is prevalent, while the Totaninae, with acute and stiffer bills, display no such lively colours. Furthermore, the Tringinae, except when breeding, frequent the sea-shore much more than do the Totaninae.@@1 To the latter belong the Greenshank (*q.v.*)and Redshank (*q.v.*), as well as the Common Sandpiper, the “ Summer-Snipe ” above-mentioned, a bird hardly exceeding a skylark in size, and of very general distribution throughout the British Islands, but chiefly frequenting clear streams, especially those with a gravelly or rocky bottom, and most generally breeding on the beds of sand or shingle on their banks. It usually makes its appearance in May. The nest, in which four eggs are laid with their pointed ends meeting in its centre (as is usual among Limicoline birds), is seldom far from the water’s edge, and the eggs, as well as the newly-hatched and down-covered young, closely resemble the surrounding pebbles. The Common Sandpiper is found over the greater part of the Old World. In summer it is the most abundant bird of its kind in the extreme N. of Europe, and it extends across Asia to Japan. In winter it makes its way to India, Australia and the Cape of Good Hope. In America its place is taken by a closely kindred species, which is said to have also occurred in England—*T. macularius,* the “ Peetweet,” or Spotted Sandpiper, so called from its usual cry, or from the almost circular marks which spot its lower plumage. In habits it is very similar to its congener of the Old World, and in winter it migrates to the Antilles and to Central and South America.

Of other Totaninae, one of the most remarkable is that to which the inappropriate name of Green Sandpiper has been assigned, the *Τotanus* or *Helodromas ochropus* of ornithologists, which differs (so far as is known) from all others of the group both in its osteology@@2 and mode of nidification, the hen laying her eggs in the deserted nests of other birds,—Jays, Thrushes or Pigeons,—but nearly always at some height (from 3 to 30 ft.) from the ground (*Proc. Zool. Society,* 1863, pp. 529-532). This species occurs in England the whole year round, and is presumed to have bred there, though the fact has never been satisfactorily proved, and knowledge of its erratic habits comes from naturalists in Pomerania and Sweden. This sandpiper is characterized by its dark upper plumage, which contrasts strongly with the white of the lower part of the back and gives the bird as it flie9 much the look of a very large house-martin. The so-called wood-sandpiper, *T. glareola,* which, though much less common, is known to have bred in England, has a considerable resemblance to the species last mentioned, but can be distinguished by the feathers of the axillary plume being white barred with greyish-black, while in the green sandpiper they are greyish-black barred with white. It is an abundant bird in most parts of northern Europe, migrating in winter very far to the southward.

Of the section Tringinae the best known are the Knot (*q.v.*) and the Dunlin, *T. alpina.* The latter, often also called Ox-bird, Plover’s Page, Purre and Stint,—names which it shares with some other species,—not only breeds commonly on many of the elevated moors of Britain, but in autumn resorts in countless flocks to the shores. In winter of a nearly uniform ash-grey above and white beneath, in summer the feathers of the back are black, with deep rust-coloured edges, and a broad black belt occupies the breast. The Dunlin varies considerably in size, examples from N. America being almost always recognizable from their greater bulk, while in Europe there appears to be a smaller race which has received the name of *T. schinzi.* In the breeding-season the male Dunlin utters a most peculiar and far- sounding whistle, somewhat resembling the continued ringing of a high-toned musical bell.

Next to the Dunlin and Knot the commonest British Tringinae are the Sanderling, *Calidris arenaria* (distinguished from every other bird of the group by wanting a hind toe), the Purple Sandpiper, *Τ. striata* or *maritima,* the Curlew-Sandpiper, *T. subarquata* and the Little and Temminck’s Stints, *T, minuta* and *T. temmincki. T. minutilla,* the American stint, is darker, with olive feet, and ranges from the Arctic New World to Brazil. *T. fuscicollis,* Bonaparte’s sandpiper, with white upper tail-coverts inhabits Arctic America, but reaches the greater part of South America in winter, whilst *Τ. bairdi,* with brownish median tail-coverts, extends over nearly all North America, breeding towards the north.

The broad-billed sandpiper, *T*. *platyrhyncha,* of the Old World, seems to be more snipe-like than any that are usually assigned to this section. The spoon-billed sandpiper, *Eurinorhynchus pygmaeus,* breeds in north-eastern Asia and N.W. America, and ranges to China and Burma in winter. (A. N.)

