Consanguinity in a Midwestern United States Isolate[1]

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ALL MARRIAGES during 1850–1949, of 592 individuals descended from common ancestors J.S. and A.R., were examined genealogically to determine the incidence of consanguineous matings. This couple of Swiss origin immigrated in 1853 to a midwestern farming locale in this country with other members of their family and religious group. These descendants represent a relatively isolated population, the isolating influences being primarily strong religious affirmations and social customs which do not encourage marriage with others outside the religious group.

This study was undertaken after noting 14 cases of an autosomal recessive type of progressive muscular dystrophy (Jackson and Carey) occurring among descendants of the couple J.S. and A.R. (figure 1).
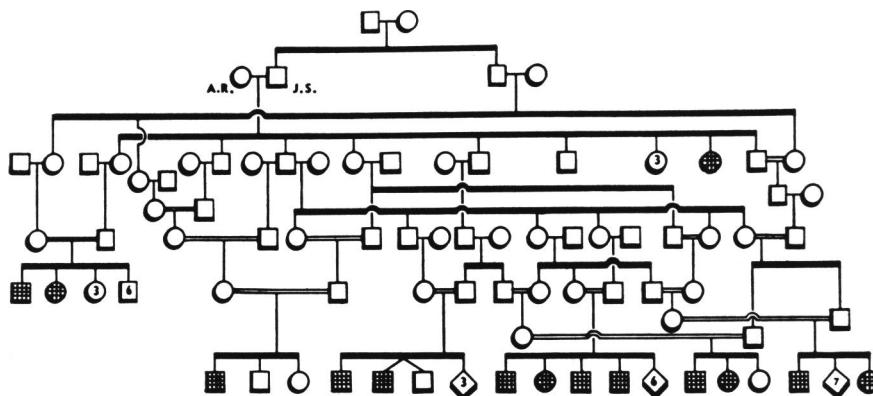

FIG. 1. A portion of the pedigree of descendants of J.S. and A.R. Cross-hatched areas indicate persons affected with muscular dystrophy. Double lined connections indicate a consanguineous marriage.

Data for this investigation were obtained primarily by consulting genealogical records compiled by members of the family and by interrogating certain of the descendants. In several instances, couples were related in two or more different ways. Figure 1 illustrates the complexity of interrelationships encountered. It was necessary to compute the coefficient of relationship of many marriages in order to assign them to the proper cousin category. [The authors wish to express their appreciation to Dr. W. J. Schull, University of Michigan, for his recommendations

TABLE 1. THE INCIDENCE OF CONSANGUINEOUS MARRIAGES AMONG DESCENDANTS OF J.S.
AND A.R. DURING 1850–1949

Period	No. of Marriages	First Cousin or Closer	Second Cousin up to but Excluding First Cousin	Third Cousin up to but Excluding Second Cousin	Total
1850– 1874	11	1 (9.1%)			1 (9.1%)
1875– 1899	42	8 (19.0%)	3 (7.1%)		11 (26.2%)
1900– 1924	128	4 (3.1%)	34 (26.6%)		38 (29.7%)
1925– 1949	446	13 (2.9%)	72 (16.1%)	17 (3.8%)	102 (22.9%)
Totals	627	26 (4.1%)	109 (17.4%)	17 (2.7%)	152 (24.3%)

in establishing exact interrelationships of some of the marriages. The determination of the coefficient of relationship was performed as described in Neel and Schull's text, *Human Heredity*.] Table 1 summarizes the data obtained. The frequencies are slight underestimates, as several probable relationships which could not be verified were not included.

DISCUSSION

Total consanguinity for this relatively isolated population is almost twice that observed by Herndon and Kerley (1952) in a preliminary study of native, rural families selected at random in Watauga County, North Carolina: of 1651 marriages during 1830–1950, Herndon and Kerley reported 1.57 per cent first cousin marriages and 12.66 per cent marriages between couples related as fourth cousins or closer.

The incidence of first cousin marriages is also considerably higher than that reported by Woolf, Stephens, Mulaik and Gilbert (1956) for marriages occurring between Mormon people and their relatives in Wisconsin, Illinois, Indiana, Michigan and Ohio during 1920–1956. They observed a first cousin marriage incidence of 0.37 per cent among 11,507 marriages.

Because of the Swiss origin of this family, this study was compared with studies of Swiss communities: Brenk (1931), Grob (1934), Ruepp (1935) and Egenter (1934), as quoted by Neel, Kodani, Brewer and Anderson (1949), reported frequencies of marriages of second cousins or closer in various isolated Swiss communities having values of 9.7 per cent, 9.9 per cent, 19.5 per cent and 53.8 per cent respectively, during 1870–1932.

SUMMARY

All (627) marriages during 1850–1949 of descendants of a couple of Swiss descent who settled in the United States in 1853 were reviewed for consanguinity and 4.1 per cent were found to be between couples related as first cousins or closer and a total of 21.5 per cent between second cousins or closer.

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