Tartaglia’s own account of his early life is contained in his *Quesiti,* lib. vi. p. 74. See also Buoncompagni, *Intorno ad* *un* *testamento inedito di N. Tartaglia* (Milan, 1881); Rossi, *Elogi di Bresciana illustri,* p. 386. Tartaglia’s writings on gunnery were translated into English by Lucar in 1588, and into French by Rieffel in 1845.

**TARTAN** (from F. t*iretaine,* “ linsie-wolsie,” Sp. *tiritaña,* a kind of woollen cloth, perhaps so called from its thinness and lightness, cf. Sp. *tiritar,* to tremble with cold), a worsted cloth woven with alternate stripes or bands of coloured warp and weft, so as to form a chequered pattern in which the colours alternate in “ sets ” of definite width and sequence. The weaving of particoloured and striped cloth cannot be claimed as peculiar to any special race or country, for indeed such checks are the simplest ornamental form into which dyed yarns can be combined in the loom. But the term tartan is specially applied to the variegated cloth used for the prin­cipal portions of the distinctive costume of the Highlanders of Scotland. For this costume, and the tartan of which it is composed, great antiquity is claimed, and it is asserted that the numerous clans into which the Highland population were divided had each from time to time a special tartan by which it was distinguished. After the rebellion of 1745 various acts of parliament were passed for disarming the Scottish Highlanders and for prohibiting the use of the Highland dress in Scotland, under severe penalties. These acts remained nominally in force till 1782, when they were formally repealed, and since that time clan tartan has, with varying fluctuations of fashion, been a popular article of dress, by no means confined in its use to Scotland alone; and many new and imaginary “ sets ” have been invented by manufacturers, with the result of introducing confusion in the heraldry of tartans, and of throwing doubt on the reality of the distinctive “ sets ” which at one time undoubtedly were more or less recognized as the badge of various clans.

Undoubtedly the term tartan was known, and the material was woven, “ of one or two colours for the poor and more varied for the rich,” as early as the middle of the 15th century. In the accounts of John, bishop of Glasgow', treasurer to King James III., in 1471, there occurs, with other mention of the material, the following:—“ Ane eine and ane halve of blue Tartane to lyne his gowne of cloth of Gold.” It is here obvious that the term is not restricted to particoloured chequered textures. In 1538 accounts were incurred for a Highland dress for King James V. on the occasion of a hunting excursion in the Highlands, in which there are charges for “ variant cullorit velvet,” for “ ane schort Heland coit," and for “ Heland tartane to be hose to the kinge's grace.” Bishop John Lesley, in his *De origine, moribus, et rebus gestis Scotorum,* published in 1578, says of the ancient and still-used dress of the Highlanders and Islanders, “ all, both noble and common people, wore mantles of one sort (except that the nobies preferred those of several colours).” George Buchanan, in his *Rerum Scoti∙ carum histories* (1582), as translated by Monypenny (1612), says of the Highlanders, “ They delight in marled clothes, specially that have any long stripes of sundry colours; they love chiefly purple and blue. Their predecessors used short mantles or plaids of divers colours sundry ways divided; and amongst some the same custom is observed to this day." A hint of clan tartan distinctions is given by Martin Martin in his *Western Isles of Scotland* (1703), which work also contains a minute description of the dress of the High­landers and the manufacture of tartan. “ Every’ isle,” he observes, “ differs from each other in their fancy of making plaids, as to the stripes in breadth and colours. This humour is as different through the mainland of the Highlands, in so far that they who have seen those places are able at the first view of a man’s plaid to guess the place of his residence.”

The following lines give a brief description of the colours of the tartans of the principal clans. The kilt-tartan colour is given in each case ; the plaid-tartans vary in slight particulars.

*Campbell of Breadalbane,* light green, crossed with darker green, the stripes broad with narrow edging of yellow. *Campbell of Argyll,* light green crossed with dark green, narrow independent cross lines of white. *Cameron,* brick-red with broad chequered cross of same colour, edged white and with broad centre of ground colour, two independent cross lines of green. *Forbes,* yellow green, crossed with broad dark-green lines, centred black, independent cross lines yellow. *Fraser,* red ground, main cross lines red with deeper red centre edged with blue, independent cross lines blue. *Gordon,* dark blue-green ground, with broad cross lines of lighter green, narrow centre line yellow. *Graeme,* light green ground, crossed with darker green in small chequer, independent cross lines dark green. *Grant,* scarlet, with broad black-edged scarlet crossings, black independent cross lines. *Macdonald of Glengarry and Keppoch,* red, with open broad blue cross lines, and two inde­pendent blue crossings. *Macdonald of Glencoe,* green with broad dark-green crossing, the whole covered with fine red lines. *Mac­donald of Clanranald,* light green with broad dark-green crossing, covered with fine red lines. *Macgregor,* scarlet, with narrow scarlet cross lines, edged and centred blue, widely spaced. *Mackintosh,* red with blue-edged and centred crossings of red, and independent blue cross lines. *Mackenzie,* blue-green, broad crossing of same colour with darker edges, independent cross lines, alternately red and white, over the main crossings. *Macleod,* green, with dark­green crossings, over crossings, every other square, a red line. *Macpherson,* pale grey, four darker grey bars at crossings, the whole covered with red double independent lines. *Munro,* red with broad green stripe and narrow lines forming a check of black and yellow. *Murray,* green, close crossings of darker green, inde­pendent lines red. *Stewart,* scarlet, deep coloured crossings with scarlet centre, fine widely spaced dark independent lines.

