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HURRICANE EXPERIENCE LEVELS OF COASTAL COUNTY POPULATIONS FROM TEXAS TO MAINE

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by

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(This publication updates the previous version by Hebert, Taylor, and Case, published in 1984)

ABSTRACT

Population graphs for the period 1900-1990 have been prepared for coastal counties from Texas to Maine which could be affected significantly by hurricane winds or tides. The Saffir/Simpson Hurricane Scale[1] (range 1-5) has been used to develop a hurricane climatology for each county for the period 1900-1990. The combined statistics graphically illustrate that about 85 percent of all Atlantic and Gulf coastal residents of the United States have never experienced the effects of a direct hit by a major[2] hurricane.

INTRODUCTION

A series of hurricane workshops was conducted during the Spring of 1974 by Dr. Neil Frank, Director, National Hurricane Center (NHC), and his staff. The basic purpose of these workshops was to exchange ideas and information with National Weather Service officials and to discuss operational hurricane problems. Some of the materials prepared for the workshops were the basis for this paper.

Population statistics show a continued trend in recent years of rapid population increases along Atlantic and Gulf coastal areas. This trend, along with the relatively low frequency of hurricanes and low hurricane experience level of nearly 38 million coastal residents, has become an item of major concern at the National Hurricane Center.

[1]See Table 1 and Appendix A.

[2]A major hurricane is a category 3, 4 or 5 on the Saffir/Simpson Hurricane Scale, and is comparable to a Great Hurricane in several other referenced publications.

Table 1. Saffir/Simpson Hurricane Scale Ranges.

Scale Number (Category)	Central Pressure (Millibars)	Central Pressure (Inches)	OR Winds (Mph)	OR Surge (Feet)	Damage
1	≥ 980	≥ 28.94	74-95	4-5	Minimal
2	965-979	28.50-28.91	96-110	6-8	Moderate
3	945-964	27.91-28.47	111-130	9-12	Extensive
4	920-944	27.17-27.88	131-155	13-18	Extreme
5	< 920	< 27.17	> 155	> 18	Catastrophic

DATA SOURCES

Population statistics were provided by the U. S. Department of Commerce, Bureau of the Census, publications. Hurricane information was obtained by checking conventional data sources plus available materials in NHC files and some material from local station files.

PURPOSE

The primary purpose of this study is to illustrate the increase in Gulf and Atlantic coastal populations in recent years and to show the low hurricane experience level of most of these coastal residents. While many people have experienced fringe conditions of a major hurricane or the direct effects of a weaker hurricane, a relatively small percentage of the coastal population has experienced a direct hit by a major hurricane.

It is hoped that the information in this paper will help coastal residents and disaster preparedness groups to substitute education for hurricane experience. A simple comparison of numbers (Saffir/Simpson Hurricane Scale Numbers 1-5) relating hurricanes of recent experience to major or historical hurricanes of the past has been found to be most effective by NHC personnel in addressing various groups concerning hurricane disaster potential.

PROCEDURE

Population statistics for each coastal county from Texas to Maine were obtained from the U.S. Bureau of the Census publications for the period 1900-1990. This information was plotted on individual graphs for each county, 175 in all. A hurricane climatology , described below, was entered on each graph showing the year and severity of each hurricane affecting the county from 1900 through 1990. The complete collection of county graphs is included as Appendix B.

A tabulation was made for each Gulf and Atlantic coastal state listing coastal county populations in 1990 and at the time of the last major hurricane (Scale numbers 3-5) since 1900. This is illustrated in Table 2. The population differences were listed for each state and hurricane experience levels were calculated for Gulf and Atlantic coastal residents.

Table 2. Coastal County population by state showing percentage of residents who have never experienced a direct hit by a major hurricane (≥3 on Saffir/Simpson Hurricane Scale).

STATE	1990 COASTAL POPULATION	EXPERIENCED POPULATION	INEXPERIENCED POPULATION	% OF 1990 TOTAL
TEXAS	4,320,460	942,959	3,377,501	78
LOUISIANA	1,550,498	748,820	801,678	52
MISSISSIPPI	312,368	266,658	45,710	15
ALABAMA	476,923	383,532	93,391	20
FLORIDA (W)	3,991,668	256,383	3,735,285	94
FLORIDA (E)	6,137,526	287,654	5,849,872	95
GEORGIA	386,415	0	386,415	100
SOUTH CAROLINA	606,196	378,111	228,085	38
NORTH CAROLINA	597,372	211,862	385,510	65
VIRGINIA	1,515,325	8,887	1,506,438	99
MARYLAND	2,518,634	0	2,518,634	100
DELAWARE	666,168	0	666,168	100
NEW JERSEY	3,954,415	0	3,954,415	100
NEW YORK	10,806,642	2,270,100	8,536,542	79
CONNECTICUT	2,030,017	401,206	1,628,811	80
RHODE ISLAND	1,003,464	336,356	667,108	66
MASSACHUSETTS	3,095,930	113,679	2,982,251	96
NEW HAMPSHIRE	245,845	0	245,845	100
MAINE	623,198	0	623,198	100
ALL	44,839,064	6,606,206	38,232,858	85

Note: Experienced population is an estimate of the portion of the coastal population during the last major hurricane that survived to 1990.

A hurricane climatology, based upon the Saffir/Simpson Hurricane Scale (with atmospheric pressure ranges adapted), was prepared for the 91-year period 1900-1990 based on the following guidelines:

1. Scale numbers (1-5), as shown in Table 1, were assigned to hurricanes primarily based on estimated central pressure values at the time of landfall. A certain amount of subjectivity is inherent in this type of classification, particularly with hurricanes during earlier years and with those moving inland in sparsely-settled areas. In view of this, some hurricanes near the borderline between two scale numbers might be classified one way or the other based on various considerations, such as storm surge.

   Flooding from excessive rainfall during the life of a hurricane was not a criterion in selecting scale numbers. Hurricanes DIANE 1955 and AGNES 1972 for example, relatively weak hurricanes, were disastrous flood-makers. They each caused widespread flood damage in several states; however, based on central pressures at the time of landfall, both hurricanes were in category 1.

   In some cases, hurricanes traversing a long path across many states may change scale numbers before dissipating. A good example of this is Hurricane DONNA of 1960, which changed from category 4 all the way down to category 1 during its journey between Florida and Maine (see Table 3).

   Examples of hurricanes in each category of the Saffir/Simpson Hurricane Scale are listed in Table 3. All scale number 4 and 5 hurricanes for the 91-year period 1900-1990 are listed. Prior to 1950, names were not used in connection with hurricanes. For three years, 1950-52, the phonetic alphabet was used for naming hurricanes, e.g., ABLE, BAKER, CHARLIE, etc... Female names were used for naming hurricanes from 1953 to 1978. Since 1979 alternating male and female names have been used.

2. After each hurricane had been assigned a scale number, it was determined which coastal counties received direct hits and which received indirect hits by hurricanes since 1900. In addition to hurricanes which have occurred since 1982 (last year of the previous version), a few hurricanes have been added, or categories of others changed, based on additional information.

Table 3. Examples of Hurricane Classifications on the Saffir/Simpson Hurricane Scale.

CATEGORY	GULF COAST			FLORIDA			EAST COAST		
	HURRICANE	YEAR	AREA	HURRICANE	YEAR	AREA	HURRICANE	YEAR	AREA
1	CHANTAL	1989	TX	FLOYD	1987	Keys	CHARLEY	1986	NC
	JERRY	1989	TX	AGNES	1972	NW	BOB	1985	SC
	JUAN	1985	LA	INEZ	1966	Keys	GLORIA	1985	NH,ME
	ETHYL	1960	MS	FLOSSY	1956	NW	BELLE	1976	NY
	ABLE	1950	AL	FLORENCE	1953	NW	AGNES	1972	NY,CT
					1947	SE	GINGER	1971	NC
							GERDA	1969	ME
							DONNA	1960	ME
2	EDITH	1971	LA	KATE	1985	NW	BOB	1991	RI,MA
	FLOSSY	1956	LA	DAVID	1979	SE	GLORIA	1985	CT
		1949	TX	GLADYS	1968	NW	DIANA	1984	NC
		1945	TX	ALMA	1966	NW	DONNA	1960	CT,RI
				ISBELL	1964	SW	CAROL	1954	NC
				CLEO	1964	SE	HAZEL	1954	MD
				DORA	1964	NE		1947	GA,SC
3	ELENA	1985	MS,AL	ELENA	1985	NW	GLORIA	1985	NC,NY
	ALICIA	1983	TX	ELOISE	1975	NW	DONNA	1960	NC,NY
	ALLEN	1980	TX	BETSY	1965	Keys	GRACIE	1959	SC
	CARMEN	1974	LA	EASY	1950	NW	CONNIE	1955	NC
	CELIA	1970	TX	KING	1950	SE	IONE	1955	NC
	BEULAH	1967	TX		1949	SE	CAROL	1954	NY,CT,RI
	BETSY	1965	LA		1948	SW+Keys	EDNA	1954	MA
								1938	NY-MA
4	CARLA	1961	TX	DONNA	1960	Keys+SW	HUGO	1989	SC
	AUDREY	1957	LA		1947	SE	HAZEL	1954	SC,NC
		1932	TX		1928	SE+Lk.O.			
		1919	TX		1926	SE			
		1915	TX		1919	Keys			
		1915	LA						
		1909	LA						
		1900	TX						
5	CAMILLE	1969	MS		1935	Keys	NONE		

As with the assignment of scale numbers, a certain amount of subjectivity was inescapable at times in determining which counties received direct or indirect hits during the various hurricane situations. However, certain arbitrary guidelines for these classifications were used as listed below.

Direct Hit — When the innermost core regions, or "eye," moved over a county, it was counted as a direct hit. "R" is defined as the radius of maximum winds in a hurricane (the distance in miles from the storm's center to the circle of maximum winds around the center). A county is regarded as receiving a direct hit when all or parts of a county fall within about 2R to the right and R to the left of a storm's landfall. This assumes an observer at sea looking toward shore. On the average, this direct hit zone extended about 50 miles along the coastline (R≈15 miles). Of course, some hurricanes were smaller than this and some, particularly in higher latitudes, were much larger. Cases were judged individually, and many borderline situations had to be resolved.

Indirect Hit - These were based primarily on a hurricane's strength and size and on the configuration of the individual county coastline. Here again, much subjectivity was necessary often complicated by storm paths and geography. Generally, those areas on either side of the direct hit zone which received hurricane force winds or tides of at least 4 to 5 feet above normal were considered to be indirect hits.

The complete hurricane climatology, 1900-1990, for all coastal counties from Texas to Maine is included in tabular form as Appendix C. It is a series of twenty pages of counties listed in approximate geographical order from the lower Texas coast to the upper coast of Maine.

The procedures described above make up the main thrust of this paper.

Several other graphs and tables were prepared, using the same basic information as follows:

1 Appendix A describes the Saffir/Simpson Hurricane Scale.

2) Tables 4a and 4b were prepared in the process of developing the Saffir/Simpson Hurricane Scale climatology. Comments concerning all tables and appendixes are included in the following section.

Table 4a. Number of hurricanes (direct hits) affecting the U.S and individual states 1900-1990 according to Saffir/Simpson Hurricane Scale (updated from Hebert, Jarrell and Mayfield, 1992).

AREA	CATEGORY NUMBER 1	2	3	4	5	ALL	MAJOR HURRICANES (≥3)
U.S. (Texas to Maine)	57	34	44	14	2	151	60
Texas	12	9	9	6	0	36	15
(North)	7	3	3	4	0	17	7
(Central)	2	2	1	1	0	6	2
(South)	3	4	5	1	0	13	6
Louisiana	8	5	7	3	1	24	11
Mississippi	1	1	5	0	1	8	6
Alabama	4	1	5	0	0	10	5
Florida	17	15	16	5	1	54	22
(Northwest)	9	7	6	0	0	22	6
(Northeast)	1	7	0	0	0	8	0
(Southwest)	6	3	5	2	1	17	8
(Southeast)	4	10	7	3	0	24	10
Georgia	1	4	0	0	0	5	0
South Carolina	6	4	2	2	0	14	4
North Carolina	10	3	8	1*	0	22	9
Virginia	2	1	1*	0	0	4	1*
Maryland	0	1*	0	0	0	1*	0
Delaware	0	0	0	0	0	0	0
New Jersey	1*	0	0	0	0	1*	0
New York	3	0	5*	0	0	8	5*
Connecticut	2	3*	3*	0	0	8	3*
Rhode Island	0	1*	3*	0	0	4*	3*
Massachusetts	2	1*	2*	0	0	5	2*
New Hampshire	1*	1*	0	0	0	2*	0
Maine	5	0	0	0	0	5	0

* Indicates all hurricanes in this category were moving greater than 30 mph.

Note: State totals will not equal U.S. totals and Texas and Florida sectional totals will not necessarily equal state totals.

Table 4b. Chronological List of All Hurricanes Which Affected the U.S. 1900-1990 Including Category by States.

Year	Month	States Affected & Category by States	Highest Category U.S.	Minimum Sea Level Pressure (Mb.)	Name
1900	Sep	TX, 4N	4	931	
1901	Jul	NC, 1	1	-	
1901	Aug	LA, MS 2	2	972	
1903	Sep	FL, 2SE, 1NW	2	976	
1903	Sep	NJ, NY, CT, 1	1	990	
1904	Sep	SC, 1	1	-	
1906	Jun	FL, 1SE	1	-	
1906	Sep	SC, NC, 3	3	947	
1906	Sep	MS, AL, 3	3	958	
1906	Oct	FL, 2SE	2	967	
1908	Jul	NC, 1	1	-	
1909	Jul	TX, 3N	3	958	
1909	Aug	TX, 2S	2	-	
1909	Sep	LA, 4	4	931	
1909	Oct	FL, 3SE (Keys)	3	957	
1910	Sep	TX, 2S	2	965	
1910	Oct	FL, 3SW	3	955	
1911	Aug	FL, 1NW; AL, 1	1	-	
1911	Aug	GA, SC, 2	2	-	
1912	Sep	AL, 1	1	-	
1912	Oct	TX, 1S	1	-	
1913	Jun	TX, 1S	1	-	
1913	Sep	NC, 1	1	-	
1915	Aug	TX, 4N	4	945	
1915	Sep	FL, 1NW	1	988	
1915	Sep	LA, 4	4	931	
1916	Jul	MS, AL, 3	3	948	
1916	Jul	MA, 1	1	-	
1916	Jul	SC, 1	1	980	
1916	Aug	TX, 3S	3	948	
1916	Oct	AL, 2; FL, 2NW	2	972	
1916	Nov	FL, 1SW (Keys)	1	-	
1917	Sep	FL, 3NW	3	958	
1918	Aug	LA, 3	3	955	
1919	Sep	FL, 4SW (Keys); TX, 4S	4	927	
1920	Sep	LA, 2	2	975	
1920	Sep	NC, 1	1	-	
1921	Jun	TX, 2C	2	979	
1921	Oct	FL, 3SW, 2NE	3	952	
1923	Oct	LA, 1	1	985	
1924	Sep	FL, 1NW	1	985	
1924	Oct	FL, 1SW	1	980	
1925	Nov	FL, 1SW	1	-	
1926	Jul	FL, 2NE	2	967	
1926	Aug	LA, 3	3	955	
1926	Sep	FL, 4SE, 3SW, 3NW, AL, 3	4	935	
1928	Aug	FL, 2SE	2	-	
1928	Sep	FL, 4SE, 2NE, GA, SC, 1	4	929	
1929	Jun	TX, 1C	1	982	
1929	Sep	FL, 3SE, 2NW	3	948	
1932	Aug	TX, 4N	4	941	
1932	Sep	AL, 1	1	979	

* Indicates all hurricanes in this category were moving greater than 30mph.

Table 4b. (Cont'd.

Year	Month	States Affected & Category by States	Highest Category U.S.	Minimum Sea Level Pressure (Mb.)	Name
1933	Jul/Aug	FL, 1SE, TX, 2S	2	975	
1933	Aug	NC, VA, 2	2	971	
1933	Sep	TX, 3S	3	949	
1933	Sep	FL, 3SE	3	948	
1933	Sep	NC, 3	3	957	
1934	Jun	LA, 3	3	962	
1934	Jul	TX, 2S	2	975	
1935	Sep	FL, 5SW (Keys), 2NW	5	892	
1935	Nov	FL, 2SE	2	973	
1936	Jun	TX, 1S	1	987	
1936	Jul	FL, 3NW	3	964	
1936	Sep	NC, 2	2	-	
1938	Aug	LA, 1	1	985	
1938	Sep	NY, CT, RI, MA 3*	3*	946	
1939	Aug	FL, 1SE, 1NW	1	985	
1940	Aug	TX, 2N, LA, 2	2	972	
1940	Aug	GA, SC, 2	2	970	
1941	Sep	TX, 3N	3	958	
1941	Oct	FL, 2SE, 2SW, 2NW	2	975	
1942	Aug	TX, 1N	1	992	
1942	Aug	TX, 3C	3	950	
1943	Jul	TX, 2N	2	969	
1944	Aug	NC, 1	1	990	
1944	Sep	NC, VA, NY, CT, RI, 3* MA, 2*	3*	947	
1944	Oct	FL, 3SW, 2NE	3	962	
1945	Jun	FL, 1NW	1	985	
1945	Aug	TX, 2C	2	967	
1945	Sep	FL, 3SE	3	951	
1946	Oct	FL, 1SW	1	980	
1947	Aug	TX, 1N	1	992	
1947	Sep	FL, 4SE, 2SW; MS, LA, 3	4	940	
1947	Oct	FL, 1SE; GA, SC, 2	2	974	
1948	Sep	LA, 1	1	987	
1948	Sep	FL, 3SW, 2SE	3	963	
1948	Oct	FL, 2SE	2	975	
1949	Aug	NC, 1	1	980	
1949	Aug	FL, 3SE	3	954	
1949	Oct	TX, 2N	2	972	
1950	Aug	AL, 1	1	980	Baker
1950	Sep	FL, 3NW	3	958	Easy
1950	Oct	FL, 3SE	3	955	King
1952	Aug	SC, 1	1	985	Able
1953	Aug	NC, 1	1	987	Barbara
1953	Sep	ME, 1*	1*	-	Carol
1953	Sep	FL, 1NW	1	985	Florence
1954	Aug	NC, 2; NY, CT, RI, 3*	3*	960	Carol
1954	Sep	MA, 3*; ME, 1*	3*	954	Edna
1954	Oct	SC, NC, 4*; MD, 2*	4*	938	Hazel
1955	Aug	NC, 3; VA, 1	3	962	Connie
1955	Aug	NC, 1	1	987	Diane
1955	Sep	NC, 3	3	960	Ione
1956	Sep	LA, 2; FL, 1NW	2	975	Flossy
1957	Jun	TX, 4N; LA, 4	4	945	Audrey

Table 4b. (Cont'd.

Year	Month	States Affected & Category by States	Highest Category U.S.	Minimum Sea Level Pressure (Mb.)	Name
1959	Jul	SC, 1	1	993	Cindy
1959	Jul	TX, 1N	1	984	Debra
1959	Sep	SC, 3	3	950	Gracie
1960	Sep	FL, 4SW (Keys), 2NE; NC, NY, 3*; CT, RI, 2*; MA, NH, ME, 1*	4	930	Donna
1960	Sep	MS, 1	1	981	Ethel
1961	Sep	TX, 4C	4	931	Carla
1963	Sep	TX, 1N	1	996	Cindy
1964	Aug	FL, 2SE	2	968	Cleo
1964	Sep	FL 2NE	2	966	Dora
1964	Oct	LA, 3	3	950	Hilda
1964	Oct	FL, 2SW, 2SE	2	974	Isbell
1965	Sep	FL, 3SE; LA, 3	3	948	Betsy
1966	Jun	FL, 2NW	2	982	Alma
1966	Oct	FL, 1SW, (Keys)	1	983	Inez
1967	Sep	TX, 3S	3	950	Beulah
1968	Oct	FL, 2NW, 1NE	2	977	Gladys
1969	Aug	LA, MS, 5	5	909	Camille
1969	Sep	ME, 1	1	980	Gerda
1970	Aug	TX, 3S	3	945	Celia
1971	Sep	LA, 2	2	978	Edith
1971	Sep	TX, 1C	1	979	Fern
1971	Sep	NC, 1	1	993	Ginger
1972	Jun	FL, 1NW; NY, CT, 1	1	980	Agnes
1974	Sep	LA, 3	3	952	Carmen
1975	Sep	FL, 3NW	3	955	Eloise
1976	Aug	NY, 1	1	980	Belle
1977	Sep	LA, 1	1	995	Babe
1979	Jul	LA, 1	1	986	Bob
1979	Sep	FL, 2SE, 2NE; GA, 2; SC, 2	2	970	David
1979	Sep	AL, MS, 3	3	946	Frederic
1980	Aug	TX, 3S	3	945	Allen
1983	Aug	TX, 3N	3	962	Alicia
1984	Sep	NC, 2	2	972	Diana
1985	Jul	SC, 1	1	1002	Bob
1985	Aug	LA, 1	1	987	Danny
1985	Sep	AL, MS, 3; FL, 3NW	3	959	Elena
1985	Sep	NC, 3; NY, 3*; CT, NH, 2*; ME, 1*	3	942	Gloria
1985	Oct	LA, 1	1	971	Juan
1985	Nov	FL, 2NW	2	967	Kate
1986	Jun	TX, 1N	1	990	Bonnie
1986	Aug	NC, 1	1	990	Charley
1987	Oct	FL, 1SW	1	993	Floyd
1988	Sep	LA, 1	1	984	Florence
1989	Jul	TX, 1N	1	986	Chantal
1989	Sep	SC, 4	4	934	Hugo
1989	Oct	TX, 1N	1	983	Jerry

DISCUSSION

The purpose of this statistical discussion is to show graphically the low hurricane experience level of most U.S. coastal residents. The 175 county graphs in Appendix B are the primary data presented. Most of the information in the other Appendixes and Tables is contained within these graphs. However, while it may appear redundant in some instances, the data have been presented in these forms to allow for an easier statistical interpretation on a county, state, and national basis. Some of this interpretation has been included briefly in the sections under Procedures and the forewords of the Appendixes. The rest is used to illustrate the more significant facts which can be inferred.

Reference Table 1. An important point here is that the central pressure ranges will generally agree quite well with the wind ranges, but that the surge is strongly dependent on the slope of the continental shelf (shoaling factor). This can change the height of the surge by a factor of two for any given scale number.

Reference Table 2. This table was designed as a general illustration of population increases in Gulf and Atlantic coastal states since the last direct hit by a major hurricane. It should be emphasized that the population figures refer to coastal sections only for each state. Experienced population is an estimate of the portion of the county population during the last major hurricane that survived to 1990.

Where there have been no direct hits by major hurricanes since 1900, inexperienced population is shown as 100%.

It is estimated that 38 million people along the Gulf and Atlantic coasts have never experienced a direct hit by a major hurricane. This is 85% of the Gulf and Atlantic coastal residents. Six states have not had a single direct hit by a major hurricane in this century. In Florida, the most hurricane prone state, 95% of the coastal population has never experienced a direct hit by a major hurricane.

The main point to be made here (and throughout this paper) is that most of the people overestimate their hurricane experience. Commonly, people experience either a relatively weak hurricane (categories 1 and 2), or an indirect hit (fringe conditions) by a major hurricane. Less than 15% have felt the most intense central core. This creates a sense of false security in the 85% of the coastal residents during the next major hurricane situation.

Considering the growth rate of most coastal counties, as shown in the graphs in Appendix B, experience levels are likely conservative. In the eight years from 1982 to 1990, all four major hurricanes to strike the U.S. (Alicia 1983, Elena 1985, Gloria 1985, Hugo 1989) hit in areas containing relatively few people.

Reference Table 3. As indicated in Table 1, the terms "Scale Number" and "Category" are used interchangeably. In addition to DONNA 1960, Table 3 also shows several other hurricanes which affected different areas with different scale numbers (e.g., HAZEL 1954, CAROL 1954, GLORIA 1985), or the same scale number (e.g., BETSY 1965, 1919).

Only two category 5 hurricanes have affected the U.S. coastline this century. Those were the "Labor Day Storm" of 1935 in the Florida Keys, and hurricane Camille of 1969 on the Mississippi/Louisiana coast. Of the 14 hurricanes listed in category 4, only two (HAZEL 1954 AND HUGO 1989) affected the Atlantic coast north of Florida. (In 1919, the same category 4 hurricane affected the Florida Keys and Texas).

Reference Table 4a. Many hurricanes affect more than one state (reference Table 3). In addition, Florida and Texas have been subdivided into sections because of their extensive coastlines. In Florida, the north-south dividing line is roughly from Cape Canaveral to Tarpon Springs (Brevard County is in the northeast, and Pinellas County is in the southwest).

In Texas, south is south of Corpus Christi (Nueces County is in the south). Central Texas is north of Corpus Christi to Matagorda Bay (Matagorda County is central). North is Matagorda Bay to the Louisiana border. As a result, entries in Table 4a may be made more than once for the same hurricane. Florida and Texas sectional totals may not equal state totals, and state totals cannot be summed to get regional or national totals. However, the first line in the table is an actual count of all hurricanes which have affected the United States, where only the highest category of any state affected has been tabulated. This total indicates that 151 hurricanes have affected the U.S. coast during the period 1900-1990. Of this total, 60 or about 40% were major hurricanes.

While a direct hit by a major hurricane in any one locality is a rare event, the sobering statistics of the top line in Table 4a illustrate that on the average so far this century: 1) two major hurricanes (capable of causing damage in the billions of dollars and killing hundreds) cross the U.S. coast somewhere every three years; 2) a category 4 hurricane crosses the U. S. coastline somewhere nearly once every six years.

This table gives a quick reference to the hurricane climatology of individual states. The table reveals that 37% of all hurricanes hit Florida. A few other noteworthy statistics are that Florida and Texas combined have been hit by nearly 75% of category 4 or higher hurricanes. About half of the hurricanes along the middle Gulf coast, southern Florida, and New York and southern New England are major.

Reference Table 4b. This table is a chronological list of all 151 hurricanes including categories by states. Also included in the table is a list of estimated central pressures at the time of

landfall for the highest U. S. category. Pressure values are not available for several earlier years nor for a few hurricanes in recent years which moved inland in sparsely settled areas. By comparing the central pressure of a given hurricane to the range of pressures for each scale number, it is possible to see how close that hurricane came to falling into a higher or lower category. In addition, the effect of extreme forward speed (indicated by an asterisk beside a number) must be considered for most hurricanes north of Cape Hatteras.

Reference Appendix A. This scale has been referred to as the Simpson Disaster Potential Scale in some earlier publications.

Reference Appendix B. A note of caution is needed to avoid incorrect interpretation of these graphs. Because of the different population ranges from graph to graph, the total increase in a county with a large population but relatively slow growth rate may be larger than a more sparsely populated county with a rapid growth rate. One other point--if the core (direct hit) of a major hurricane affected only a sparsely populated section of a heavily populated county (e.g., Dade County, Florida--BETSY 1965), it was considered to be an indirect hit in these graphs.

These graphs give a complete hurricane climatology on a county-by-county basis. It would be quite difficult to determine how individual hurricanes affected larger areas if one had to compare county graphs. Appendix C has been prepared to readily supply this information.

Reference Appendix C. This appendix has been designed so that pages can be combined into a single, continuous display for the entire Gulf and Atlantic coasts, or for individual states, or regional sections.

In this form, the data from Appendix B shows many facts on a county, state, or regional basis. For example, the size of a hurricane can be seen by the number of counties affected (although tracks relative to geographical configurations can be misleading in a few instances). Also, one can readily count how many direct or indirect hits of any category have occurred, or how long it has been between any hurricanes, or those of a particular category.

SUMMARY

Populations continue to increase along most sections of the Gulf and Atlantic coasts of the United States. This trend, along with the relatively low frequency of hurricanes in recent years and low hurricane experience levels of some 38 million coastal residents, is an item of major concern at the National Hurricane Center. This report can help to some degree in substituting education for hurricane experience.

When a hurricane crosses the coast, many persons feel its effects. Only a small percentage of the coastal residents experience a direct hit by its intense inner core, the major death and damage producer of the hurricane. Most residents experience indirect hits, or fringe effects, during hurricane situations (or direct hits, by relatively weak hurricanes--categories 1 and 2). These residents can be lulled into a false sense of security by feeling that they have experienced the worst part. In view of this, these same residents might underestimate the disaster potential of subsequent hurricane situations.

While the increase in coastal populations is alarming, it is felt that the figures presented in this report are conservative. Since 1990, unofficial estimates indicate that most Gulf and Atlantic coastal populations have continued to increase. In addition, these population statistics are for permanent residents and do not take into account summer tourism which may increase some localized coastal populations tenfold during weekends or holidays. Another major concern, not discussed in this report, is that many thousands of the coastal county residents live in mobile homes which are extremely vulnerable to hurricanes of any category.

Acknowledgments. Dr. Neil Frank, then Director, NHC, conceived the idea of combining population graphs and hurricane climatology and suggested the original preparation of this report. Ms. Patty Caracilio typed the revised manuscript, and many thanks to Marisa Pasekoff for painstakingly error-checking the graphs.

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APPENDIX A

THE SAFFIR/SIMPSON[3] HURRICANE SCALE

The Saffir/Simpson Hurricane Scale is used by the National Weather Service to give public safety officials a continuing assessment of the potential for wind and storm-surge damage from a hurricane in progress. Scale numbers are made available to public-safety officials when a hurricane is within 72 hours of landfall.

Scale numbers range from 1 to 5. Scale No. 1 begins with hurricanes in which the maximum sustained winds are at least 74 miles per hour, or will produce a storm surge 4 to 5 feet above normal water level, while Scale No. 5 applies to those in which the maximum sustained winds are more than 155 miles per hour, or have the potential of producing a storm surge more than 18 feet above normal.

Dr. Neil Frank, a former NHC Director, adapted atmospheric pressure ranges to the Saffir/Simpson Scale. These pressure ranges, along with a numerical break-down of wind and storm surge ranges, are listed in Table 1.

The Weather Service emphasizes that the scale numbers are not forecasts, but are based on observed conditions at a given time in a hurricane's lifespan. They represent an estimate of what the storm would do to a coastal area if it were to strike without change in size or strength. Scale assessments are revised regularly as new observations are made, and public-safety organizations are kept informed of new estimates of the hurricane's disaster potential.

The Saffir/Simpson Hurricane Scale indicates probable property damage and evacuation recommendations as listed below:

Scale No. 1 - Winds of 74 to 95 miles per hour. Damage primarily to shrubbery, trees, foliage and unanchored mobile homes. No real damage to other structures. Some damage to poorly constructed signs. And/or: storm surge 4 to 5 feet above normal. Low-lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

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[3] Developed by Herbert Saffir, Dade County, Florida, Consulting Engineer, and Dr. Robert H. Simpson, a former National Hurricane Center Director.

Scale No. 2 - Winds of 96 to 110 miles per hour. Considerable damage to shrubbery and tree foliage, some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing materials of buildings; some window and door damage. No major damage to buildings. And/or: storm surge 6 to 8 feet above normal. Coastal roads and low-lying escape routes inland cut by rising water 2 to 4 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation of some shoreline residences and low-lying island areas required.

Scale No. 3 - Winds of 111 to 130 miles per hour. Foliage torn from trees, large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. And/or: storm surge 9 to 12 feet above normal. Serious flooding at coast and many smaller structures near coast destroyed; larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Flat terrain 5 feet or less above sea level flooded inland 8 miles or more. Evacuation of low-lying residences within several blocks of shoreline possibly required.

Scale No. 4 - Winds of 131 to 155 miles per hour. Shrubs and trees blown down, all signs down. Extensive damage to roofing materials, windows and doors. Complete failure of roof on many small residences. Complete destruction of mobile homes. And/or: storm surge 13 to 18 feet above normal. Flat terrain 10 feet or less above sea level flooded inland as far as 6 miles. Major damage to lower floors of structures near shore due to flooding and battering by waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Major erosion of beaches. Massive evacuation of all residences within 500 yards of shore possibly required, and of single-story residences on low ground within 2 miles of shore.

Scale No. 5 - Winds greater than 155 miles per hour. Shrubs and trees blown down, considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of roofs on many residences and industrial buildings. Extensive shattering of glass in windows and doors. some complete building failures. Small buildings overturned or blown away. complete destruction of mobile homes. And/or: storm surge greater than 18 feet above normal. Major damage to lower floors of all structures less than 15 feet above sea level within 500 yards of shore. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane arrives. Massive evacuation of residential areas on low ground within 5 to 10 miles of shore possibly required.

APPENDIX B

INDIVIDUAL COASTAL COUNTY HURRICANE CLIMATOLOGY/POPULATION GRAPHS, TEXAS TO MAINE

Data is arranged in packets representing each state (Florida is presented as two packets and Mississippi and Alabama are combined into a single packet as are New Hampshire and Maine). Major cities or well known locations are indicated for some counties. Packets are presented geographically south to north and west to east along the coast from Texas to Maine. The state packets contain:

1. A listing of county (or other population) groupings for the state.

2. A spreadsheet showing the population figures from 1900-1990 by county, the year of the last major hurricane to directly affect the area, an estimate of the population which experienced the major hurricane and was still living in the county in 1990. This same information is converted to a percent of the present population which has not experienced a major hurricane.

3. A state population growth chart which summarizes population growth over the twentieth century of both the state total as well as growth in coastal counties. The total population of the state with major hurricane experience is also shown.

4. The individual coastal county population growth charts, showing hurricane strikes and an estimate of that population having major hurricane experience.

The set of population graphs in this appendix illustrates population trends along the Gulf and Atlantic coasts of the United States during the period 1900-1990. Hurricane climatology in the body of the individual coastal county population growth charts is indicated by arrows and Saffir/ Simpson Scale numbers for the period 1900-1990. Each hurricane is represented by either a solid or dashed, thick or thin arrow along with appropriate scale number and is entered at the year of occurrence. Solid arrows indicate direct hits, and dashed arrows denote indirect hits. Thick arrows are for major hurricanes (Category 3, 4 or 5), thin arrows are for Categories 1 and 2. This gives a convenient, quick reference to the number and frequency of direct hits in each county by hurricanes since 1900.

Experienced Population: An attempt was made to determine what portion of the 1990 population of coastal counties has experienced a major hurricane (Saffir-Simpson Category 3 or greater). The previous study simply assumed that the total population of the county at the time of the last major hurricane event was still living in the same area in 1990. If the population had decreased, then the entire remaining population was assumed to be experienced.

If the population increased, then all new residents were assumed to be non-experienced. When the last major hurricane event was several decades prior to 1990, the foregoing assumptions are clearly invalid because mortality would have decreased the experienced population sharply. Mortality is a very important consideration where the last major strike has been several years and the population has shown either a modest increase or a decrease. In many counties mortality was a minor consideration because the population has increased so dramatically since the major hurricane events of the 1940s to 1960s that the experienced portion was almost negligible even without accounting for mortality. In the present study an attempt is made to account for mortality.

The "1958 Commissioners Standard Ordinary Mortality Tables" were applied to the population by first assuming a stable, non-growing population. With this assumption, the numbers in each age bracket can be estimated from the total population of the county, which in turn was interpolated between censuses. The 1990 numbers remaining in each bracket who had experienced a major hurricane can be computed. Experience was not attributed to those individuals age 3 years or less when the major hurricane occurred. Somewhat surprisingly, there was no case, even with shrinking populations, that the computed "experienced population" exceeded the actual 1990 population.

The key to symbols used in connection with hurricane climatology on each graph, along with examples, is shown below. Comparable symbols, without arrows, were used with scale numbers in tabular form in Appendix C:

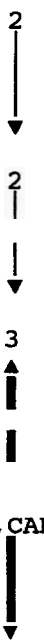
Direct Hit

Indirect Hit

Exiting or Inland

Forward Speed Greater than 30 mph (In effect, may increase/decrease Saffir/ Simpson scale number by as much as one strong/weak side, respectively).

Examples (Symbols used in Hurricane Climatology/Population Graphs)



Direct Hit by a Category 2 Hurricane

Indirect Hit (or fringe hit) by a Category 2 Hurricane

Indirect Hit by an inland or exiting (moving from land to water) Category 3 Hurricane

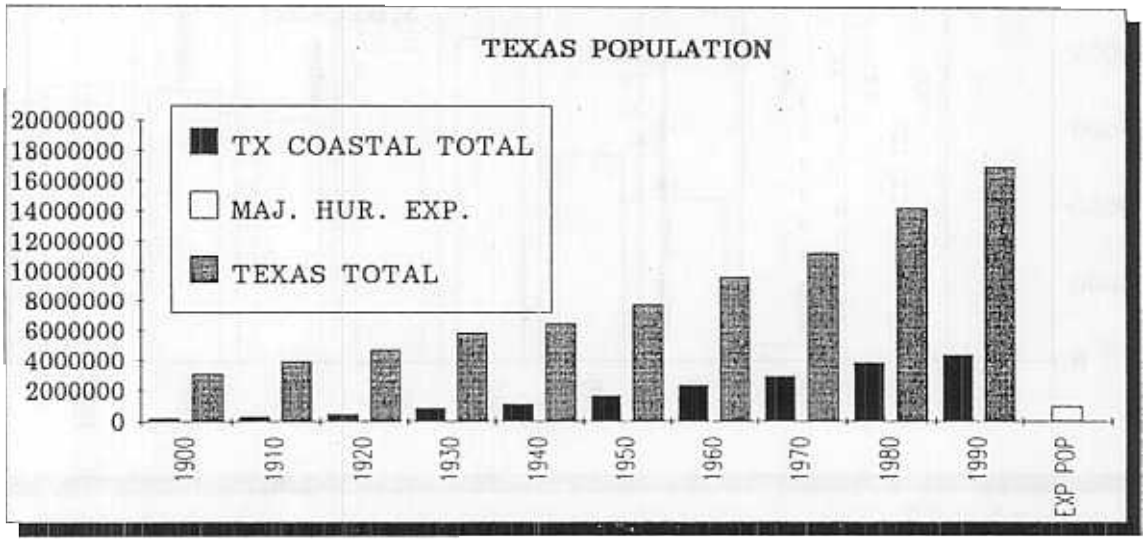
Direct Hit by Hurricane Carol, Category 3, moving greater than 30 mph.

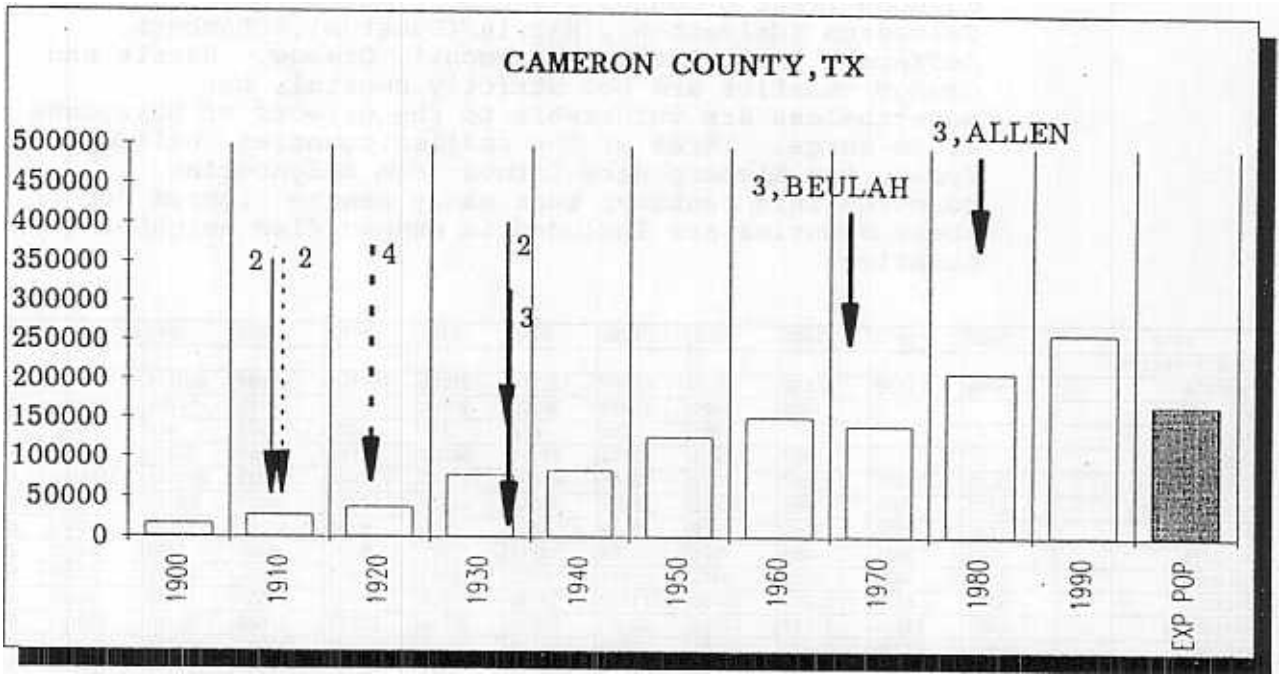
NOTE: Names of hurricanes (after 1949) are entered above arrows, and arrow length is of no significance. Major hurricanes (Categories 3,4 and 5) are indicated by a heavy arrow shaft.

TEXAS 17

Cameron (Brownsville), Willacy, Kenedy, Kleberg, Nueces (Corpus Christi), San Patricio, Aransas, Refugio, Calhoun (Port O'Connor), Jackson, Matagorda, Brazoria, Galveston (Galveston), Harris (Houston), Chambers, Jefferson (Port Arthur, Beaumont), Orange. Harris and Orange counties are not strictly coastal, but nevertheless are vulnerable to the effects of hurricane storm surge. Three of the smaller counties, Willacy, Kenedy and Kleberg were formed from neighboring counties this century; thus early census figures for these counties are included in unspecified neighbor counties.

YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
	16095	27158	36662	77540	83202	125170	151098	140368	209680	260120	167618	36	1980
			1033	10499	13230	20920	20084	15570	17495	17705	13986	21	1980
				701	700	632	884	678	543	460	456	1	1967
			7837	12451	13344	21991	30052	33166	33358	30274	19884	34	1967
	10439	21955	22807	51779	92661	165471	221573	237544	268215	291145	156446	46	1970
	2372	7307	11386	23836	28871	35842	45021	47288	58013	58749	31144	47	1970
	1716	2106	2064	2219	3469	4252	7006	8902	14260	17892	5863	67	1970
	1641	2814	4050	7691	10383	10113	10975	9494	9289	7796	6253	20	1970
	2395	3635	4700	5385	5911	9222	16592	17831	19574	19053	8928	53	1961
	6094	6471	11244	10980	11720	12916	14040	12975	13352	13039	7442	43	1961
	6097	13594	16589	17678	20066	21559	25744	27913	37828	36928	13866	62	1961
	14861	13299	20614	23054	27069	46549	76204	108312	169587	191707	148397	23	1983
	44116	44479	53150	64401	81173	113066	140364	169812	195940	217399	170422	22	1983
	63786	115693	186667	359328	528961	806701	1243158	1741912	2409544	2818199	150151	95	1941
	3046	4234	4162	5710	7511	7871	10379	12187	18538	20088	16002	20	1983
	14239	38182	73120	133391	145329	195083	245659	246402	250938	239397		100	
	5905	9528	15379	15149	17382	40567	60357	71170	83838	80509	26100	68	1957
TX COASTAL TOTAL	192802	310455	471464	821792	1090982	1637925	2319190	2901524	3809992	4320460	942959	78	
TEXAS TOTAL	3048710	3896542	4663228	5824715	6414824	7711194	9579677	11198655	14228383	16986510			

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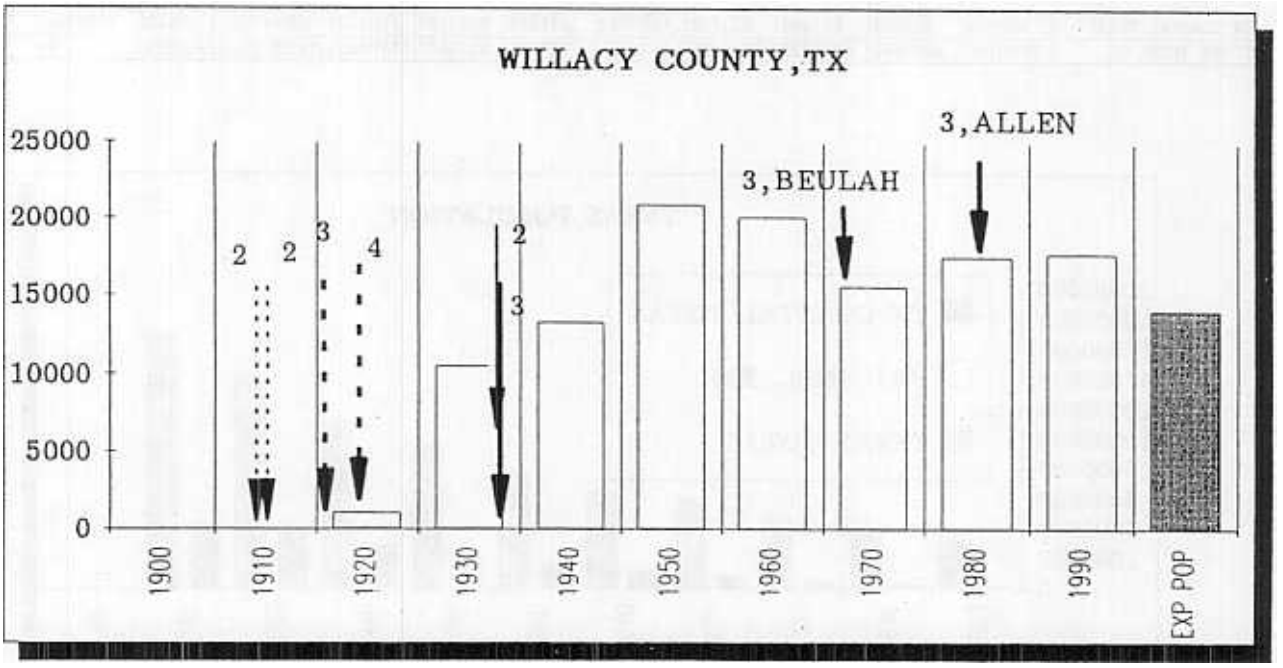
EXP POP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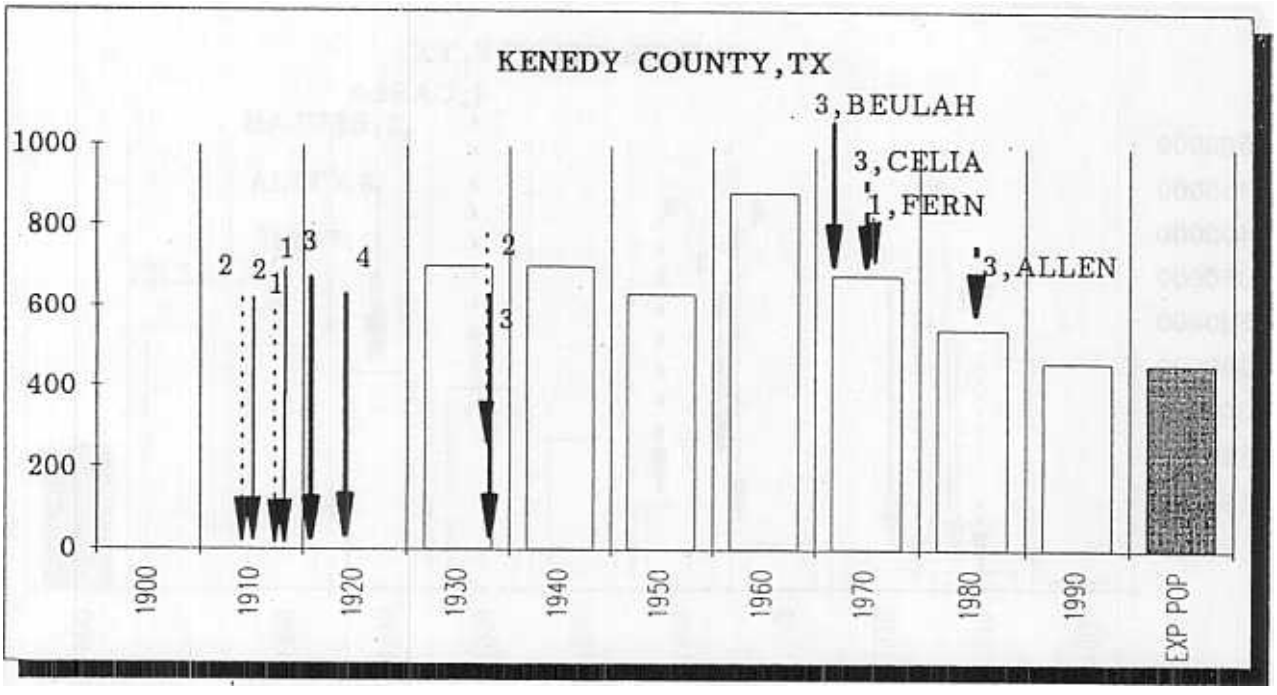
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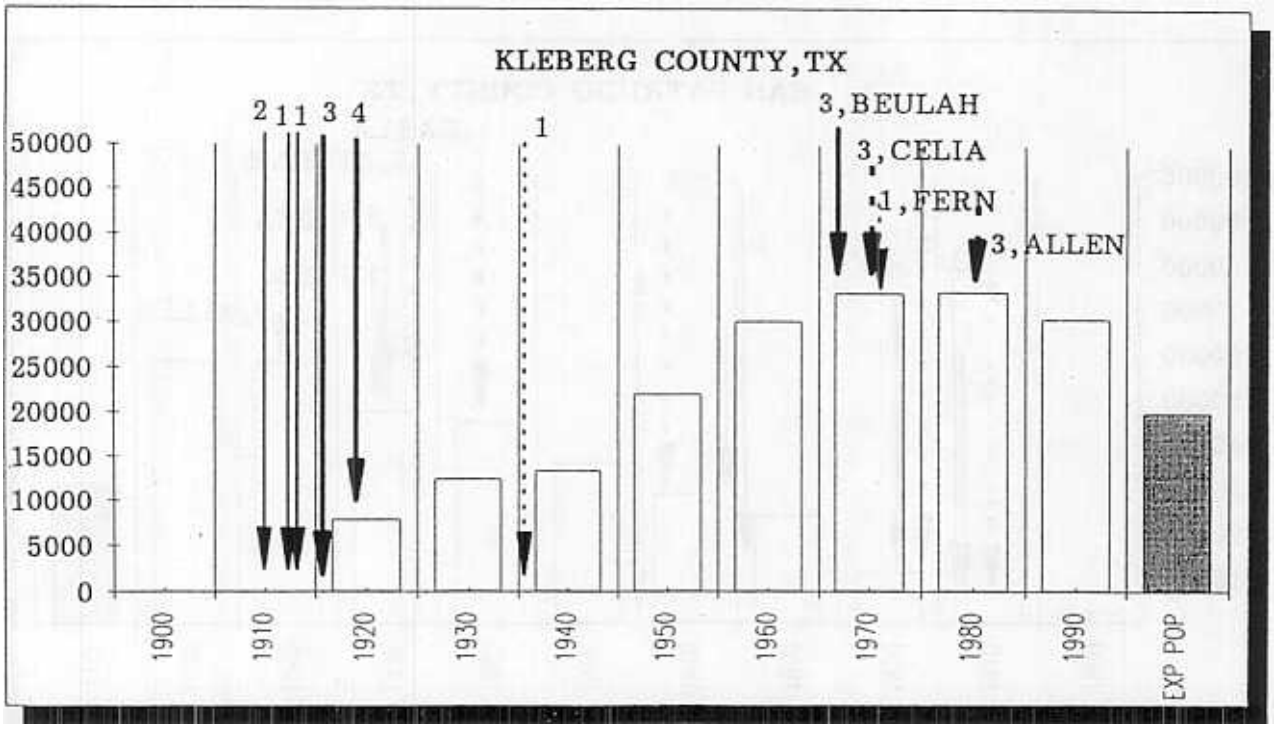
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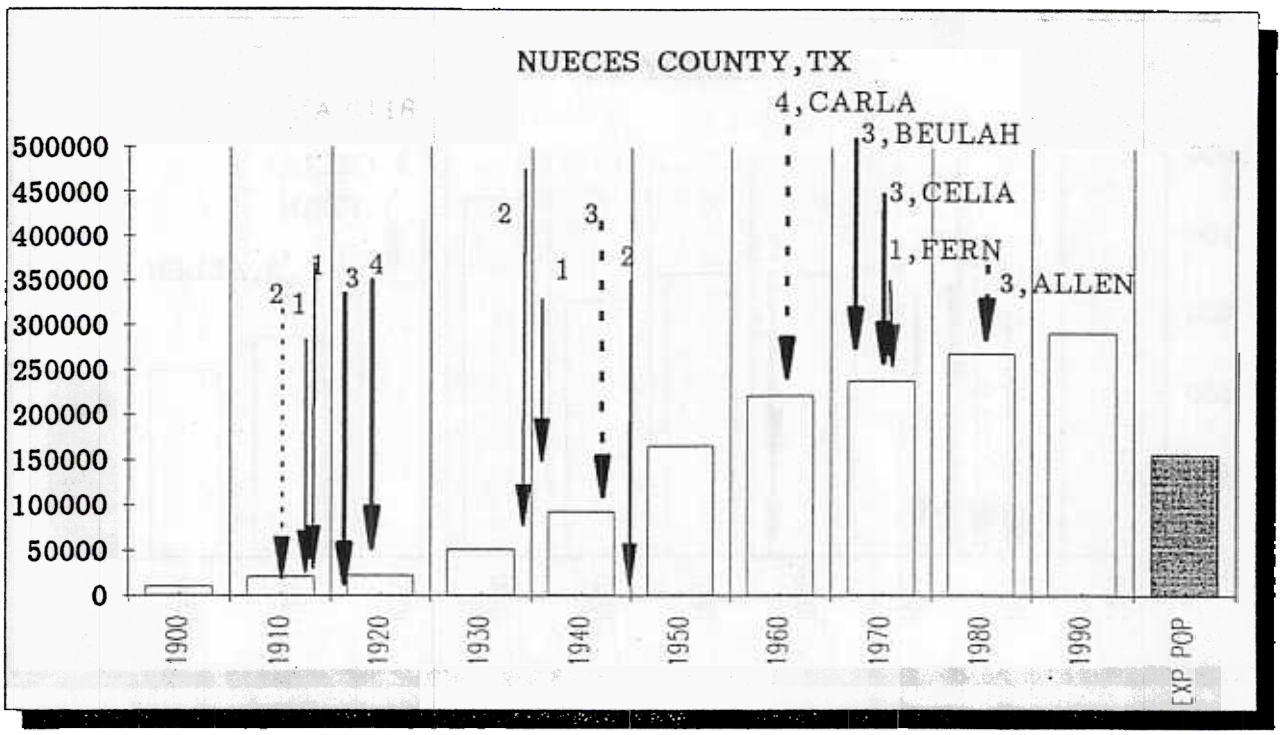
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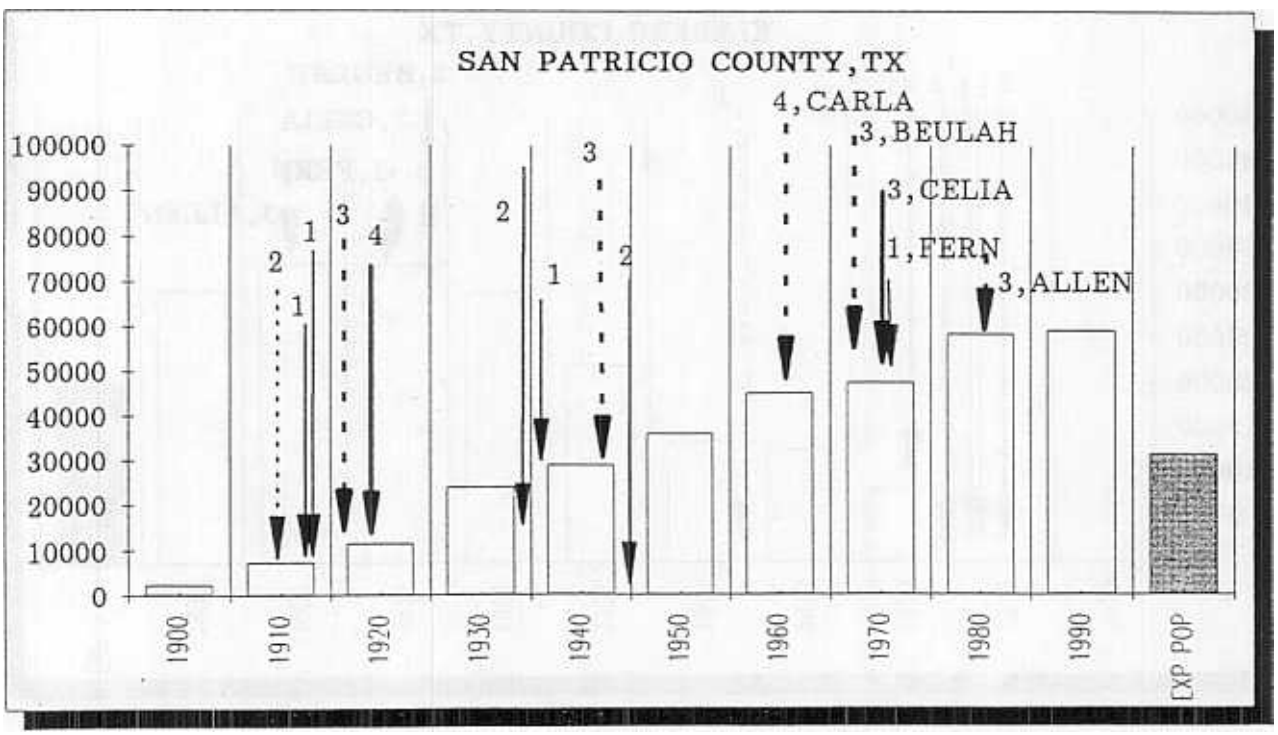
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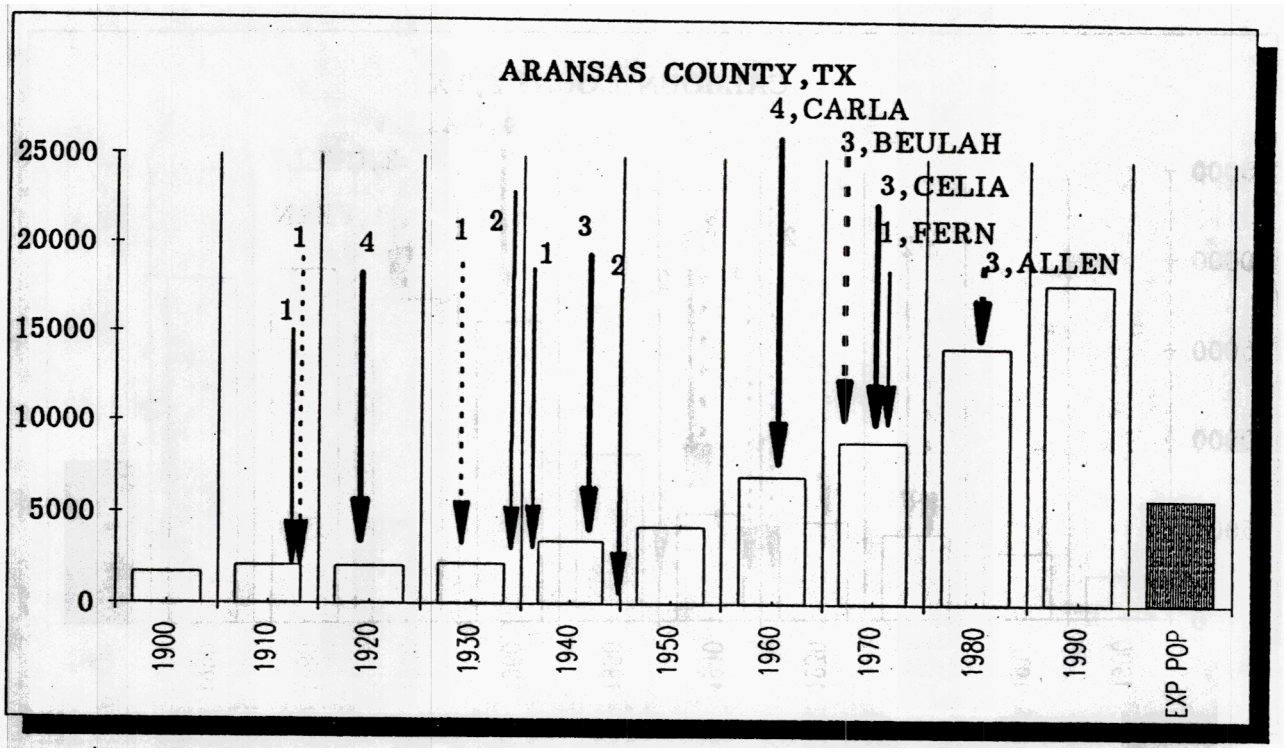
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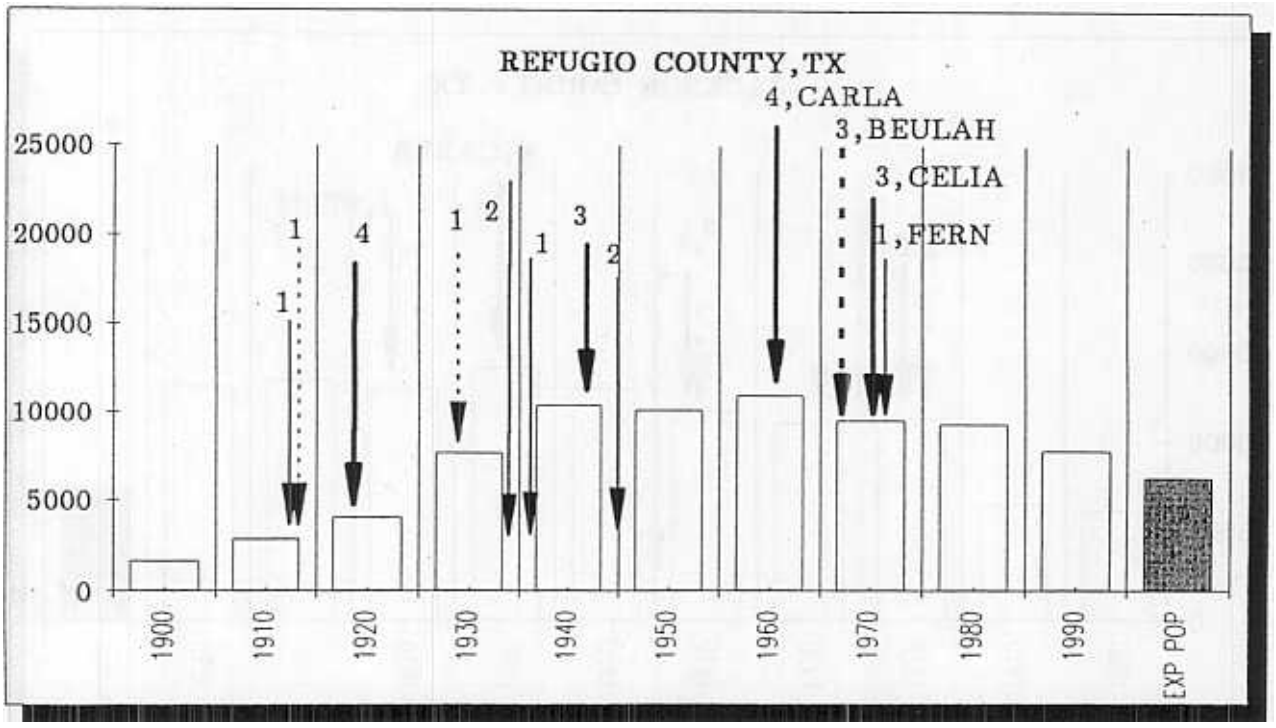
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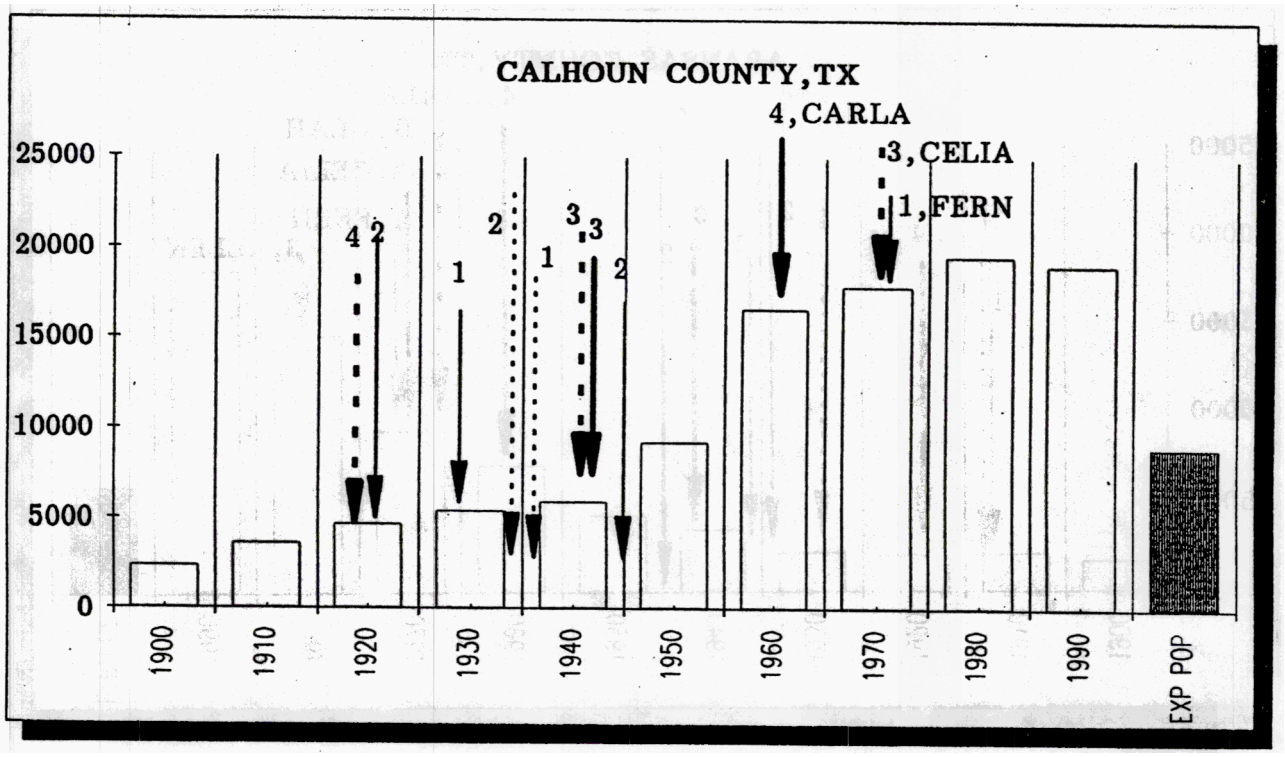
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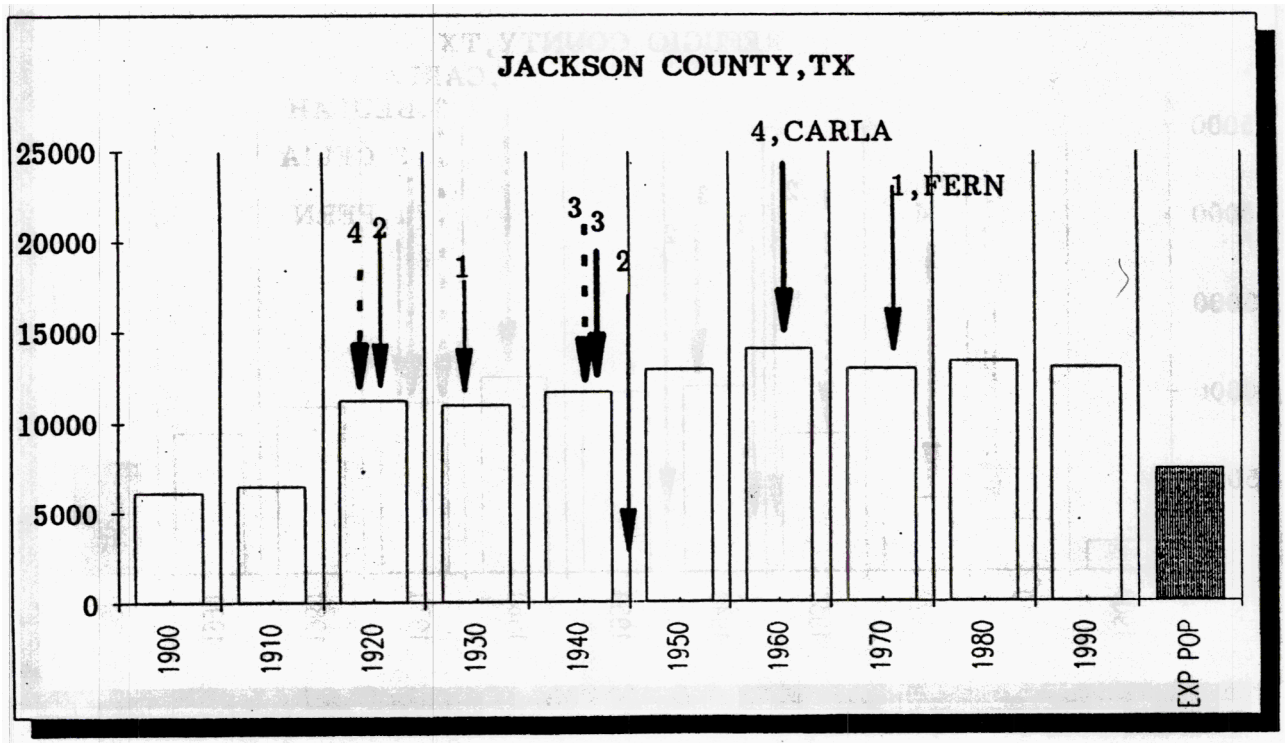
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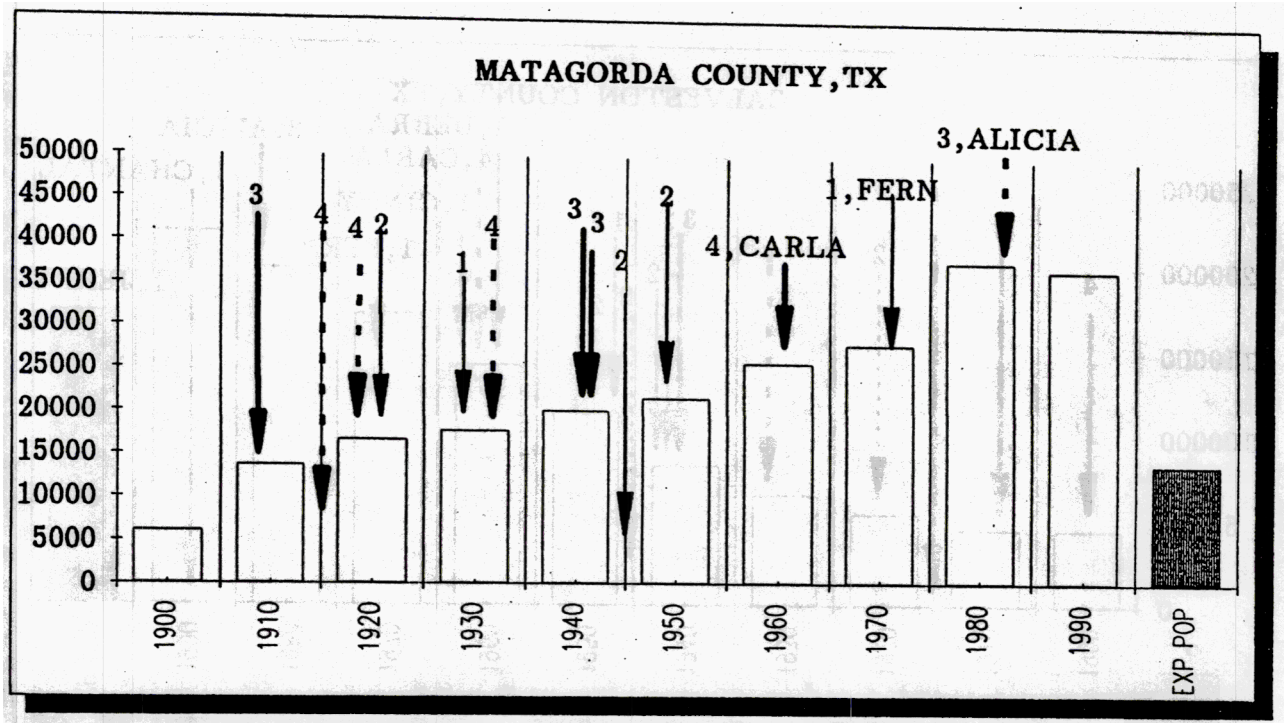
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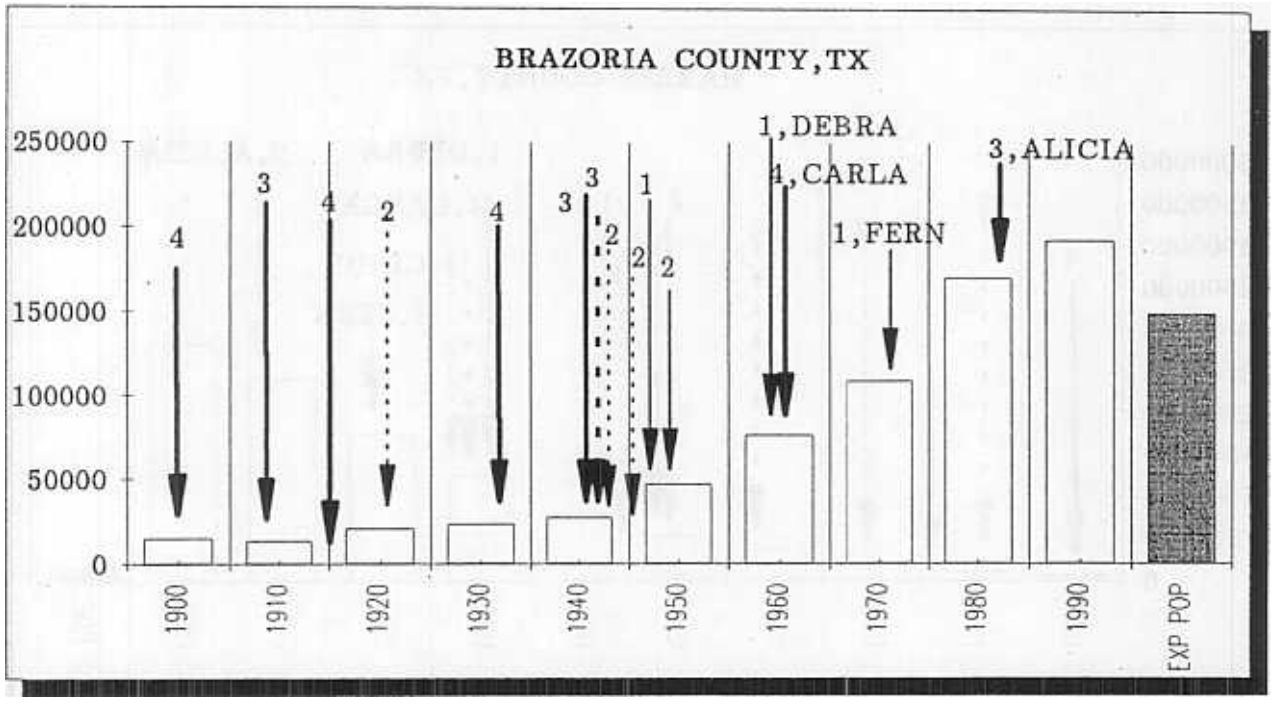
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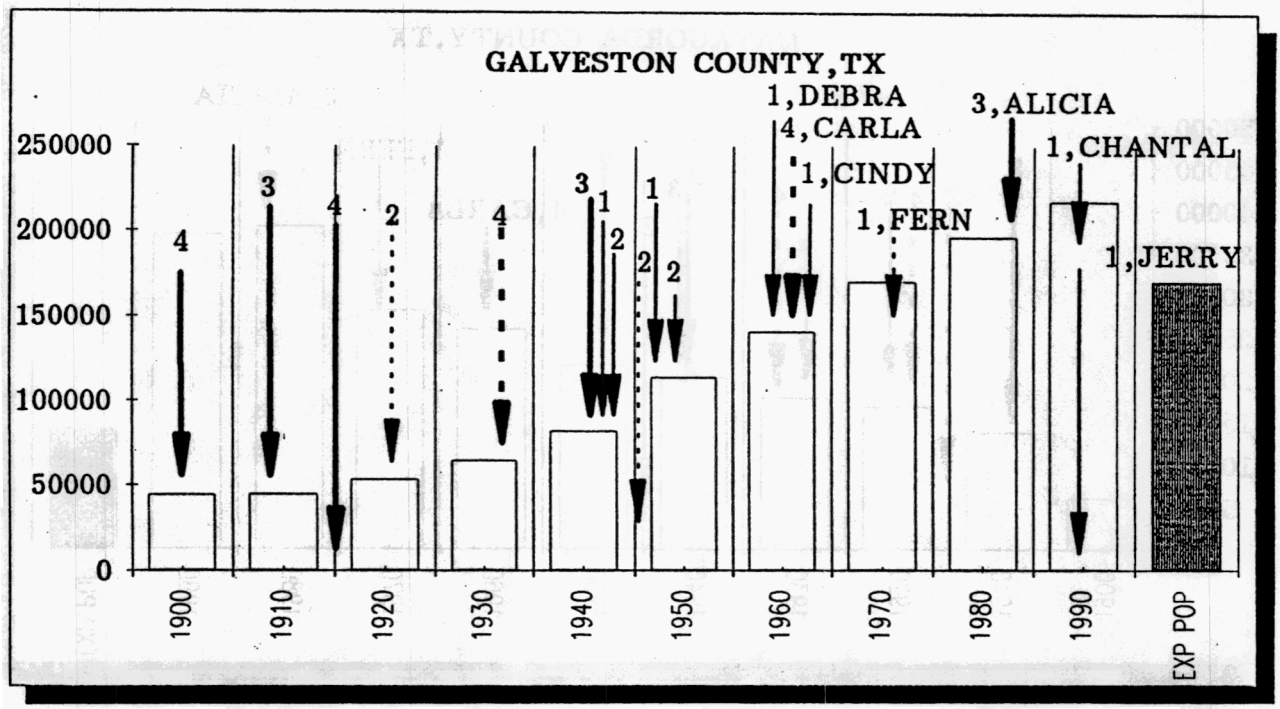
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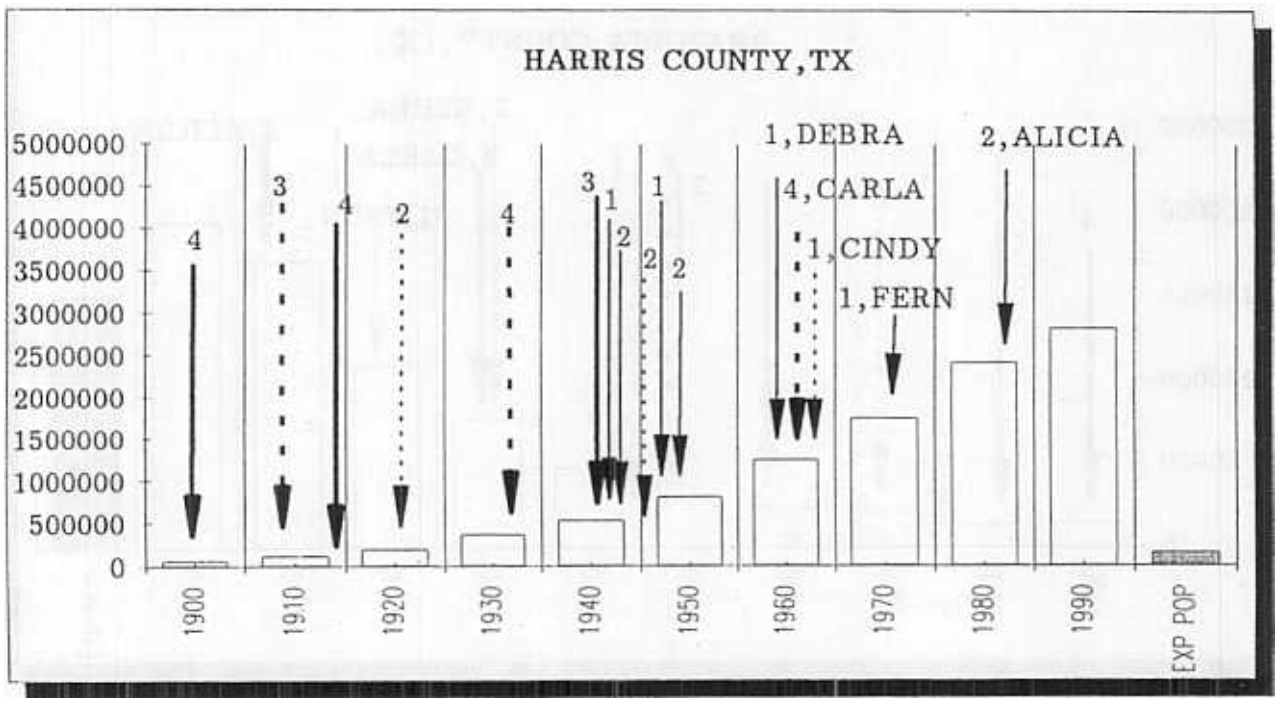
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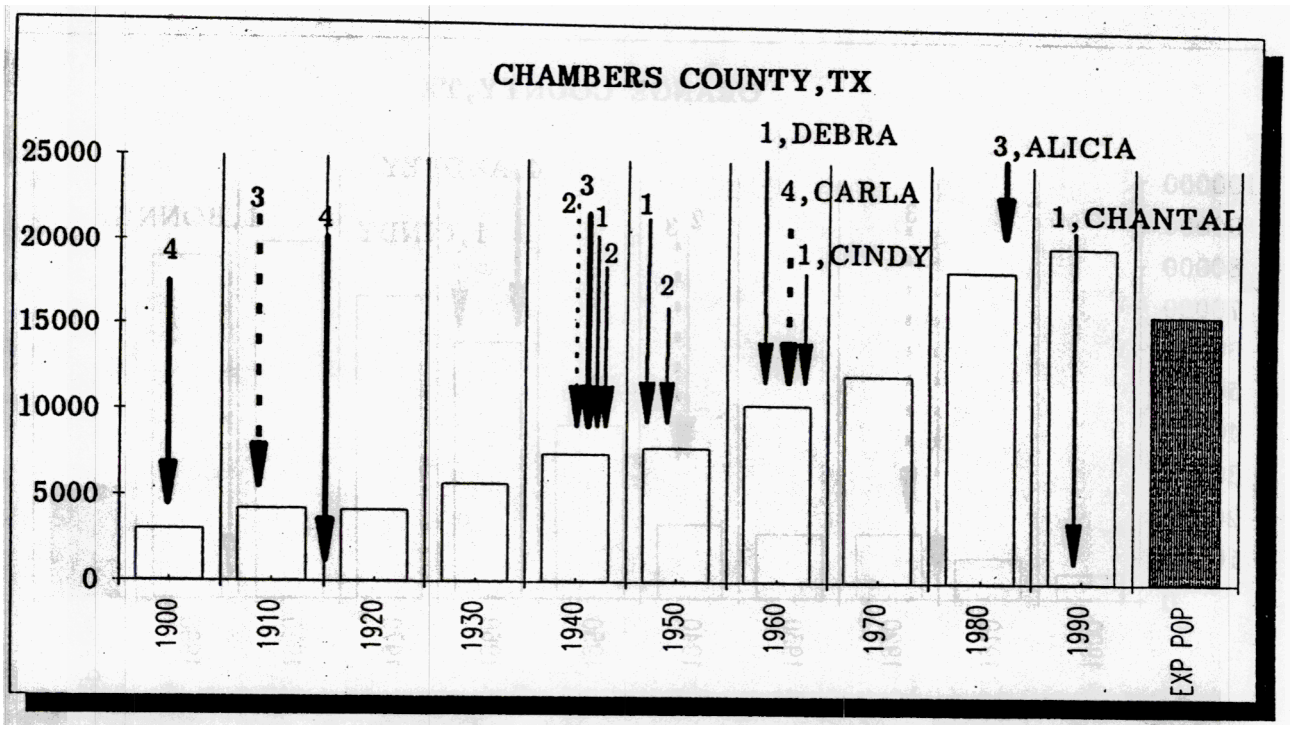
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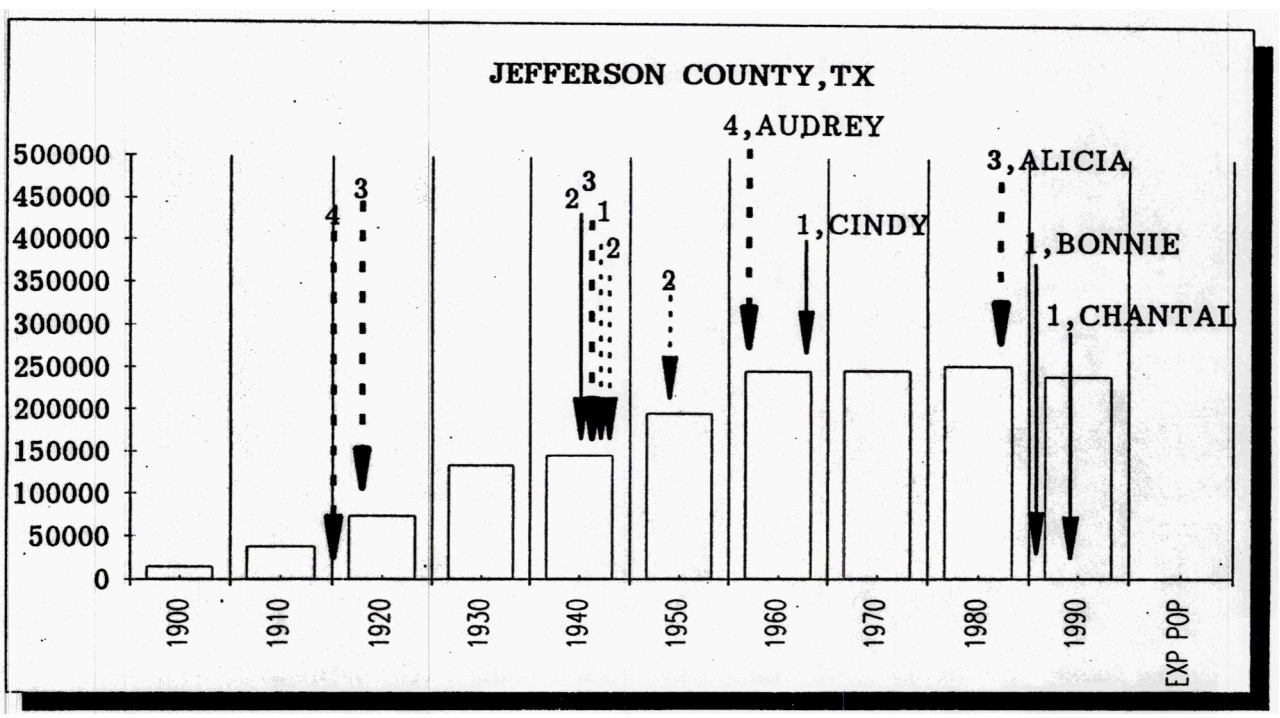
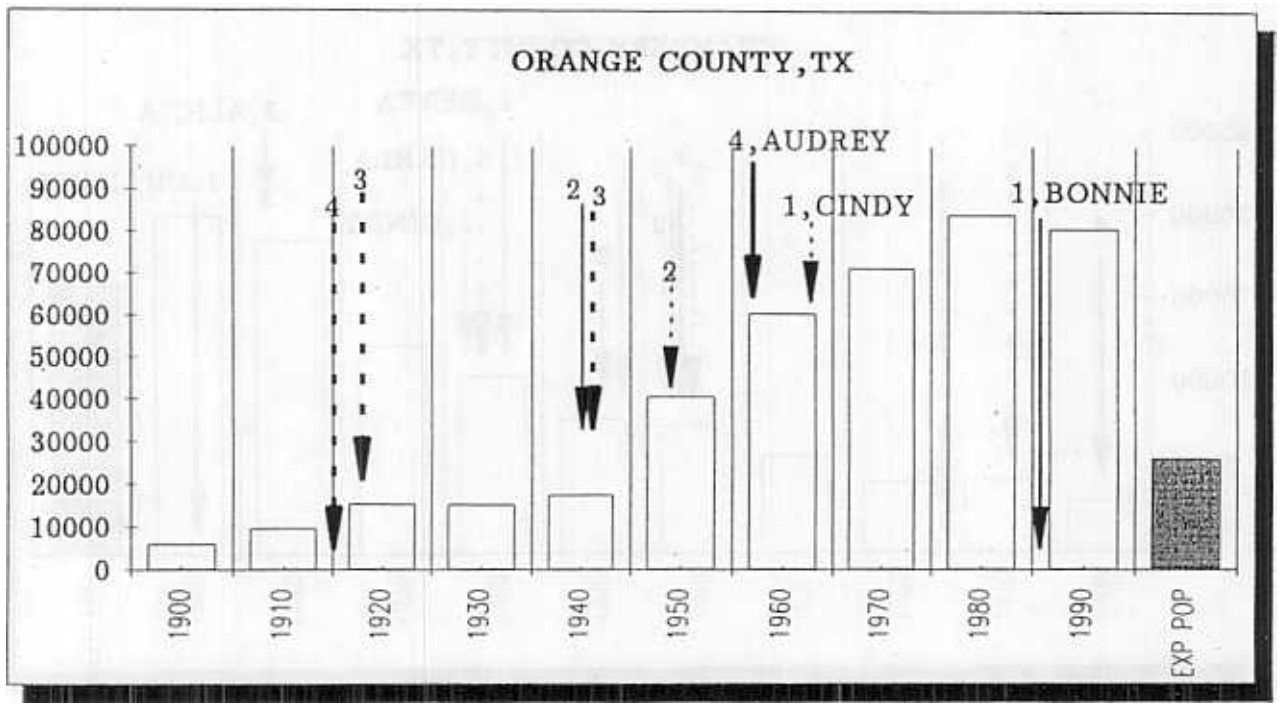
3,ALICIA
1,CHANTAL

