parallel to the dome (on). The hardness is 2, and the specific gravity 2∙1. It is fairly soluble in water; 100 parts at 0° dissolving 13·3 parts of the salt, and about 30 parts at 20°; the most saturated solution contains 327∙4 parts of the salt in 100 of water; this solution boils at 114∙1°. It fuses at 339° to a colourless liquid, which solidifies on cooling to a white fibrous mass, known in pharmacy as *sal prunella.* It is an energetic oxidizing agent, and on this property its most important applica­tions depend. At a red heat it evolves oxygen with the formation of potassium nitrite, which, in turn, decomposes at a higher temperature. Heated with many metals it converts them into oxides, and with combustible substances, such as charcoal, sulphur, &c., a most intense conflagration occurs. Its chief uses are in glass-making to promote fluidity, in metallurgy to oxidize impurities, as a constituent of gunpowder and in pyrotechny; it is also used in the manufacture of nitric acid.

Potassium nitrate was used at one time in many different diseased conditions, but it is now never administered internally, as its extremely depressant action upon the heart is not compensated for by any useful properties which are not possessed by many other drugs. One most valuable use it has, however, in the treatment of asthma. All nitrites *(e.g.* sodium nitrite, ethyl nitrite, amyl nitrite) cause relaxation of involuntary muscular fibre and therefore relieve the asthmatic attacks, which depend upon spasm of the involuntary muscles in the bronchial tubes. Saltpetre may be made to act as a nitrite by dissolving it in water in the strength of about fifty grains to the ounce, soaking blotting-paper in the solution and letting the paper dry. Pieces about 2 in. square are then successively put into a jar and lighted. The patient inhales the fumes, which contain a considerable proportion of nitrogen oxides. This treatment is frequently very successful indeed in relaxing the bronchial spasm upon which the most obvious features of an attack depend.

2. *Chile saltpetre, cubic nitre* or sodium nitrate, NaNO3, occurs under the same conditions as ordinary saltpetre in deposits covering immense areas in South America, which are known locally as *caliche* or *terra salitrosa,* and abound especially in the provinces of Tarapaca and Antofagasta in Chile. The nitrate fields are confined to a narrow strip of country, averaging 2½ m. in width, situated on the eastern slopes of the coast ranges and extending from north to south for 26o geographical miles, between the latitudes 25° 45'and 19° 12'S. The nitrate forms beds, varying in thickness from 6 in. to 12 ft., under a covering of conglomerate locally known as *lostra,* which is itself overlain by a loose sandy soil. The conglomerate consists of rock fragments, sodium chloride and various sulphates, cemented together by gypsum to form a hard compact mass 6 to 10 ft. in thickness. The caliche has often a granular structure, and is yellowish- white, bright lemon-yellow, brownish or violet in colour. It contains from 48 to 75% of sodium nitrate and from 2o to 40% of common salt, which are associated with various minor saline components, including sodium iodate and more or less insoluble mineral, and also some organic matter, *e.g.* guano, which suggests the idea that the nitrate was formed by the nitrification of this kind of excremental matter. The caliche is worked up *in loco* for crude nitrate by ex­tracting the salts with hot water, allowing the suspended earth to settle, and then transferring the clarified liquor, first to a cistern where it deposits part of its sodium chloride at a high temperature, and then to another where, on cooling, it yields a crop of crystals of purified nitrate. The nitre thus refined is exported chiefly from Valparaiso, whence the name of “ Chile saltpetre." The mother liquors used to be thrown away, but are now utilized for the extrac­tion of their iodine (*q.v.*)*.*

Chemically pure sodium nitrate can be obtained by repeated recrystallization of Chile saltpetre or by synthesis. It forms colour­less, transparent rhombohedra, like those *of* Iceland spar; the angles are nearly equal to right angles, being 73° 30', so that the crystals look like cubes: hence the name of “cubic saltpetre.” There are perfect cleavages parallel to the rhombohedral faces, and the crystals exhibit a strong negative double refraction, like calcite. One hundred parts of water at 0° and at 100° dissolve 72∙9 and 180 parts of the salt; at 120° the boiling-point of the saturated solution, 216 parts. The salt fuses at 316°; at higher temperatures it loses oxygen (more readily than the corresponding potassium salt) with the formation of nitrite which, at very high temperatures, is reduced ultimately to a mixture of peroxide, Na2O2, and oxide, Na2O. The chief applications of Chile saltpetre are in the nitric acid industry, and in the manufacture of ordinary saltpetre for making gunpowder, ordinary Chile saltpetre being unsuitable by reason of its deliquescent nature, a property, however, not exhibited by the perfectly pure salt. It is also employed as a manure. For references to memoirs

descriptive of the Chilian nitrate deposits, see G. P. Merrill, *The Non-Metallic Minerals* (New York, 1904).

