ISONYMY BETWEEN TWO TOWNS IN MICHOACAN, MEXICO

Gabriel W. Lasker*
Ronald K. Wetherington**
Bernice A. Kaplan***
Robert V. Kemper**

Early in the efforts to utilize commonality of surnames (isonymy) in the study of consaguinity, Shaw (1960) recognized the special benefits of the method in Spanish-speaking countries because of the custom of using both the father's surname and that of the mother. There are also disadvantages. Some Spanish surnames have very high frequencies and are probably highly polyphyletic; and in Latin America most surnames were acquired in the 17th Century or even later and (unlike the case in southern and western Europe) do not cover a time span inaccesible to pedigree analysis. To better evaluate the advantages and disadvantages as well as to try to learn something of the genetic structure of the populations it seemed desirable to add a Mexican example to the Peruvian ones formerly analyzed (Lasker, 1968, 1969, 1977, 1978).

Tzintzuntzan and Paracho, have been intensively studied (Foster, 1948, 1967, Kemper, 1977; Kaplan, 1953). Tzintzuntzan, on Lake Patzcuaro, was the ancient capital of the Tarascan Empire. It is now a quiet crafts-producing community. We have utilized a list of the paternal and maternal surnames of 4075 individuals listed in village censuses of 1945, 1960, 1970 and 1980. We thank Prof. George Foster for access to much of these data, and for material support.

*   Department of Anatomy, Wayne State University, U.S.A.
**   Department of Anthropology, Southern Methodist University, U.S.A.
*** Department of Anthropology, Wayne StateUniversity, U.S.A.

Paracho, sometimes called the "capital of the Tarascan sierra", was established at its present location after the Spanish conquest of Mexico. Paracho has limited land for agriculture and the townspeople have always lived by the manufacture of craft products (such as musical instruments and wooden toys) and by trade. We have abstracted the surnames of 2128 individuals 18 years old an older from a census collected in 1952. The records were taken orally so it has been necessary to assume standardized spelling of names.

For each town four lists of surname incidences were prepared: males' fathers' surnames, males' mothers' surnames, females' fathers' surnames and females' mothers' surnames. Each list from Tzintzuntzan was compared with each other list. Then each list from Tzintzuntzan was compared with each list from Paracho using the following formulation of the Coefficient of Relatonship by Isonymy.

$$Ri = \sum S_1 S_{2\,2}/2N_1 N_2$$

in which S_1 is the incidence of each surname in one list, S_2 is the incidence of the same surname in another list, N_1 is the sum of all S_1 and N_2 is the sum of all S_2. We shall also discuss the contribution to the coefficient of relationship by isonymy of certain specific surnames.

The coefficients of relationship by isonymy are given in Tables 1 and 2. Within Tzintzuntzan, between pairs of the four list, the coefficients are very high (Table 1), averaging $1118 \times 10^{-5} \pm$ S.D. 28×10^{-5} The mean coefficient between Tzintzuntzan and Paracho is $266 \times 10^{-5} \pm$ S.D. 30×10^{-5}

The greatest contribution to relationship between the town is from the common surnames Estrada, Morales and Hernández. Although 113 of the 246 different surnames that occur at Tzintzuntzan also occur at Paracho, the three names listed above account for over half (36.7%, 14.2% and 14.0% respectively) of the mean coefficient of relationship between the towns.

Discussion

The coefficients of relationship by isonymy reported in this note are very high but variability is low. The coefficients

within Tzintzuntzan exceed an average level of third cousins; this must be largely the result of inclusion of whole families with many instances of first degree and other close relatives. The mean level of relationship by isonymy between Paracho and Tzintzuntzan (266×10^{-5}) is also high (closer than fourth cousin if the assumption of no polyphyletic surnames could be accepted). It may be compared with the mean of 142×10^{-5} between populations of towns on the north coast of Peru (Lasker, 1977) and averages of about 75×10^{-5} in England (Lasker, 1980). Spanish surnames of largely Indian and Mestizo populations in Mexico were highly polyphyletic in origin and must have remained largely so in the three centuries that have followed More random loss of surname lines may have accumulated in populations which have had surnames since Medieval times (as in South and West Europe) leaving less polyphyly in them in Mexico today.