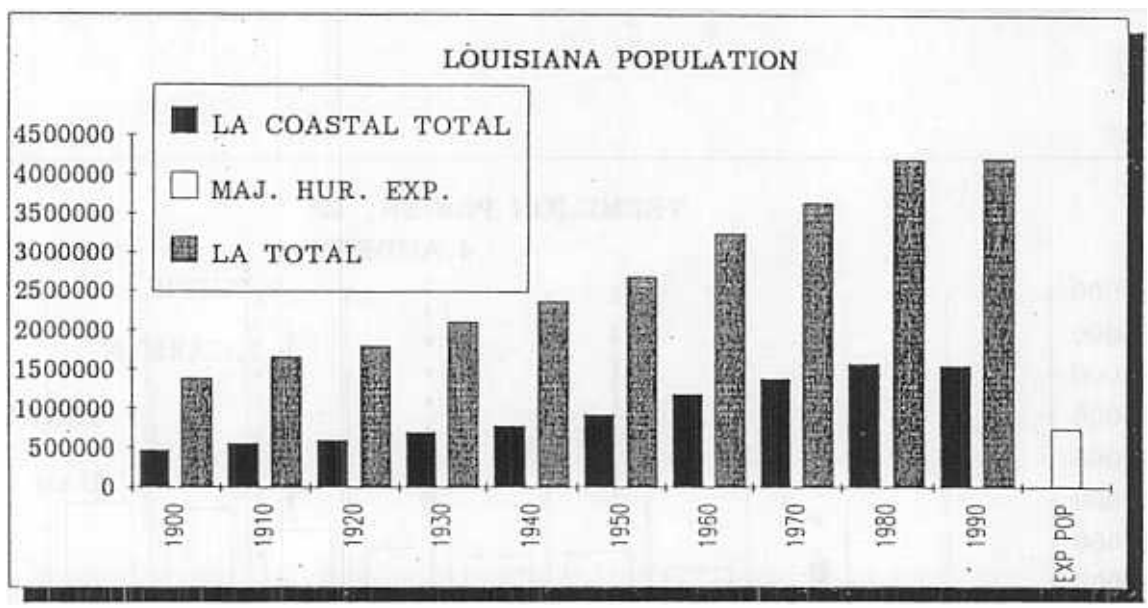

JEFFERSON COUNTY,TX
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
4,AUDREY
1,CINDY
3,ALICIA
1,BONNIE
1,CHANTAL

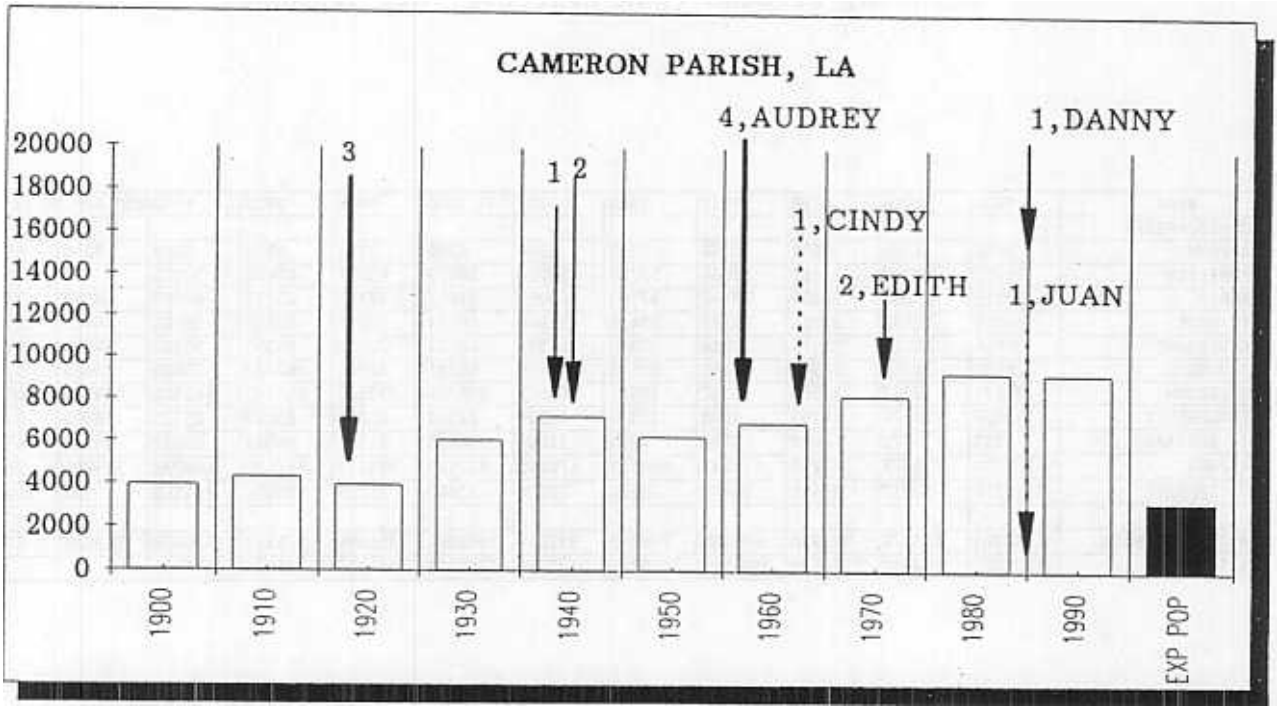

ORANGE COUNTY, TX
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
4
3
2 3
2
4, AUDREY
1, CINDY
1, BONNIE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

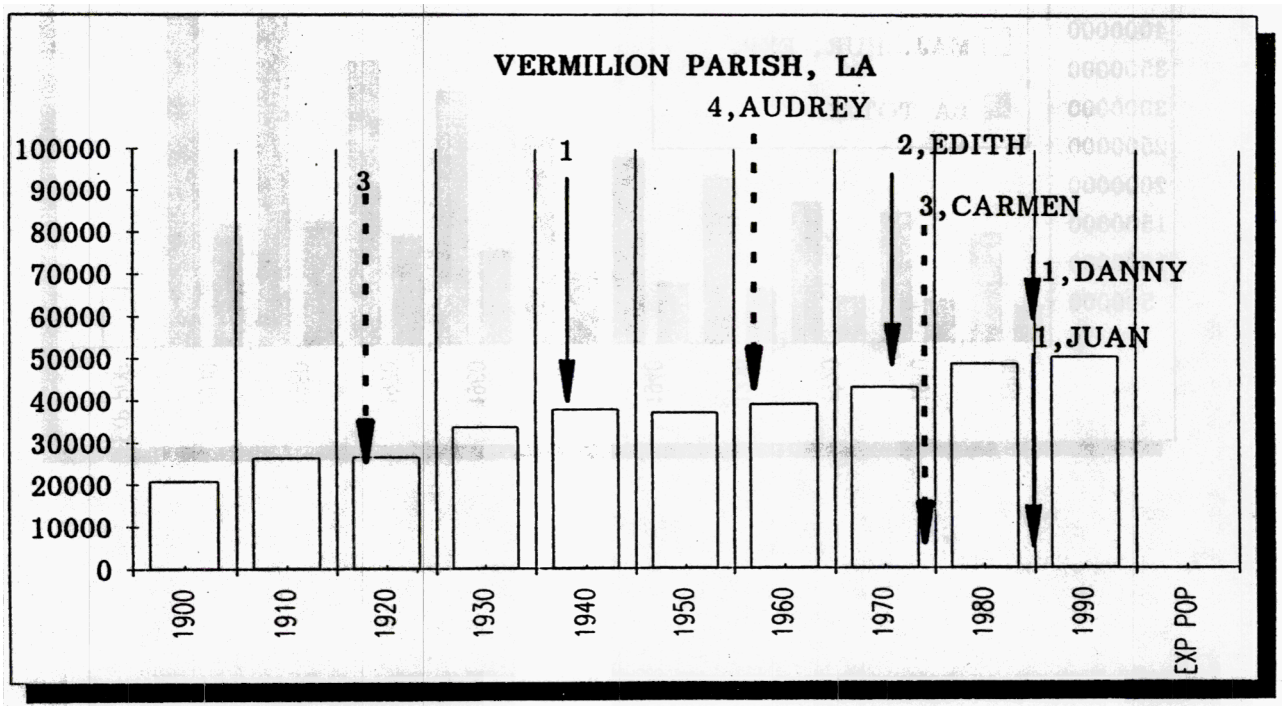
2. LOUISIANA (11)

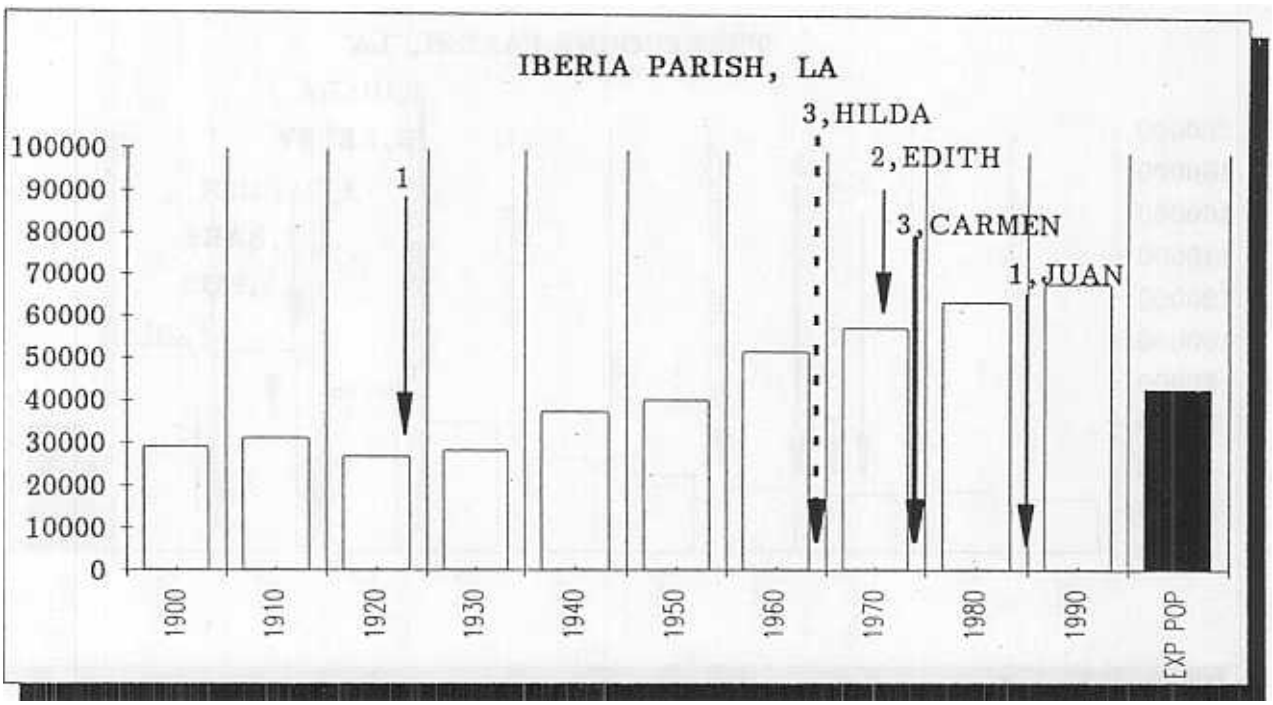
Cameron, Vermilion, Iberia, St. Mary (Morgan City), Terrebonne, Lafourche, Jefferson, Plaquemines, St. Bernard, Orleans (New Orleans), St. Tammany.

YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
CAMERON	3952	4288	3952	6054	7203	6244	6909	8194	9336	9260	3218	65	1957
VERMILION	20705	26390	26482	33684	37750	36929	38855	43071	48458	50055		100	
IBERIA	29015	31262	26855	28192	37183	40059	51657	57397	63752	68297	42838	37	1974
ST. MARY	34145	39368	30754	29397	31458	35848	48833	60752	64395	58086	44461	23	1974
TERREBONNE	24464	28320	26974	29816	35880	43328	60771	76049	94393	96982	59596	39	1974
LAFOURCHE	28882	33111	30344	32419	38615	42209	55381	68941	82483	85860	36625	57	1965
JEFFERSON	15321	18247	21563	40032	50427	103873	208769	338229	454592	448306	161146	64	1965
PLAQUEMINES	13039	12524	10194	9608	12318	14239	22545	25225	26049	25575	16090	37	1969
ST. BERNARD	5031	5277	4968	6512	7280	11087	32186	51185	64097	66631	24561	63	1965
ORLEANS	287104	339075	387219	458762	494537	570445	627525	593471	557482	496938	359705	28	1965
ST. TAMMANY	13335	18917	20645	20929	23624	26988	38643	63585	110554	144508	580	100	1915
LA COASTAL TOTAL	474993	556779	589950	695405	776275	931249	1192074	1386099	1575591	1550498	748820	52	
LA TOTAL	1381625	1656388	1798509	2101593	2363880	2683516	3257022	3644637	4203972	4219973			




CAMERON PARISH, LA
4,AUDREY
1,DANNY
3
1 2
1,CINDY
2,EDITH
1,JUAN
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


VERMILION PARISH, LA
4,AUDREY
2,EDITH
1
3
3,CARMEN
1,DANNY
1,JUAN
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


IBERIA PARISH, LA
3,HILDA
2,EDITH
3,CARMEN
1,JUAN
1
100000
90000
80000
70000
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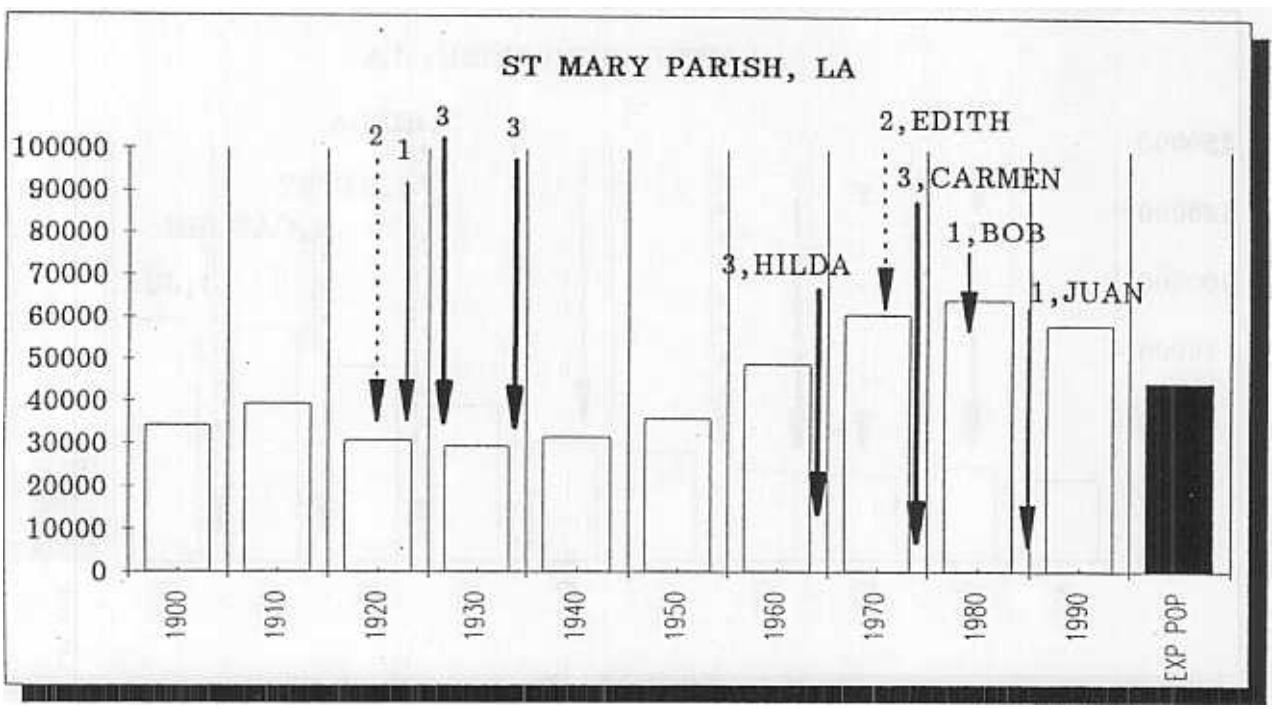
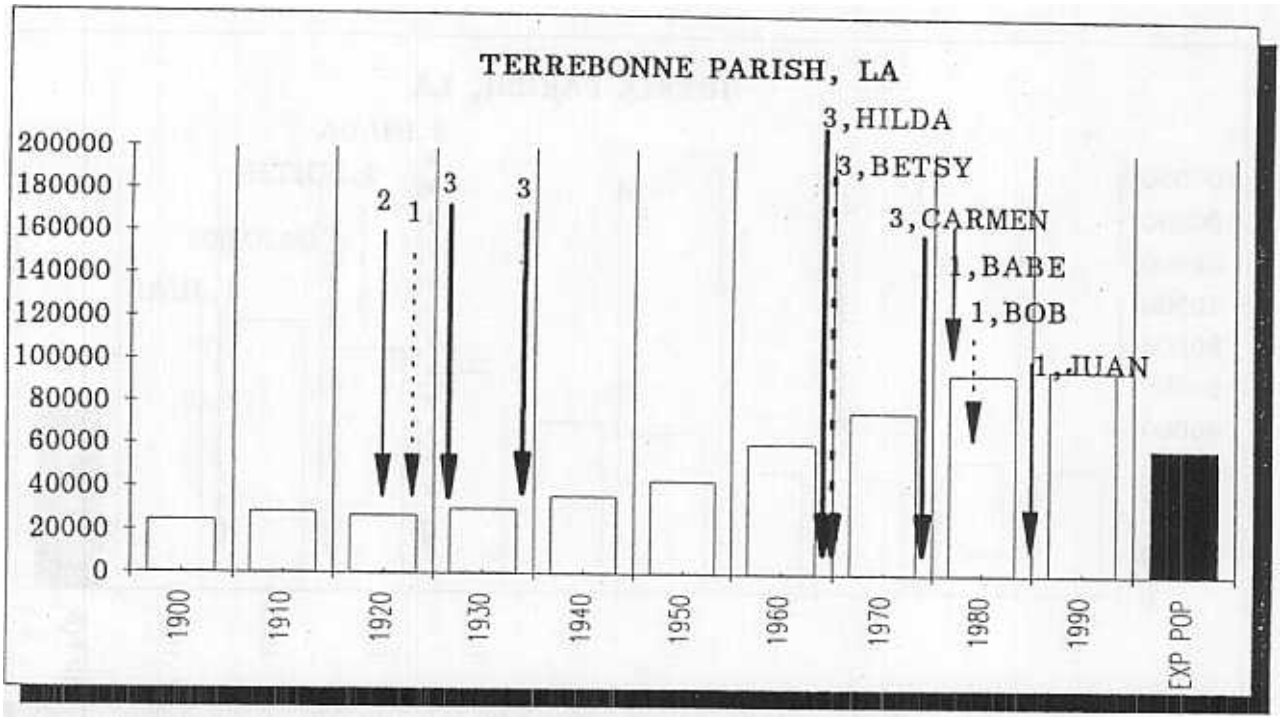
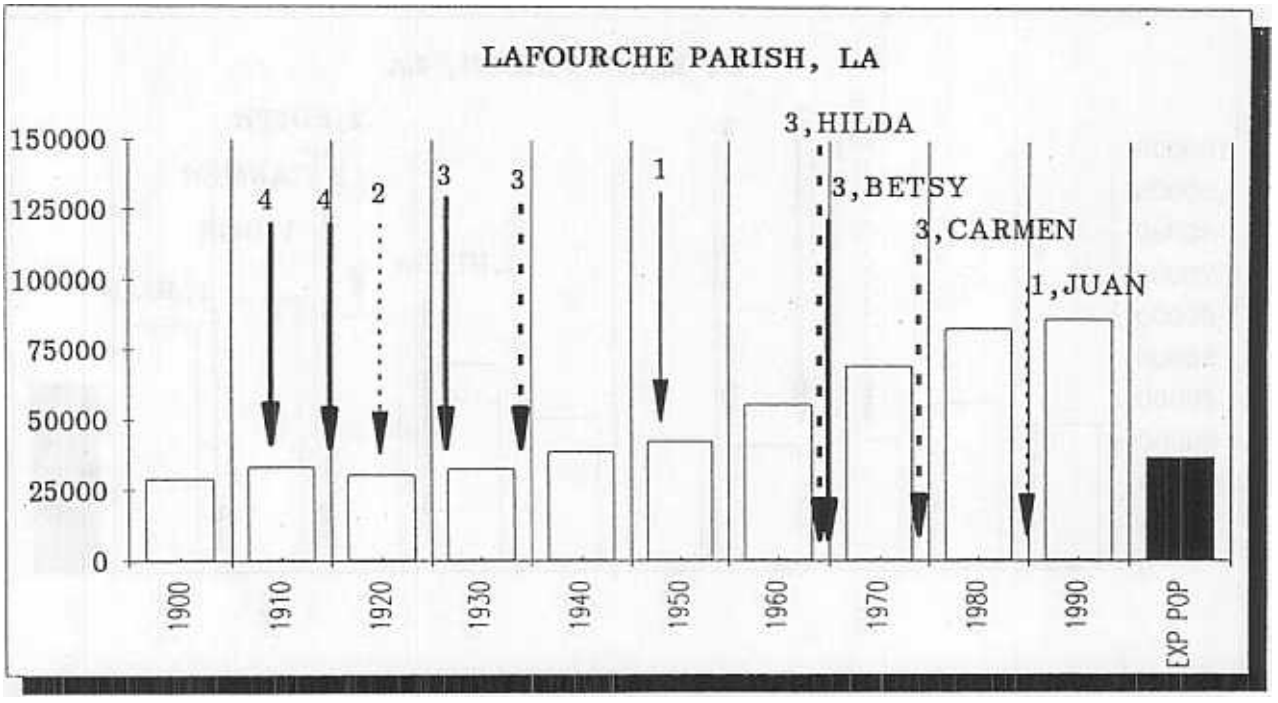
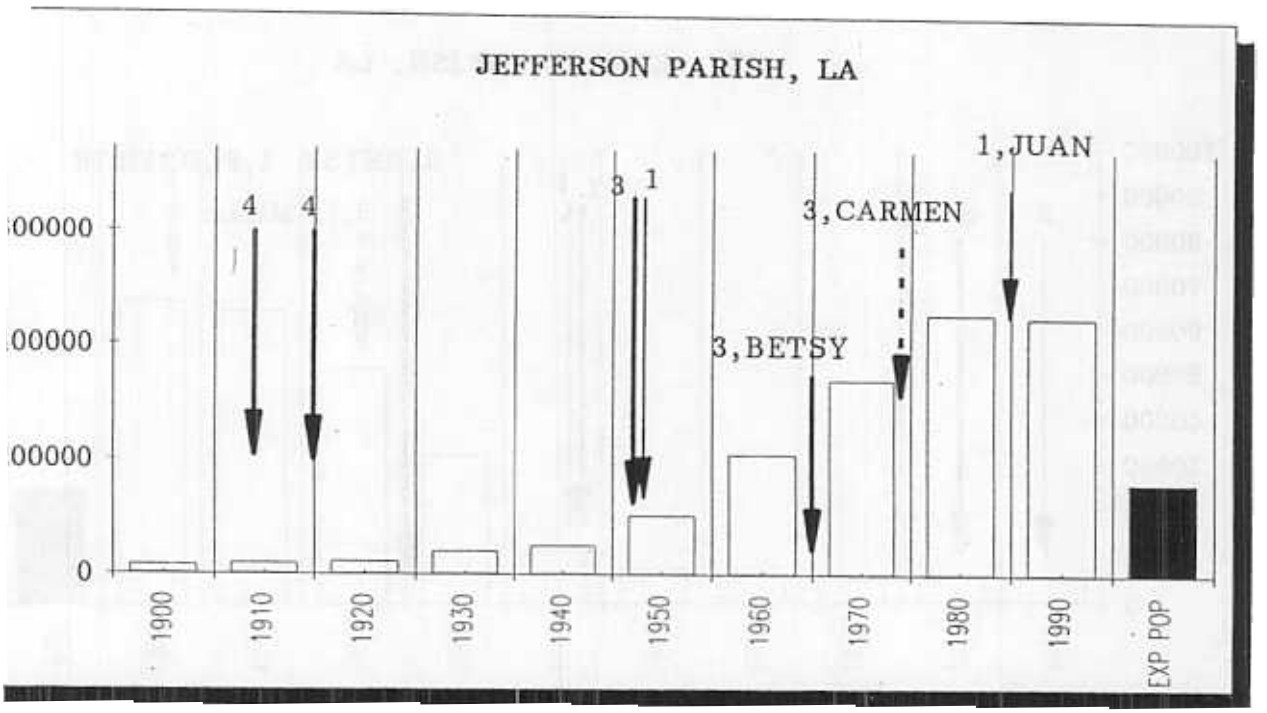
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


ST MARY PARISH, LA
2
1
3
3
2,EDITH
3,CARMEN
1,BOB
3,HILDA
1,JUAN
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


TERREBONNE PARISH, LA
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
2
1
3
3
3,HILDA
3,BETSY
3,CARMEN
1,BABE
1,BOB
1,JUAN
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


LAFOURCHE PARISH, LA
150000
125000
100000
75000
50000
25000
0
4
4
2
3
3
1
3,HILDA
3,BETSY
3,CARMEN
1,JUAN
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


JEFFERSON PARISH, LA
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00000
00000
0
4
4
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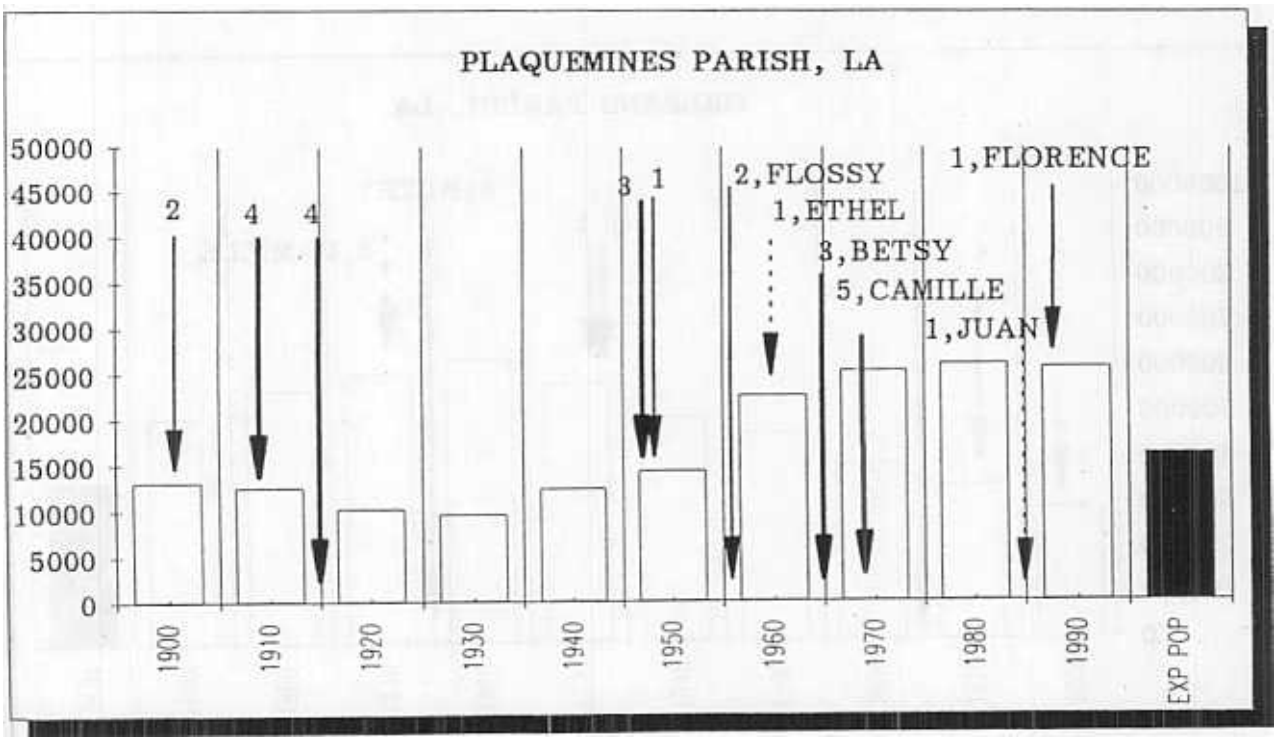
1
3,BETSY
3,CARMEN
1,JUAN
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PLAQUEMINES PARISH, LA
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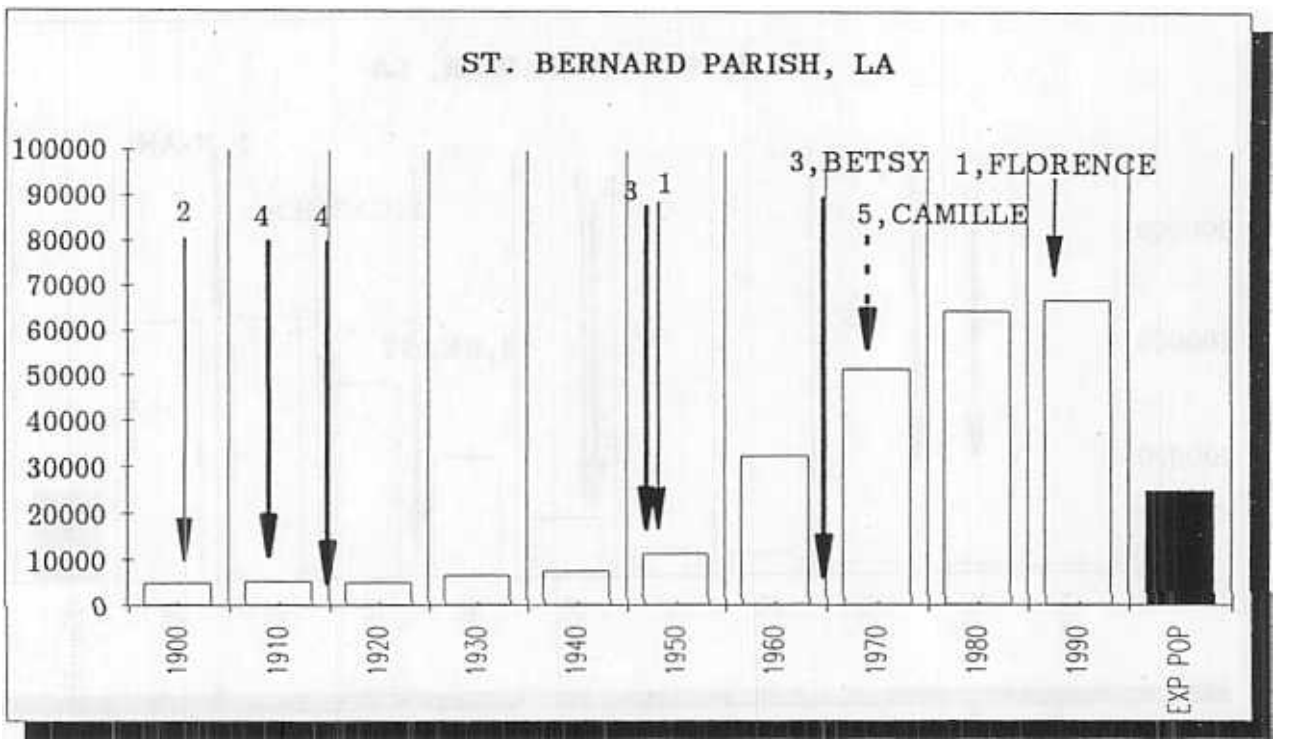
35000
30000
25000
20000
15000
10000
5000
0
2
4
4
3
1
2,FLOSSY
1,ETHEL
3,BETSY
5,CAMILLE
1,JUAN
1,FLORENCE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


ST. BERNARD PARISH, LA
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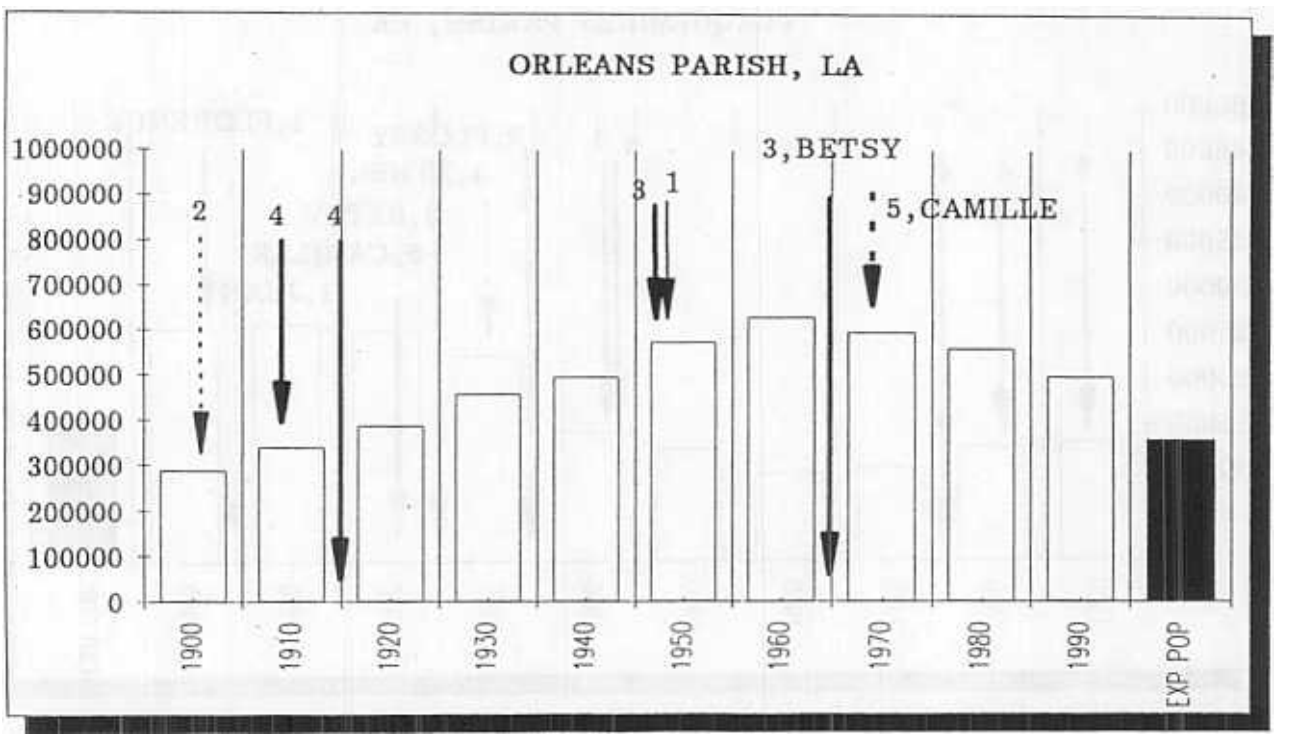
80000
70000
60000
50000
40000
30000
20000
10000
0
2
4
4
3
1
3,BETSY
1,FLORENCE
5,CAMILLE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


ORLEANS PARISH, LA
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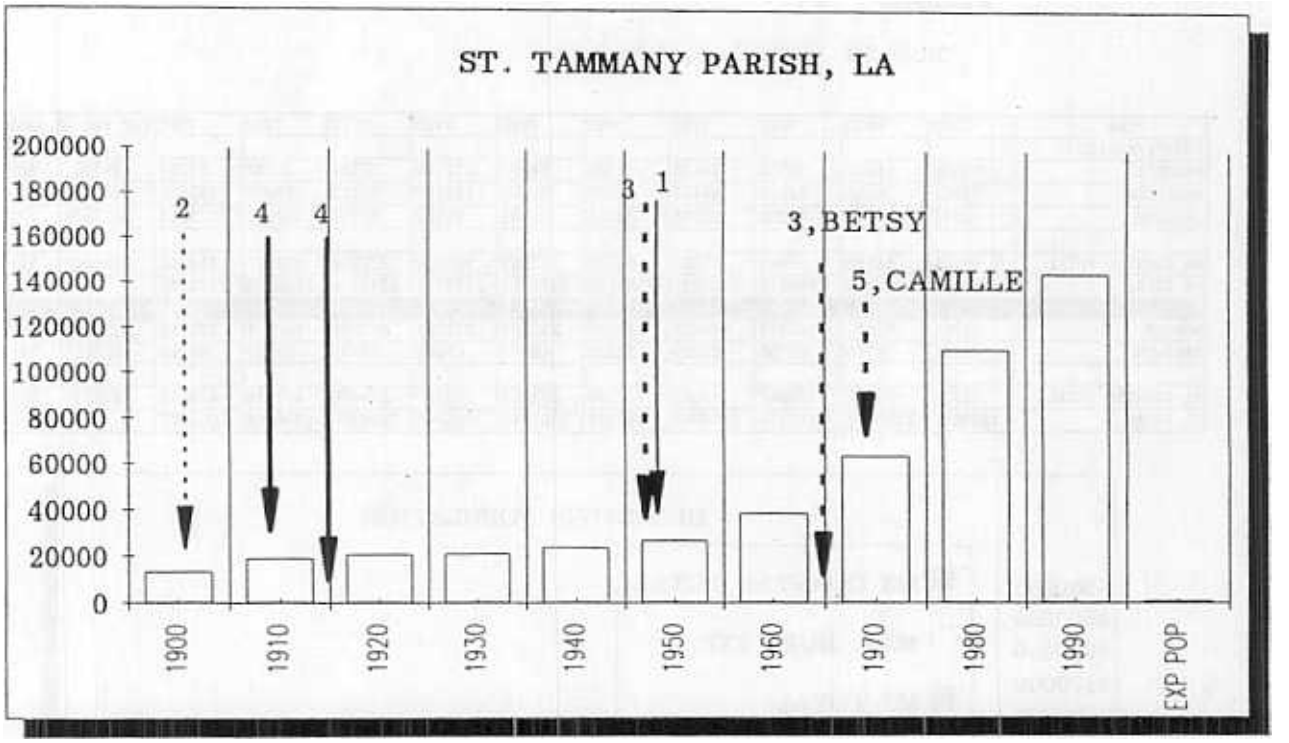
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
2
4
4
3
1
3,BETSY
5,CAMILLE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


ST. TAMMANY PARISH, LA
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
2
4
4
3
1
3, BETSY
5, CAMILLE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

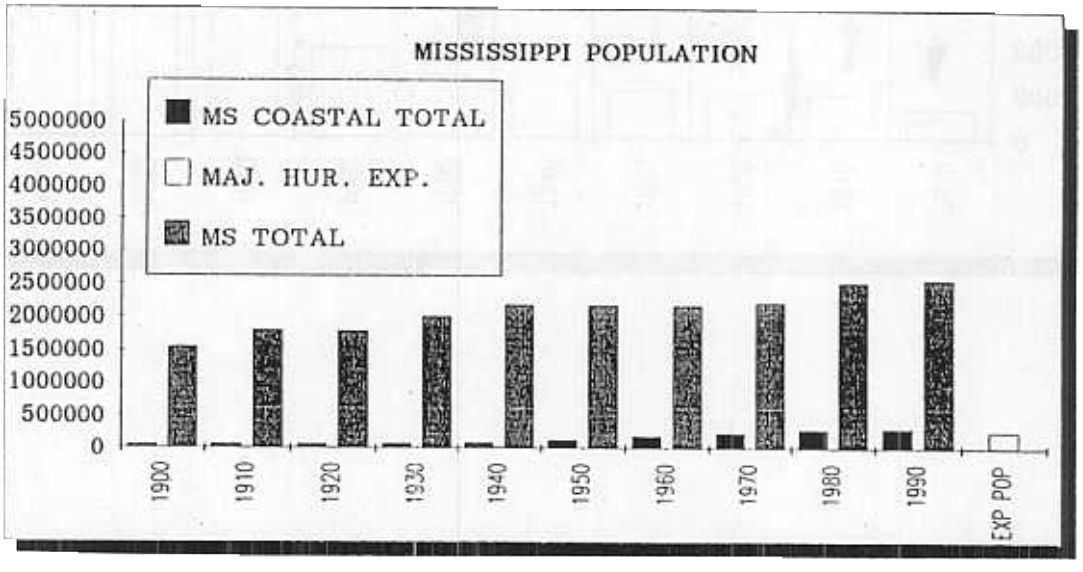
3. MISSISSIPPI (3)

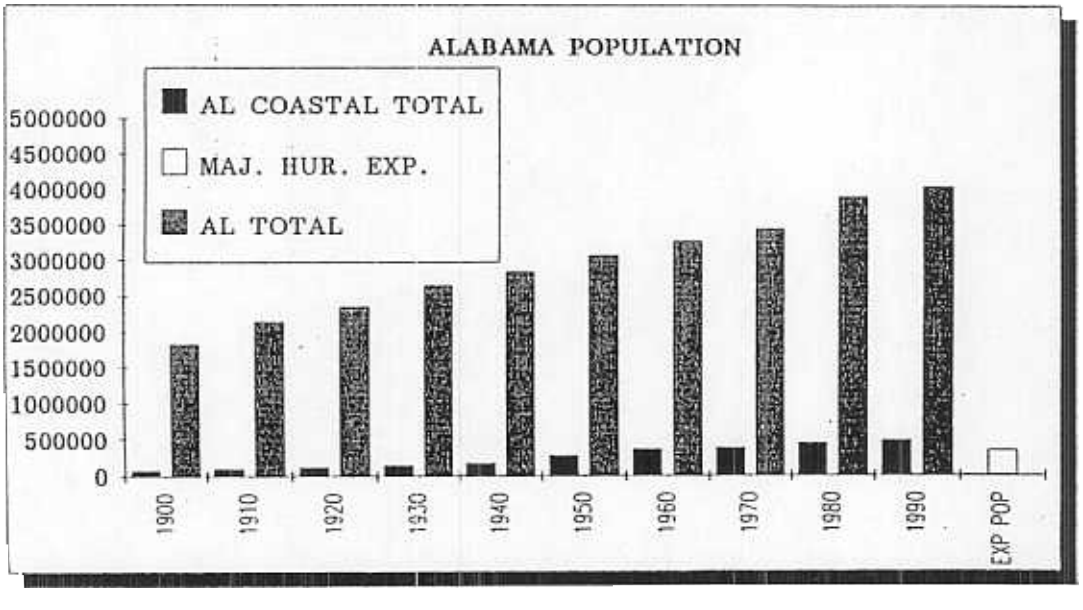
Hancock (Bay St. Louis), Harrison (Biloxi), Jackson (Pascagoula).