3. *Wall-saltpetre or lime saltpetre,* calcium nitrate, Ca(NO3)2, is found as an efflorescence on the walls of stables; it is now manufactured in large quantities by fixing atmospheric nitrogen, *i.e.* by passing a powerful electric arc discharge through moist air and absorbing the nitric acid formed by lime. Its chief applications are as a manure and in the nitric acid industry.

SALT RANGE, a hill system in the Punjab and North-West Frontier Provinces of India, deriving its name from its extensive deposits of rock-salt. The range commences in Jhelum district in the lofty hill of Chel (3701 ft.), on the right bank of the river Jhelum, traverses Shahpur district, crosses the Indus in Mianwali district, thence a southern branch forms the boundary between Bannu and Dera Ismail Khan until it finally merges in the Waziristan system of mountains. The salt range contains the great mines of Mayo, Warcha and Kalabagh, which yield an inexhaustible supply of salt, and supply the wants of all Northern India. Coal of an inferior quality is also found.

SALTYKOV (STCHEDRIN), MICHAEL EVGRAFOVICH (1826- (1889), Russian satirist, was born on his father’s estate in the province of Tula, 15th (27th) January 1826. His early education was completely neglected, and his youth, owing to the severity and the domestic quarrels of his parents, was full of the most melancholy experiences. Left entirely to himself, he developed a love for reading; but the only book in his father’s house was the Bible, which he studied with deep attention. At ten years of age he entered the Moscow Institute for the sons of the nobility, and subsequently the Lyceum at St Petersburg, where Prince Lobánov Rostofski, afterwards minister for foreign affairs, was one of his schoolfellows. While there he published poetry, and translations of some of the works of Byron and Heine; and on leaving the Lyceum he obtained employment as a clerk in the Ministry of War. In 1884 he published *Zaputennoye Dyelo* (“ A Complicated Affair ”), which, in view of the revolutionary movements at that time in France and Germany, was the cause of his banishment to Vyatka, where he spent eight years as a minor government officiai. This experience enabled him to study the life and habits of civil servants in the interior, and to give a clever picture of Russian provincial officials in his *Gubernskie Otcherki* (“ Provincial Sketches ”). On his return to St Peters- burg as he was quickly promoted to administrative posts of con- siderable importance. After making a report on the condition of the Russian police, he was appointed deputy governor, first of Ryazan and then of Tver. His predilection for literary work induced him to leave the government service, but pecuniary difficulties soon compelled him to re-enter it, and in 1864 he was appointed president of the local boards of taxation succes­sively at Penza, Tula and Ryazan. In 1868 he finally quitted the civil service. Subsequently he wrote his principal works, namely, *Poshekhonskaya Starina* (“ The Old Times of Poshek- hona ”), which possesses a certain autobiographical interest; *Istοria odnavo Goroda* (“ The History of a Town ”); A Satirical History of Russia; *Messieurs et Mesdames Pompadours;* and *Messieurs Golovloff.* At one time, after the death of the poet Nekrasov, he acted as editor of a leading Russian magazine, the *Contemporary.* He died in St Petersburg on the 30th of April (12th May) 1889. (G. D.)

SALUS, in Roman mythology the personification of health and prosperity. In 302 **B.c.** a temple was dedicated to Salus on the Quirinal (Livy x. 1); and in later times public prayers were offered to her on behalf of the emperor and the Roman people at the beginning of the year, in time of sickness, and on the emperor’s birthday. In 180 B.c., on the occasion of a plague, vows were made to Apollo, Aesculapius and Salus (Livy xl. 37). Here the special attribute of the goddess appears to be health ; and in later times she was identified with the Greek goddess of health, Hygieia.

SALUTATIONS, or Greetings, the customary forms of kindly or respectful address, especially on meeting or parting or on occasions of ceremonious approach. Etymologically the word *salutation* (Lat. *salutatio,* “ wishing health ”) refers only to words spoken.