Approximately one third of the population of Paracho migrated there (this is a higher rate than of migration into Tzintzuntzan) yet there is no record of direct migration from Tzintzuntzan to Paracho and only one or two cases each of migration to Paracho from Quiroga, Patcuaro or communities near Tzintzuntzan.

Only two definitely Tarascan surnames are shared by Tzintzutzan and Paracho (Tzintzun and Huipe). Although they contribute little to the high level of the coefficient of relationship (3%) they do point to some degree of regional migration among the towns of the Tarascan area. Migration is somewhat restricted to separate zones (the lake and the *Sierra*) within the area, however, and is intersected with migration from other cities, towns and villages throughout the State of Michoacán and indeed the nation of Mexico. Surnames apparently give only a relative measure, and a crude one at that, of the migration movements of the last three centuries that have given the population its present structure. In Mexico —at least to the extent revealed by this small study— the cause of high rates of commonality of surnames between towns will probably largely be found in the processes by which the same surnames were independently assigned to unrelated individuals.

TABLE 1

RI x 10^{-5} (COEFFICIENT OF RELATIONSHIP BY ISONYMY) AMONG RESIDENTS OF TZINTZUNTZAN ESTIMATED FROM DIFFERENT LISTS OF SURNAMES

	Males' father's surnames	Males' mothers' surnames	Females' fathers' surnames
Males' mothers surnames	1171		
Females' fathers' surnaames	1123	1109	
Females' mothers surnames	1103	1088	1116

TABLE 2

RI x 10^{-5} (COEFFICIENT OF RELATIONSHIP BY ISONYMY) BETWEEN TZINTZUTZAN AND PARACHO ESTIMATED FROM LISTS OF SURNAMES OF FATHERS AND MOTHERS OF MALES AND FEMALES

Paracho	N_2	Tzintzuntzan			
		Males' fathers' surnames $N_1=1933$	Males' mothers' surnames $N_1=1930$	Females' fathers' surnames $N_1=2098$	Females' mothers' surnames $N_1=2082$
Males' fathers' surnames	926	232	294	254	288
Males' mothers' surnames	861	209	262	228	253
Females' fathers' surnames	1202	253	312	270	303
Females' mothers' surnames	1075	245	298	259	290

REFERENCES

FOSTER, G.M. (1948) Empire's children: the People of Tzintzuntzan. *Smithsonian Institution*, Institute of Social Anthropology, Publication No. 6.

_____(1967) Tzintzuntzan: *Mexican peasants in a changing world* Boston: Little, Brown.

KAPLAN, B.A. (1953) *Social and technological change. Paracho: a case in point.* Ph. D. Dissertation, University of Chicago.

KEMPER, R.V. (1977) *Migration and adaptation: Tzintzuntzan peasants in Mexico City.* Beverly Hills, Ca: Sage Publications.

LASKER, G.W. (1968) The occurrence of identical (isonymous) surnames in various relationships in pedigrees a preliminary analysis of the relation of surname combinations to inbreeding. *Am. J. Hum. Genet.* 20: 250-257.

_____(1969) Isonymy (recurrence of the sane surnames in affinal relatives, a comparison of rates calculated from pedigrees grave markers, and death and birth registers. *Hum. Biol.* 41: 309-321.

_____(1977) A coefficient of relationship by isonymy: a method for estimating the genetic relationship between populations. *Hum. Biol.* 49: 489-493.

_____(1978) Increments through migration to the coefficient of relationship between communities estimated by isonymy. *Hum. Biol.* 50: 235-240.

_____(1980) Surnames in the study of human biology. *Am. Anthropol.* 82: 525-538.

SHAW, R.F. (1960) An index of consanguinity based on the use of the surname in Spanish-speaking countries. *J. Hered.* 51: 221-230.