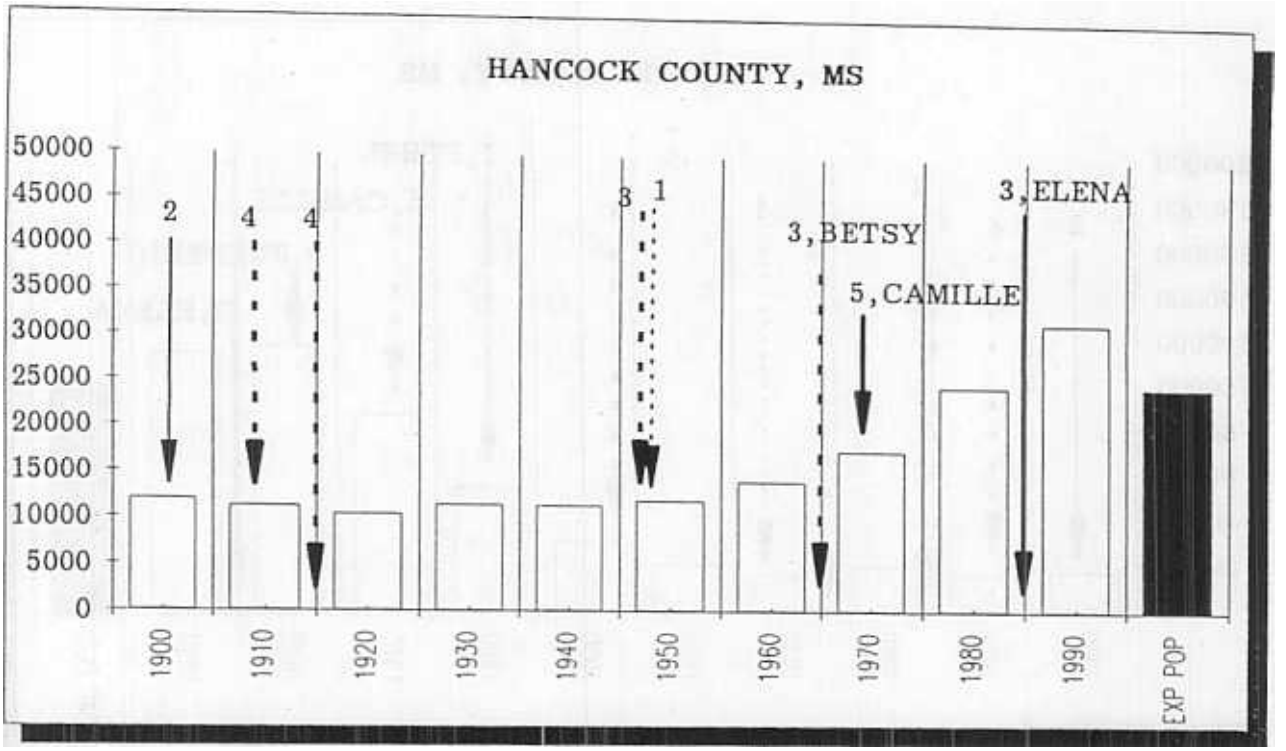
ALABAMA (2)

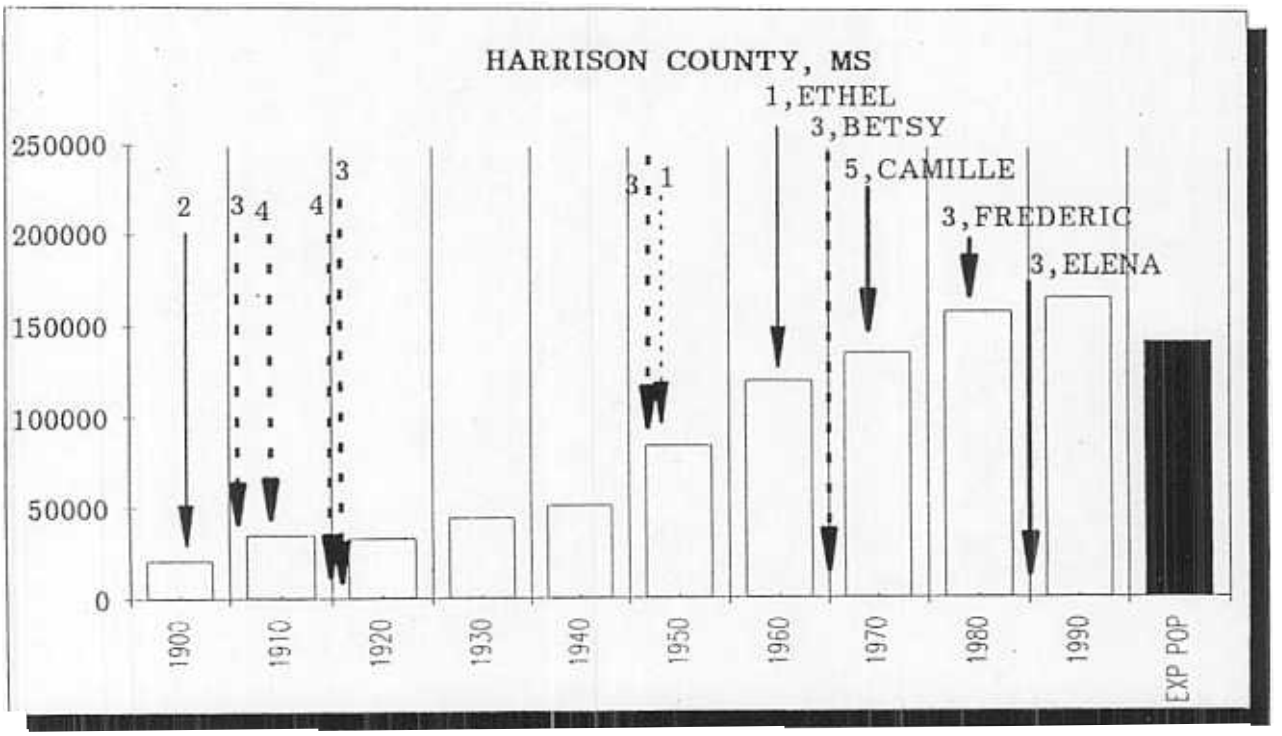
Mobile (Mobile), Baldwin.

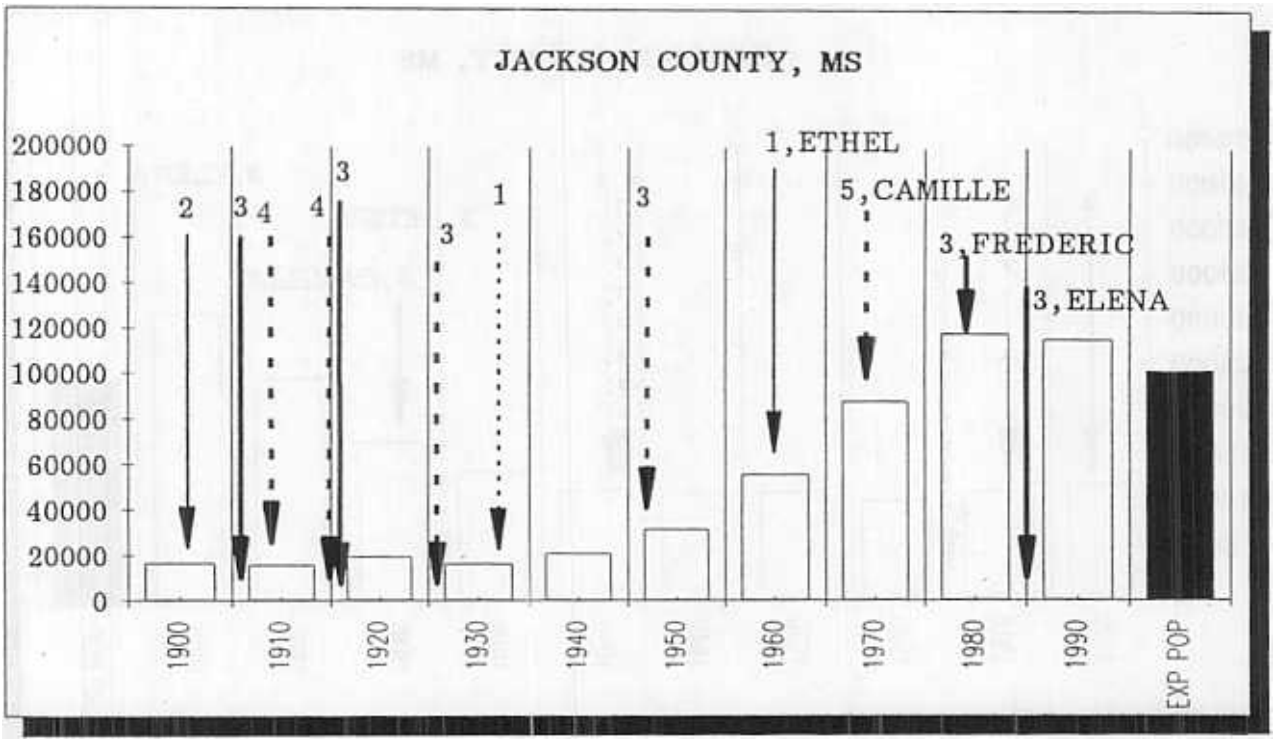
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
HANCOCK	11886	11207	10380	11415	11328	11891	14039	17387	24537	31760	24506	23	1985
HARRISON	21002	34658	32855	44143	50799	84073	119489	134582	157665	165365	140615	15	1985
JACKSON	16513	15451	19208	15973	20601	31401	55522	87975	118015	115243	101537	12	1985
MS COASTAL TOTAL	49401	61316	62443	71531	82728	127365	189050	239944	300217	312368	266658	15	
MS TOTAL	1551270	1797114	1790618	2009821	2183796	2178914	2178141	2216994	2520698	2573216			
MOBILE	62740	80854	100117	118363	141974	231105	314301	317308	364379	378643	323437	15	1985
BALDWIN	13194	18178	20730	28289	32324	40997	49088	59382	78440	98280	60095	39	1979
AL COASTAL TOTAL	75934	99032	120847	146652	174298	272102	363389	376690	442819	476923	383532	20	
AL TOTAL	1828697	2138093	2348174	2646248	2832961	3061743	3266740	3444354	3894046	4040587			

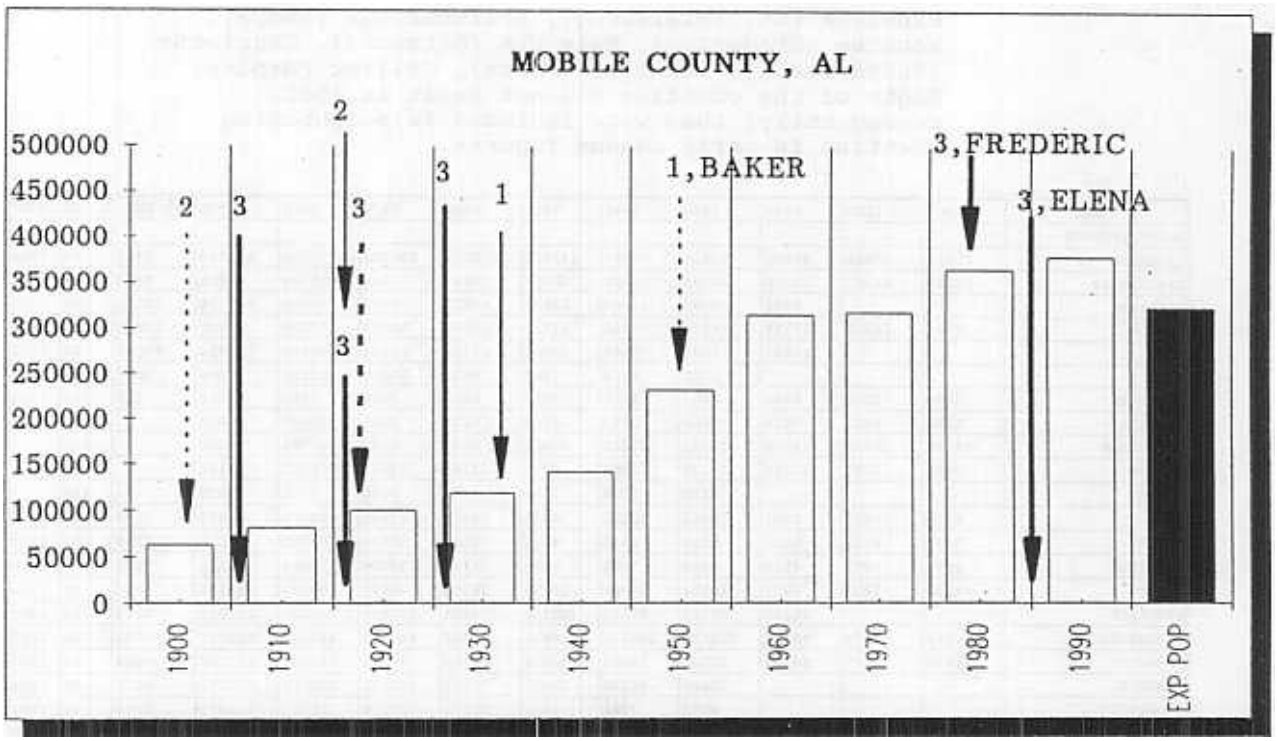


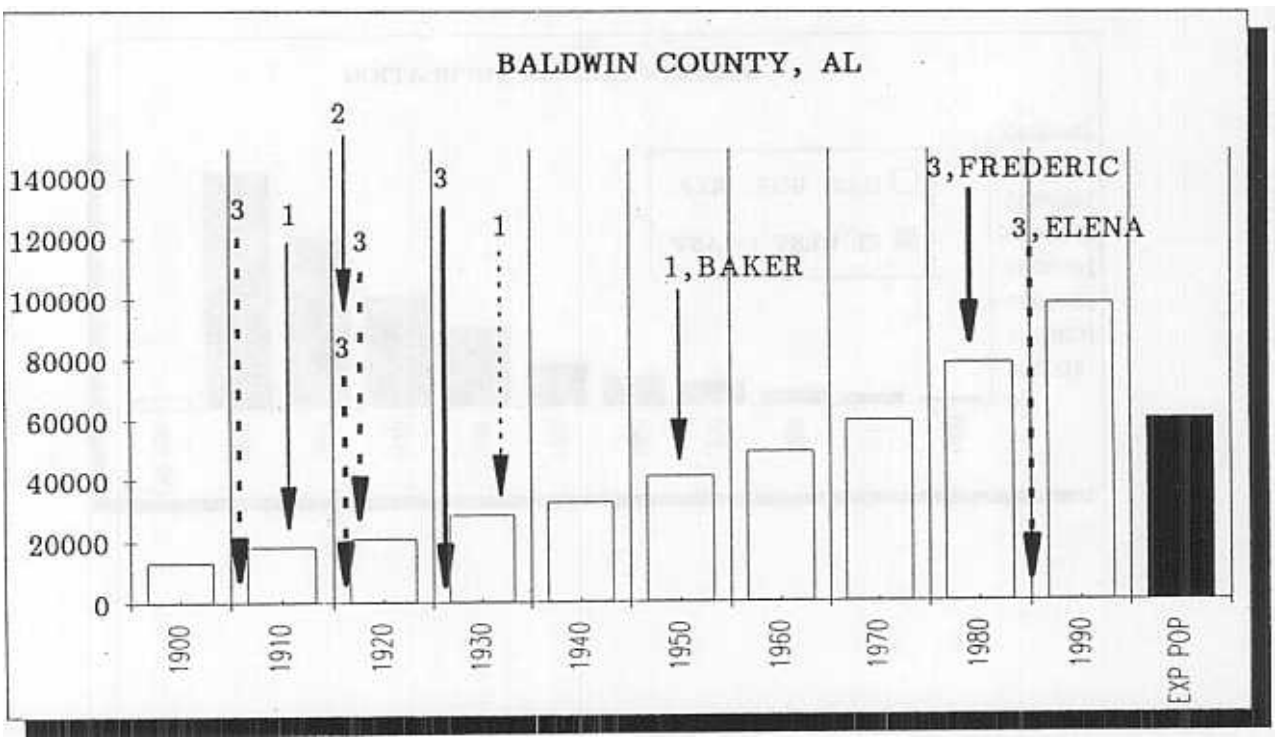



HANCOCK COUNTY, MS
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
2
4
4
3
1
3, BETSY
5, CAMILLE
3, ELENA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HARRISON COUNTY, MS
250000
200000
150000
100000
50000
0
2
3
4
4
3
3
1
1, ETHEL
3, BETSY
5, CAMILLE
3, FREDERIC
3, ELENA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


JACKSON COUNTY, MS
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
2
3
4
4
3
3
1
3
1,ETHEL
5,CAMILLE
3,FREDERIC
3,ELENA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

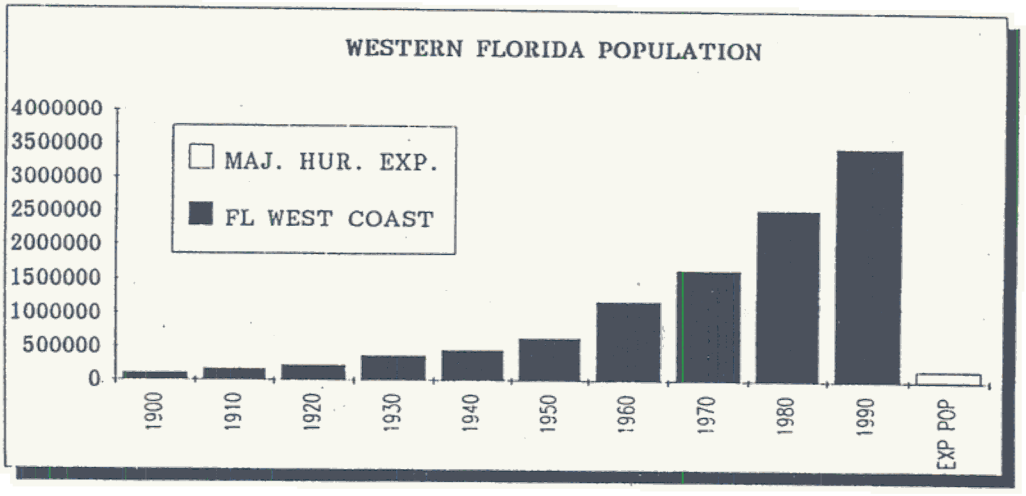

MOBILE COUNTY, AL
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1,BAKER
3,FREDERIC
3,ELENA

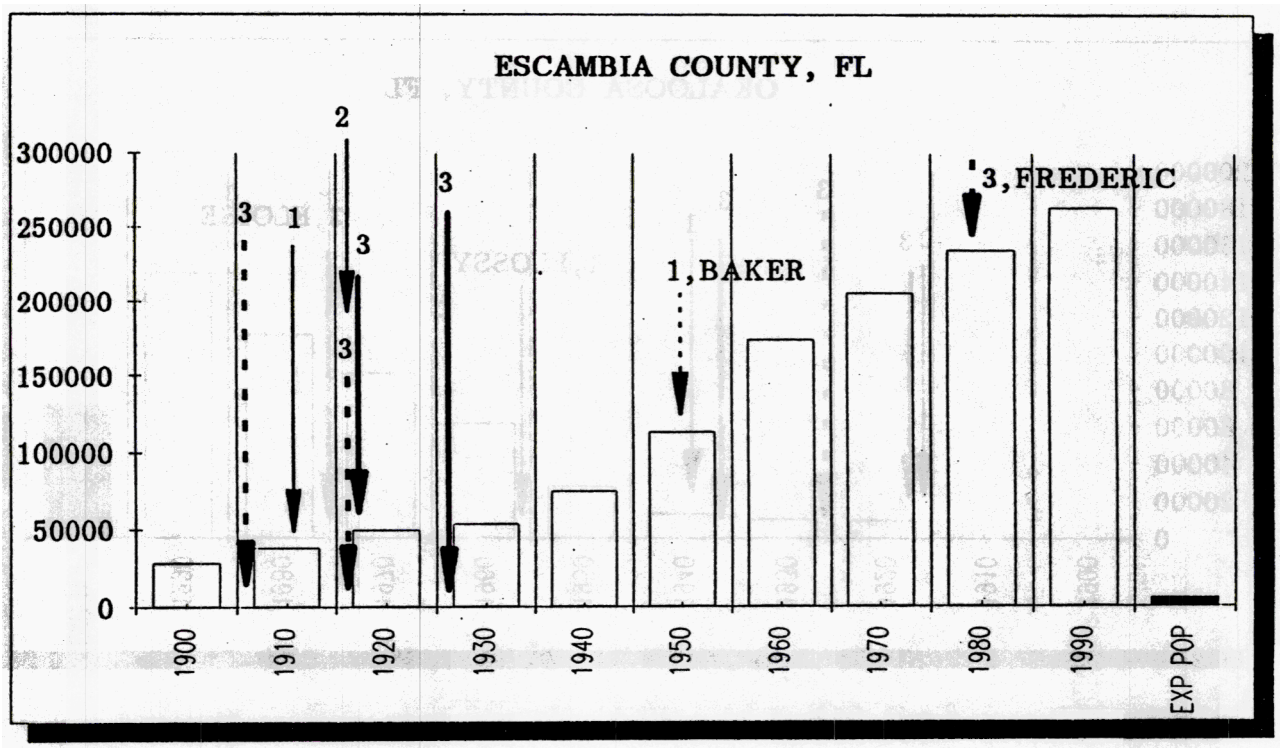

BALDWIN COUNTY, AL
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1,BAKER
3,FREDERIC
3,ELENA

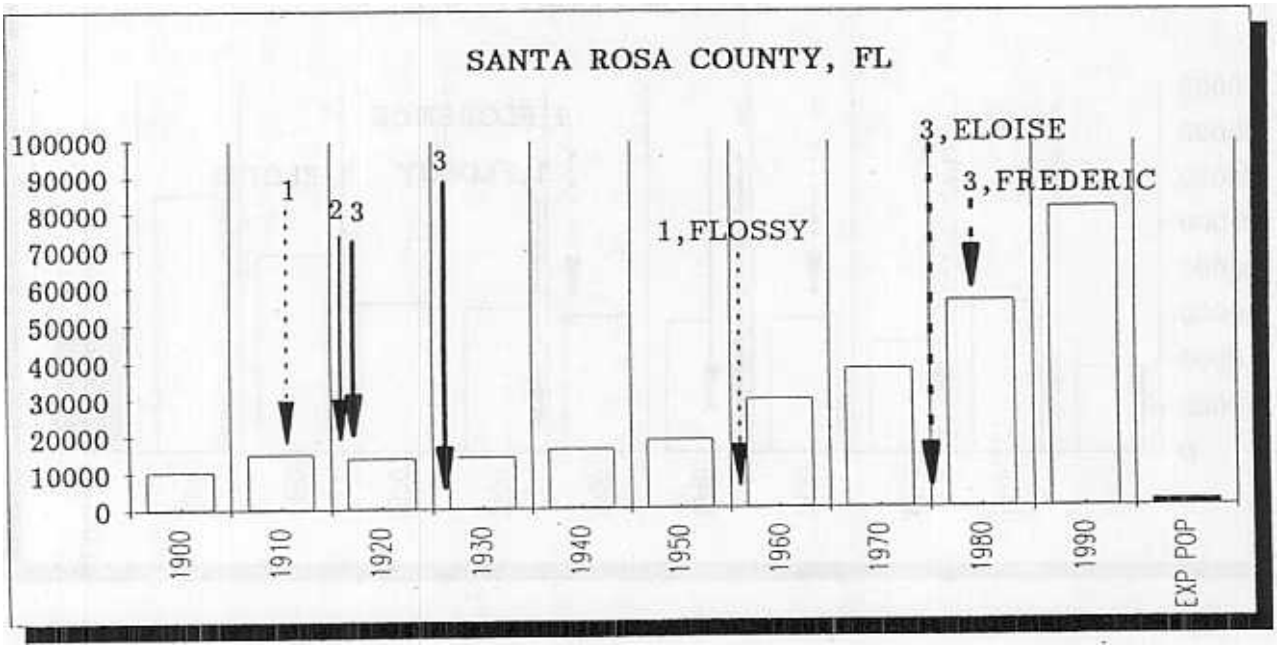
4. FLORIDA West Coast (Escambia through Collier) (22)

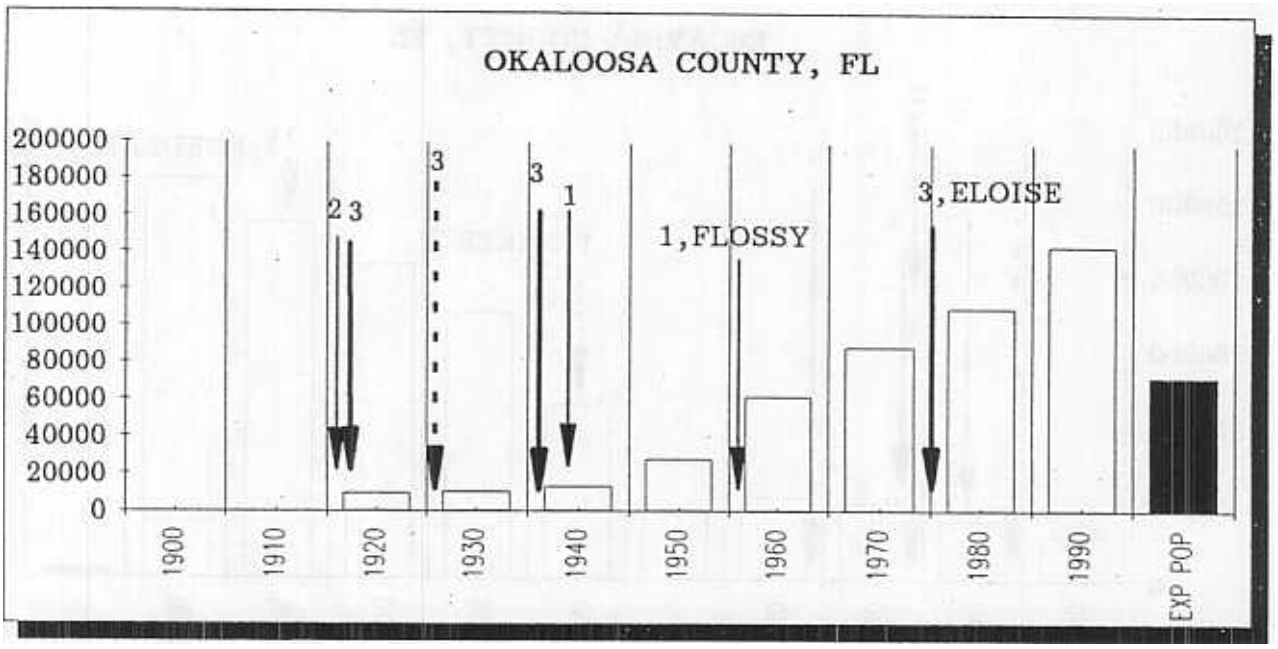
Escambia (Pensacola), Santa Rosa, Okaloosa, Walton, Bay (Panama City), Gulf, Franklin (Apalachicola), Wakulla, Jefferson, Taylor, Dixie, Levy (Cedar Key), Citrus (Homosassa), Hernando, Pasco (New Port Richey), Pinellas (St. Petersburg), Hillsborough (Tampa), Manatee (Bradenton), Sarasota (Sarasota), Charlotte (Punta Gorda), Lee (Fort Myers), Collier (Naples) Eight of the counties did not exist in 1900, consequently, they were included in neighboring counties in early census figures.

YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INC	LAST
COUNTY/PARISH													
ESCAMBIA	28313	38029	49386	53594	74667	112706	173829	205334	233794	262798	5419	98	1926
SANTA ROSA	10293	14897	13670	14083	16085	18554	29547	37741	55988	81608	1453	98	1926
OKALOOSA			9360	9897	12900	27533	61175	88187	109920	143776	72180	50	1975
WALTON	9346	16460	12119	14576	14246	14725	15576	16087	21300	27760	13622	51	1975
			11407	12091	20686	42689	67131	75283	97740	126994	63041	50	1975
				3182	6951	7460	9937	10096	10658	11504	9647	16	1985
	4890	5201	5318	6283	5991	5814	6576	7065	7661	8967	7238	19	1985
	5149	4802	5129	5468	5463	5258	5257	6308	10887	14202		100	
	16195	17210	14502	13408	12032	10413	9543	8778	10703	11296			
	3999	7103	11219	13136	11565	10416	13168	13641	16532	17111		100	
				6419	7018	3928	4479	5480	7751	10585		100	
	8603	10361	9921	12456	12550	10637	10364	12756			4102	84	1950
	5391	6731	5220	5516	5846	6111	9268	19196	54703	93515	2356	97	1950
HERNANDO	3638	4997	4548	4948	5641	6693	11205	17004	44469	101115	2581	97	1950
PASCO	6054	7502	8802	10574	13981	20529	36785	75955	194123	281131	7916	97	1950
PINELLAS			28265	62149	91852	159249	374665	522329	728409	851659	2026	100	1921
HILLSBOROUGH	36013	78374	88257	153519	180148	249894	397788	490265	646960	834054	6066	99	1921
MANATEE	4663	9550	18712	22502	26099	34704	69168	97115	148442	211707	9084	96	1944
SARASOTA				12440	16106	28827	76895	120413	202251	277776	6517	98	1944
CHARLOTTE				4013	3663	4286	12594	27559	59115	110975	6554	94	1960
LEE	3071	6294	9540	14990	17488	23404	54539	105216	205266	335113	28382	92	1960
COLLIER				2883	5102	6488	15753	38040	85791	152099	8198	95	1960
FL WEST COAST	97666	158125	220840	365977	448181	636800	1185115	1652499	2551331	3991668	256183	95	
FL TOTAL	528542	752619	968470	1468211	1897414	2771305	4951560	6789443	9739992	12937926			




ESCAMBIA COUNTY, FL
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1,BAKER
3,FREDERIC


SANTA ROSA COUNTY, FL
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1,FLOSSY
3,ELOISE
3,FREDERIC


OKALOOSA COUNTY, FL
200000
180000
160000
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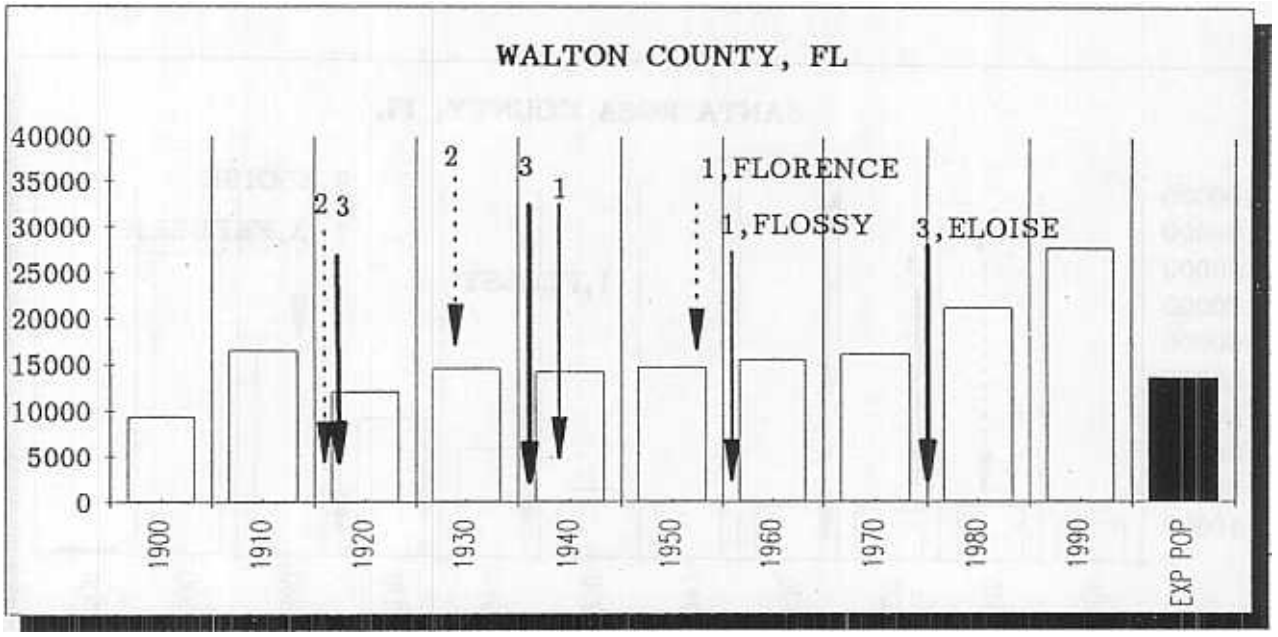
120000
100000
80000
60000
40000
20000
0
2 3
3
3
1
1,FLOSSY
3,ELOISE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


WALTON COUNTY, FL
40000
35000
30000
25000
20000
15000
10000
5000
0
2 3
2
3
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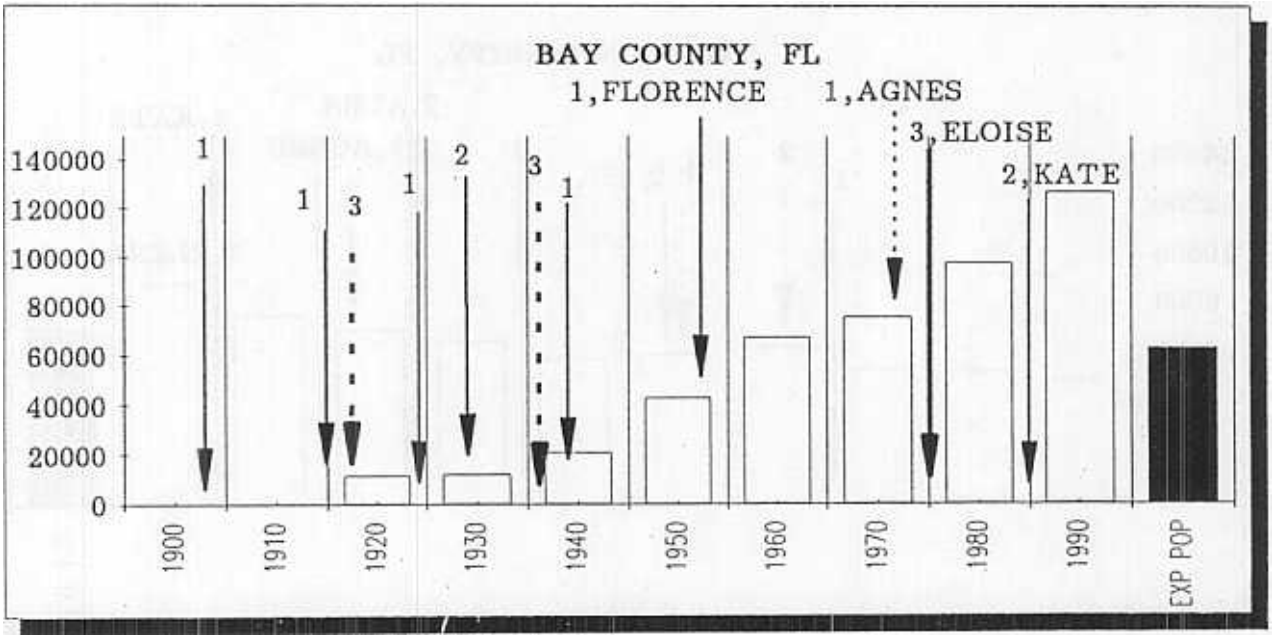
1,FLOSSY
3,ELOISE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


BAY COUNTY, FL
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1,AGNES
3,ELOISE
2,KATE
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1900
1910
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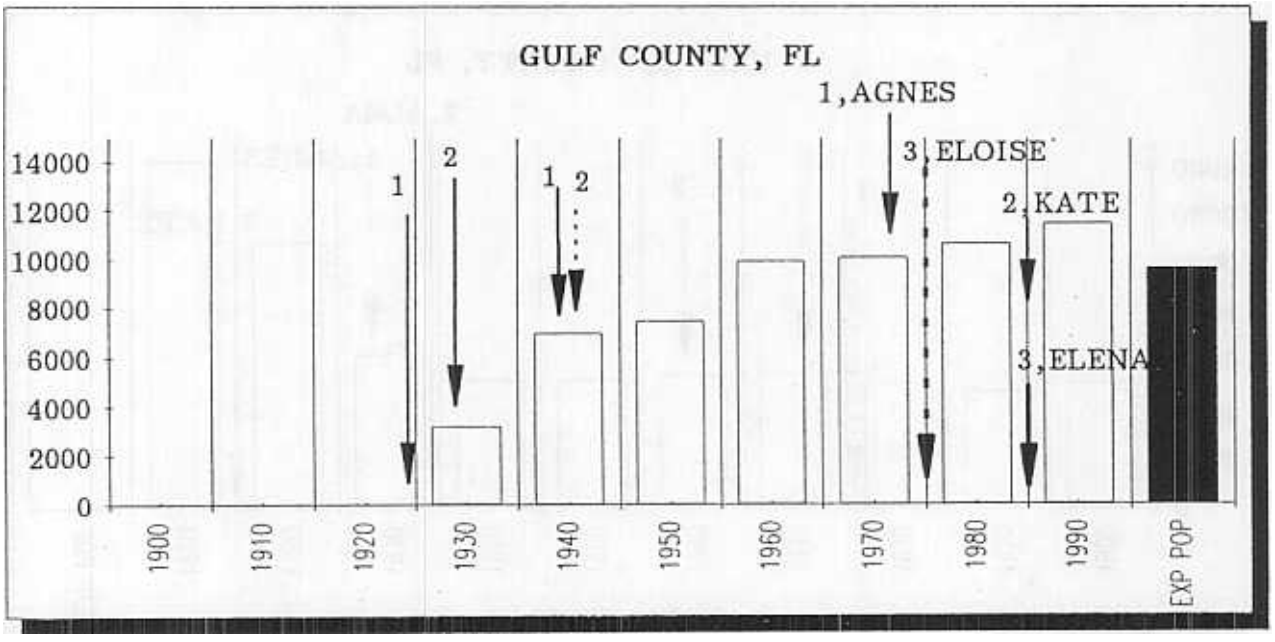
1930
1940
1950
1960
1970
1980
1990
EXP POP


GULF COUNTY, FL
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3,ELENA
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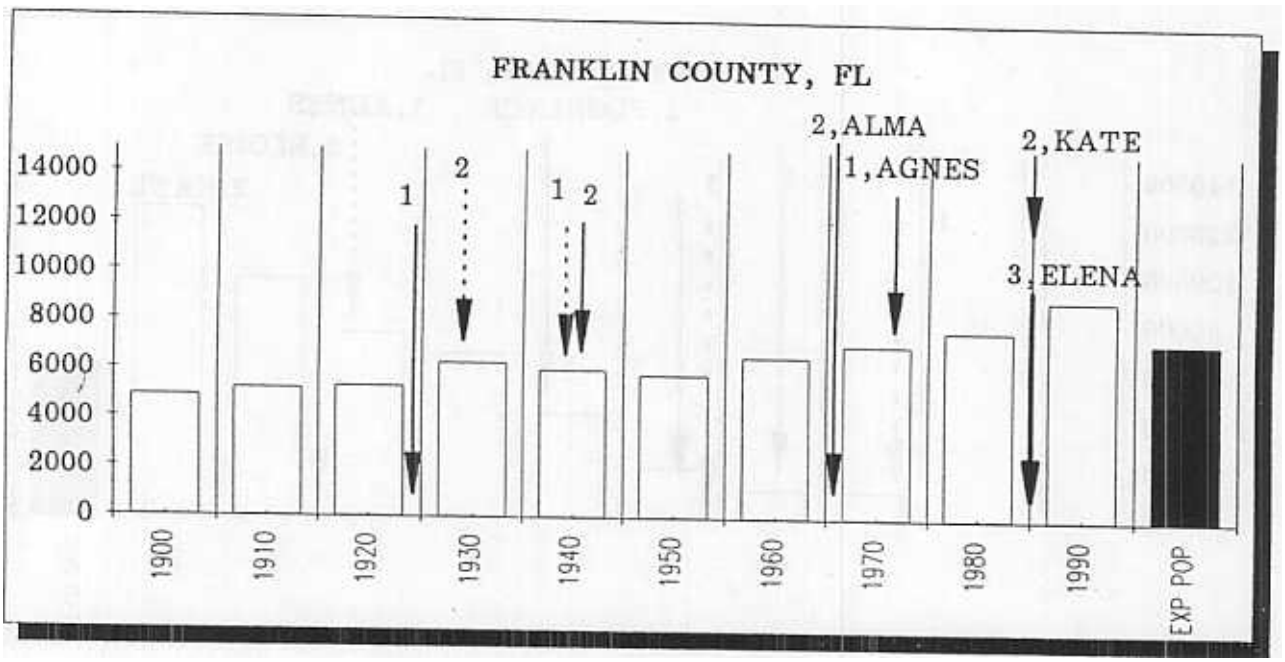
EXP POP


