where the sun's light does not penetrate, the temperature is steady, and there are no strong currents of air.

In all limestone caves stalactites form in great abundance as glimmering white columns covered with a thin film of water. The great caves, such as those of Adelsberg (in Styria), Jenolan (Australia), the Mammoth Cave (Kentucky), the Causses district in France, and the grottos of Belgium, are divided into chambers which are richly festooned with stalactites, and fanciful names are given to various groups according to their similarity to different objects, natural or artificial. Ice caves of considerable size occur in the Arctic and Antarctic regions, and are draped with ice stalactites often wonderfully like those of limestone caves.

Where the water drops upon the floor of one of these caves evaporation still goes on and an encrustation forms which may cover the whole surface as an irregular sheet. If the air be perfectly still, however, the drop which falls from a stalactite on the roof will always land on the same place and a pillar of deposit will rise vertically, till in course of time it meets and joins with the stalactite above. In this way a column is pro­duced, which sometimes has a graceful form with a long straight shaft expanding somewhat at its upper and lower extremities. As the stalactites thicken by deposit of layer upon layer of carbonate of lime, they rarely continue to be cylindrical but assume tapering forms with irregular surfaces. They seldom branch, but sometimes they give off excrescences which may curve upwards or downwards and occasionally long thin stalac­tites take their rise from these and grow downwards parallel to the main stalactite. Large stalactites may be three or four feet thick, but in that case they have usually formed by the coalescence of adjacent ones which enlarged till they met and were then covered with a continuous layer of deposit.· Single stalactites 2 ft. in diameter are not rare. It is known that they are of very slow growth, and much speculation has gone on regarding the length of time required for the formation of some of the largest stalactites. From data obtained by measurement of the rate of growth at the present day it has been estimated that as much as two hundred thousand years may have elapsed since certain thick stalactites began to grow. We know that many caves are of great antiquity from the fossil remains they contain, but these estimates are probably ill- founded, seeing that there is no certainty that the conditions have remained the same during the whole period of growth. Sir Archibald Geikie records that stalactites 11/2 in. in diameter had formed beneath a bridge in Edinburgh which was a hundred years old; in caves, however, the rate of formation is rarely so great as this. Inscriptions on stalactites in the Adelsberg cave after thirty years had been covered with a scarcely perceptible film of new deposit. In one of the Moravian caves a stalactite, about as thick as a goose quill, was broken across in 1880 and in 1891 it had grown three or four centimetres; from careful observations it has been calculated that one of these stalactites, 7 ft. long, may have been formed in 4000 years. The stalagmitic crust on the floor of caves is usually mixed with blocks which have fallen from the roof, sand, mud and gravel carried in by floods, and the bones of animals and men which have inhabited the cave if it had an accessible entrance. Its formation must have been interrupted by many changes in the physical conditions of the district, and consequently it often occurs in layers which alternate with beds of a different character.

Some particulars regarding the internal structure and growth of stalactites have been ascertained by Professor W. Rinz of Brussels. The first stage of every stalactite is a low circular ring of deposit on the roof of the cave. The diameter of this ring corresponds to the breadth of a drop of water which is so large that it is on the point of falling. At the outer surface of the drop evaporation goes on and supersaturation results in the deposit of a thin ring-shaped band. At the centre of the drop no deposition takes place, and as this goes on after some time a short tube is produced ; the width of this tube is about 5 millimetres and is fairly constant. The tube very slowly lengthens as deposit gathers at its lower end : water is constantly dropping from it and its interior is always full. Very little material is deposited except at the orifice—hence in many caves long straight tubular stalactites can be seen not much more than a quarter of an inch wide, and with delicate thin walls. A little water, however, makes its way from the interior to the outside of the tube and is exposed to evaporation there, consequently the tube walls gradually grow thicker. The end of a simple tubular stalactite of this type has small sharp teeth or points which are the corners of crystals. These have the rhombohedral faces of calcite, and are usually of a simple description: their corresponding faces are parallel, and an examination of the material of the tube proves that the whole mass has the same crystalline structure. We may, in fact, describe these stalactites as rounded, tubular crystals continuously growing but provided with crystalline facets only at their lower ends. Small lateral passages sometimes allow the water to escape from the interior of the tube and their apertures become surrounded with lime deposits. In this way horns, twigs and branches arise, often curving upwards or downwards; they are always provided with a central tubule which may be a mere capillary. The substance of these offshoots is in crystalline continuity with that of the main stalactitè, and the whole mass has a uniform optical orientation. In the majority of . cases the long axis of the stalactite corresponds to the optic axis of the calcite crystal, but in one group of stalactites these two make an angle of 15° with one another. An interruption in the supply of water or an accidental fracture of the stalactite induce abnormal growth. The end of the tube becomes obstructed or completely closed, and nodular or tuberculate growths are often the result. If the outer surface dries the next layer which is laid down may often be readily detached, as it is not firmly united with the underlying material. In any case a second stage of growth ulti­mately arrives, when the central tube is no longer the chief conduit but a general drip of water from the roof bathes the whole outer surface of the stalactite. Then small, flat crystals of calcite appear with their basal planes directed outwards. These increase in number till they cover the whole mass, and as they grow outwards they develop into prisms whose axes are directed radially. In very old spherulites the initial tube is covered with a great thickness of radiat­ing calcite crystals deposited from the mineral solutions which trickle down along the external surface. When they are cut across they show concentric rings, some of which are due to stains of iron or manganese oxides or insoluble materials brought down by the water; others are lines of cavities produced by interrupted or irregular crystallization. They resemble the rings of the wood of trees, but probably do not depend on seasonal changes but on purely accidental factors, so that they afford no clue to the rate of growth.

Stalactites also occur in the interior of lava caves in the Sandwich Isles, Samoa, &c. Often the upper surface of a lava flow has cooled to form a crust, while the interior is still perfectly fluid, and it sometimes happens that the liquid basalt has made its escape, leaving great cavities below the hollow roof of the lava. The interior of these caves is covered with a black shining film of glassy basalt, and black stalactites of lava hang down­wards. Their surface is sometimes changed to brown or red by the oxidizing action of the acid vapours which occupied the cave after the lava retired. These stalactites are tubular, with bluntly rounded ends, and probably their mode of growth is somewhat analogous to that of ice-stalactites. In micro­scopic section they prove to be glassy with small crystals of olivine and augite; in this they differ from the ice and calcite stalactites which are crystalline throughout.

**STALL** (O. Eng. *steall, stael,* cf. Du. *stal,* Ger. and Swed. *Stall,* a common Teutonic word for a place, station, place for standing in; the root is the Indo-European *sta-,* to stand, seen also in Latin *stabulum,* Greek *σταθμός,* and in stallion, an entire horse, properly one kept in a stall and not worked), a word which means literally a place where one may stand, and so is applied to a separate division in a stable, shed, &c., in which a single horse, cow or other domestic animal may be kept, to a separate booth, bench or table in a market or other building, or in the street, on which goods are exposed for sale by the person owning or licensed to use the same, and in England to the higher-priced scats on the ground floor of a theatre. The word is more particularly applied to a special form of seat in an ecclesiastical building. In cathedrals, monastic churches and the larger parish churches the stalls are fixed seats enclosed at the back and separated at the sides by high project­ing arms, and placed in one or more rows on the north and south sides of the choir or chancel, running from the sanctuary to the screen or chancel arch. These separate enclosed seats are properly reserved for the clergy, and more usually the choir are seated in open benches in front of the stalls. In a cathedral the canons and prebendaries have each a stall assigned to them.