SANDRART, JOACHIM VON (1606-1688), German art- historian and painter, was born at Frankfort, and after studying in Germany, Holland and England, went in 1627 to Italy, where he became famous as a portrait-painter. He subsequently revisited Holland and then settled in Nuremberg, where he died. His “ Peace-Banquet, 1649 ” is in the town hall there. He is best known as the author of books on art, some of them in Latin, and especially for his historical work, the *Deutsche Akademie* (1675-1679), of which there is a modern edition by Sponsel (1896).

SANDRINGHAM, a village in the N.W. parliamentary division of Norfolk, England, 3 m. from the shore of the Wash, and 2½ from Wolferton station on the Great Eastern railway. Sandringham House was a country seat of King Edward VII., acquired by him when Prince of Wales by purchase in 1861. Ten years later the mansion then existing was replaced by the present picturesque building in brick and stone in Elizabethan style. The estate, of some 7000 acres, includes a park of 200 acres, entered by fine wrought iron gates constructed at Norwich. The church of St Mary Magdalene contains many memorials of the royal family.

SANDSTONE, in petrology, a consolidated sand rock built up of sand grains held together by a cementing substance. The size of the particles varies within wide limits and in the same rock may be uniform or irregular: the coarser sandstones are called grits, and form a transition to conglomerates (*q.v.*)*,* while the finer grained usually contain an admixture of mud or clay and pass over by all stages into arenaceous shales and clay rocks. Greywackes (*q.v.*) are sandstones belonging to the older geological systems, such as the Silurian or Cambrian, usually of brown or grey colour and very impure.

The minerals of sandstones are the same as those of sands. Quartz is the commonest; with it often occurs a considerable amount of felspar, and usually also some white mica. Chlorite, argillaceous matter, calcite and iron oxides, are exceedingly common in sandstones, and in some varieties are important constituents; garnet, tourmaline, zircon, epidote, rutile and anatase are often present though rarely in any quantity. Accord- ing to their composition we may distinguish siliceous sandstones (some of these are so pure that they contain 99% of silica, *e.g.* Craigleith stone and some gannisters), felspathic sandstones or arkoses (less durable and softer than the siliceous sandstones) ; micaceous sandstones, with flakes of mica lying along the bedding planes; argillaceous sandstones; ferruginous sandstones, brown or red in colour with the sand grains coated with red haematite or brownish yellow limonite; impure sandstones, usually in the main consisting of quartz with a large addition of other minerals.

The cementing material is **often fine** chalcedonic silica, and exists in such small quantity that it is difficult to recognize even with the microscope. In some of the cherty sandstones of the Greensand the chalcedonic cement is much more abundant: these rocks also contain rounded grains of glauconite, to which they owe their green colour. Crystalline silica (quartz) is deposited interstitially in some sandstones, often in regular parallel crystalline growth on the original sand grains, and when there are cavities or fissures in the rock may show the development of regular crystalline facets. By this process the rock becomes firmly compacted, and is then described as a quartzite (*q.v.*). A calcareous cement is almost equally common: it may be derived from particles of shefl9 or other calcareous fossils originally mixed with the sand and subsequently dissolved and redeposited in the spaces between the other grains. In Fontainebleau sandstone and some British Secondary rocks the calcite is in large crystalline masses, which when broken show plane cleavages mottled with small rounded sand grains; in the French rock external rhombohedral faces are present and the crystals may be of considerable size. Many of the British Jurassic and Cretaceous sandstones (*e.g.* Kentish Rag, Spilsby Sandstone) are of this calcareous type. In ferruginous sandstones the iron oxides usually form only a thin pellicle coating each grain, but sometimes, in the greensands, are more abundant, especially in concretionary masses or segregations. In argillaceous sandstones the fine clayey material, compacted by pressure, holds the sand grains together, and rocks of this kind are

@@@1 There are no English words adequate to express these two sections. By some British writers the Tringinae have been indicated as “ Stints,” a term cognate with Stunt and wholly inapplicable to many of them, while American writers have restricted to them the name of “ Sandpiper,” and call the Totaninae, to which that name is especially appropriate, “ Willets.”

@@@2 It possesses only a single pair of posterior “ emarginations ” on its sternum, in this respect resembling the Ruff (*q.v.*). Among the Plovers and Snipes other similarly exceptional cases may be found.