FRANKLIN COUNTY, FL
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1900
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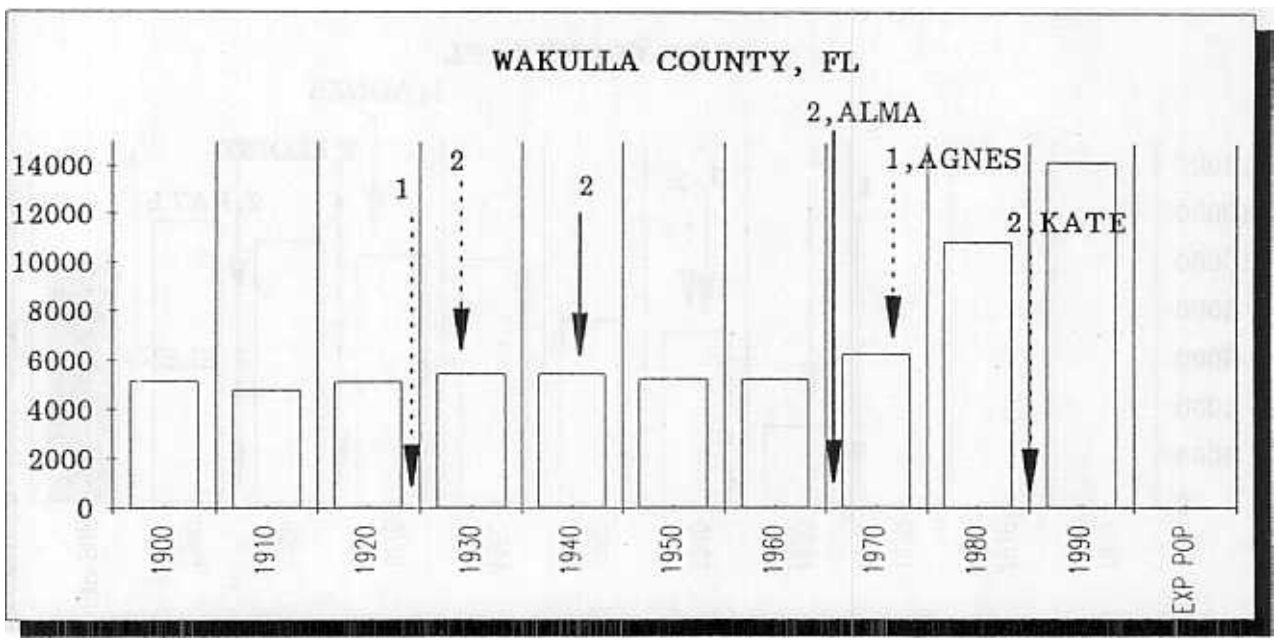
1990
EXP POP


WAKULLA COUNTY, FL
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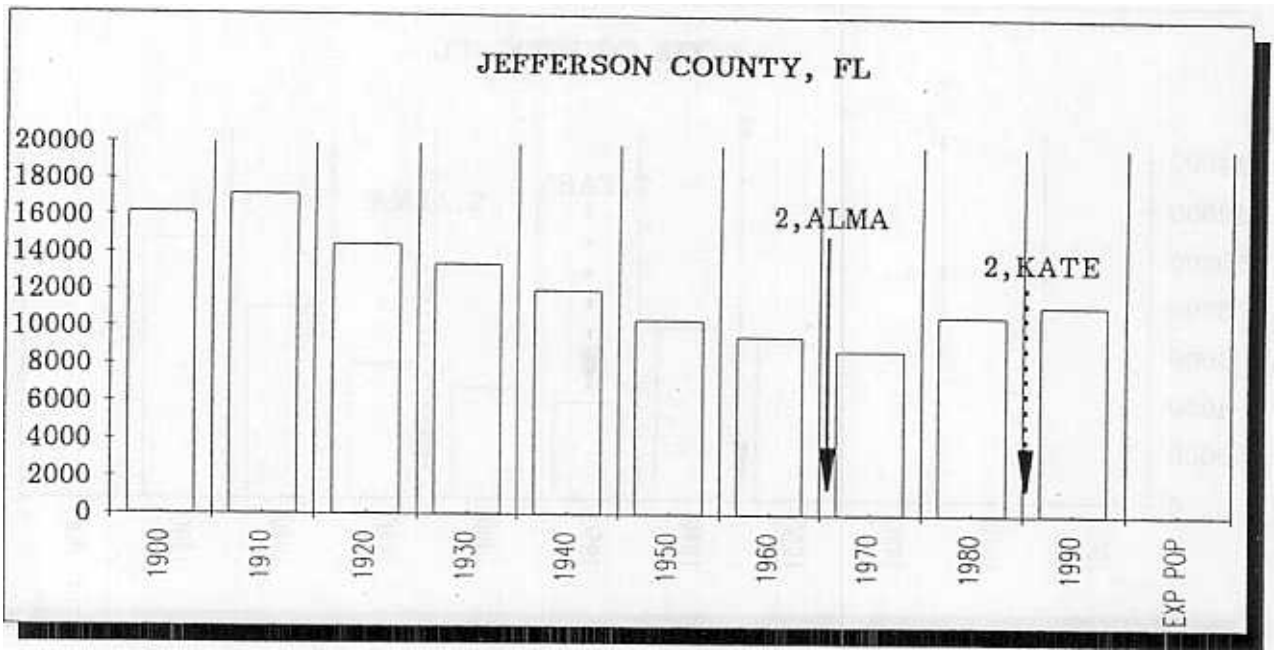
1970
1980
1990
EXP POP


JEFFERSON COUNTY, FL
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1900
1910
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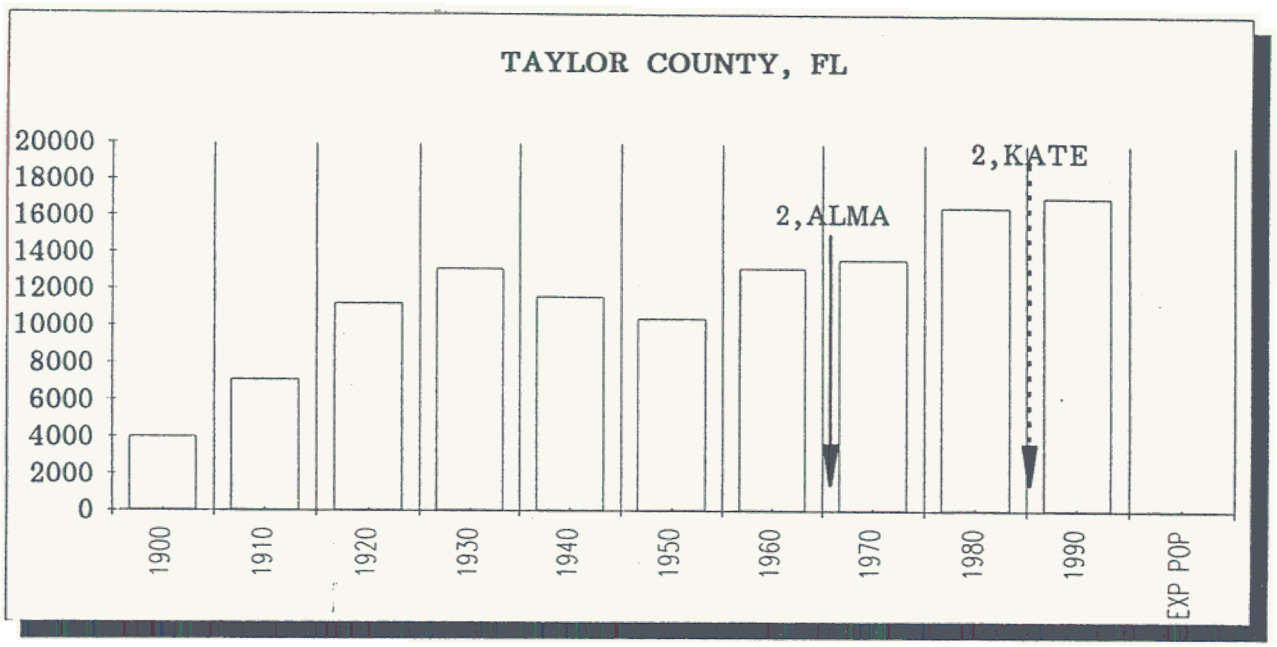
1980
1990
EXP POP


TAYLOR COUNTY, FL
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1900
1910
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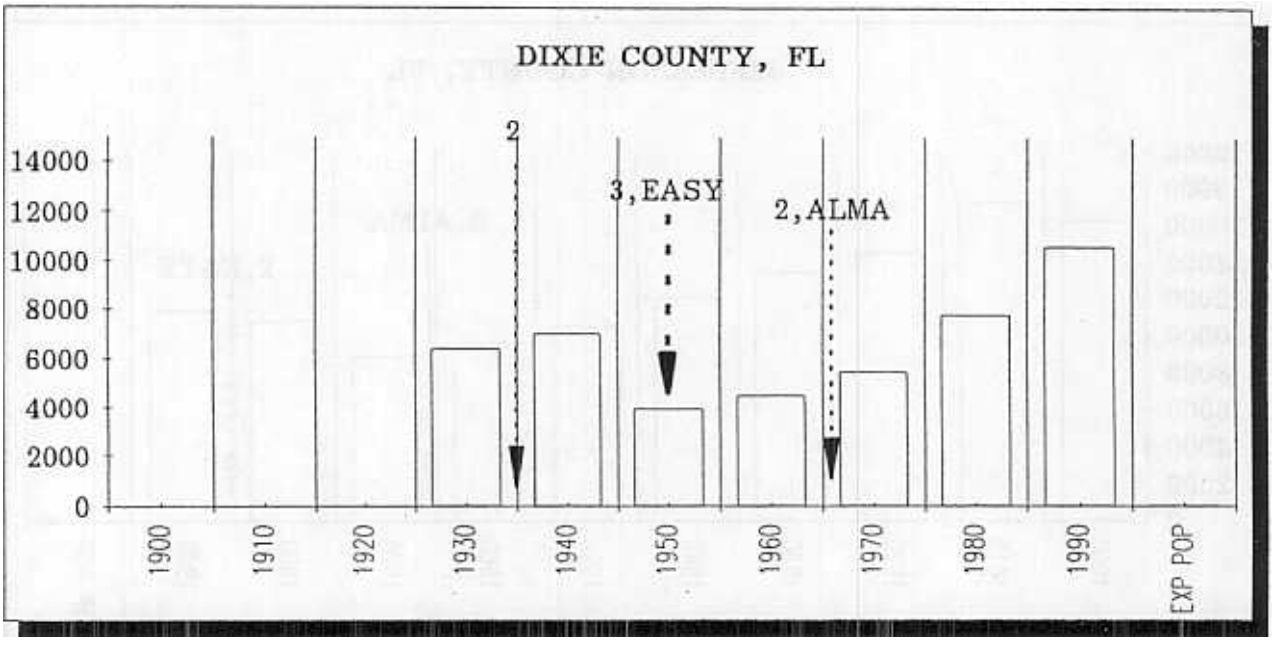
1980
1990
EXP POP


DIXIE COUNTY, FL
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2,ALMA
1900
1910
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1930
1940
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1960
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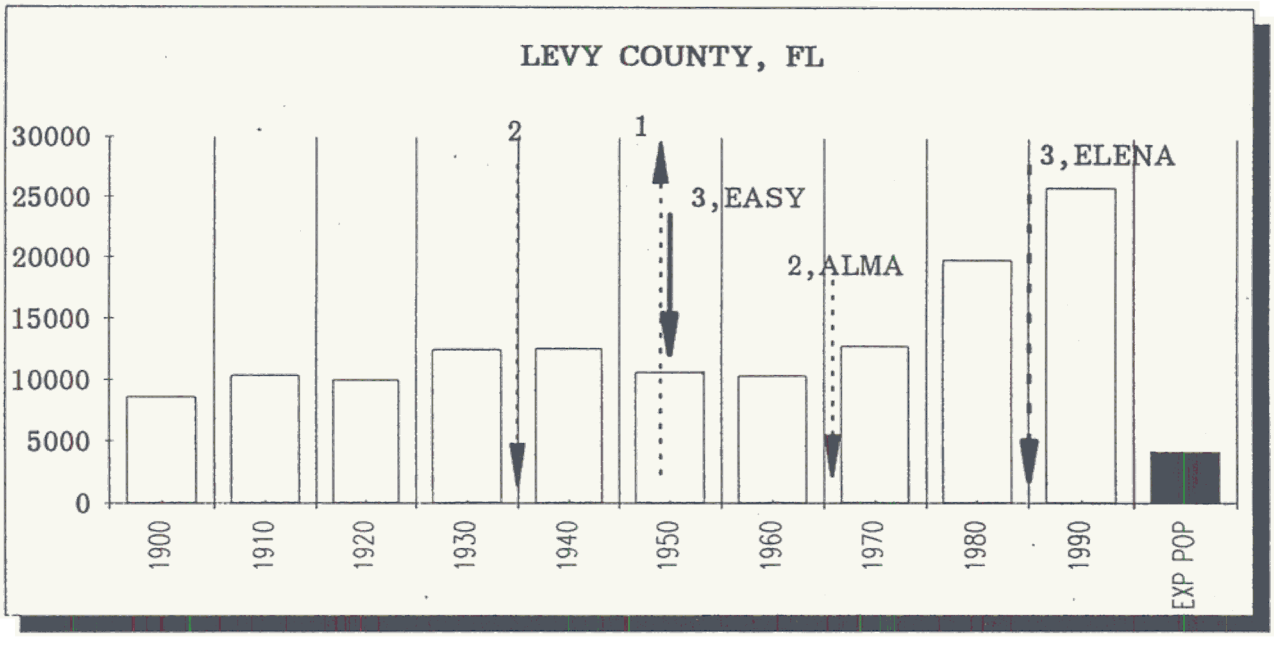
1980
1990
EXP POP


LEVY COUNTY, FL
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20000
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10000
5000
0
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1
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1900
1910
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1930
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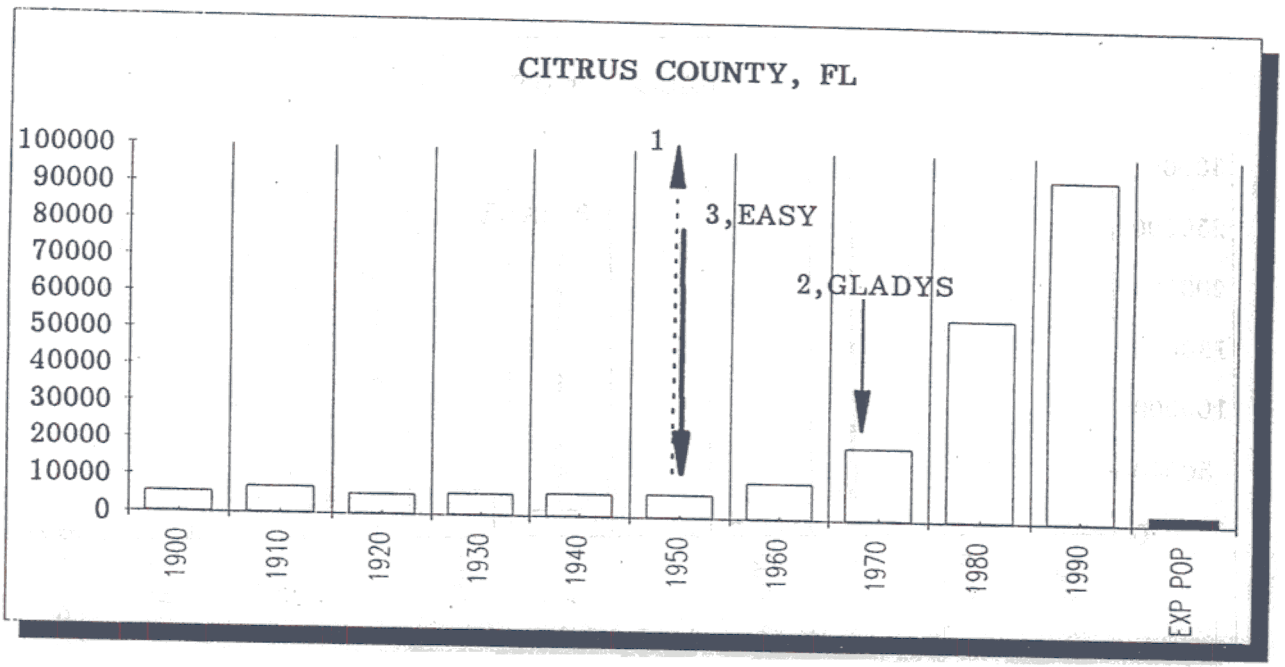
1950
1960
1970
1980
1990
EXP POP


CITRUS COUNTY, FL
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60000
50000
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30000
20000
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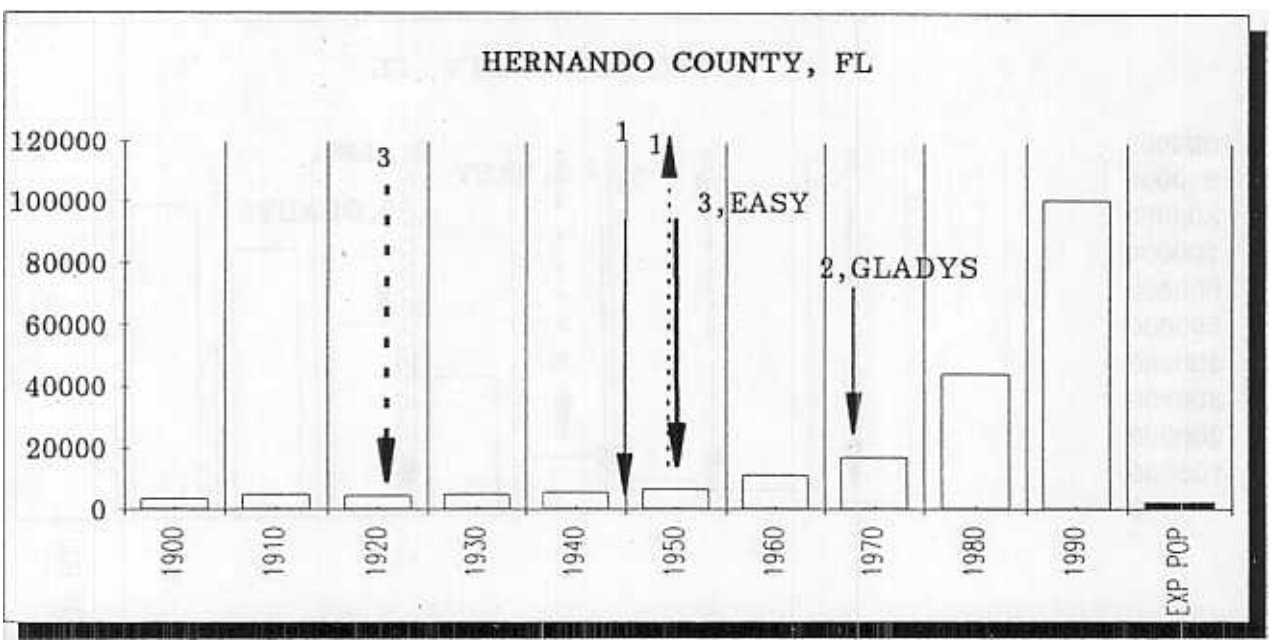
1
3,EASY
2,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HERNANDO COUNTY, FL
120000
100000
80000
60000
40000
20000
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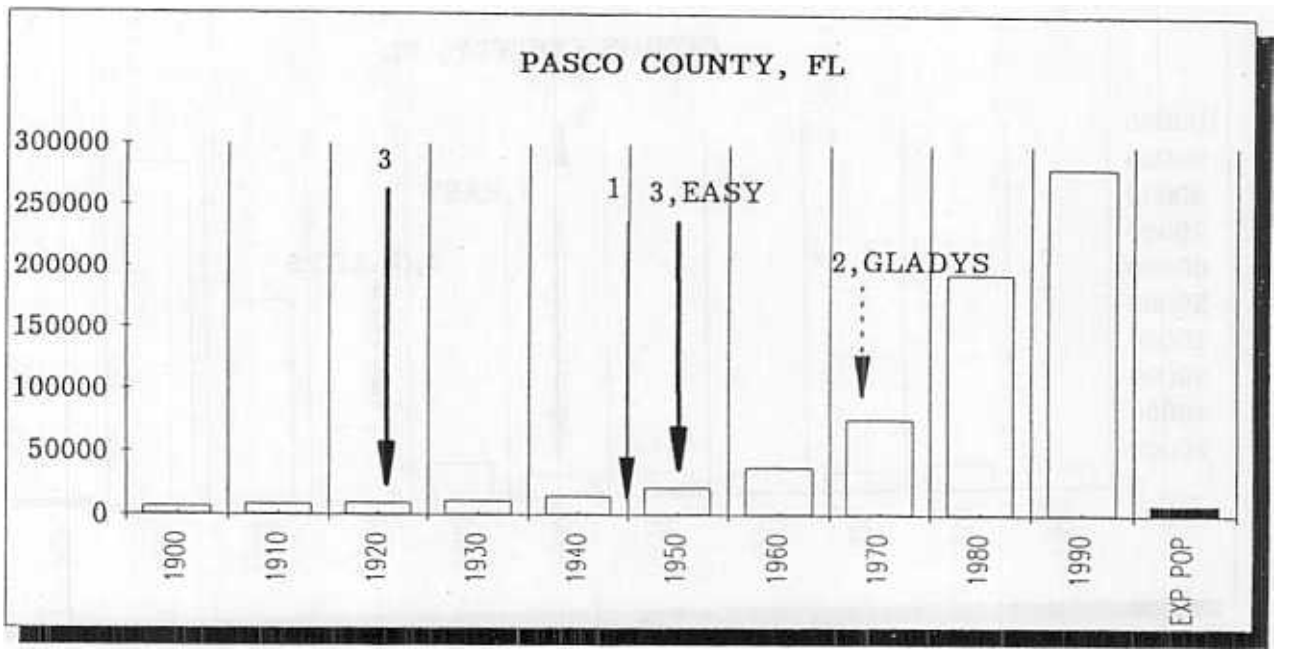
3
1
1
3,EASY
2,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PASCO COUNTY, FL
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250000
200000
150000
100000
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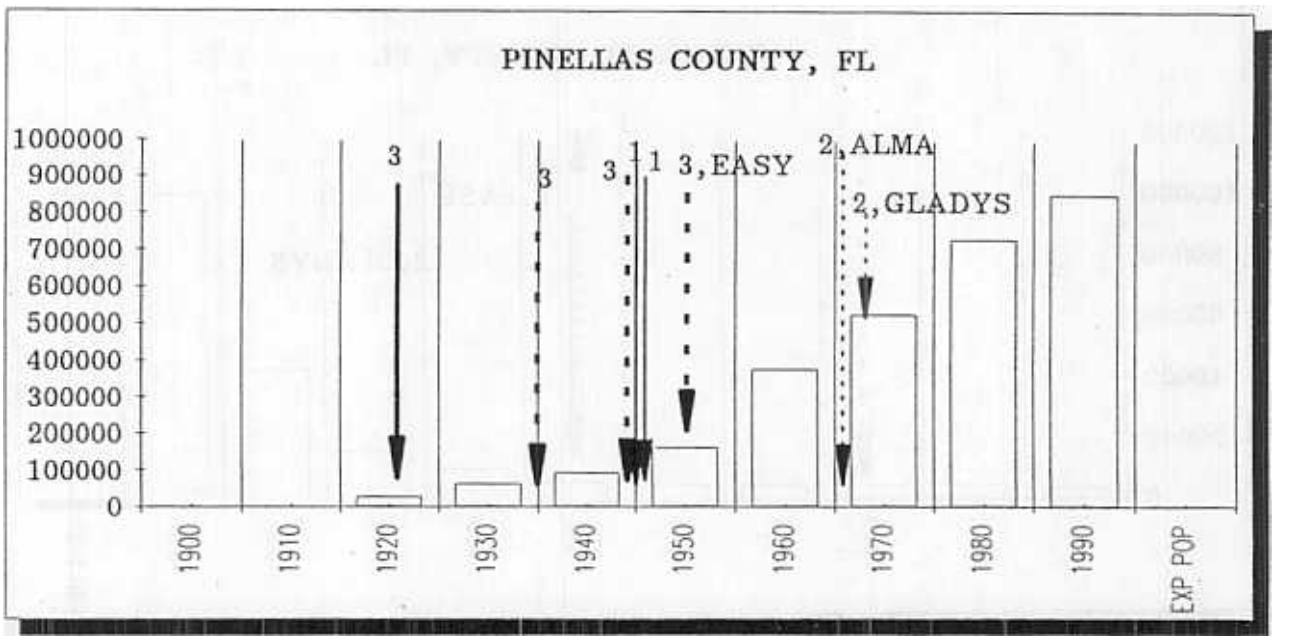
3
1
3,EASY
2,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PINELLAS COUNTY, FL
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900000
800000
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600000
500000
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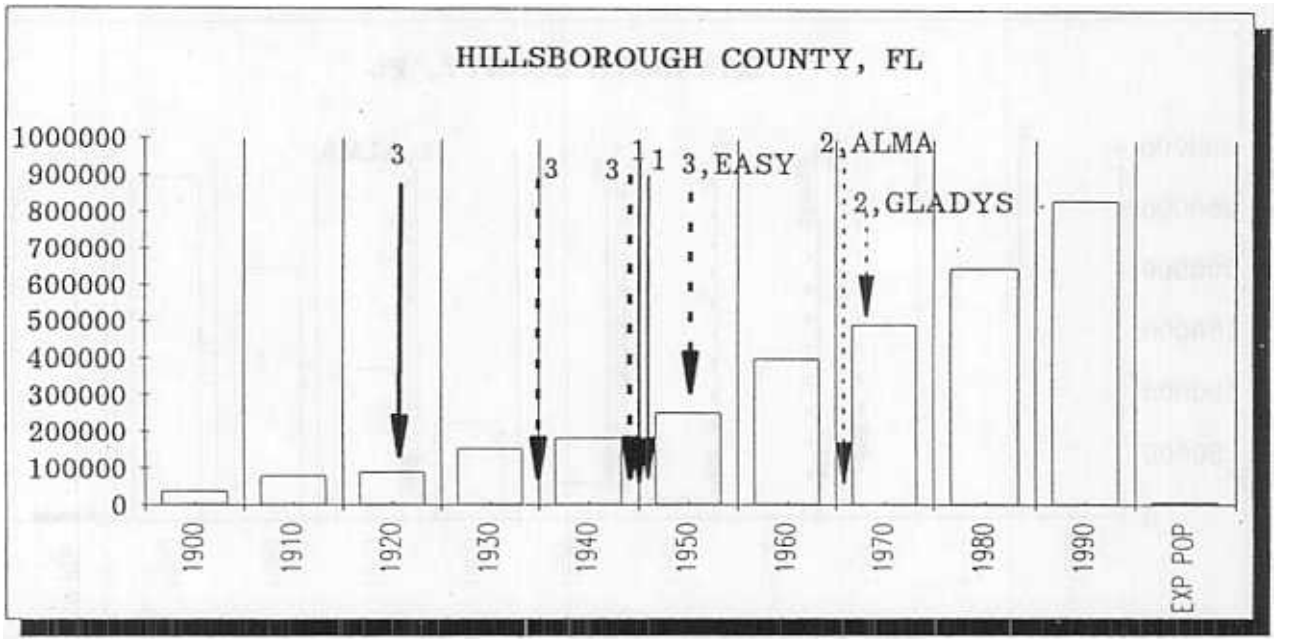
300000
200000
100000
0
3
3
3
1
1
3,EASY
2,ALMA
2,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HILLSBOROUGH COUNTY, FL
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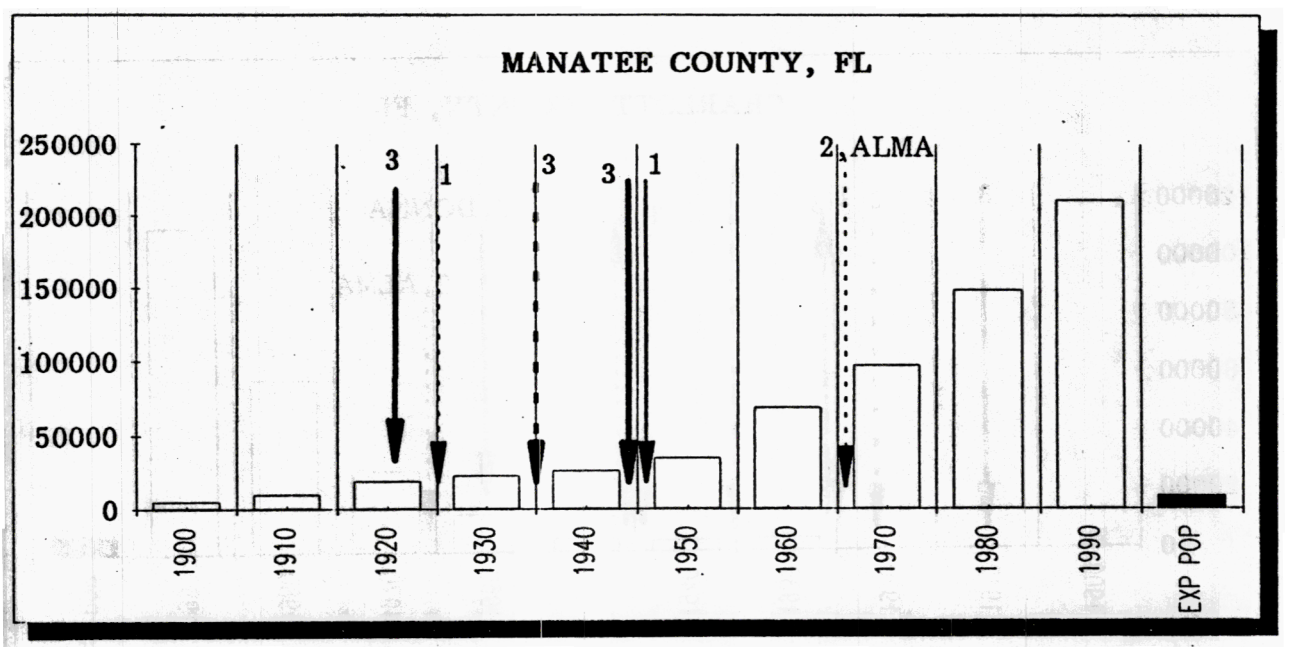
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
3
3
3
1
1
3,EASY
2,ALMA
2,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MANATEE COUNTY, FL
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200000
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100000
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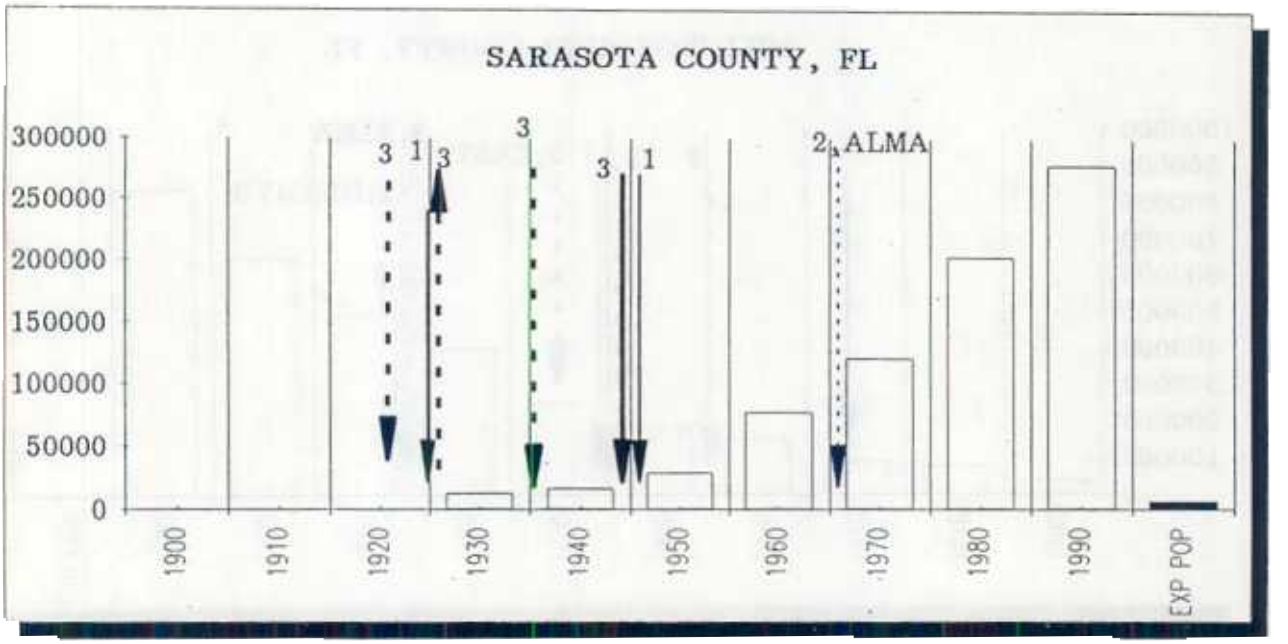
3
1
3
3
1
2,ALMA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


SARASOTA COUNTY, FL
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250000
200000
150000
100000
50000
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1
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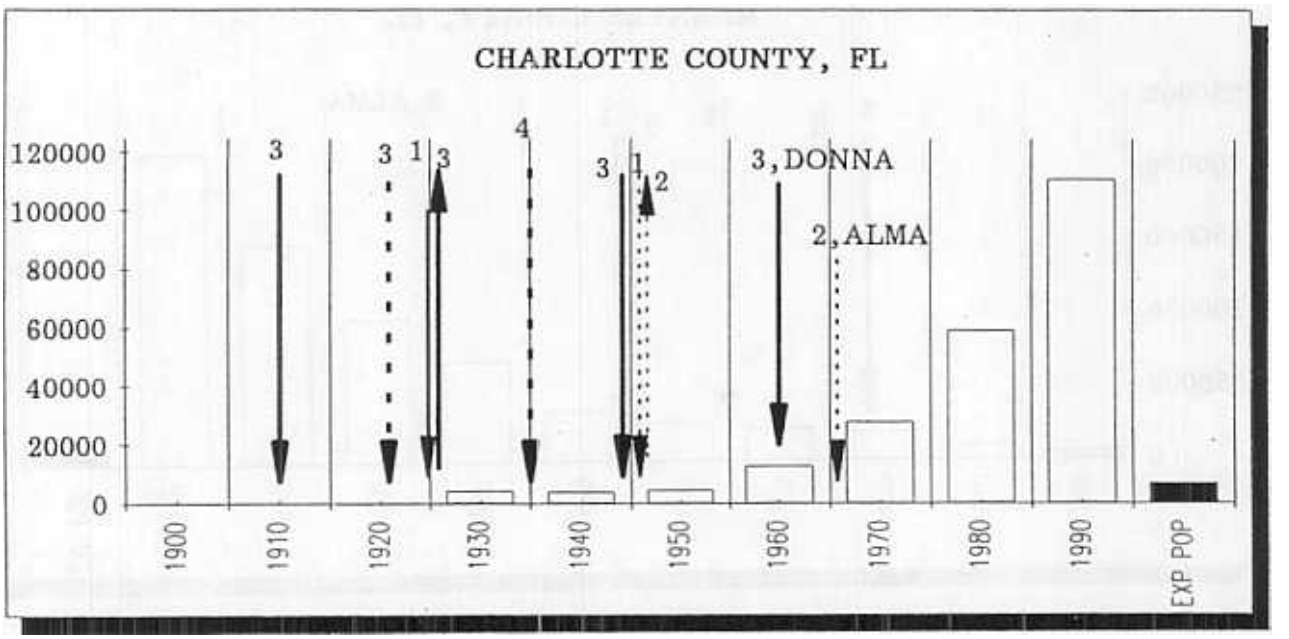
3
3
1
2, ALMA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


CHARLOTTE COUNTY, FL
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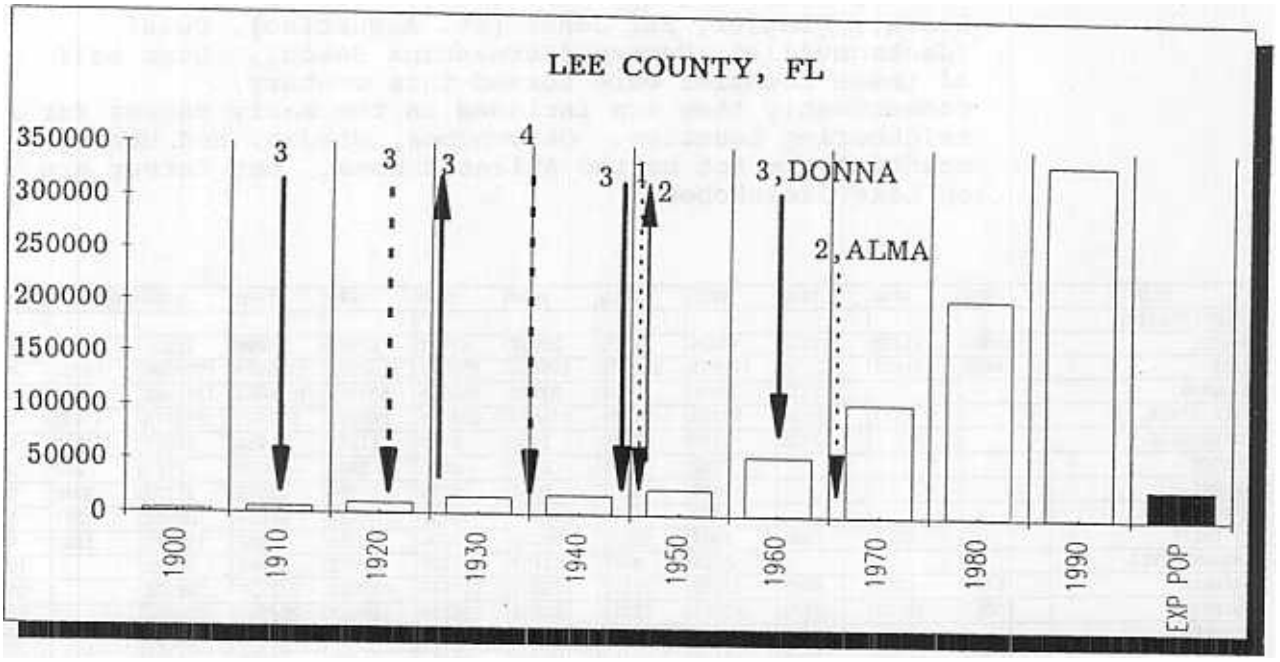
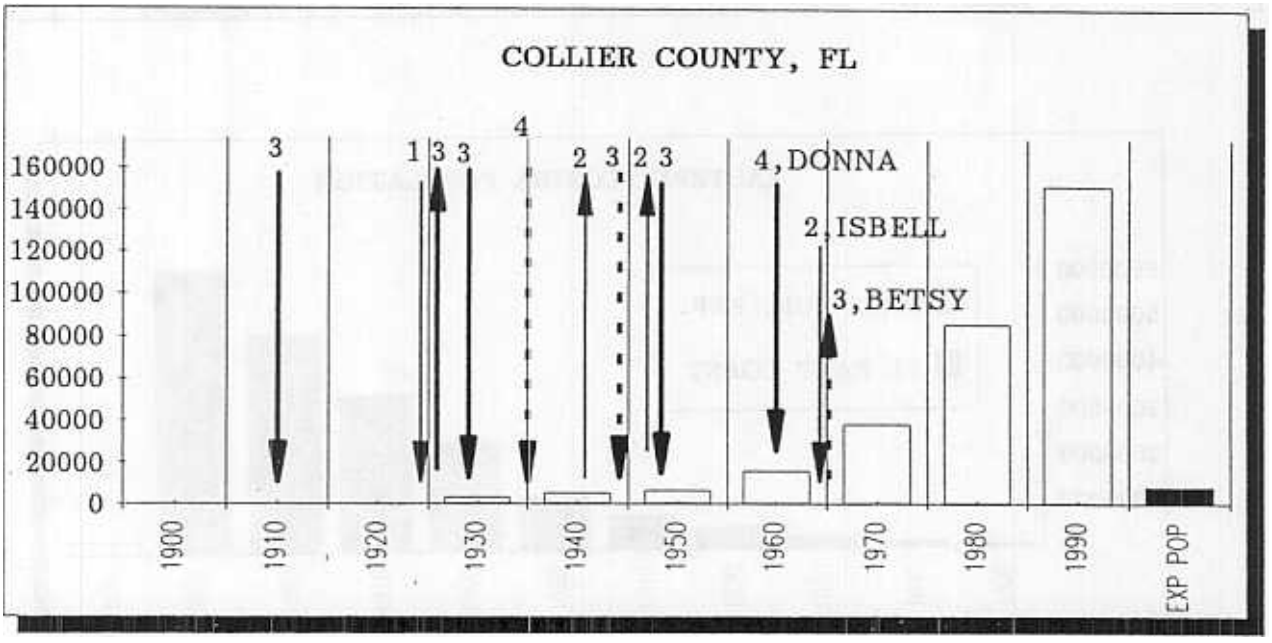
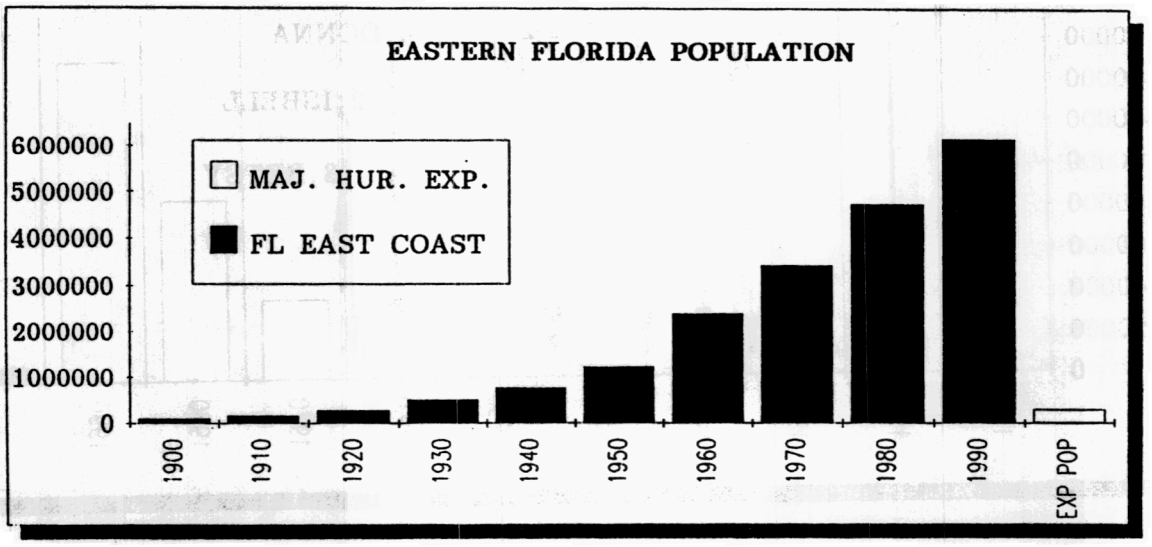
100000
80000
60000
40000
20000
0
3
3
1
3
4
3
1
2
3, DONNA
2, ALMA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

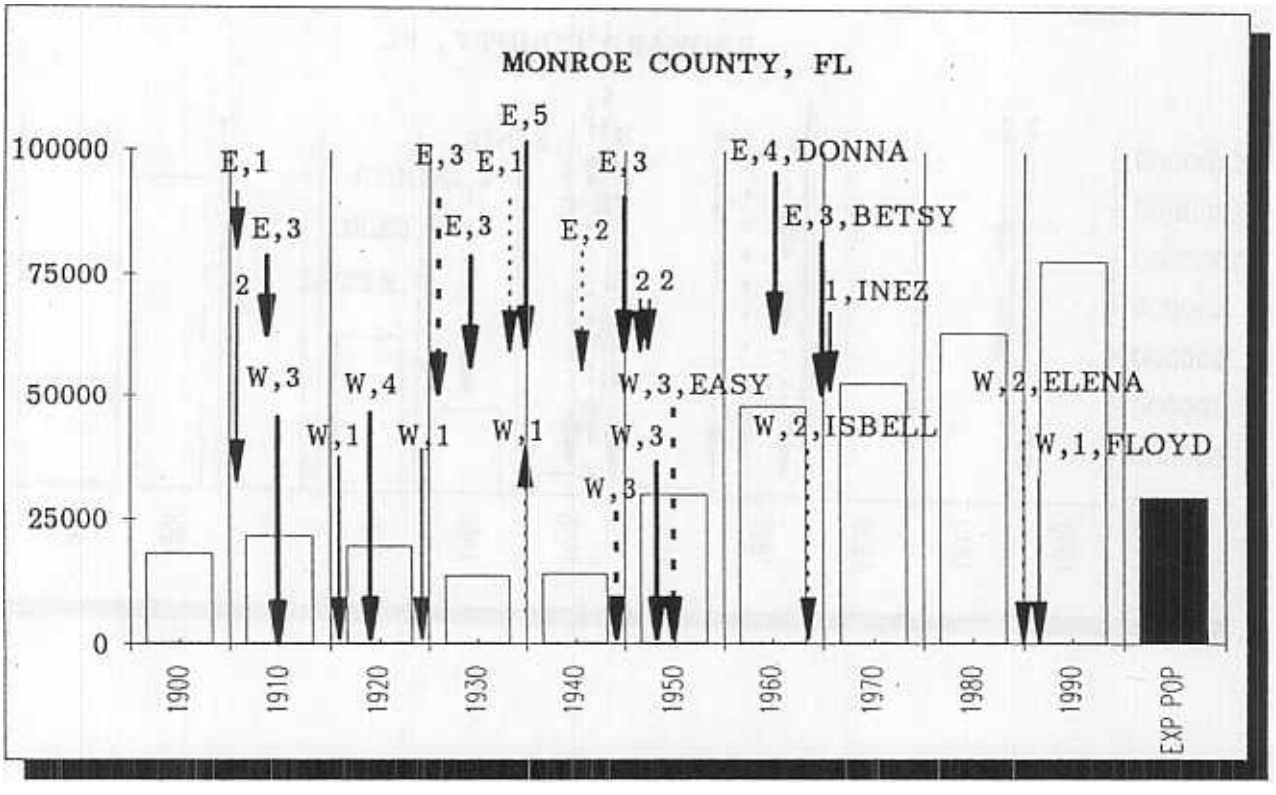

LEE COUNTY, FL
350000
300000
250000
200000
150000
100000
50000
0
3
3
3
4
3
1
2
3,DONNA
2,ALMA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


COLLIER COUNTY, FL
160000
140000
120000
100000
80000
60000
40000
20000
0
3
1
3
3
4
2
3
2
3
4,DONNA
2,ISBELL
3,BETSY
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

5. FLORIDA East Coast (Monroe through Nassau) (16) Monroe (Key West), Dade (Miami), Broward (Fort Lauderdale), Palm Beach (West Palm Beach), Hendry (Clewiston), Glades (Moore Haven), Okeechobee, Martin (Stuart), St. Lucie (Fort Pierce), Indian River (Vero Beach), Brevard (Cape Canaveral), Volusia (Daytona Beach), Flagler, St. Johns (St. Augustine), Duval (Jacksonville), Nassau (Fernandina Beach). Over half of these counties were formed this century, consequently they are included in the early census for neighboring counties. Okeechobee, Glades, and Hendry counties are not on the Atlantic coast, but rather are on Lake Okeechobee.

YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
MONROE	18006	21563	19550	13624	14078	29957	47921	52586	63098	78024	29609	62	1965
DADE	4955	11933	42753	142955	267739	495084	935047	1267792	1625979	1937094	190904	90	1950
BROWARD			5135	20094	39794	83933	333946	620100	1014043	1255488	32365	97	1950
PALM BEACH		5577	18654	51781	79989	114688	228106	348993	573125	863518	41418	95	1949
OKEECHOBEE			2132	4129	3000	3454	6424	11233	20264	29627	1269	96	1949
GLADES				2762	2745	2199	2950	3669	5992	7591	272	96	1928
HENDRY				3492	5237	6051	8119	11859	18599	25773	2010	92	1947
MARTIN				5111	6295	7807	16932	28035	64014	100900	2851	97	1949
ST LUCIE		4075	7886	7057	18871	20180	39294	50836	87182	150171	1857	99	1933
INDIAN RIVER				6724	8957	11782	25309	35992	59896	90208		100	
BREVARD	5158	4717	8505	13283	16142	23653	111435	230006	272959	398978		100	
VOLUSIA	10003	16510	23374	42757	53710	74229	125319	169487	258762	370712		100	
FLAGLER			2442	2466	3008	3367	4566	4454	10913	28701		100	
ST JOHNS	9165	13208	13061	18676	20012	24998	30034	31035	51303	83829		100	
DUVAL	39733	75163	113540	155503	210143	304029	455411	528865	570981	672971		100	
NASSAU	9654	10525	11340	9375	10826	12811	17189	20626	32894	43941		100	
FL EAST COAST	96674	163272	268372	499789	760546	1218222	2388002	3415568	4730004	6137526	287654	95	
FL TOTAL	528542	752619	968470	1468211	1897414	2771305	4951560	6789443	9739992	12937926			




MONROE COUNTY, FL
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50000
25000
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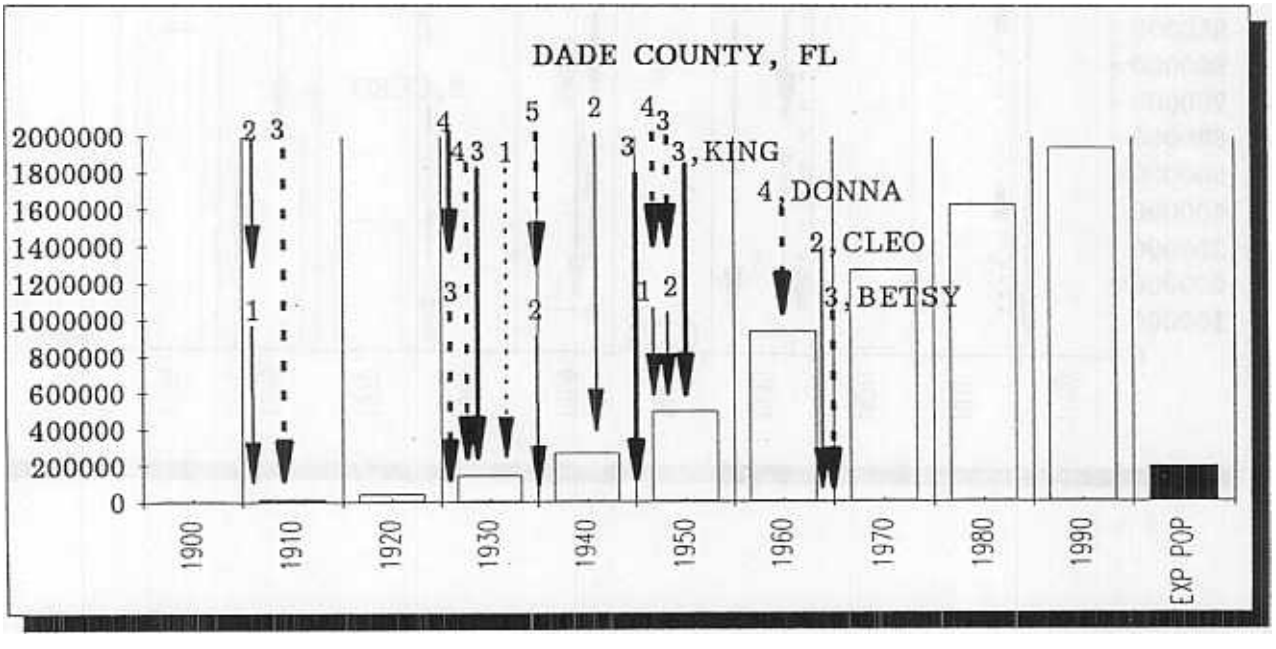
E,1
E,3
2
W,3
E,3
E,1
E,5
W,4
W,1
W,1
W,1
E,3
E,2
2 2
W,3,EASY
W,3
W,3
E,4,DONNA
E,3,BETSY
1,INEZ
W,2,ISBELL
W,2,ELENA
W,1,FLOYD
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


DADE COUNTY, FL
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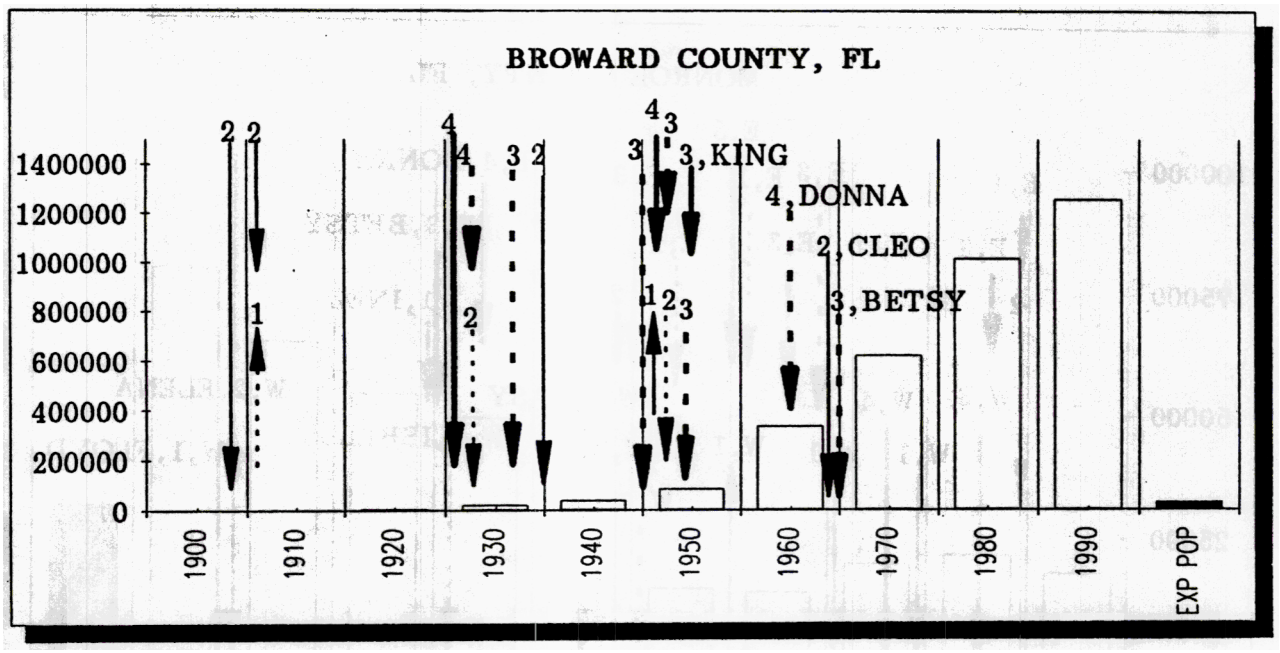
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
2 3
1
4
4 3
1
3
5
2
2
4 3
3
3,KING
4,DONNA
2,CLEO
3,BETSY
1 2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


BROWARD COUNTY, FL
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1200000
1000000
800000
600000
400000
200000
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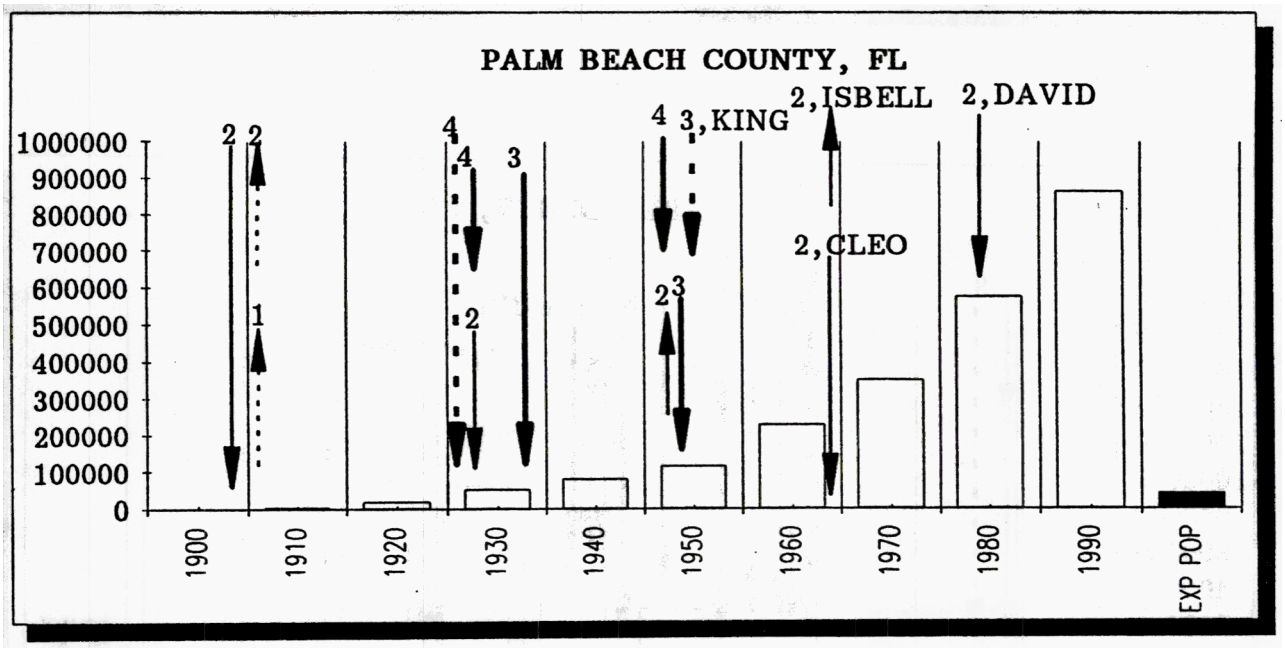
3,KING
4,DONNA
2,CLEO
3,BETSY
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PALM BEACH COUNTY, FL
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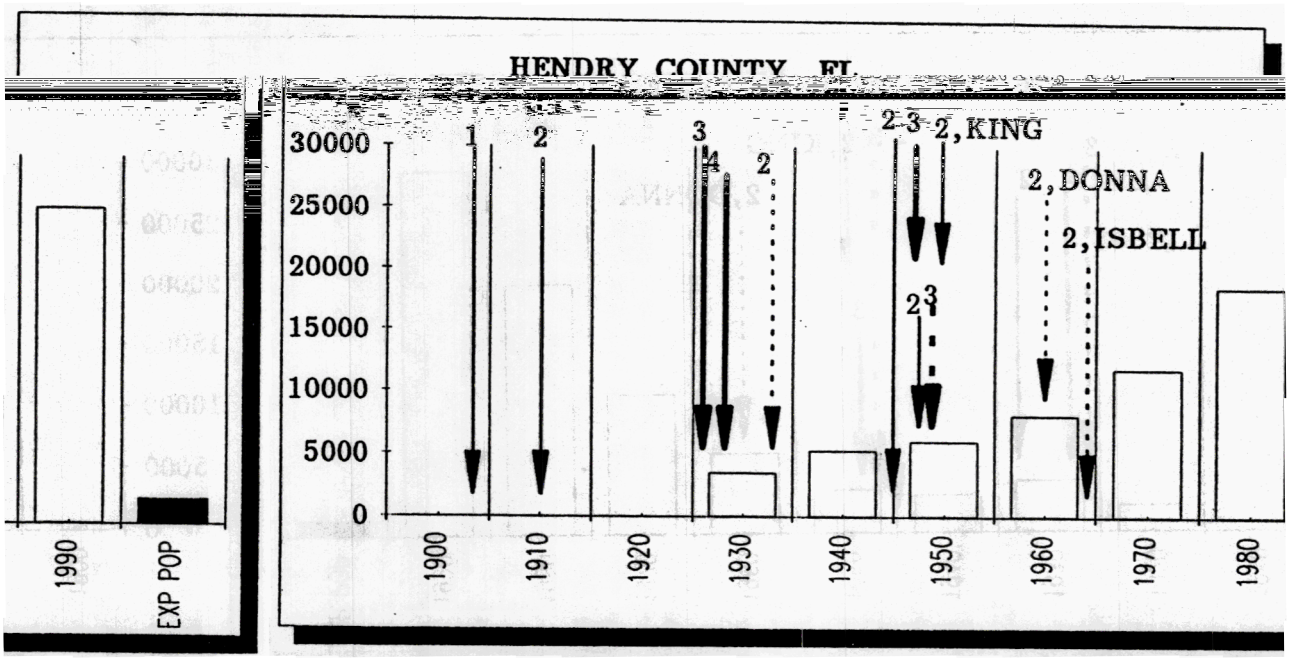
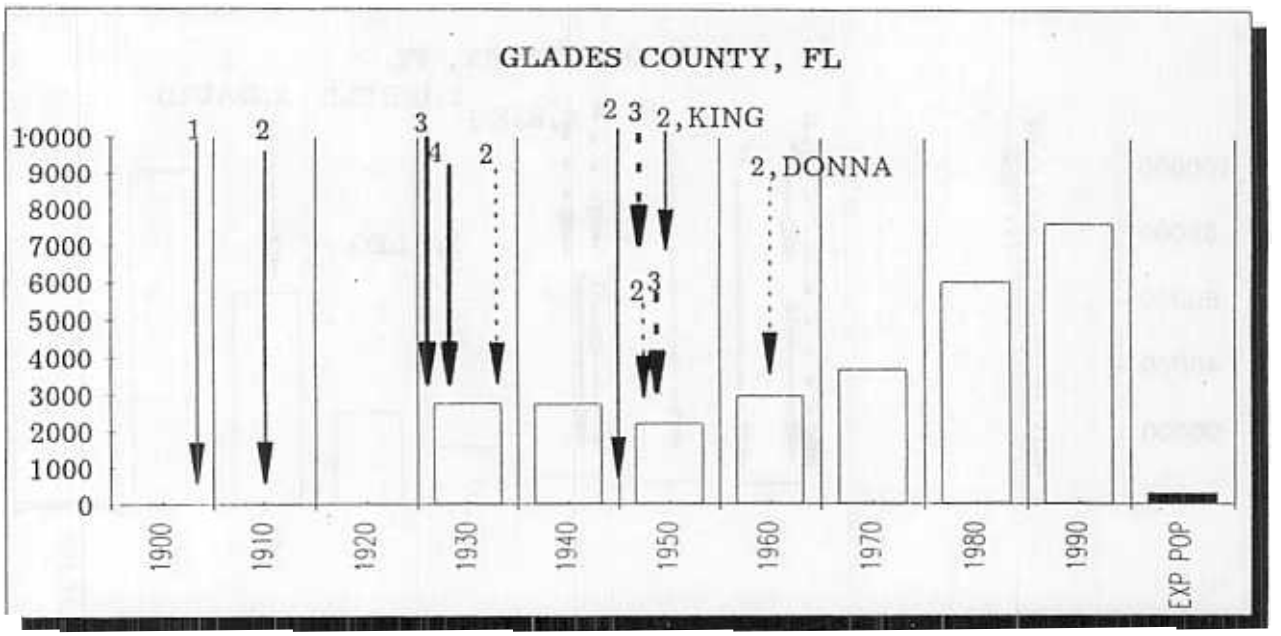
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
3,KING
2,ISBELL
2,DAVID
2,CLEO
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HENDRY COUNTY, FL
30000
25000
20000
15000
10000
5000
0
1
2
3
4
2
2 3
2, KING
2, DONNA
2, ISBELL
2 3
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


GLADES COUNTY, FL
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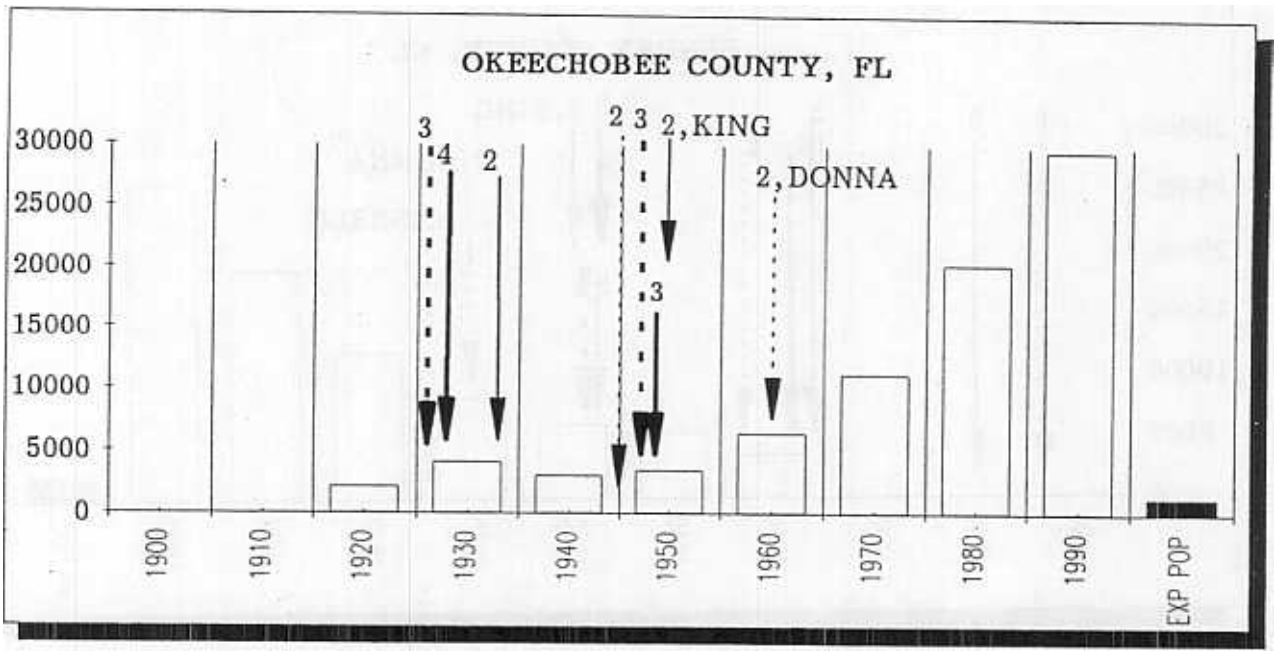
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1
2
3
4
2
2 3
2, KING
2, DONNA
2 3
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


OKEECHOBEE COUNTY, FL
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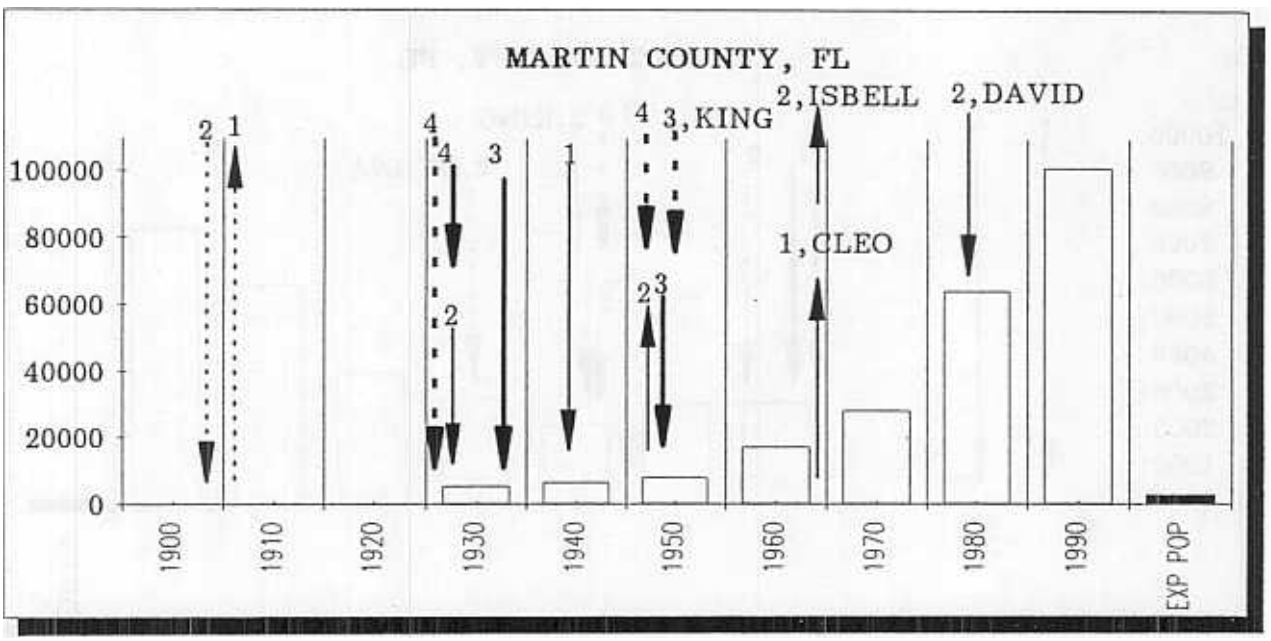
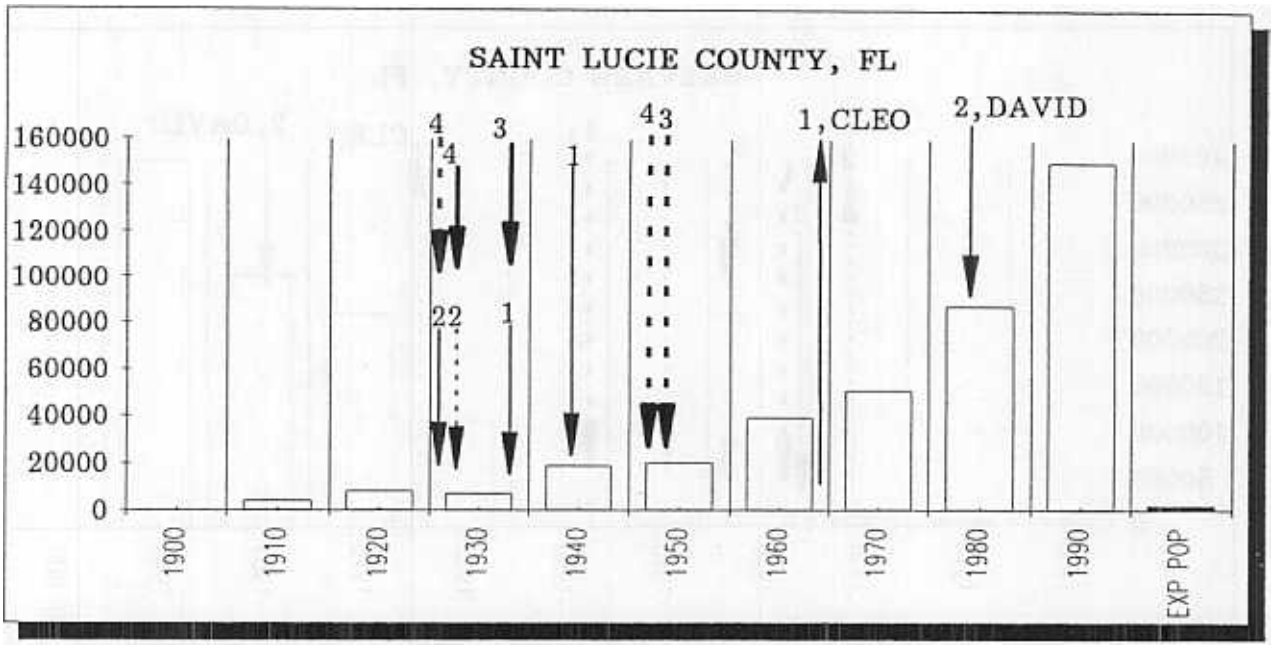
25000
20000
15000
10000
5000
0
3
4
2
2 3 2,KING
2,DONNA
3
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MARTIN COUNTY, FL
2,ISBELL
2,DAVID
4 3,KING
2 1
4
4
3
1
2
1,CLEO
2 3
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


SAINT LUCIE COUNTY, FL
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100000
80000
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1900
1910
1920
1930
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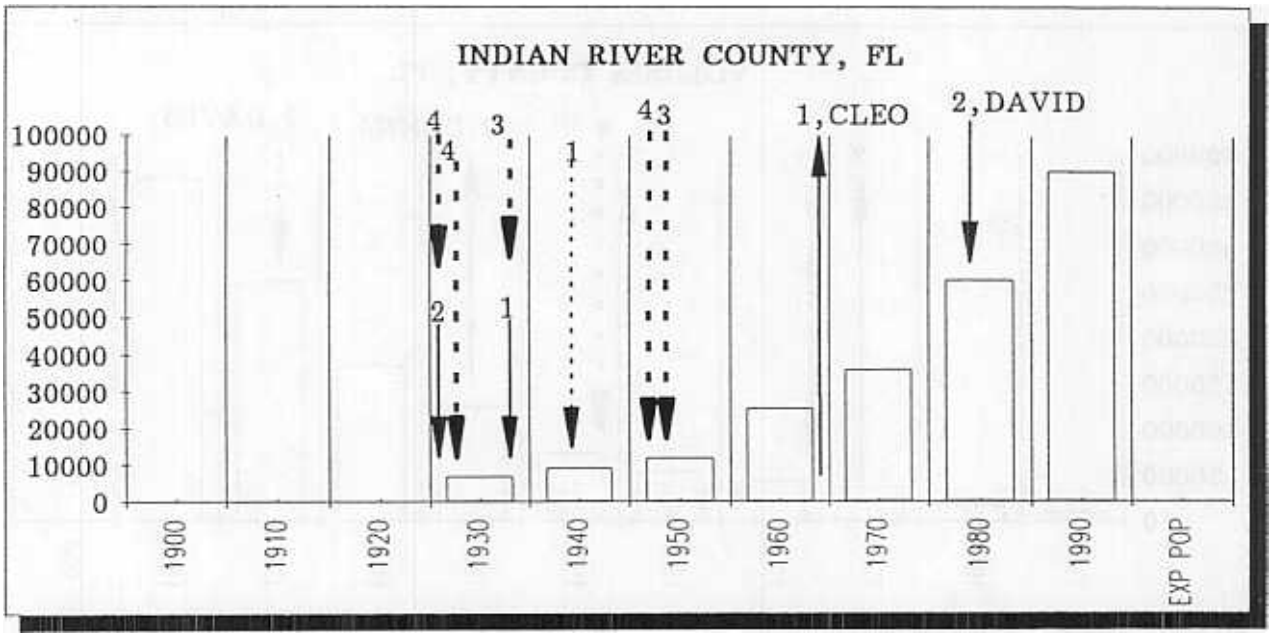
1950
1960
1970
1980
1990
EXP POP
1,CLEO
2,DAVID


INDIAN RIVER COUNTY, FL
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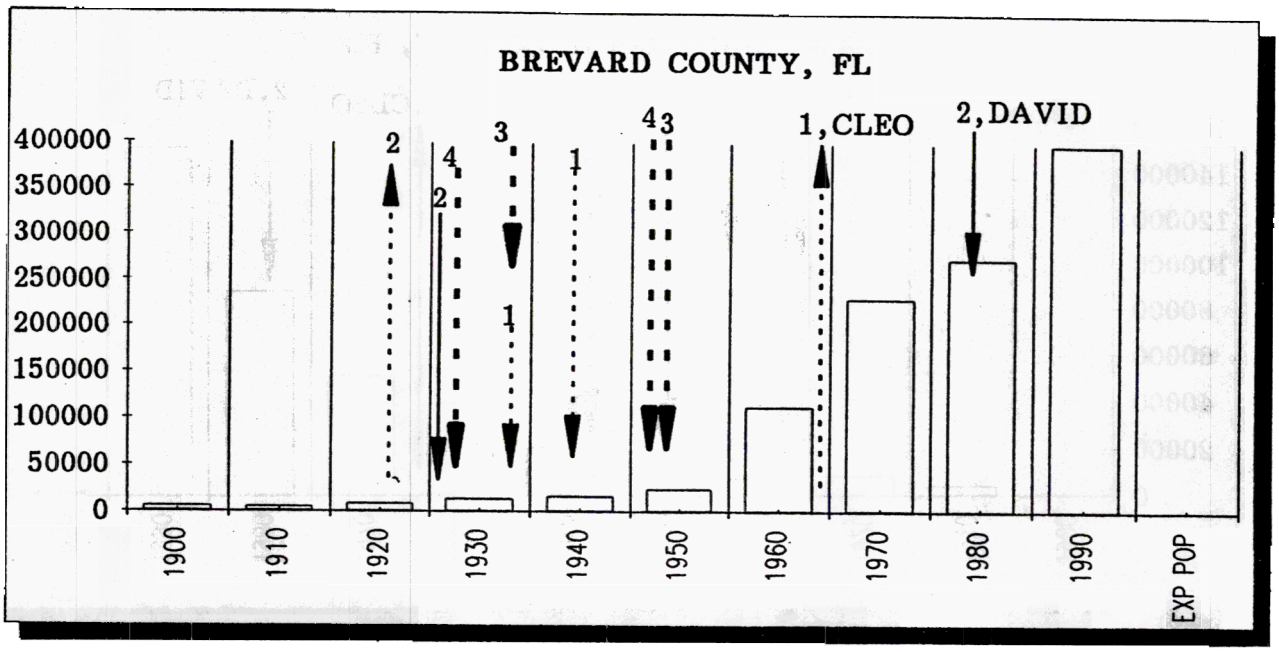
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1,CLEO
2,DAVID


BREVARD COUNTY, FL
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350000
300000
250000
200000
150000
100000
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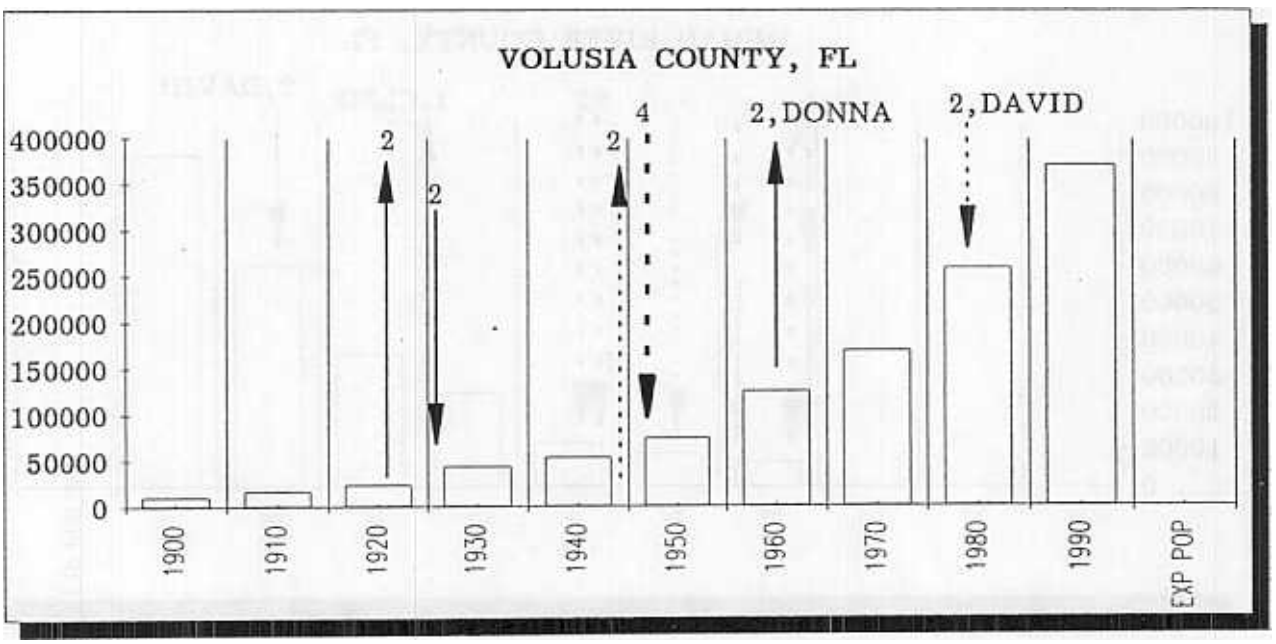
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
1, CLEO
2, DAVID


VOLUSIA COUNTY, FL
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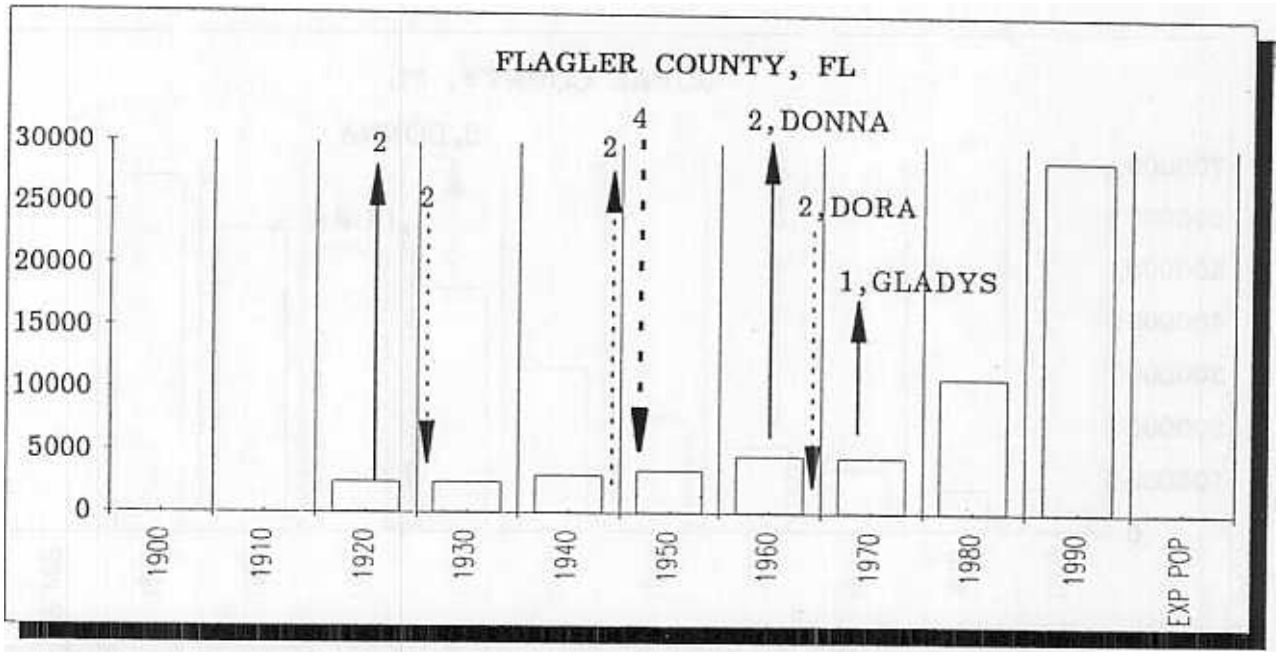
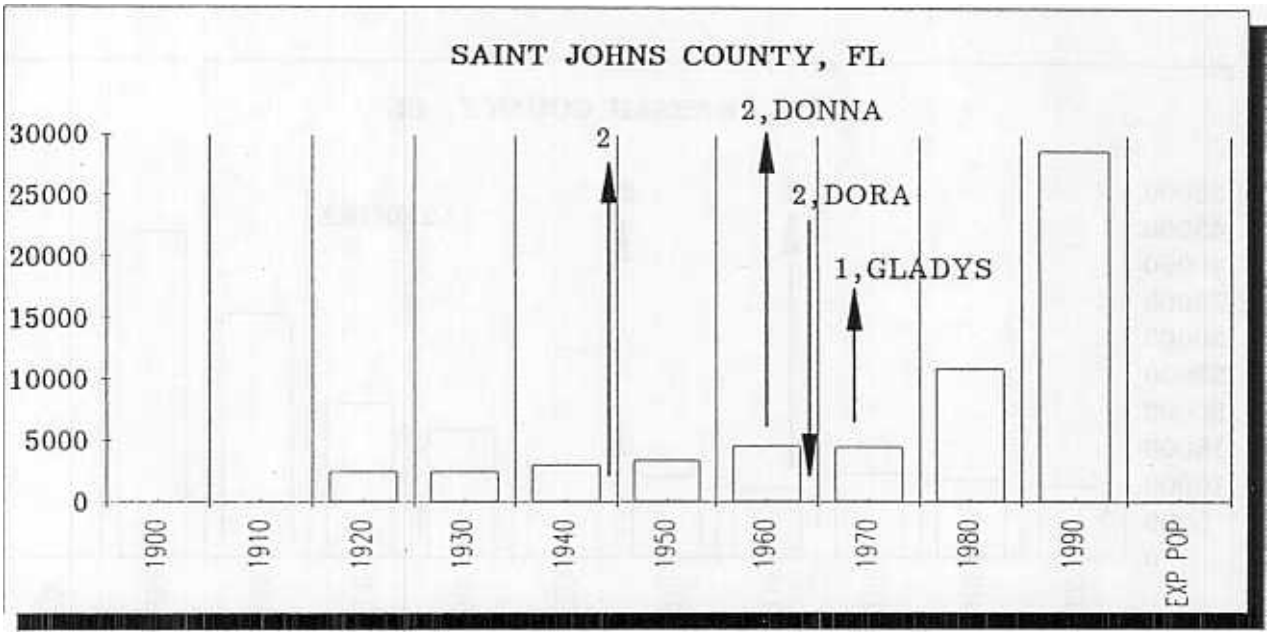
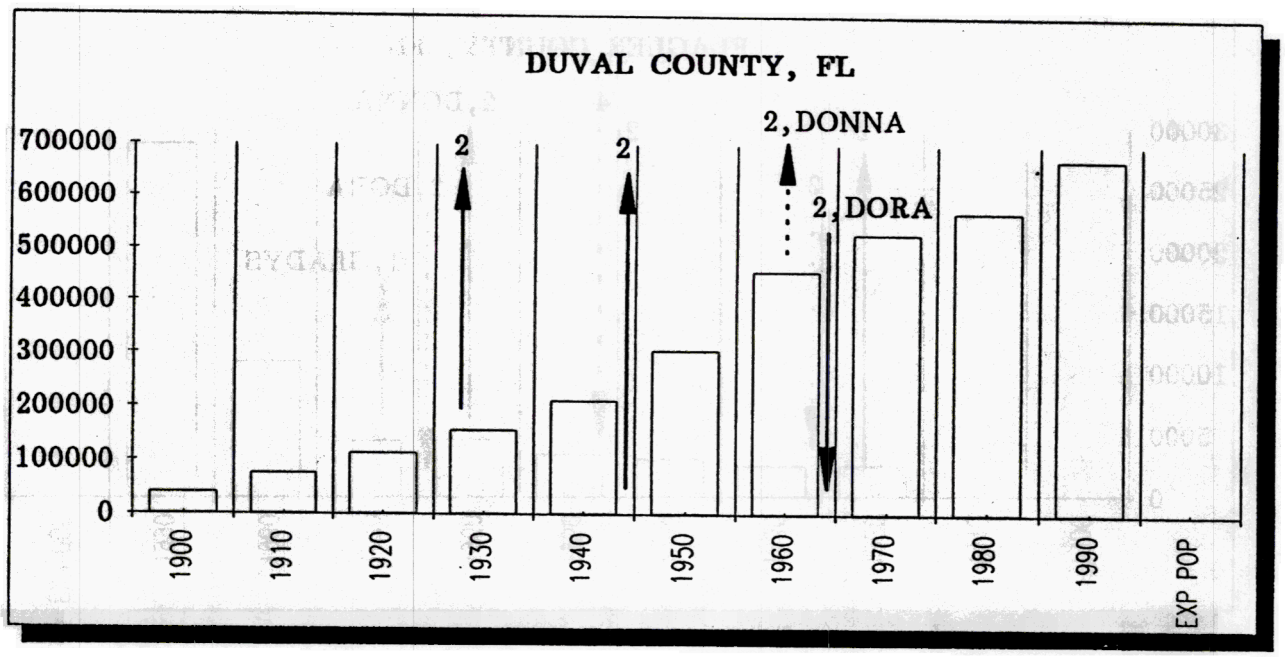
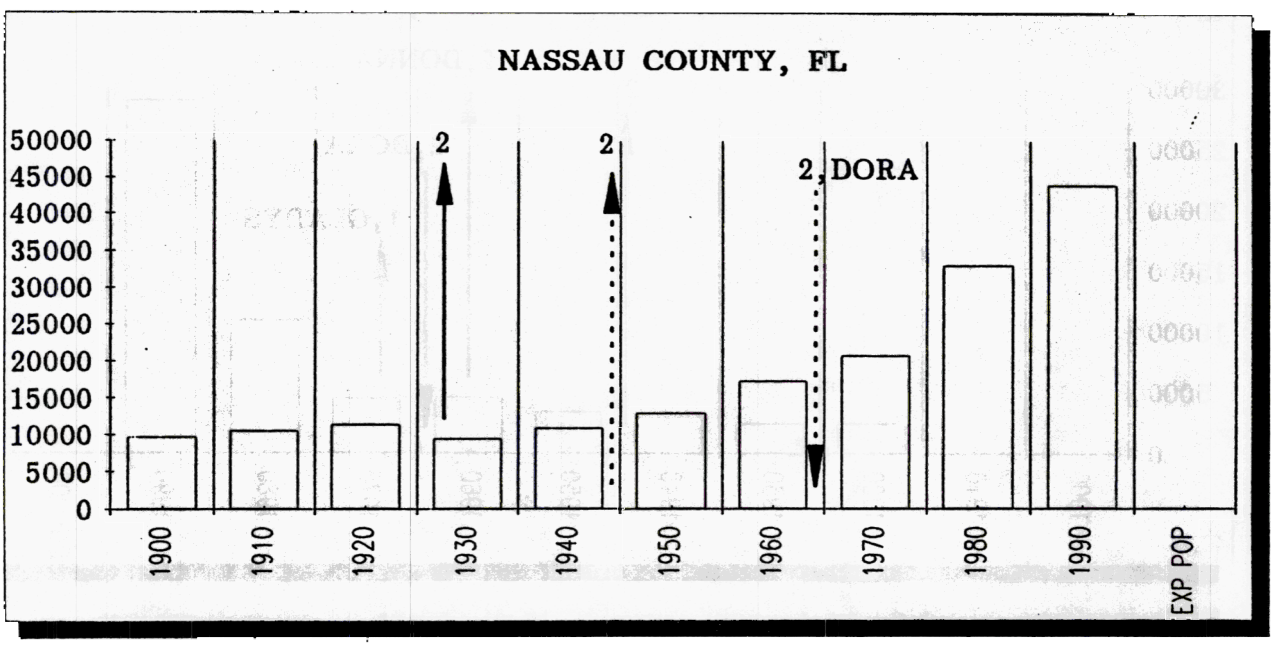
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
2, DONNA
2, DAVID


