EXPLORATION OF THE BLACK SEA.

WE learn from the *Proceedings of the Royal Geographical Society* for March that Professor Woeikof, at a recent meeting of the Society of Friends of Science of Moscow, communicated some results of the scientific exploration of the Black Sea in the Russian gunboat "Tchernomoretz" in June and July, 1890. The mean depth in the basin is 6,000 feet. The minimum depth (below 600 feet) was found in the north-west region, bounded by a line passing from Varna, in Bulgaria, to Eupatoria, on the west coast of the Crimea; and the maximum depth (7,365 feet), in the central part, between the Crimea and Anatolia. The surface temperature varies from 72° F. in the centre of the basin, to from 75° to 77° on the west and east. At a depth of from 29½ feet to 174 feet, the temperature was only 57° towards the south coast, 54° in the centre, and 52° in the north and near the west and east shores. The variation of temperature in the Black Sea is very characteristic at depths exceeding 180 feet. At this point the thermometer marks only 45°; but then the temperature begins to rise, and at a depth of 6,000 feet it is 49°. In other seas, in mean latitudes, the temperature diminishes regularly from the surface to the bottom, or rather below a certain depth it remains invariable (56° for the Mediterranean).

Another peculiarity of the Black Sea is, that at a depth of 450 feet, traces of sulphuretted hydrogen are found, the proportion of which increases so rapidly that it becomes quite sensible at 600 feet; and at 940 feet, and under, it renders animal life entirely impossible. At that depth were found only the semi-fossil shells of certain mollusks characteristic of the brackish water of the lagoons of the Black Sea and of the Caspian. They are the remains of the Pontic fauna which inhabited the Black Sea at the pliocene epoch, when this basin, still separated from the Mediterranean, and with a depth of only 3,000 feet, contained water of but feeble salinity. At the opening of the Bosporus, the waters of the Mediterranean would make their way into the Black Sea, and lead to the disappearance of the ancient fauna. The sulphuretted hydrogen, then, is only one of the products of the decomposition of these ancient organisms, the elimination of which takes place very slowly, owing to an immobility almost absolute of the water at a certain depth.

The Black Sea receives annually, by way of the Bosporus, only a thousandth part of the total volume of water in the basin, and consequently it will take a thousand years to completely renew the whole contents of the basin. It is thus easy to understand the slowness with which the deep waters participate in the circulation of the liquid mass.

THE VEGETABLE FIBRES OF TRINIDAD.

THE United States consul in Trinidad has recently forwarded to the government a report upon the vegetable fibres of that island, and gives a description of some of the most important of them.

The *maholtine* is a plant which grows wild in large quantities. It is easily cultivated by simply cutting down bushes and burning them, and scattering the seeds of the plant. One acre of good ground will produce about five thousand pounds of stalk; and this stalk, reduced to fibre, will make about eight hundred pounds. The stalk grows from eight to twelve feet, the skin or bark of which is stripped off, and steeped in cold water, eight or ten days after which the green watery substance is washed out, leaving a fibre eight to ten feet long.

The white *mahoe* (*Sterculia caribœa*), like the *maholtine*, grows wild, and may be cultivated in the same way, producing the same quality of fibre. The fibre is whiter and more silky than that of the *maholtine*, and is believed to be superior to it, although it has never been sent abroad to test its merits. A crop is reaped every seven months.

The *gumbo*, or *okra* (*Abelmoschus esculentus*), is another stalk fibre, the plant growing six to eight feet high, and producing a fibre about the same length. Cultivated on good soil, it will produce four thousand pounds of stalks, yielding as much fibre to the pound as the *maholtine* or the white *mahoe*.

The fibre of the *gumbo*, unlike those above mentioned, will not contain water, but throws it off like oil silk. A crop is harvested every seven months.

The plantain (*Musa sapientum*) will produce from five to six pounds of fibre to each stalk. The stalks grow from eight to nine feet high, and eight hundred of them may be produced on an acre of ground. The fibre is obtained by putting on two wooden rollers, and rolling and squeezing the stalks to crush the watery pores, then steeping it in water eight to ten days, and finally putting it under the same rolling process with heavier weights.

The banana (*Musa paradisiaca*) grows four to five feet high, produces two to three pounds of fibre to the stalk, and eight hundred stalks to the acre, and the crop is annual.

Ramie, or China-grass, grows very thickly, and, when once planted, sustains itself against other grass. After the first year, it can be cut every six months. The stalk grows about four feet high. It will produce an ounce of fibre to every square foot. The plant was imported into Trinidad from China for experimental purposes about three years ago, and has not yet assumed any commercial importance.

The *mahoe bord du mer* (*Paritium tiliaceum*) does not grow inland, but on the seashore. It is a stalk fibre, but, unlike the above, it branches, and the branches also produce fibre. It grows eight to fifteen feet high. Each tree will produce about half a pound of fibre, and one acre can support eight hundred trees.

Red *mahoe* (*Sterculia caribœa*) grows wild on any soil of the island, produces about eight hundred trees to the acre, grows eight to ten feet high, and then branches. The stalk and branches are both used for fibre, which is used by the natives for making rope. The crop is annual.

Rucon, or annotto, an Indian plant from South America, is a very strong fibre. One acre will support eight hundred stalks cultivated on fertile soil, and each stalk will produce about half a pound of fibre.

Black sage (*Cordia cylendros*) is a small shrub about six feet high, and produces a very strong fibre, used by the natives for making ropes. An acre of ground will support sixteen hundred plants, and they will give one-fourth of a pound of fibre to each plant.

Bois sang, or blood-wood, grows twenty-five feet high, and branches out eight to ten feet from the bottom. When tapped, the tree emits a fluid resembling blood, which produces a red stain. Both stem and branches produce fibre. About six hundred trees may be produced to the acre, and each tree will produce two to three pounds of fibre, which is used for rope-making. The fibre varies from four to six feet in length, is very tough, and would, it is said, make a superior twine for bagging. It is cut and planted every three years.

Balizier (*Hilicomea*) is a wild plant, grows on cool soil, and its presence indicates superior land. The blades, which resemble the blades of the plantain, produce the fibre; but the blades grow from the roots of the bush like a pine-apple, and they are six to ten feet long. One acre will produce about ten thousand blades, and each blade will produce half an ounce of fibre. It is a coarse fibre, not so strong as the others mentioned, but is useful for door-mats and similar purposes.

Cacao (*Theobroma*) is cultivated for its valuable fruit; but the tree, which grows fifteen or twenty feet high, is trimmed annually in the spring of the year, and the branches of each tree thus trimmed will produce half a pound of fibre, which varies from three to five feet in length. It is strong, and is used as rope for making hammocks.

Bois l'orme (*Guazuma ulmifolia*) is a straight tree. At a distance of eight or ten feet up the body of the tree, five or six branches shoot out in a circle round it; and, from this point to the top of the tree, encircling branches shoot out at the distance of about one foot apart. The lowest circle of branches are the longest, and they shorten as they ascend the tree, causing the tree to assume the shape of a sugar-loaf. Both the body and branches produce fibre. It is a straight brown fibre, and very strong, used generally for rope and twine making. Eight hundred trees may be produced to the acre, and, after the third year, will produce annually from one to two pounds of fibre to the tree.

The *Agave Mexicana* grows three or four feet high, and one