designed to explode wet gun-cotton, the bureau has under consideration a plan of a piece which is intended to project an aerial torpedo, charged with a hundred pounds of wet gun-cotton, to be exploded over or upon an enemy's deck.

RECENT RUSSIAN GEOGRAPHICAL EXPLORATIONS.

AT the meeting of the physical section of the Imperial Russian geographical society, held Dec. 9, mention was made of Melnikow's archeological researches in the district of Troitzk and in the province of Mohilew. A few tumuli and prehistoric buildings had been examined, among which Melnikow claimed to have discovered cromlechs. Professor Sorokin travelled in central Thian Shan from Wernoje to the Issyk-Kul, thence by the Ula-Khom Pass to the Naryn valley, and by Mart Pass to Na-Manghan in Ferghana. Old buildings were found on the shore of the Issyk-Kul, but no traces of any under the water. Limestones of very new formation were discovered in the lake. Professor Muschketow gave a *résumé* of Konshin's travels in the steppe east of the Caspian, including a part of the old beds of the Amu-Daria, which was followed by an interesting discussion in regard to these beds.

At a later meeting of the society, Dec. 17, Mr. Lessar read a communication on the country and tribes on the Afghan frontier. He first recalled his remarks made last year, that the only means of thoroughly subduing the Turcoman steppe was to annex Merv, and that it was comparatively easy at that time on account of the prestige of Russia. His expectations had been more than realized, as not only Merv had been peacefully annexed, but the country of the Saryks, southern Turcomania, had submitted. The peaceful annexation of Merv was said to be partly due to the conviction of the people that they would never have peace while there was not a power strong enough to enforce it, and that Russia was this power. After the subjection of Merv, the Russians came in contact with the Saryks, who had been hitherto very little known. Lessar found a great difference between the natives of Jalatan, near Merv, and of Pende, which is farther south. The former are very poor, not even possessing the commodities most prized by nomads, viz., good field-tents, fast horses, etc.; while this kind of wealth is more abundant in Pende. The people are not entirely nomadic, but know something of agriculture. They make use of artificial irrigation, though their method of storing and conducting water is very crude, and they know nothing of levelling. Lessar made the interesting discovery that the mountains in the south are very low, and composed of soft strata; while the same chain is much higher and steeper to the west and east. The Salors, a small tribe living near Merv, are very poor, the probable reason being the long cessation from robbing expeditions, while agriculture and stock-raising are rendered insecure by the incursions of their neighbors. A. WOEIKOF.

EMMERICH ON THE CHOLERA BACILLUS.

THE *Lancet* of Dec. 27, 1884, gives a very interesting *résumé* of a paper by Dr. Rudolf Emmerich, which is to be published in the forthcoming number of the *Archiv für hygiene*. The remarks are taken from advance proofs, and the original article has not yet reached us. The observations were made during the epidemic in Naples, and at the instance of the Bavarian government.

Dr. Emmerich did not limit himself to observations upon the comma bacillus, but attempted to discover other organisms by means of various culture-media and methods. He procured blood upon a sterilized platinum needle from the median vein of a young woman in collapse from cholera, and about six hours before death. He inoculated ten tubes containing nutrient gelatine in three places each, and found organisms in three of them, the other seven remaining sterile.

The organisms were all of one kind, cylindrical, with rounded ends, and occurring singly or in pairs, the length being about one and one-half times more than their width. They grow at ordinary temperatures in slightly alkaline nutrient gelatine, which they liquefy in solid opalescent patches. Under a low power ($\frac{100}{1}$), the colonies in the deeper portions of the gelatine present the form of a hone: those more superficial are like flat, circular mussel-shells.

The deeper colonies are yellowish brown by transmitted light, white by reflected light, and are finely granular. Those on the surface are pale yellow in the centre, whitish at the margin, and spread over the gelatine in a film.

These organisms were cultivated from the blood and from the internal organs of nine persons dead of cholera. They were most numerous in the kidneys and liver, then in the lungs, and least abundant in the spleen. They were found in sections of the intestines and kidneys (other organs not yet examined), and in very large numbers in the dejections and intestines after death. They grew in every culture experiment with alvine cholera material, whereas the comma baccilli only occurred in some cases.

Inoculation experiments were made at the Hygienic institute of Munich in conjunction with Dr. Sehlan. The animals used were mostly guinea-pigs, and symptoms were produced similar to those of cholera. The changes noticed varied from a simple desquamative catarrh, with rice-water-like intestinal contents, to hemorrhagic exudation, and destruction of the mucous coat.

The inoculations were made by the injection of two drops of a solution of a portion of a pure culture the size of a pin's head in two drams of water into the lungs, or subcutaneously. This produced an illness of from five to six days, with marked changes in the intestinal mucous membrane. The injection of a large quantity produced death in from sixteen to thirty hours, but with much less marked changes in the intestines.

The publication of the full paper is awaited with