See ∖V. and A. Smith, *Tartans of the Clans of Scotland* (1850); J. Sobieski Stuart, *Vestiarium Scoticum* (1842); R. R. M'Ian, *Clans of the Scottish Highlands* (1845-46); J. Grant, *Tartans of the Clans of Scotland* (Edinburgh, 1885).

**TARTAR,** the name commonly applied to crude acid potassium tartrate or “ bitartrate of potash.” **HK(C4H4O6).** During the process of fermentation wines deposit a crystalline crust of argol; this, after being roughly purified by recrystal­lization, is known as tartar, and when further purified and freed from colouring matters becomes “ cream of tartar,” also called technically “ cream.” With the iatrochemists tartar was a generic term which included both this *tartarus vini* and various substances obtained from it, and even salts, such as salt of sorrel (potassium oxalate), that resembled it. Thus *sal fixum tariari* was potassium carbonate, which on exposure to the air deliquesces to *oleum tartari per deliquium∙,* neutral potassium tartrate was called *tartarus tartarisatus,* because it was prepared by neutralizing ordinary' tartar with the sal fixum; *tarlarus chalybeatus* was a preparation with iron; and *Spiritus tariari,* used by Paracelsus, was prepared by dry distillation of tartar. Paracelsus also used the term in a still wider sense to signify abnormal precipitates or sediments deposited from animal secretions; the same idea is apparent in the popular applica­tion of the word to the salivary calculus which forms on the teeth.

*Cream of tartar* is prepared by dissolving granulated argol in boiling water and allowing the solution to stand. The clear liquid is then drawn off and crystallized. The slightly coloured crystals thus obtained are redissolved in hot water, the colouring matters got rid of by means of pipeclay or egg-albumen, and the solution filtered and crystallized, the name “ cream of tartar ” being originally applied to the crust of minute crystals that form on its surface as it cools. The salt crystallizes in masses of small, hard, colourless, trans­parent, rhombic prisms. It is precipitated when an excess of a potassium salt is added to a solution of tartaric acid, but it dissolves in mineral acids, and in alkalis and alkaline carbonates. Solutions of boric acid or borax dissolve it freely, forming soluble cream of tartar, which is a white powder permanent in the air when made with the acid, but deliquescent when borax is employed. Its slight solu­bility in alcohol explains why it is deposited by wines as they mature. One part by weight of the salt dissolves in 15 parts of boiling water, but at lower temperatures the solubility is greatly diminished, and at 0º C. about 416 parts of water are required. When heated it is decomposed with formation of potassium car­bonate and carbon, inflammable gases having an odour of burnt bread being evolved. The salt is used for the manufacture of tartaric acid ; it is also employed in the mordant bath for wool­dyeing, with powdered chalk and alum for cleaning silver, and for the preparation of effervescing drinks and baking-powder. In medicine as *potassii tartras acidus* it is of some slight importance as a diuretic and purgative. The more soluble normal salt, K2(C4H4O6), is used for the same purposes; it is formed by dissolving powdered cream of tartar in a hot solution of potassium carbonate. If sodium carbonate is substituted the result is KNa(C4H4O6), or Rochelle salt.

*Tartar emetic* (potassium antimonyl tartrate) K∙(SbO)C4H4O6·½H2O. This substance has been known for a long period, being mentioned by Basil Valentine. It may be prepared by warming 3 parts of antimonious oxide with 4 parts of cream of tartar, in the presence of water, replacing the water as it evaporates; after digestion is complete, the solution is filtered hot. Powder of algaroth (*q.v.*) may be used in place of the antimony oxide. Tartar emetic crystal­lizes in small octahedra, which lose their water of crystallization gradually on exposure to air, and become opaque. It is soluble, in 14∙5 parts of cold water and 1∙9 parts of hot, the solution showing