substance exerts no action on azotized substances, as fibrin, albumen, casein, gelatin or glutten, nor on the neutral ternary compounds, cane sugar, inuline, gum Arabic, and lignin. It exercises, however, a most remarkable action on amylaceous substances, as the following experiments will demonstrate.

When some of this active principle of the saliva is mixed with some starch beat up with six or eight times its weight of water, and the whole heated, the mixture never acquires a gelatinous consistence as plain starch would have done, but each grain of fecula is rendered entirely soluble the moment it becomes hydrated. After a little while the solution is not even coloured by means of iodine, but caustic potass, if heated with it, produces the intese brown coleration, which indicates the conversion of the starch into dextrine and glucose. These substances are easily separated by treating the liquor with five or six times its weight of absolute alcohol, when the glucose is dissolved and the dextrine precipitated.

Raw starch takes a longer time to be acted on by the animal diastase, but its action is greatly increased by heat. The activity of this principle is such, that one part suffices to liquify and convert into dextrine and sugar more than 2000 parts of fecula.

M. Mialhe relates in his paper the comparative experiments he made with the diastase procured from germinating barley, from which it appears that its action on starch was identically the same. M. Mialhe concludes that all hydrocarbonaceous substances serving for aliment, can only undergo the process of assimilation provided they are decomposable by the weak alkaline solutions contained in the animal humours. This is done immediately in the case of glucose, dextrine and sugar of milk, and mediately in the case of cane sugar and starch, which must first assume the form of glucose and dextrine. Those hydrocarbonaceous substances, on the other hand, which are neither fermentable nor decomposable by weak acid or alkaline humours, as lignin and mannite, do not undergo in man the digestive or assimilative process.—*Edinburgh Med. & Sur. Jour. from Comptes Rendus.*

SECRETING STRUCTURES.

The following comprises an abstract of the chief points contained in an excellent paper by Mr. Goodsir, relative to the function of secretion as well as the structure of secreting organs.

1st. Secretion is essentially a function of nucleated cells. The cells endowed with this property of secretion possess a peculiar organic power by which they can draw into their interior certain kinds of materials varying according to the nature of the fluid they are destined to secrete. Some cells have merely to separate certain ingredients from the surrounding medium, others have to elaborate within themselves matters which do not exist as such in the nutritive medium.

2d. Though secreting cells thus differ in the nature of the fluid which they secrete, (as whether milk, bile, saliva, or other,) their structure seems to be nearly the same in all cases; each consisting, like other primitive cells, of a nucleus, cell-wall, and cavity.

3d. The nucleus seems to be both the reproductive organ by which new cells are generated, and the agent for separating and preparing the secreted material. The cell-cavity seems destined chiefly to contain the secreted fluid until ready to be discharged, at which time the cell then matured bursts and discharges its contents into the intercellular space in which it is situated, or upon a free surface, as the case may be.

4th. The mode of secretion in glands, of which the testicle of the *squalus cornubicus* may be taken as a type, seems to be the following.* Around the extremities of the minute ducts of the glands are developed acini or primary nucleated cells, each of which as it increases in size has generated within it secondary cells, the product of its nucleus. The cavity of the parent cell does not communicate with the duct on which it is situated until its contents are fully matured, at which time the cell-wall bursts or dissolves away, and its contents are discharged into the duct. From this constant succession of growth and solution of cells, it results that the whole parenchyma of a gland is continually passing through stages of development, maturity, and atrophy, the rapidity of which process is in proportion to the activity of the secretion. There seems, therefore, to be no essential difference between the process of secretion and the growth of a gland; the same cells are the agents by which both purposes are effected; the parenchyma of glands is chiefly made up of a mass of cells in all stages of development; as these cells individually increase in size and so constitute their own growth as well as that of the common glandular mass, they are at the same time elaborating within themselves the material of secretion, which, when matured, they discharge, by themselves dissolving away. There are a number of germinal spots or centres in a gland from which acini or primary cells are developed.

5th. The true fluid of secretion is not the product of the parent-cell of the acinus, but of its included mass of secondary cells, which themselves become primary secreting cells, and form the material of secretion in their cavities. In some cases these secondary cells pass out entire from the parent cell, constituting a form of secretion in which the cells possess the power of becoming more fully developed after being discharged and cast into the duct, or cavity of the gland.

6th. In the order of the glands, which consist of follicles more or less elongated, the following is the arrangement:†—At the blind extremity of each follicle is situated a germina spot, at the centre of which are constantly or periodically developing nucleated cells. These cells, as they become developed, tend towards the open extremity of the follicle. A first they are simple nucleated cells, but as they advanc they gradually assume the characters of primary secretor cells, and contain secondary cells in their interior. Wha fully matured and arrived at the attached extremity of te follicle, the primary cells burst and allow their contents o pass into the branch of the duct to which the follicle is ttached. Each follicle is virtually permanent, though both its contained cells and its walls are continually undergoing change, receiving development and addition at the blind xtremity, being absorbed and disappearing at the other.

7th. Mr. Goodsir considers that the process of original development of glands in the embryo is identical in its nature with the growth of a gland during its state of functiona activity. The blastema which announces the approachin formation of a gland in the embryo, in some instances prede s and is in other instances cotemporaneous with, the conic blind protrusion of the membrane upon the surface of whh the future gland is to pour its secretion. In certain instaces it has been observed that the smaller branches of the dts are not formed by continued protrusion of the original bld sac, but are hollowed out, independently, in the substanc of the blastema, and subsequently communicate with the dts. It appears highly probable, therefore, that a gland is iginally a mass of nucleated cells, the progeny of one or mo parent-cells, and that whether the membrane in connectio with the embryo of the gland sends a conical protrusion int the mass or not, the extremities of the ducts are formed as sed vesi-

* Conglomerate glands in general; as the salivary ands, pancreas, &c., may be included in this class, though ividual differences as to the arrangement, and other peculiariti of the cells, occur in each.

† Under this class may be included the follicular ands of the mucous membrane of the stomach, &c.