FLAGLER COUNTY, FL
30000
25000
20000
15000
10000
5000
0
2
2
2
4
2,DONNA
2,DORA
1,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


SAINT JOHNS COUNTY, FL
30000
25000
20000
15000
10000
5000
0
2
2,DONNA
2,DORA
1,GLADYS
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

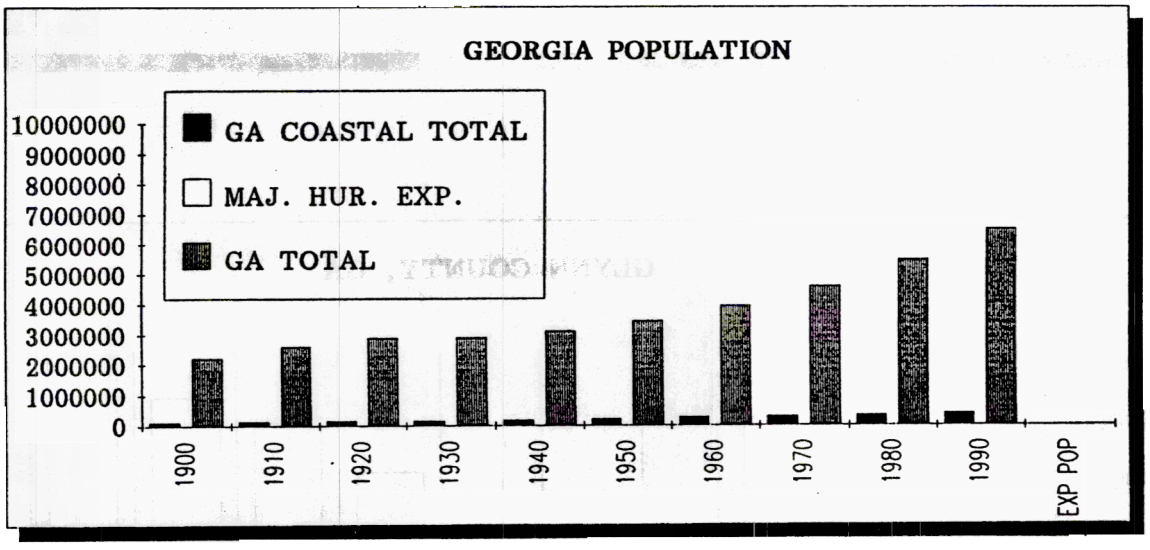

DUVAL COUNTY, FL
700000
600000
500000
400000
300000
200000
100000
0
2
2
2,DONNA
2,DORA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

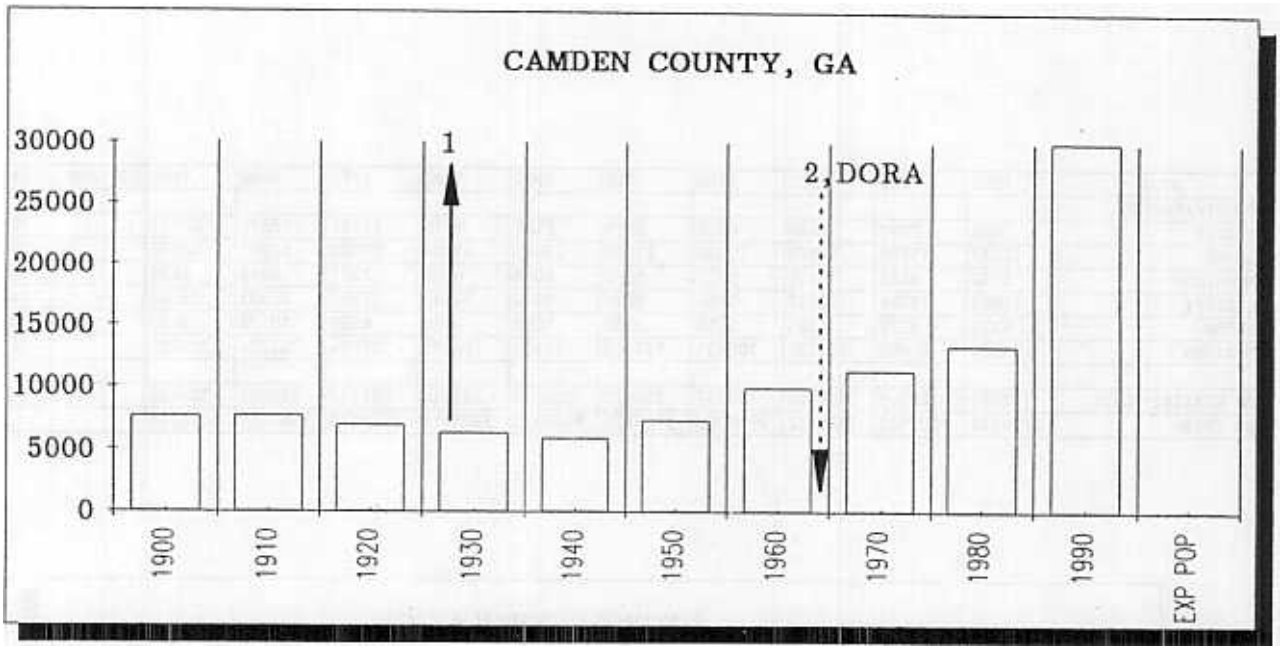

NASSAU COUNTY, FL
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
2
2
2,DORA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

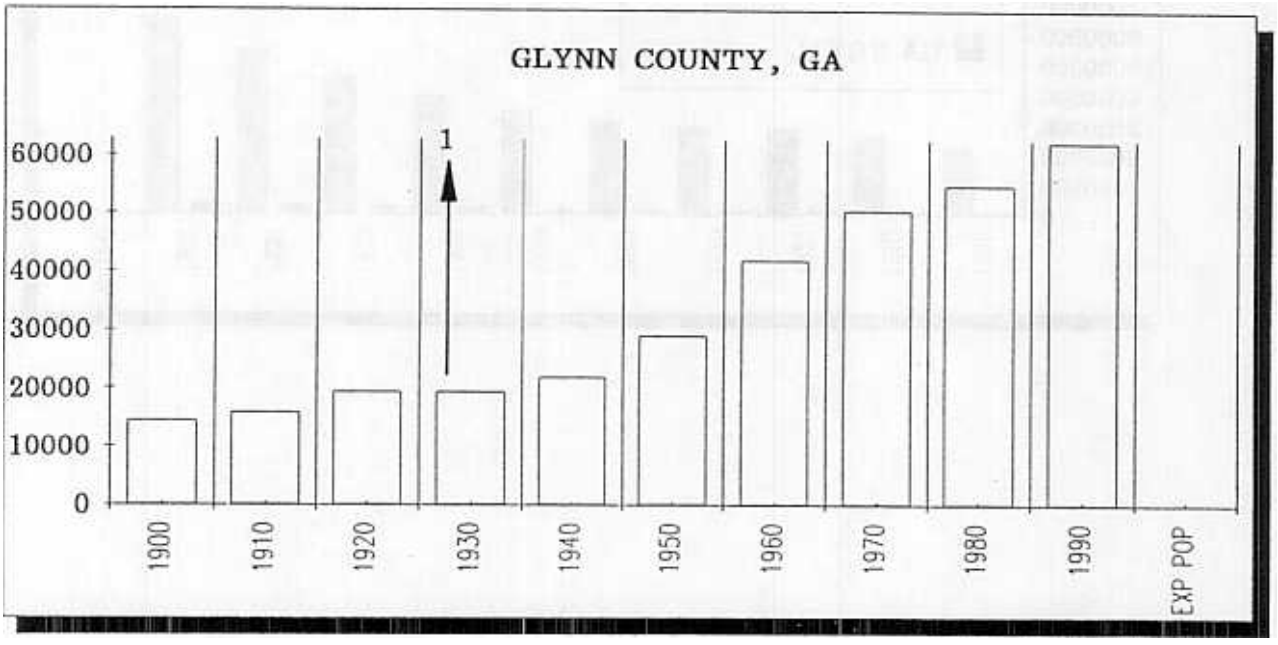
6. GEORGIA (6)

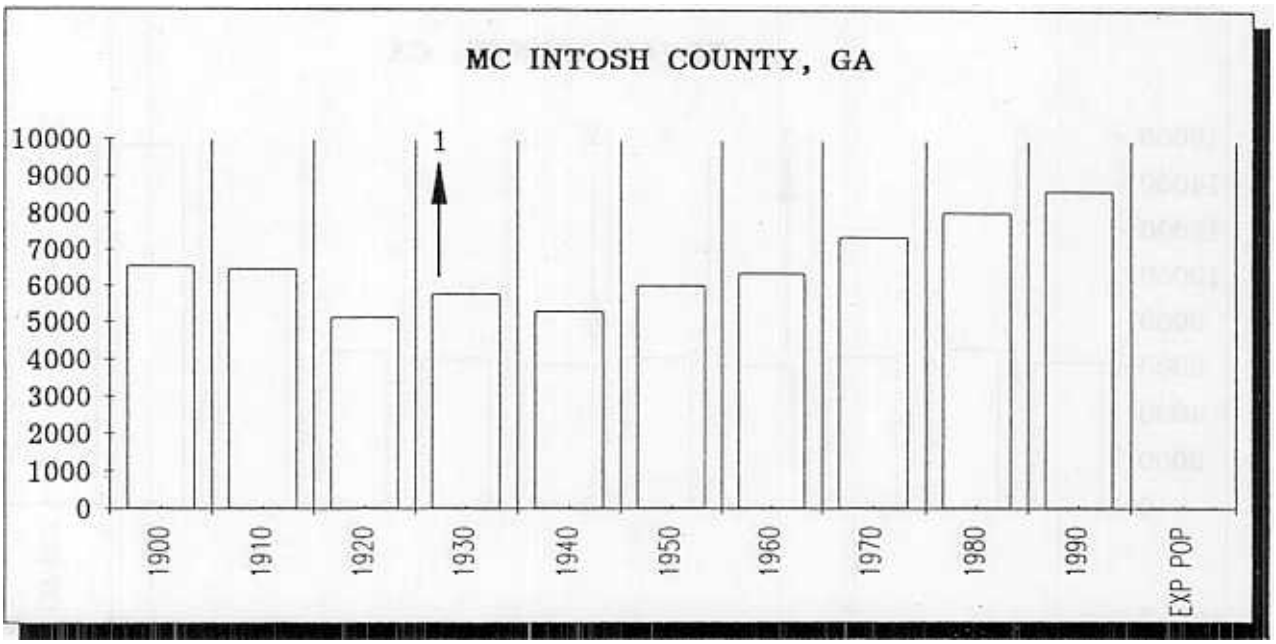
Camden, Glynn (Brunswick), McIntosh, Liberty, Bryan, Chatham (Savannah).

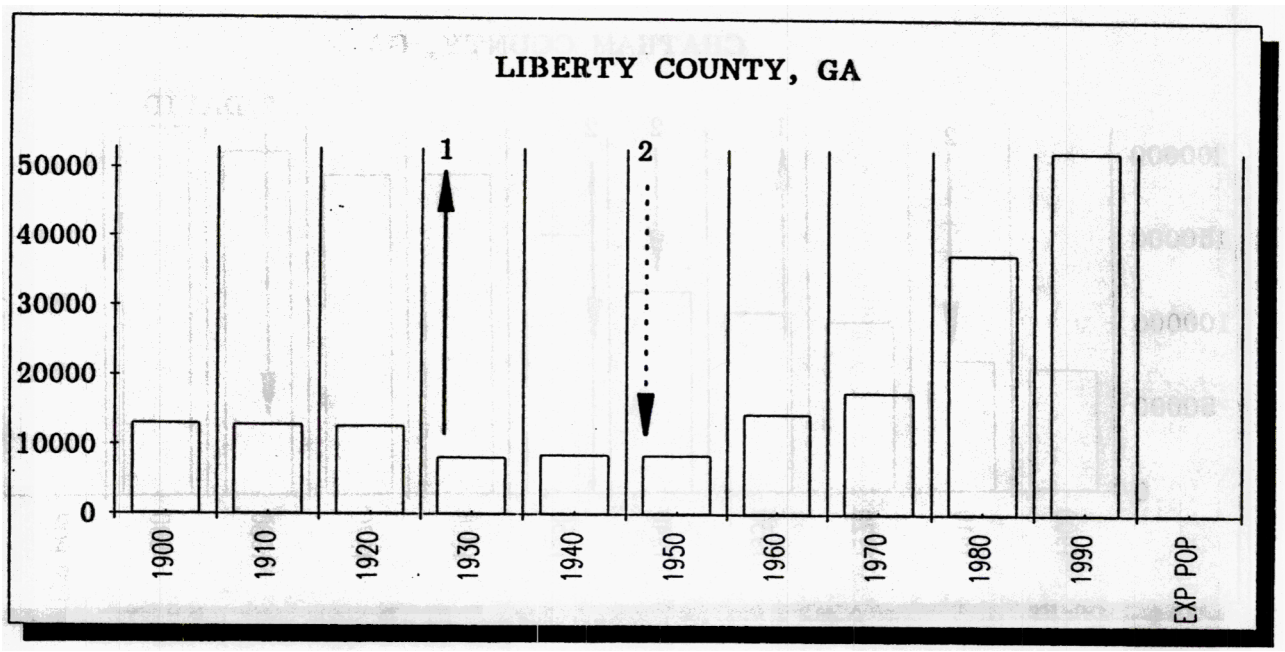
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
	7669	7690	6969	6338	5910	7322	9975	11334	13371	30167		100	
	14317	15720	19370	19400	21920	29046	41954	50528	54981	62496		100	
	6537	6442	5119	5763	5292	6008	6364	7371	8046	8634		100	
	13093	12924	12707	8153	8595	8444	14487	17569	37583	52745		100	
	6122	6702	6343	5952	6288	5965	6226	6539	10175	15438		100	
	71239	76690	100032	105431	117970	151481	188299	187816	202226	216935		100	
GA COASTAL TOTAL	118977	126168	150540	151037	165975	208266	267305	281157	326382	386415		100	
GA TOTAL	2216331	2609121	2895832	2908506	3123723	3444578	3943116	4589575	5464265	6478216			

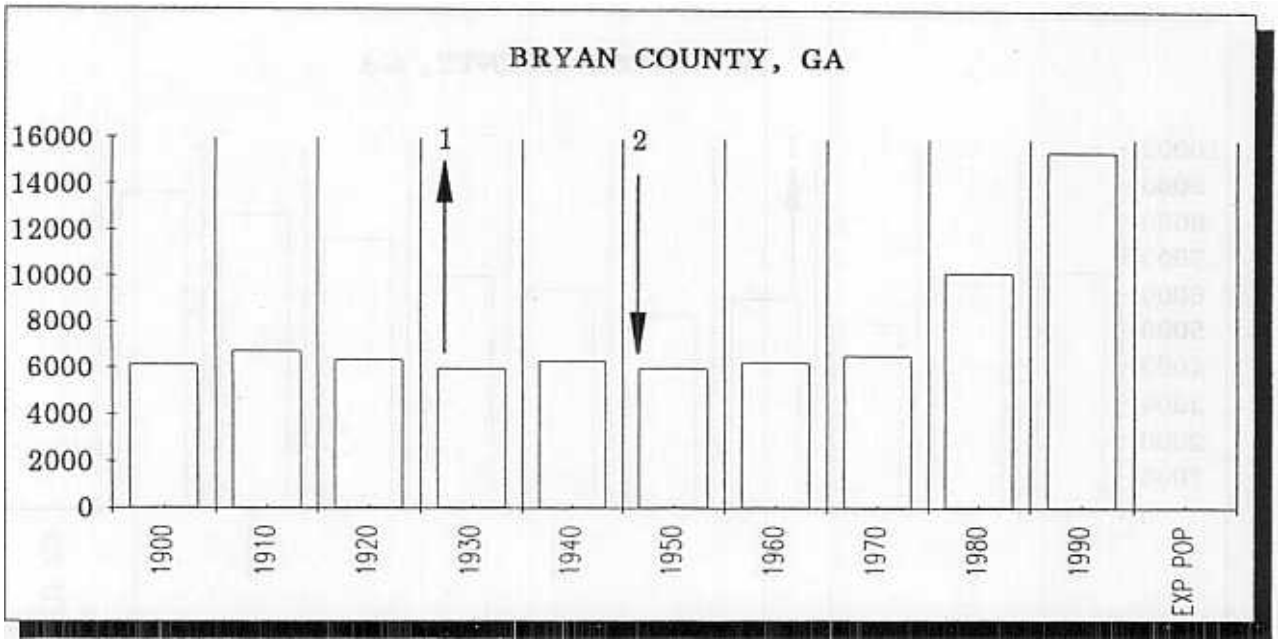


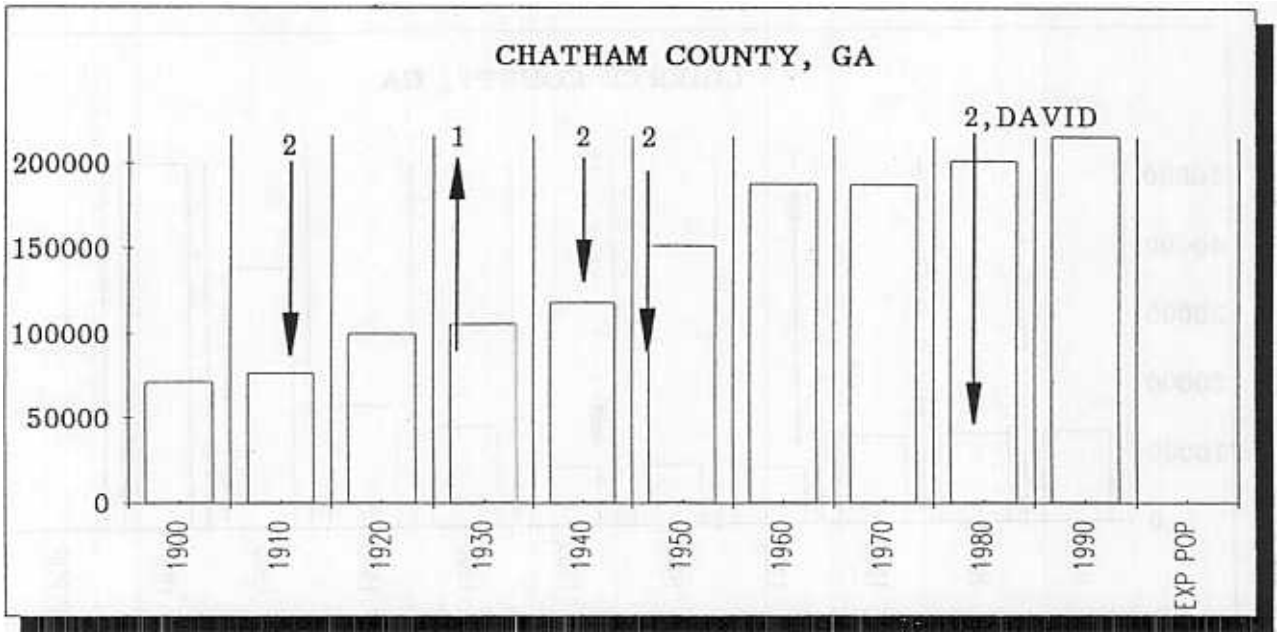

CAMDEN COUNTY, GA
30000
25000
20000
15000
10000
5000
0
1
2, DORA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


GLYNN COUNTY, GA
60000
50000
40000
30000
20000
10000
0
1
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MC INTOSH COUNTY, GA
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


LIBERTY COUNTY, GA
50000
40000
30000
20000
10000
0
1
2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

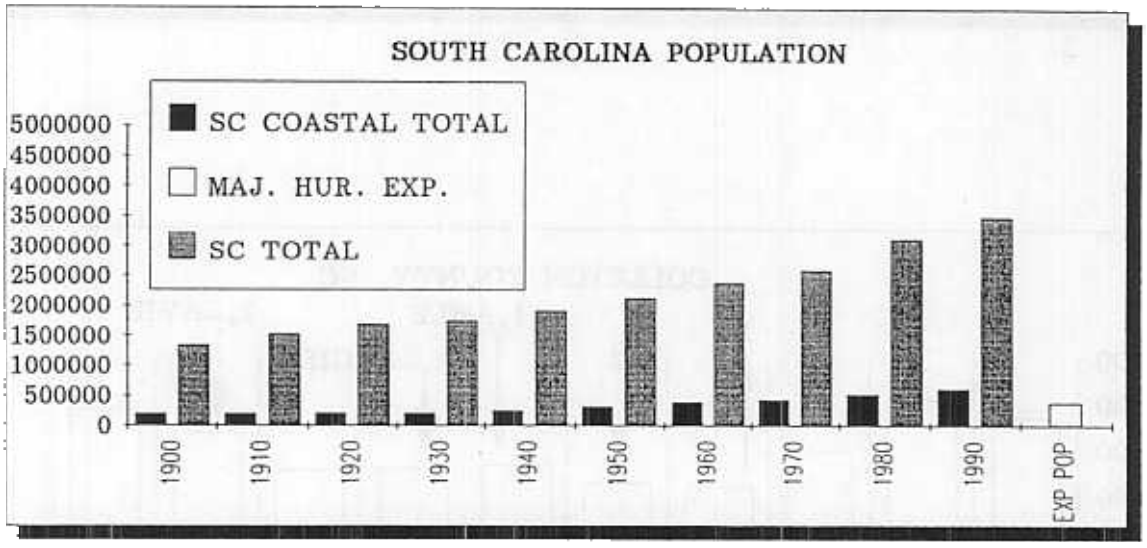

BRYAN COUNTY, GA
16000
14000
12000
10000
8000
6000
4000
2000
0
1
2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

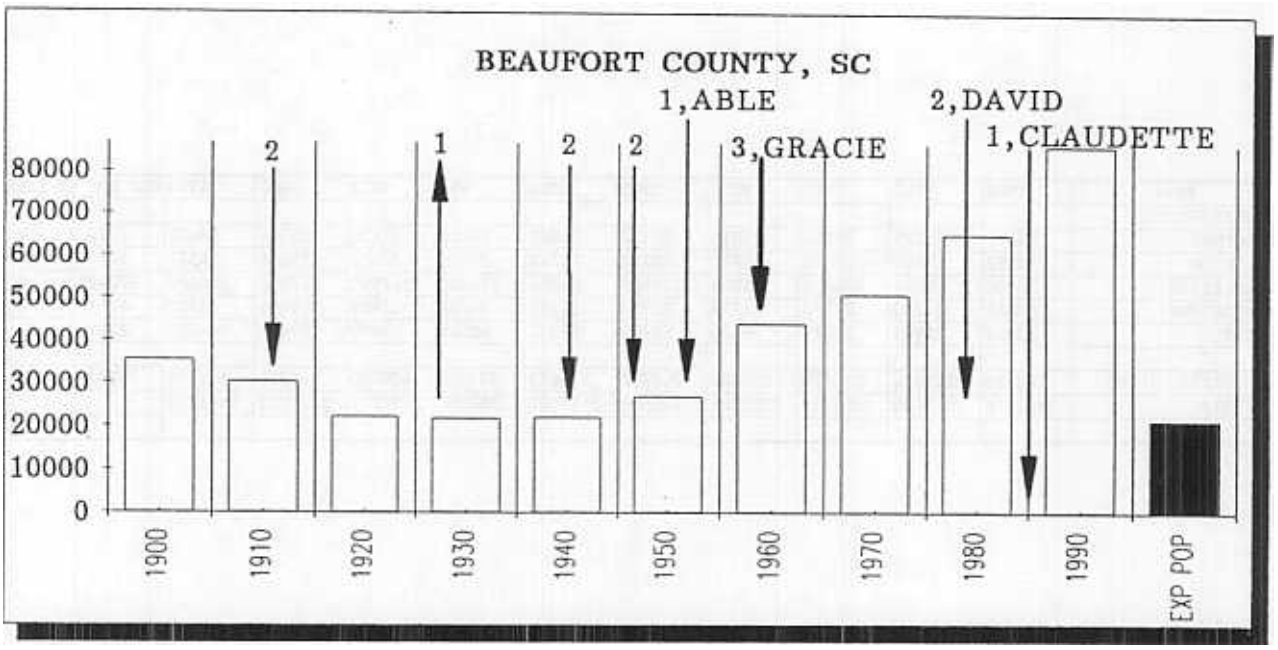

CHATHAM COUNTY, GA
200000
150000
100000
50000
0
2
1
2
2
2,DAVID
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

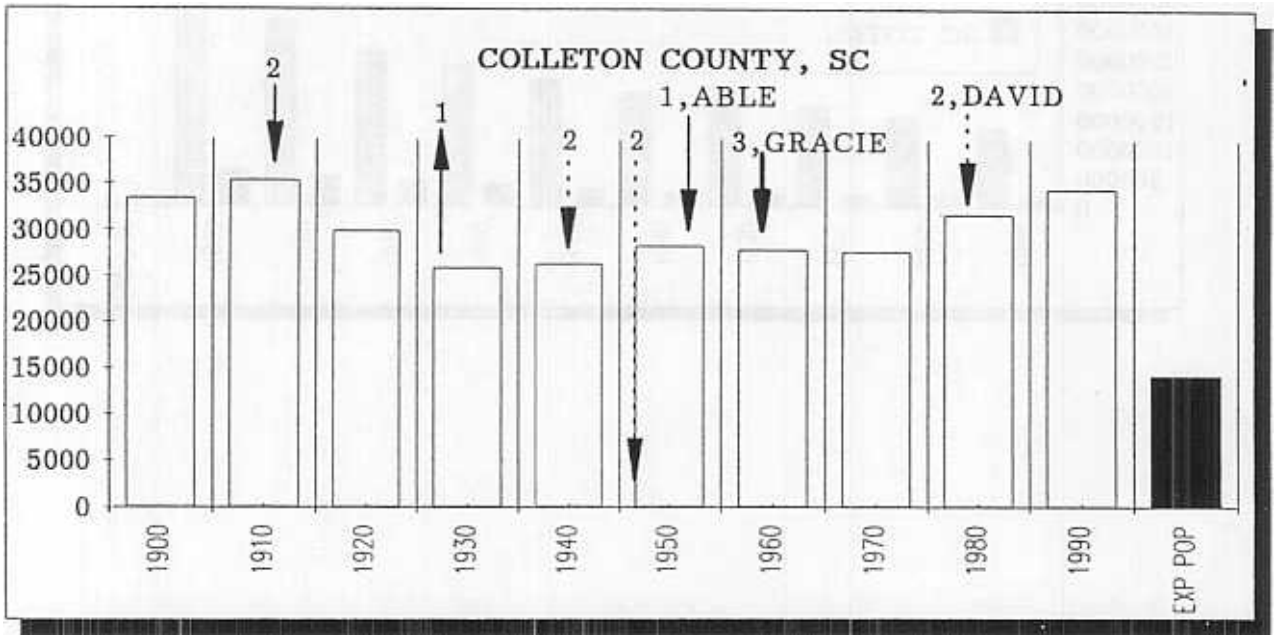
7. SOUTH CAROLINA (5)

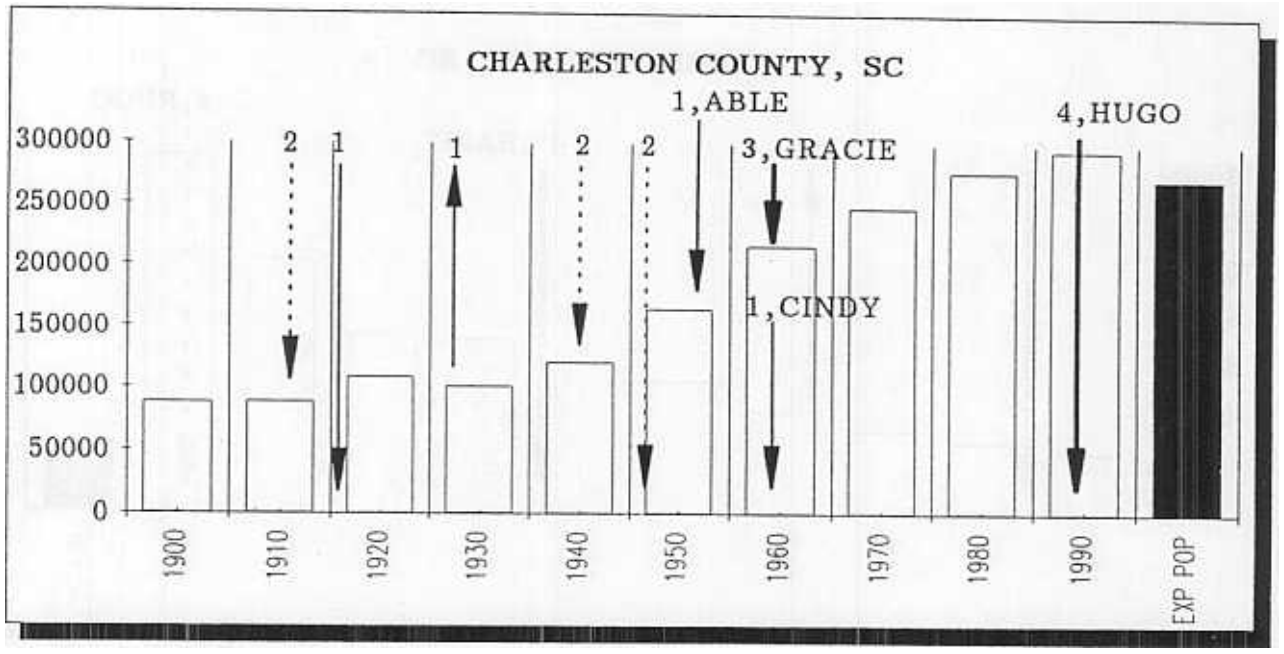
Beaufort (Hilton Head), Colleton, Charleston (Charleston), Georgetown (Georgetown), Horry (Myrtle Beach).

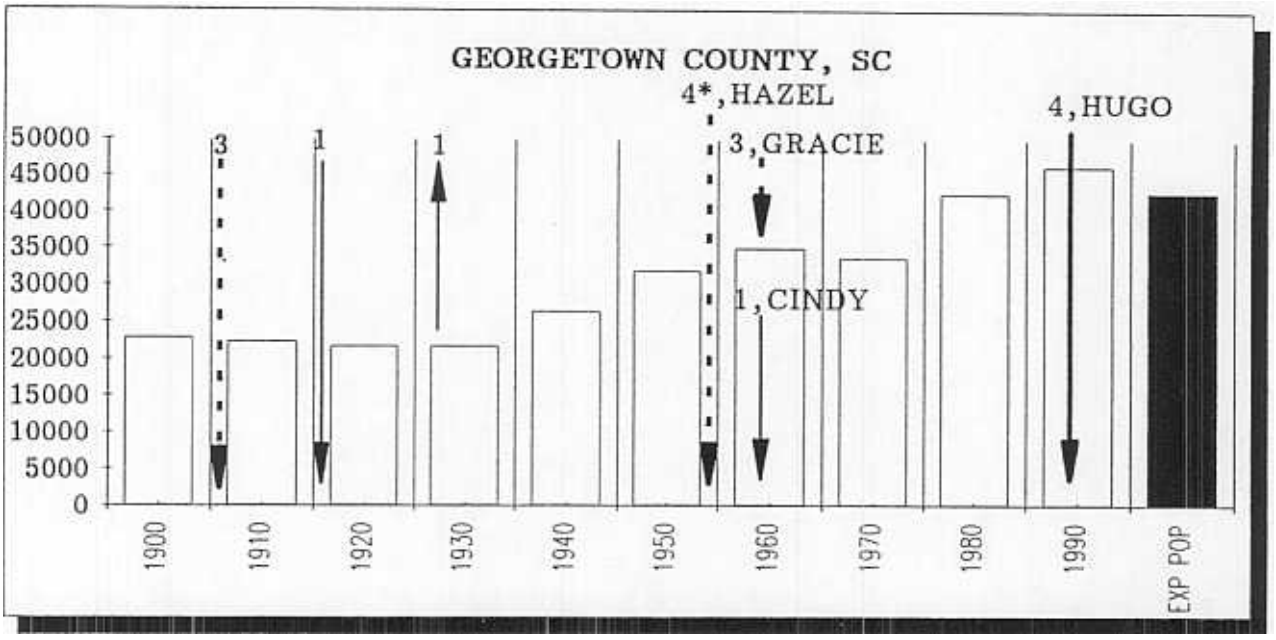
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
BEAUFORT	35495	30355	22269	21815	22037	26993	44187	51136	65364	86425	21523	75	1959
COLLETON	33452	35390	29897	25821	26268	28242	27816	27622	31676	34377	14119	59	1959
CHARLESTON	88006	88594	108450	101050	121105	164856	216382	247650	277308	295039	272121	8	1989
GEORGETOWN	22846	22270	21716	21738	26352	31762	34798	33500	42461	46302	42607	8	1989
HORRY	23364	26995	32077	39376	51951	59820	68247	69992	101419	144053	27741	81	1954
SC COASTAL TOTAL	203163	203604	214409	209800	247713	311673	391430	429900	518228	606196	378111	38	
SC TOTAL	1340316	1515400	1683724	1738765	1899804	2117027	2382594	2590713	3119208	3486703			

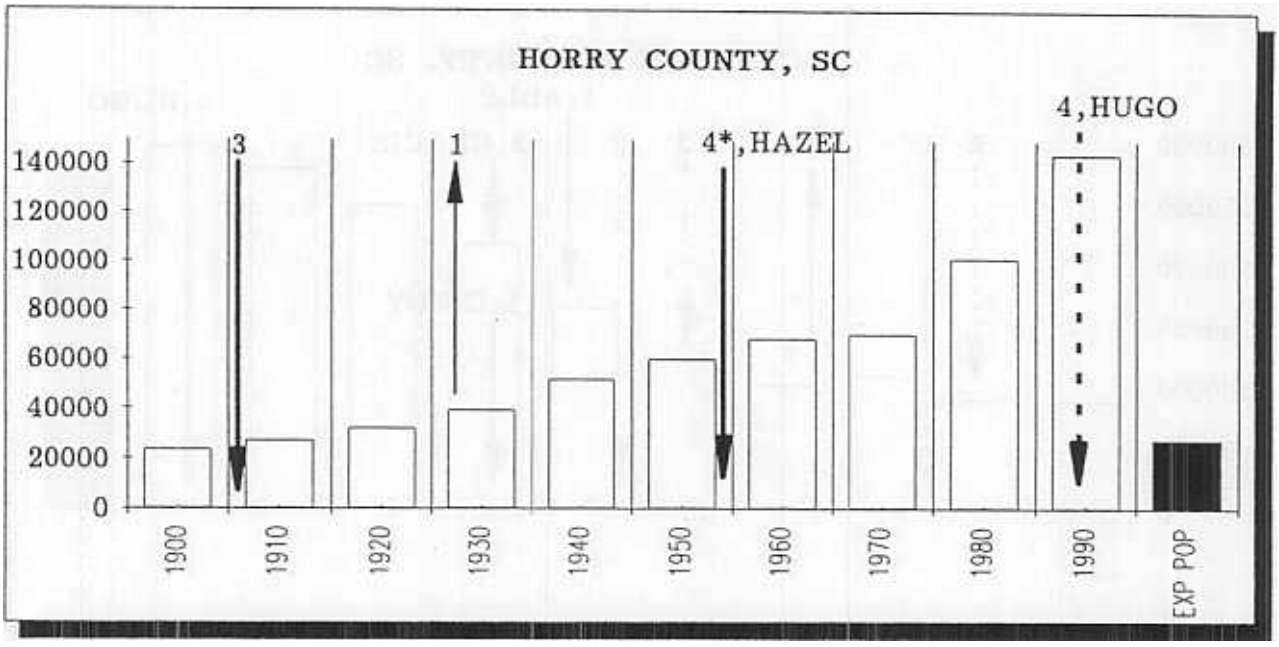



BEAUFORT COUNTY, SC
1,ABLE
2,DAVID
1,CLAUDETTE
3,GRACIE
2
1
2
2
80000
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


COLLETON COUNTY, SC
1,ABLE
2,DAVID
3,GRACIE
2
1
2
2
40000
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


CHARLESTON COUNTY, SC
1,ABLE
4,HUGO
3,GRACIE
1,CINDY
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


GEORGETOWN COUNTY, SC
4*,HAZEL
4,HUGO
3,GRACIE
1,CINDY
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HORRY COUNTY, SC
4,HUGO
3
1
4*,HAZEL
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
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1940
1950
1960
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EXP POP

