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INHERITANCE IN A HEPATIC[1]

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THE studies here outlined were suggested by the presence in Sphaerocarpos of these advantageous conditions: (1) The presumable relative simplicity of inheritance in a haploid generation, yielding hybrid ratios that may be tested in comparatively small families, free from complications of dominance and recessiveness. (2) The opportunity for an exhaustive study of a given genotype, expressed through a clone ordinarily requiring little space but potentially unlimited in extent and duration. (3) The permanent adherence, in most species and races, of the four spores derived from each mother cell, making possible a virtually immediate determination of the genetic effects of meiosis.

[1] Address of the retiring vice-president of Section G—Botany, American Association for the Advancement of Science, Des Moines, Iowa, December 31, 1929.

While the predominant generation of Sphaerocarpos is simpler, because haploid, than the diploid organisms chiefly studied by geneticists, the phenomena of inheritance in this genus need not be expected, and do not appear, to be simpler in any other sense. The genus is probably the present climax of as long an evolutionary development as is the pea or the banana-fly. Sexual differentiation, so far as concerns gametes and the organs in which they are borne, is at approximately the highest point reached by any plant. Dioecism and sexual dimorphism are fixed and constant. The chromosome complex is comparable with that of any "higher" organism. Allosomes, in differentiation and in the correlation between their distribution and the appearance of sexual characters, resemble those of many Metazoa. The frequency of mutation is comparable with that elsewhere observed. In the longest series of experiments yet summarized,