ages. One of the most interesting recently described is the *Karyophagus salamandræ* of Steinhaus (fig. 2f), which invades the nuclei of the intestinal epithelium of the salamander, and only becomes free within the cell after all the nuclear matter has been devoured.

A similar nuclear parasite is asserted by Podwyssozki to occur in certain diseases of the liver in man, and a detailed description of these is promised shortly. The parasites, which he proposes to call *Karyophagus hominis*, first produce a hypertrophy of the invaded nuclei of the liver-cells, then distort them, and, after encystation and sporulation, finally cause the pigmentary atrophy and disappearance of the whole cells. Such destruction of the liver-cells as well as the irritating effect on the intra- and inter-lobular connective tissue caused by the presence of the coccidia may lead to cirrhosis and icterus. Podwyssozki calls attention to the ease with which the structures may be confounded with normal elements, expressly stating that they may easily be overlooked by an experienced histologist, and remarks that many of the so-called accessory nuclei, plasmomes, etc., described as normal cell-elements, may really be developmental stages of coccidia. It is obvious that the close cystological studies of the present day have prepared the way for researches into this difficult field of investigation

In adition to the above described cases in which the epithelium of the digestive tract is

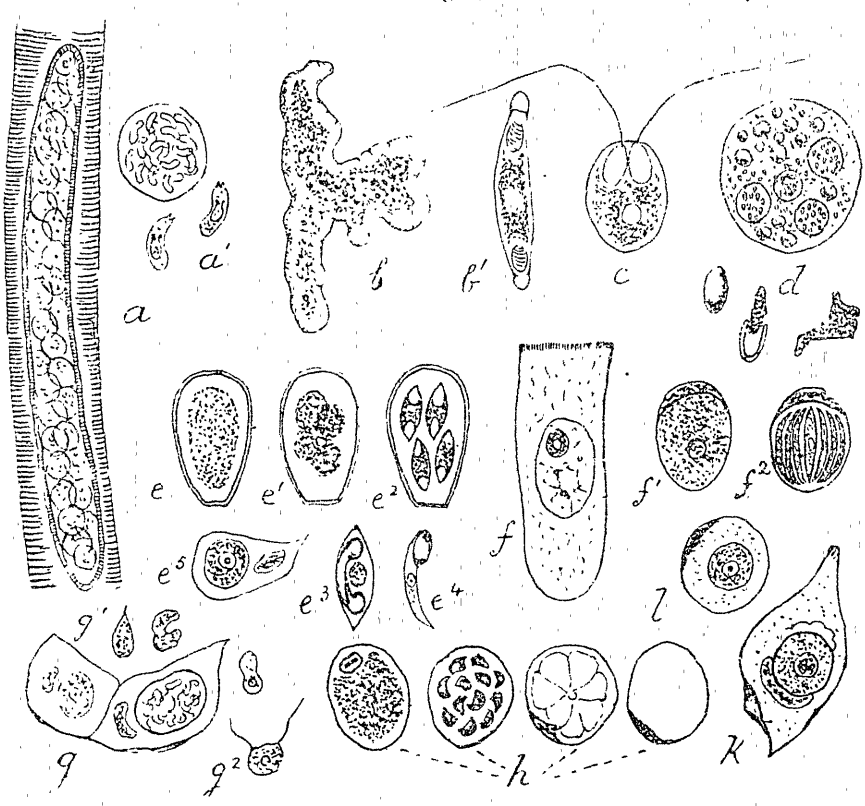

FIG. 2. ILLUSTRATING VARIOUS PATHIGENIC SPOROZOA.

a, A voluntary muscle-fibre from the œsophagus of the sheep containing a tube-like Sarcosporid; within the tubes are cysts in different stages of development, the ripe ones (a1) containing numerous crescentic bodies; b, a Myxosporid from the bladder of the pike, (b1), one of its spores with terminal thread-cells; c, a spore from another species with projected threads; d, yolk-cell from the egg of silk-moth infested with microsporid cysts; below is represented one of the oval spores contained in these and the amœboid germs with emerge from such spores; e, *Coccidium oviforme* from the liver of the rabbit in encysted stage; e1, e 2, contents of cysts segmenting into spores, e 3, one of the spores enlarged containing two crescentic germs, e4; e5, epithelial cell from a bile-duct invaded by a young coccidium; f, intestinal epithelial cell from the salamander, the nucleus of which is invaded by a coccidium (*Karyophagus* of Steinhaus), f1, a similar nucleus almost entirely replaced by the invading coccidium; f2, the coccidium undergoing direct division into segments; g, epithelial cells from the mouth of the pigeon, after Pfeiffer, with coccidia in different stages of development, one encysted with contained crescents; g1, crescents showing amœboid movements; g 2, adopting "flagellate" form on mucous membrane; h, four epidermal cells from *molluscum contagiosum* after Neisser, to the left is a cell, h1, with the contained coccidium in its protoplasmic phase, h2, segmentation into angular refractive bodies follows, which eventually enlarge so as to crowd upon each other, h3, their outlines disappearing and the surrounding cell cornifying give rise to the characteristic "molluscum corpuscle," h4; k, epidermal cell from *psorospermosis follicularis* (keratosis follicularis), after Darier, in which a coccidium pushes aside and distorts the nucleus; l, epithelial cell from Paget's disease "chronic eczema of the nipple" after Butlin, the contained coccidium interpreted by him as an instance of endogenous cell-formation.