food starches being Arrowroot, Sago, Tapioca *(qq.v.)* and corn-flour, the starch of the Maize *(q.v.).* In its combined condition, in cereals, &c., starch is certainly the greatest and foremost of all the elements of nutrition (com­pare Dietetics and Nutrition). In its other industrial relations starch is used—(1) directly, as a thickening material in calico printing, for the dressing and finishing of many textiles, for laundry purposes, adhesive paste, and powder ; and (2) indirectly, for the preparation of dextrin and British gum and starch sugar. Maize, wheat, and rice starch are principally employed for the direct applications ; and for the dextrin and starch-sugar manufacture potato starch is almost exclusively selected.

In the preparation of starch the object of the manufacturer is to burst the vegetable cell walls, to liberate the starch granules, and to free them from the other cell contents with which they are associated. When, as in the case of the potato, the associated cell contents, &c., are readily separated by solution and levigation the manufacture is exceedingly simple. Potato starch is prepared principally by carefully washing the potatoes and in a kind of rasping machine reducing them to a fine pulp, which is deposited in water as raw starch. The impurities of this starch—cellulose, albuminoids, fragments of potato, &c.—are separated by washing it in fine sieves, through the meshes of which the pure starch alone passes. The sieves are variously formed, some revolving, others moving horizontally or in such manner as to keep the material in agitation. The starch is then received in tanks, in which it settles, and so separates from the soluble albuminoids and salts of the potatoes. The settling of the starch is much retarded by the dissolved albuminoids, and to hasten the separation small quanti­ties either of alum or of sulphuric acid are employed. Alum coagulates the albumen and to that extent contaminates the starch, while the acid acts on the starch itself and is difficult of neutralization. After the starch has settled, the brown-coloured supernatant liquor is drawn off and the starch again washed either in tanks or in a centrifugal machine. Finally it is dried by spreading it in layers over porous bricks (a process not required in the case of starch washed in a centrifugal machine) and by exposure to the air, after which it still retains a large proportion of water, but is in a condition for making dextrin or starch-sugar. For further drying it is ground to a rough powder, and dried thoroughly in a hot chamber, then reduced to a powder and sifted. A method of reducing potatoes to a pulp by slicing and heaping them up till fermentation takes place is said to give a large yield of starch, but it is not much practised.

In dealing with the starches of the cereals, there is greater difficulty, owing to the presence of gluten, which with water forms a tough elastic body difficult of solution and removal. The difficulty is experienced in greatest measure in dealing with wheat, which contains a large proportion of gluten. Wheat starch is separated in two different ways—(1) the fermentation method, which is the original process, and (2) by mechanical means without preliminary fermentation. In the fermentation process whole wheat or wheaten meal is softened and swollen by soaking in water. Wheat grains are, in this condition, ground, and the pulp, mixed to a thickish fluid with water, is placed in tanks, where it ferments, developing acetic and volatile acids which dissolve the gummy constituents of the wheat, with part of the gluten, and render the whole less tenacious. After full fermentation, the period of which varies with the weather and the process employed, the starch is separated in a washing drum. It is subsequently washed with water, which dissolves out the gluten, the starch settling in two layers,—one comparatively pure, the other mixed with gluten and some branny particles. These layers are separated, the second undergoing further washing to remove the gluten, &c., and the remaining operations are analogous to those employed in the preparation of potato-starch. By the mechanical process wheaten flour is kneaded into a stiff paste, which, after resting for an hour or two, is washed over a fine sieve so long as the water passing off continues milky, whereby the starch is liberated and the greater part of the gluten retained as a gluey elastic mass in the sieve. The starch is subsequently purified by fermentation, washing, and treatment in centrifugal machines. The gluten thus preserved is a useful food for diabetic patients, and is made with flour into artificial macaroni and pastes, besides being valuable for other industrial purposes.

Maize starch is obtained by analogous processes, but, the pro­portion of gluten in the grain being smaller, and less tenacious in its nature, the operations, whether chemical or mechanical, present fewer difficulties. Under one method the separation of maize starch is facilitated by steeping, swelling, and softening the grain in a weak solution of caustic soda, and favourable results are also obtained by a process in which the pulp from the crushing mill is treated with water acidulated with sulphurous acid.

In the preparation of rice-starch a weak solution of caustic soda is also employed for softening and swelling the grain. It is then washed with pure water, dried, ground, and sifted, and again treated with alkaline water, by which the whole of the nitrogenous constituents are taken up in soluble form. An acid process for obtaining rice-starch is also employed, under which the grain, swollen and ground, is treated repeatedly with a solution of hydrochloric acid, which also dissolves away the non-starchy con­stituents of the grain. The laundry starches now in use are principally made from rice and from pulse. (J. PA.)

STAR-CHAMBER, the name given in the 15th, 16th, and 17th centuries to an English high court of justice, consisting of the members of the ordinary council, or of the privy council only, with the addition of certain judges, and exercising jurisdiction, mainly criminal, in certain cases. The origin and early history of the court are somewhat obscure. The Curia Regis of the 12th century, combining judicial, deliberative, and administrative functions, had thrown off several offshoots in the Court of King’s Bench and other courts, but the crown never parted with the supreme jurisdiction whence the subsidiary courts had emanated. When in the 13th century the council became a regular and permanent body, practically distinct from the parliament of estates, this jurisdiction continued to be exercised by the king in council. As the ordinary law- courts became more systematic and important, the inde­finite character of the conciliar jurisdiction gave rise to frequent complaints ; and efforts, for the most part fruitless, were made by the parliaments of the 14th century *(e.g.,* in 15 Edw. II. and 2 Edw. III.) to check it. The equitable jurisdiction of the chancellor, which grew up during the reign of Edward III., flowed from this supreme judicial power, like the common law- courts under Henry II, but without drying up the original source. It is in the reign of Edward III. that we first hear of the “chancellor, treasurer, justices, and others” exercising jurisdiction in the “star-chamber” or “chambre de estoiles” at Westminster. In Henry VI.’s reign one Danvers was acquitted of a certain charge by the king’s council “ in camera stellata.” Hitherto such Acts of Parliament as had recognized this jurisdiction had done so only by way of limitation or prohibition, but in 1453, about the time when the distinction between the ordinary and the privy council first became apparent, an Act was passed by which the chancellor was empowered to enforce the attendance of all persons summoned by the privy seal before the king and his council in all cases not determinable by common law. At this time, then, the jurisdiction of the council was recognized as supplementary to that of the ordinary law-courts. But the anarchy of the Wars of the Roses, and the decay of provincial justice owing to the influence of great barons and the turbulence of the lower classes, obliged parliament to entrust wider powers to the council. This was the object of the famous Act of 3 Hen. VII., which was quoted by the lawyers of the Long Parliament as creating the court of star- chamber. This, however, as is shown above, it was far from doing. The Act of 3 Hen. VII. empowered a committee of the council, consisting of the chancellor, treasurer, privy seal, or any two of them, with the chief justices, or in their absence two other justices, a bishop, and a temporal lord, to act as a court of justice for enforc­ing the law in cases where it was thwarted by bribery, intimidation, or partiality. The jurisdiction thus entrusted to a committee of the council was not, therefore, like that granted in 1453, supplementary, but superseded the ordinary law-courts in cases where they were too weak to act. The Act simply supplied machinery for the exercise under special circumstances of that extraordinary penal jurisdiction which the council had never ceased to possess. This jurisdiction, Bacon tells us, was still further developed aud organized by Wolsey. The court established by thø