

are always larger and the specimens more beautiful. Temperature likewise affects the clothing of animals in respect both to quality and quantity. This is more particularly observed in such domesticated animals as have been transplanted from their natural climate. The covering of swine in warm countries consists of bristles of the same form and texture, thinly dispersed: while the same animals in colder climates have an additional coating of fine frizzled wool next the skin, over which the long bristly hairs project. The difference is very remarkable in the swine of northern Europe and those of tropical America, the latter appearing almost naked; it may be observed in a less degree in those of the south of England and the north of Scotland. Similar appearance present themselves among the sheep of warm and cold countries: the fleece of those of England consists entirely of wool, while the sheep of Shetland and Iceland possess a fleece, containing, besides the wool, a number of long hairs, which give it an appearance of being very coarse."—*Maidstone Gazette*.

ON NITRE.

"NITRE" or SALTPETRE, (*Nitrum*, Lat. *salpêtre*, or salt-petre) is a genus of the saline minerals of the earth, with holes like a sponge, found in all the four quarters of the globe, sometimes covering other rocks, as limestone, chalk, and caltuff, and also in thin crusts on the surface of the soil: and in many countries it is regularly produced from accumulated heaps of earth, exposed at certain seasons to the atmosphere. The colour is light ruddy, or snow-white, yellowish-white, or greyish-white; occurs in flakes, crusts and crystals: dull, glimmering, or shining, with a vitreous lustre; alternates from translucent and transparent; brittle and easily fragile; deflagrates when thrown on hot coals.

Salt-petre from molifetta contains:—

Nitrate of potass .....	42 55
Sulphate of lime .....	25 45
Carbonate of lime .....	30 40
Muriate of potass .....	0 20
Loss .....	1 40
	100 00

OR,

Acid .....	44.0 and 31
Potash .....	51.8 and 61
Water .....	4.2 and 8

100.0 100

1000 parts, from the Cave of Pulo, near Naples, give—

Nitre .....	407.5
Muriates .....	26.7
Sulphates soluble in water ..	20.8
Sulphate of lime .....	96.7
Carbonate of lime .....	410.0
Loss .....	33.3

1000.0

The taste is sharp, bitterish, and cooling; it dissolves in seven parts of cold water, and in less than its own weight of boiling water; slightly deliquescent; more soluble in hot than in cold, and resists putrefaction, and is supposed to hold water equal to its own weight; detonates most violently when made red hot, and when charcoal is thrown upon it, and with combustible bodies, and with phosphorus; hence the extensive use of nitre in the composition of gunpowder, which is usually composed of 76 parts of nitre, 15 of charcoal, and 9 of sulphur. It is also used in medicine, and many of the arts. Specific gravity 1.920 and 1.9369. The ancients confounded nitre with soda or natron, and leave us in doubt if they knew nitre; but it was known to Roger Bacon in the 13th century.

Nitre, in chymistry, is the nitrate of potass, or the fixed vegetable alkali in combination with the nitric acid, one of the most powerful acids that is known, and constituted of nitrogen and oxygen in a peculiar proportion to each other—about 70.5 of oxygen and 29.5 of nitrogen. Nitre is termed

wherever animal matters are decomposed, and exposed to substances with which it can combine; grounds where excrements are dropped, walls of houses, drains and slaughter houses, where putrid vapours abound, all afford nitro by long exposure to the air. Old mortar or loose calcareous earth, is supplied to the artificial beds for the acid to combine with, during the putrefaction of the animal and vegetable substances. After many months of constant attention, nitre will be found in the mass, not unfrequently combined with calcareous earth. It is also formed without animals or vegetables, by means of lime and heat in the open air, and also from the surface soil in many countries, by various methods of preparation, by digging pits till the water imbibes the salt, and then drawn off; and by extracting it from the earth by being in vats filled with water, and by sweeping it in some places from the surface of the ground, and washing and lixivating with wood ashes. It consists of 6.70 of acid & 6 potash. Potash is got by lixivating the ashes of plants, and is now ascertained to be the oxide of potassium, one of the newly discovered kaligenous metals, and consists of—

Potassium .....	86 or 83.371
Oxygen .....	14 or 16.629

100 100.000

The colour is white, and it smells like quick lime being slaked; the substance is very brittle; taste very acrid and highly corrosive, destroying the texture of animals and vegetable bodies: specific gravity 1.7085; melts with heat, and at a strong heat evaporates in a white acrid smoke; contains one-fourth of its weight in water after a red heat, and exposed, it quickly absorbs moisture, and runs into a liquid and combines with carbonic acid. Water dissolves twice its weight of potash and the solution resembles oil, being clear and colourless.

Of late years nitre has attracted some notice as a manure, having been applied as a top-dressing on various crops, and with very fair success. On wheat it has exceeded in value both rock-salt and soot, but in one case, it did not yield so much corn, and soot seemed preferable; and on a gravelly soil dressed with nitre, the produce in straw was great, but much mildewed. On hay grounds nitre increased the quantity of produce by one-third, and it was cut much earlier.—On chalky lands the effects are generally good. The conclusions are in favour of sowing it in moist weather at the rate of 1 to 17 cwt. per acre, and to be bruised to powder to pass through a sieve. On dry soils, and in dry seasons, some persons assert that nitre does harm, while others think it answers best in these circumstances; on clays and cool loams the results have been generally favourable, but extend no benefit to the succeeding crops. It kills slugs and insects, and is applicable to any young crops, and may be mixed with ashes or any similar substances. The application is of the same nature as that of salt, which nitre much resembles; for turnip crops it should be mixed previously in the soil or with the manure, for such substances will injure the young plants, if they be in immediate contact. The quality is very various; the price is about £1 5s. per cwt. If the use became extensive, the supply would soon become scanty; the price varies with the angle at which light is refracted through it; an angle of 5° is called "par," and a refraction above that number diminishes the value by about 1s. per cwt. from 4 to 20 per cent of refraction.

Salt having been found in grain, and more largely in wheat, such substances as nitre and salt were recommended to assist these vegetables, but no similar result has followed; the quantity of straw has been much increased, but the grain has not been improved in quantity or quality; plants may only require a quantity proportionate to their bulk; and salts being a minor quantity in their constitution, the general bulk may not be much increased by a larger quantity being afforded, even if the fact were satisfactorily ascertained that plants imbibe as food the substance found in their construction, when they are artificially supplied.

The chemistry of nature and of art are so different, that a