the opposite side of the Moselle to the city. Its imperfect extent within the enceinte as laid out by the French for giving room for modern great guns was commented on by the German engineers as soon as it fell into their hands. This is now completely remedied and the power of the fort greatly increased by the erection of the so-called West Fort, a huge outwork which covers the west side of the St. Quentin hill, and commands the country toward Gravelotte. The other great improvement made by the Germans in the strength of the new enceinte of detached works was designed and begun by their predecessors, but was not far enough advanced in 1870 to be of any service to Bazaine's army when inclosed. This is the so-called Fort St. Privat (named from quite another St. Privat than that near Gravelotte) which is built above the city on the right or east bank of the Moselle, three thousand yards outside the old works, and completely closes the opening along the valley of the River, which was left before by the inability of the great works of St. Quentin and Queulen to cross their fire on this side. It gives also a new secure strategical point of issue for the defenders of Metz to debouch from, if they so wish, into the most open part of the country round the works.

It is said that ex-Marshal Bismarck has taken the apartments formerly occupied by the late Napoleon III. in King street, St. James, London. The whirligig of time once more.