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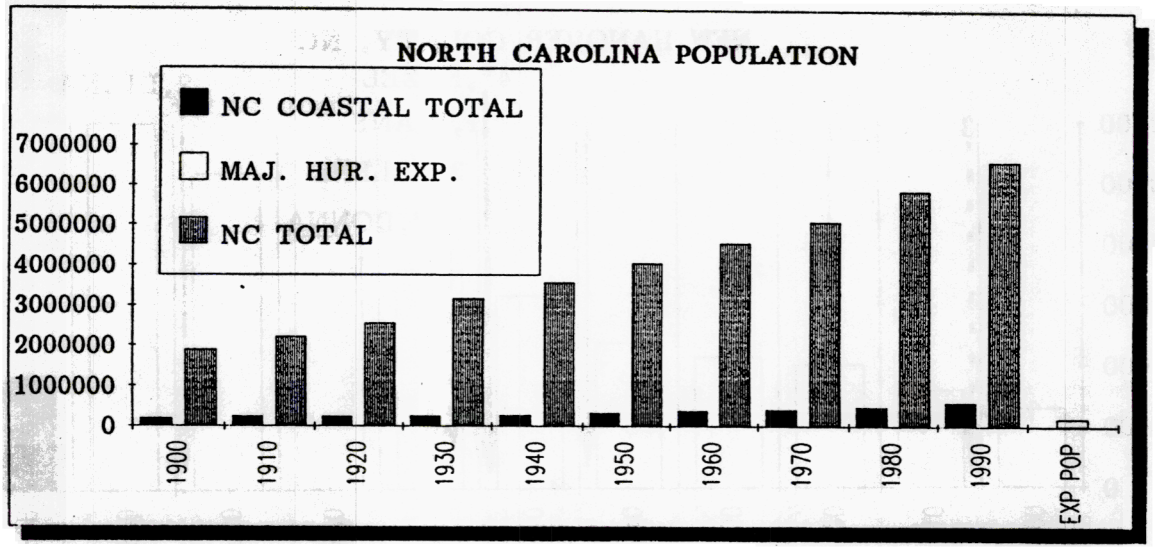
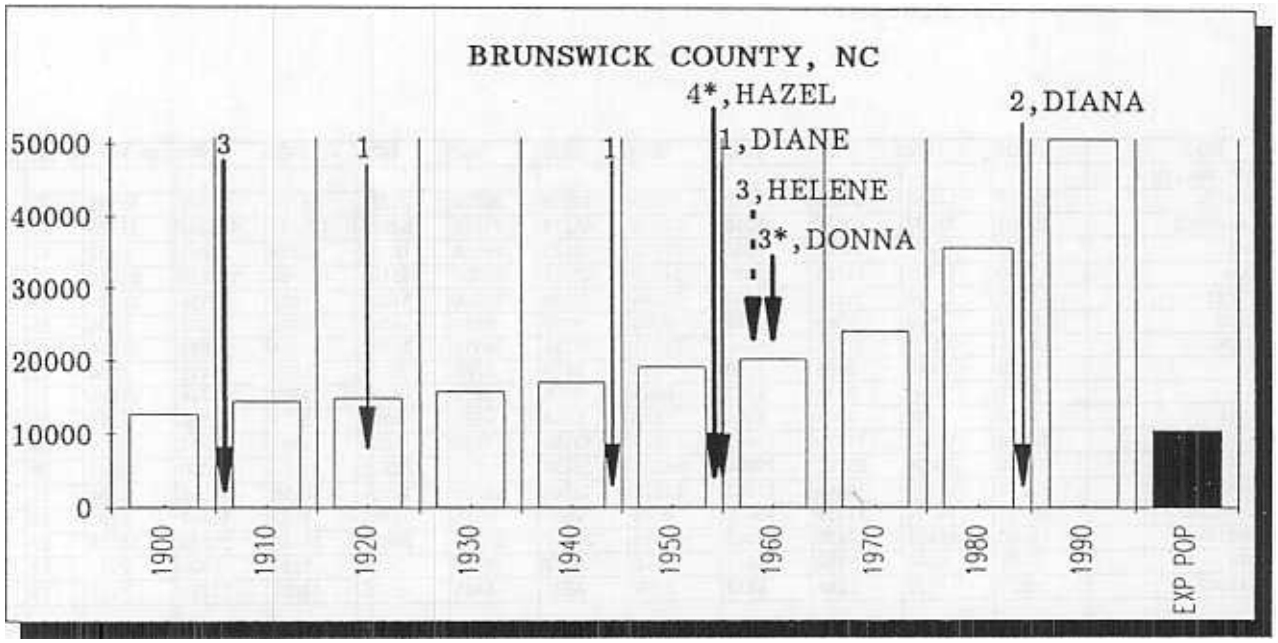
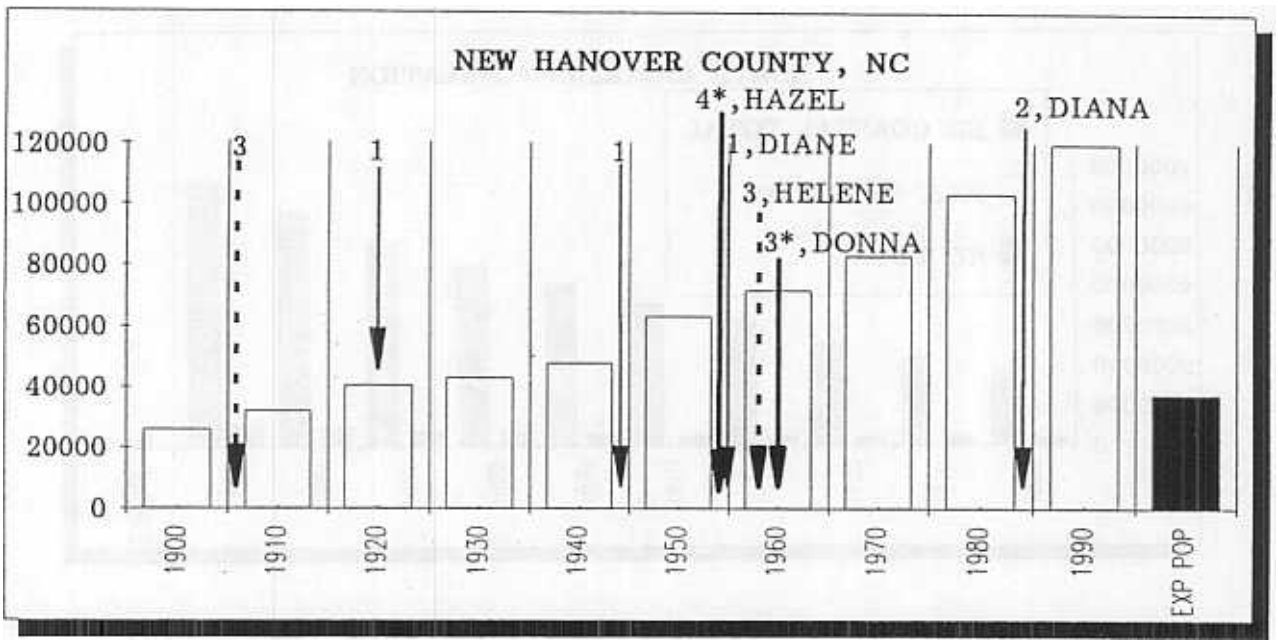
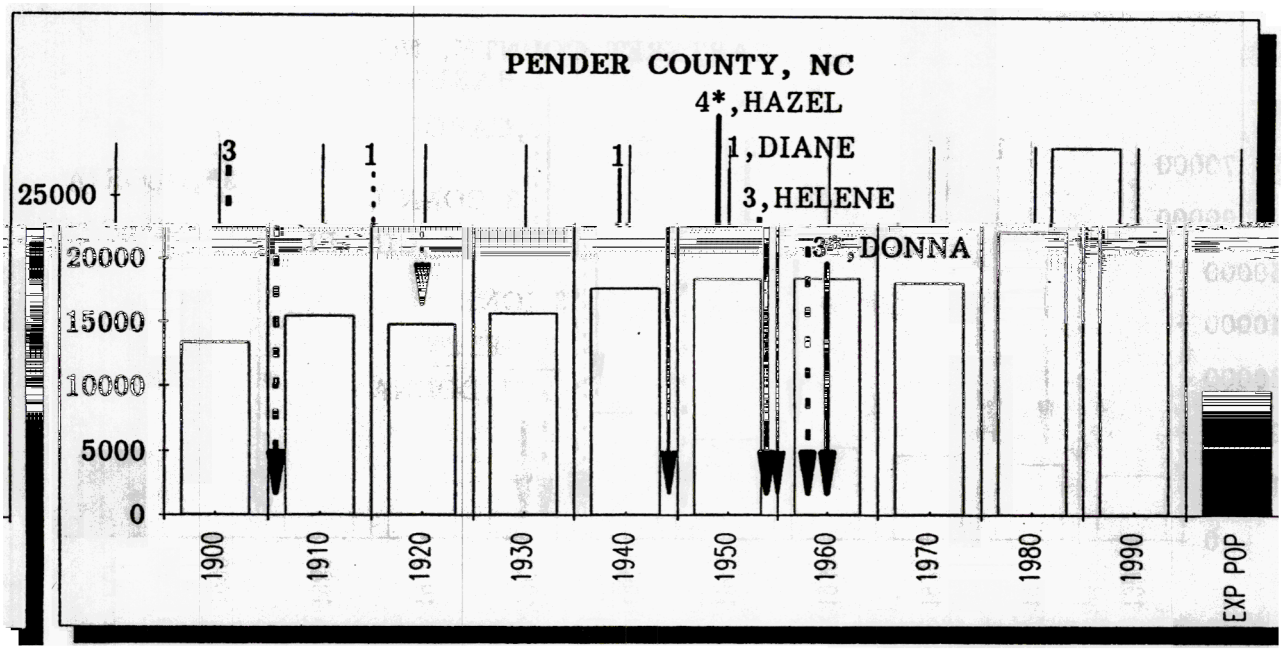
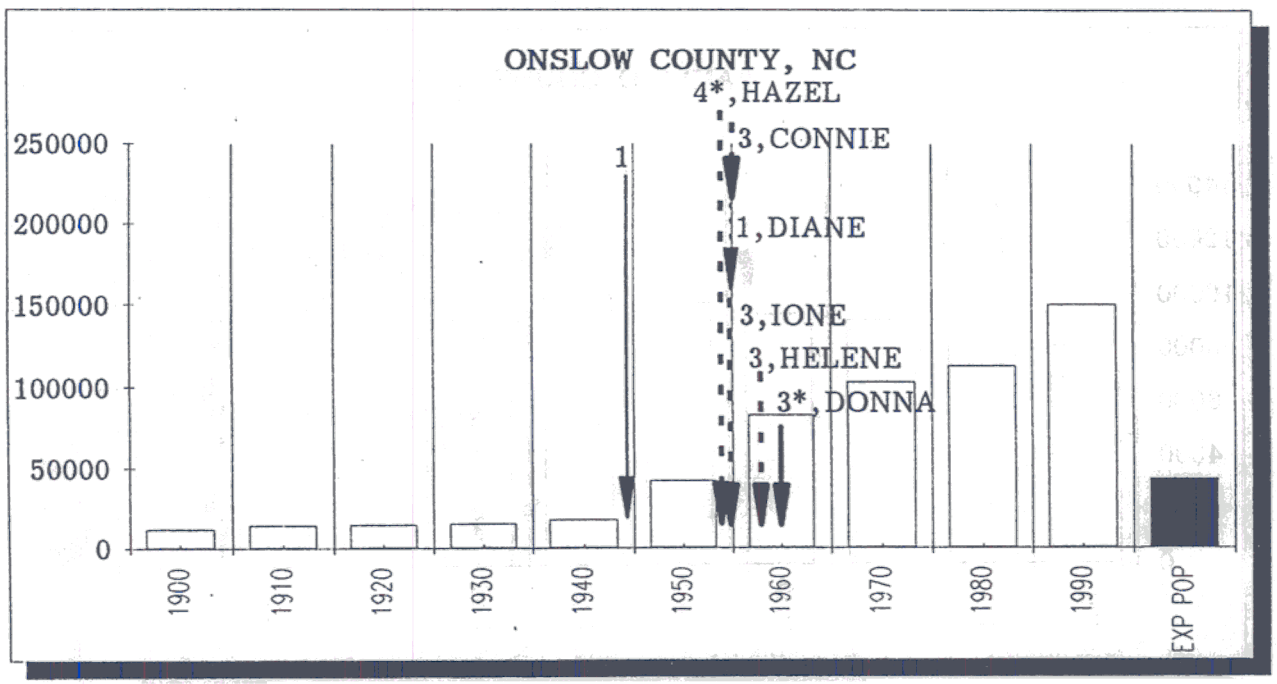
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
BRUNSWICK	12657	14432	14876	15818	17125	19238	20278	24223	35767	50895	10553	79	1960
NEW HANOVER	25785	32037	40620	43010	47935	63272	71742	82996	103471	120284	37335	69	1960
PENDER	13381	15471	14788	15686	17710	18423	18508	18149	22215	28855	9632	67	1960
ONSLOW	11940	14125	14703	15289	17939	42047	82706	103126	112784	149838	43040	71	1960
CARTERET	11811	13776	15384	16900	18284	23059	30940	31603	41092	52556	16101	69	1960
PAMLICO	8045	9966	9060	9299	9706	9993	9850	9467	10398	11372	5126	55	1960
BEAUFORT	26404	30877	31024	35026	36431	37134	36014	35980	40266	42283	18742	56	1960
HYDE	9278	8840	8386	8550	7860	6479	5765	5571	5873	5411	3000	45	1960
DARE	4757	4841	5115	5202	6041	5405	5935	6995	13377	22746	15724	31	1985
TYRRELL	4980	5219	4849	5164	5556	5048	4520	3806	3975	3856	2352	39	1960
WASHINGTON	10608	11062	11429	11603	12323	13180	13488	14038	14801	13997	7019	50	1960
BERTIE	20538	23039	23993	25894	26201	26439	24350	20528	21024	20388	12672	38	1960
CHOWAN	10258	11303	10649	11282	11572	12540	11729	10764	12558	13506	6104	55	1960
PERQUIMANS	10091	11054	11137	10668	9773	9602	9178	8351	9486	10447	4776	54	1960
PASQUOTANK	13660	16693	17670	19143	20568	24347	25630	26824	28462	31298	13338	57	1960
CAMDEN	5474	5640	5382	5461	5440	5223	5598	5453	5829	5904	2913	51	1960
CURRITUCK	6529	7693	7268	6710	6709	6201	6601	6976	11089	13736	3435	75	1960
NC COASTAL TOTAL	206196	236068	246333	260705	277173	327630	382832	414850	492467	597372	211862	65	
NC TOTAL	1893810	2206287	2559123	3170276	3571623	4061929	4556155	5084451	5874429	6628637			

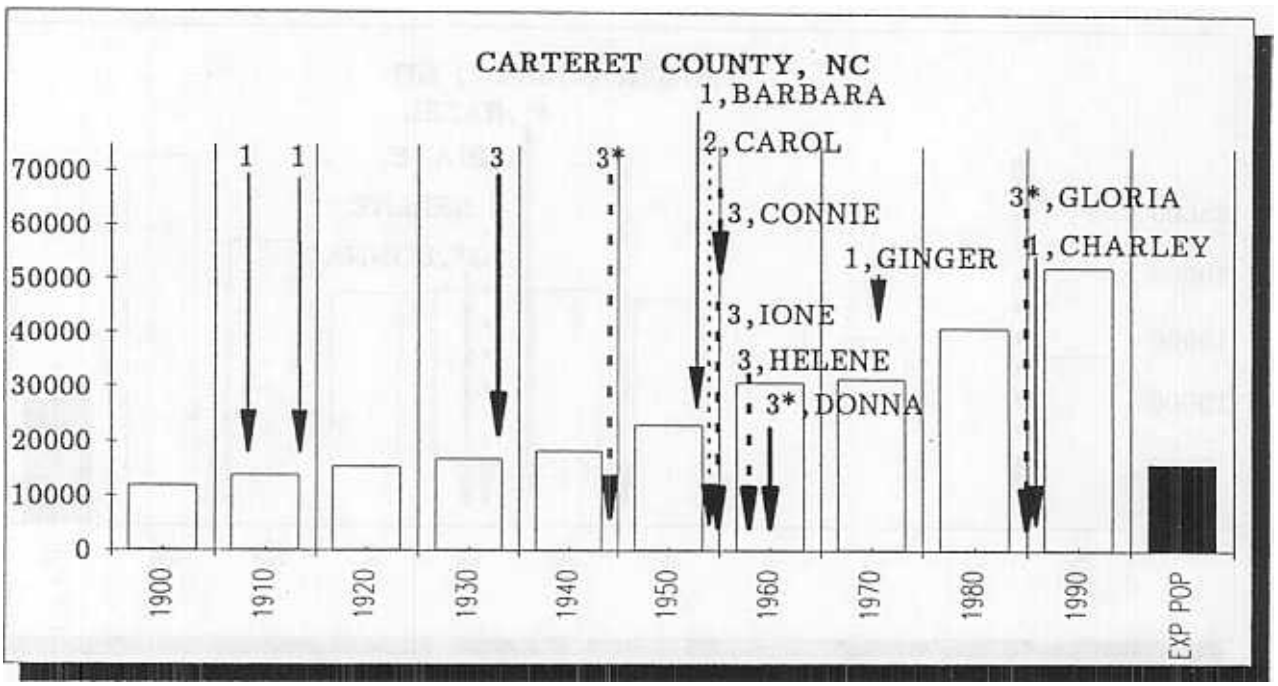


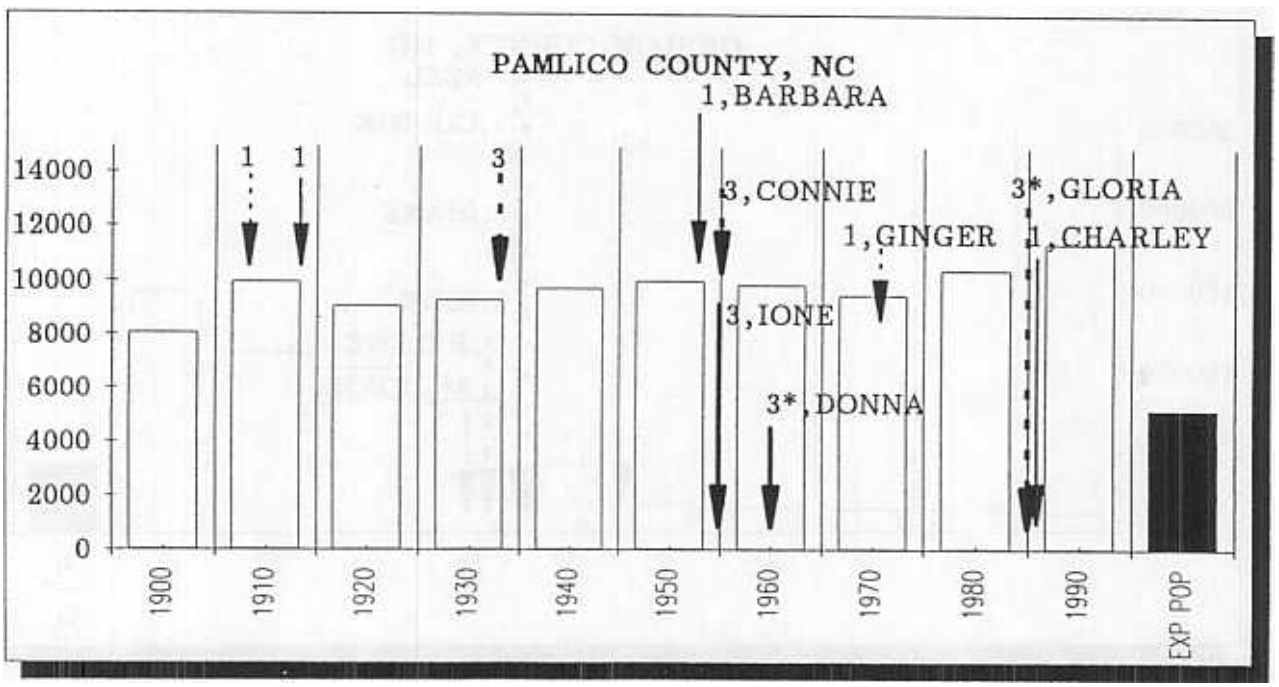

BRUNSWICK COUNTY, NC
4*, HAZEL
2, DIANA
1, DIANE
3, HELENE
3*, DONNA
3
1
1
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

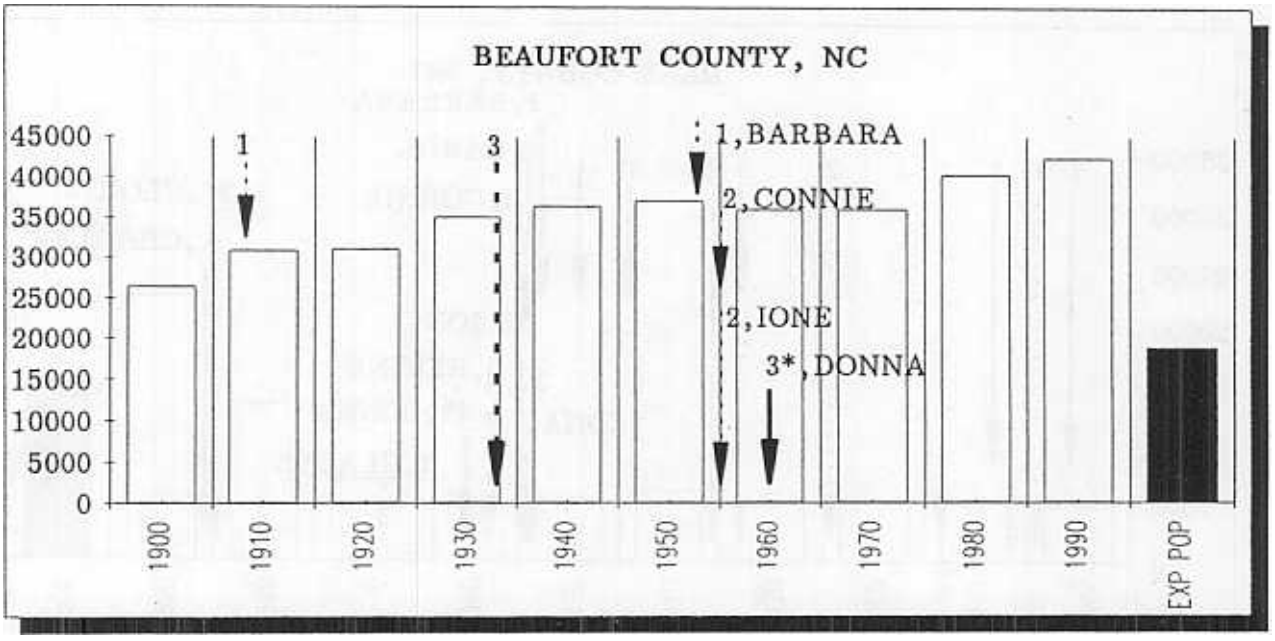

NEW HANOVER COUNTY, NC
4*, HAZEL
2, DIANA
1, DIANE
3, HELENE
3*, DONNA
3
1
1
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

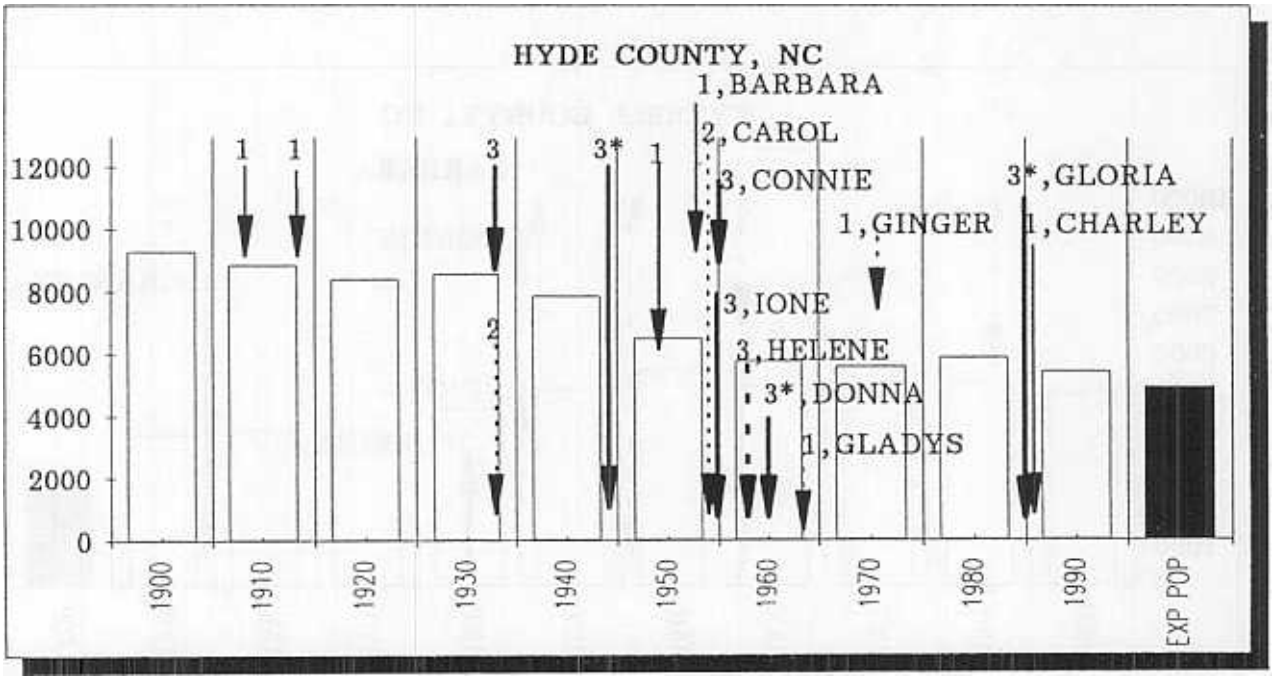

PENDER COUNTY, NC
4*,HAZEL
1,DIANE
3,HELENE
3,DONNA
3
1
1
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

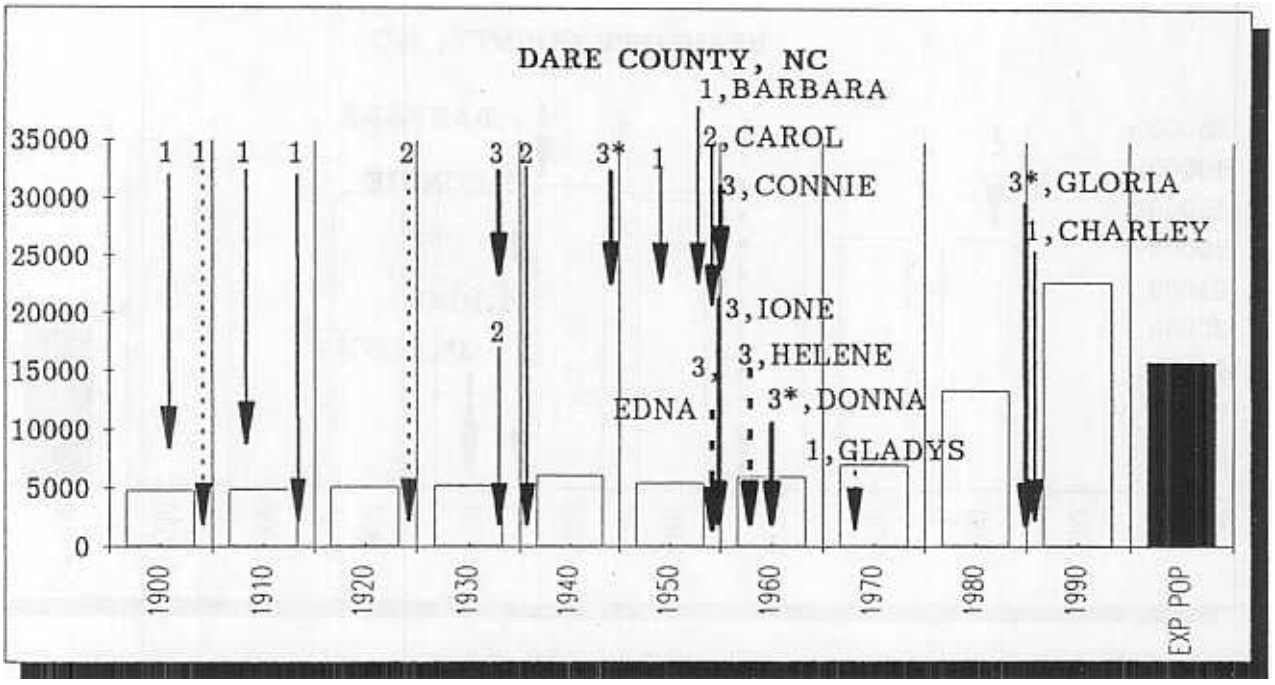

ONSLOW COUNTY, NC
4*,HAZEL
3,CONNIE
1
1,DIANE
3,IONE
3,HELENE
3*,DONNA
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

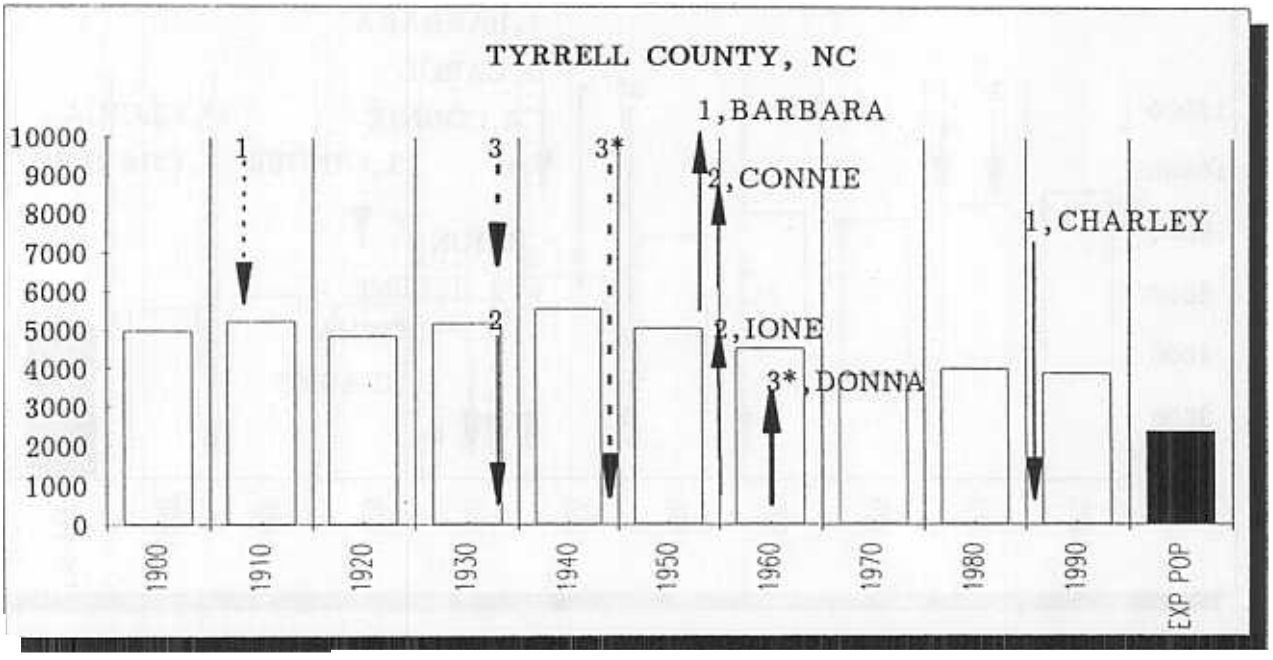

CARTERET COUNTY, NC
1,BARBARA
2,CAROL
3,CONNIE
1,GINGER
3,IONE
3,HELENE
3*,DONNA
3*,GLORIA
1,CHARLEY
1
1
3
3*
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

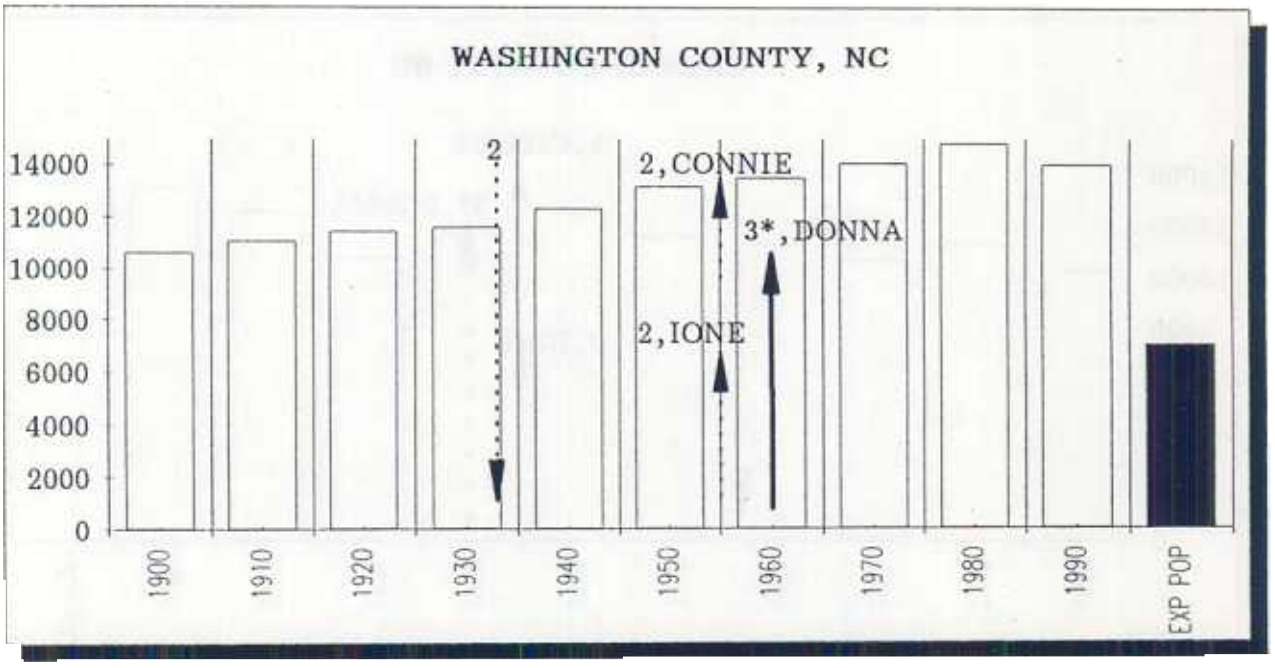

PAMLICO COUNTY, NC
1,BARBARA
3,CONNIE
1,GINGER
3,IONE
3*,DONNA
3*,GLORIA
1,CHARLEY
1
1
3
14000
12000
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

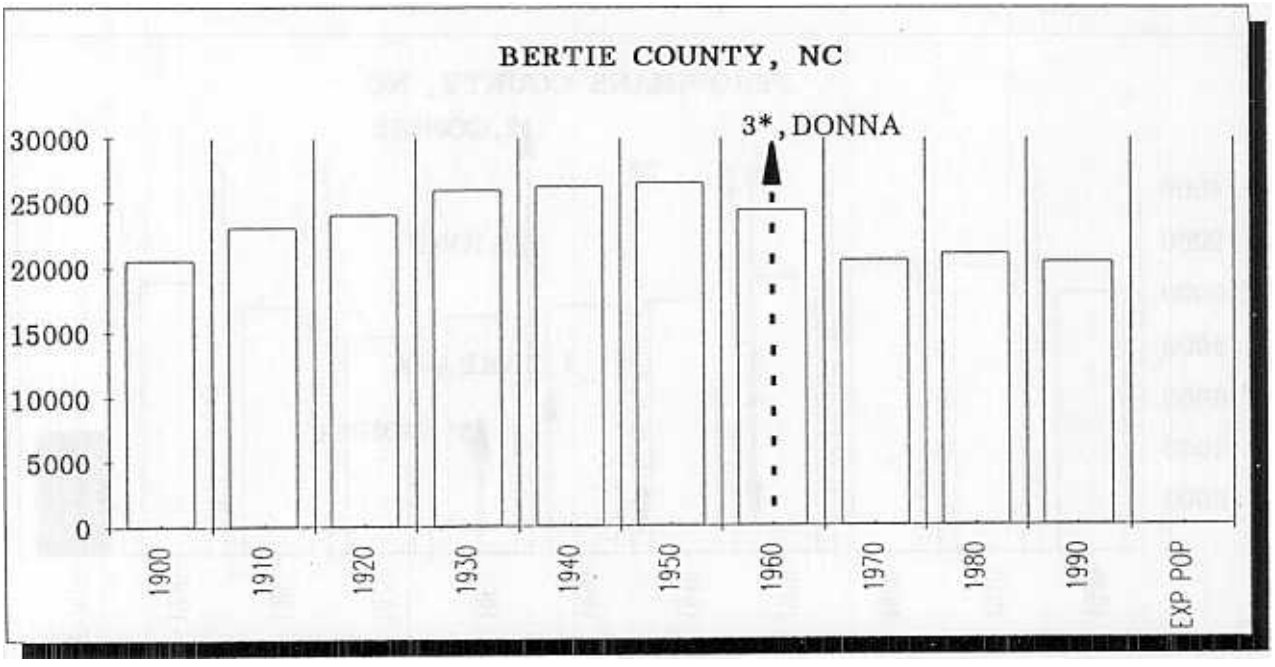

BEAUFORT COUNTY, NC
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1
3
1,BARBARA
2,CONNIE
2,IONE
3*,DONNA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

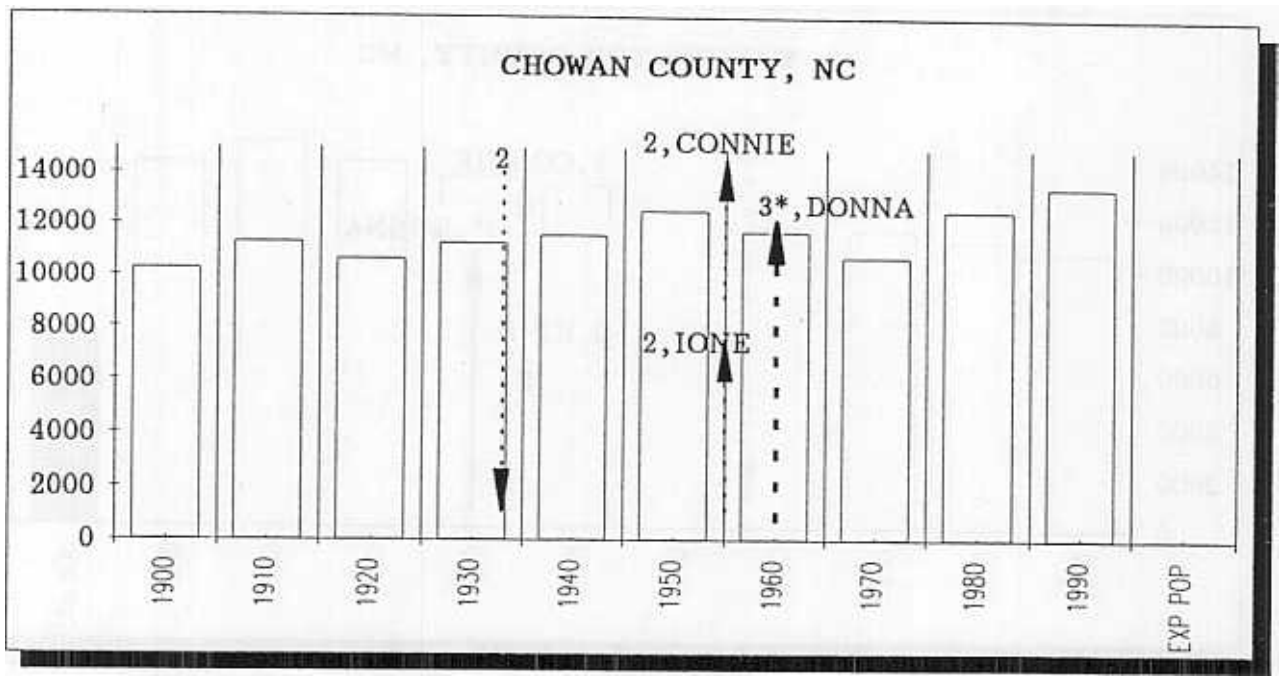

HYDE COUNTY, NC
12000
10000
8000
6000
4000
2000
0
1
1
3
3*
1
1,BARBARA
2,CAROL
3,CONNIE
1,GINGER
3*,GLORIA
1,CHARLEY
3,IONE
3,HELENE
3*,DONNA
1,GLADYS
2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

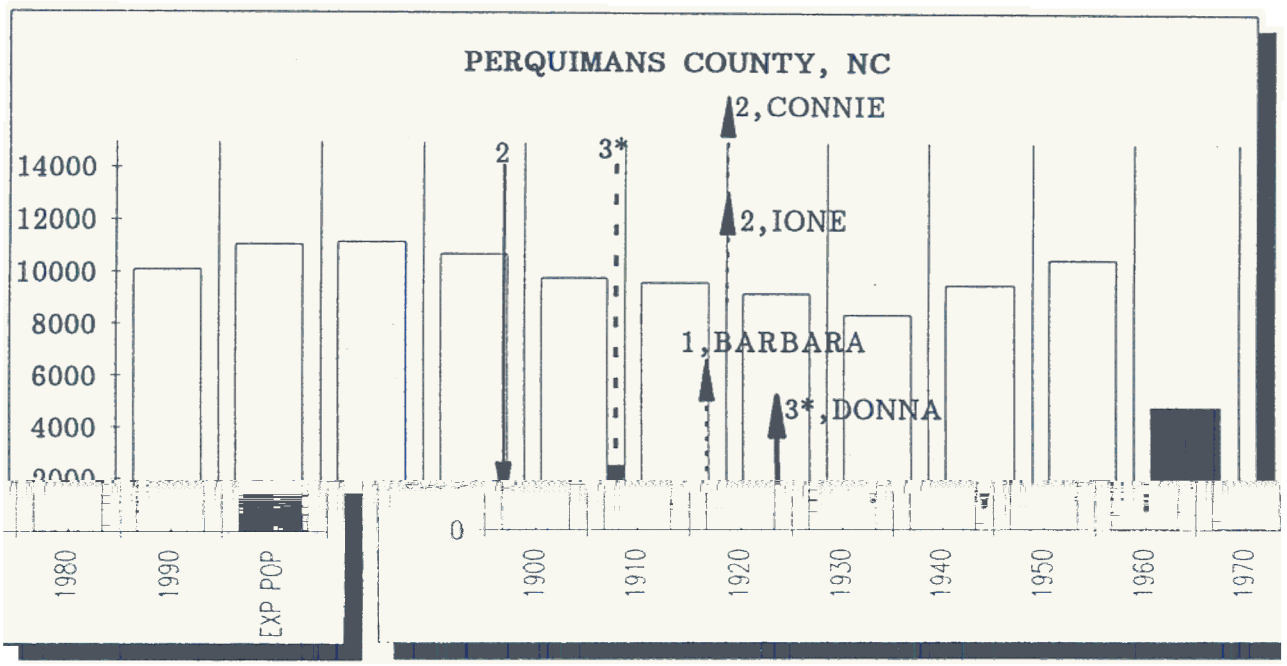

DARE COUNTY, NC
1,BARBARA
2,CAROL
3,CONNIE
3*,GLORIA
1,CHARLEY
3,IONE
3,HELENE
3*,DONNA
EDNA
1,GLADYS
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

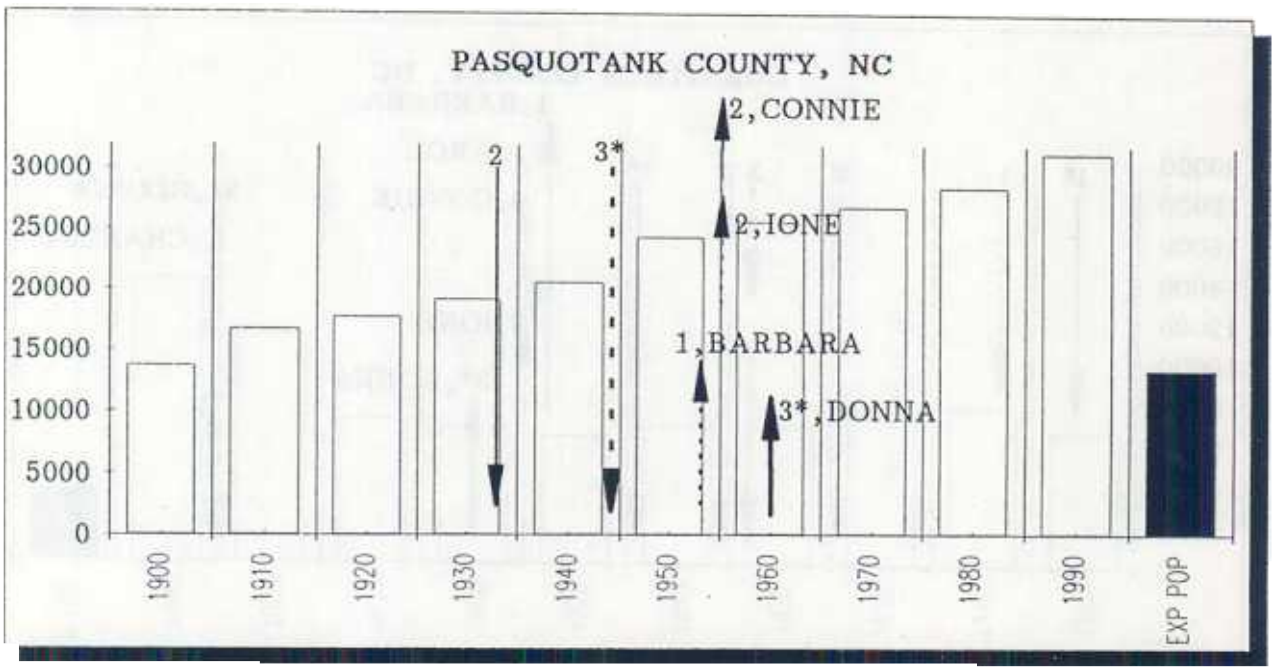

TYRRELL COUNTY, NC
1,BARBARA
2,CONNIE
1,CHARLEY
2,IONE
3*,DONNA
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

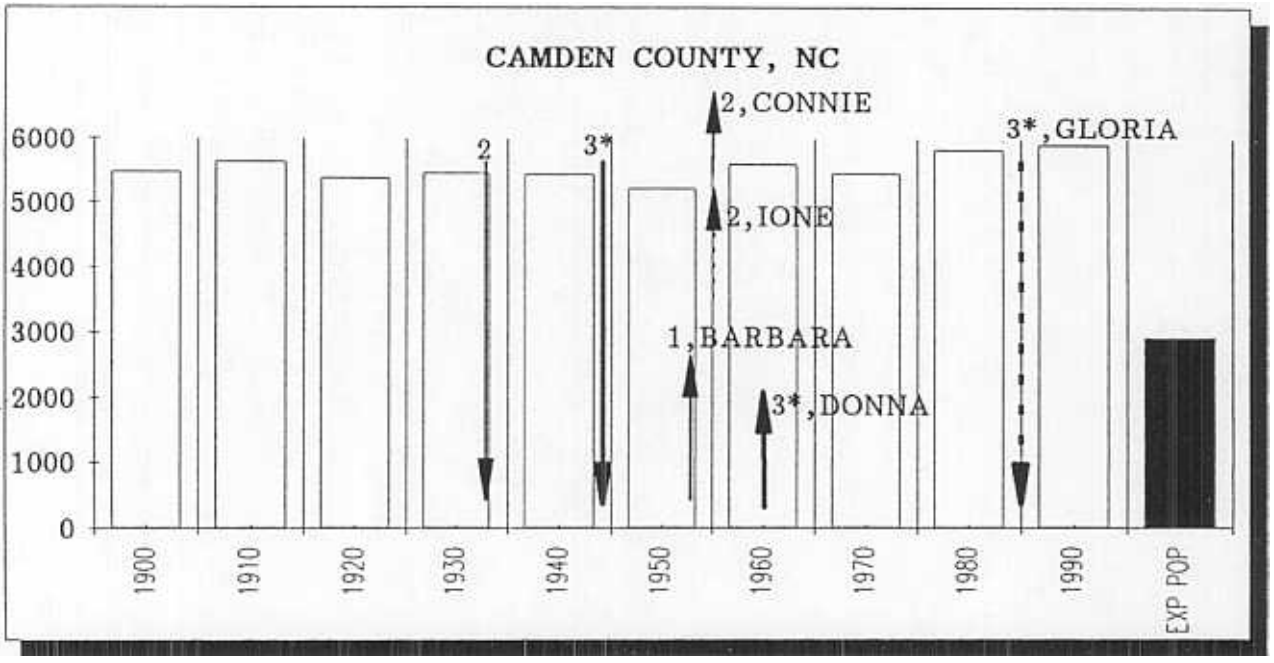

WASHINGTON COUNTY, NC
14000
12000
10000
8000
6000
4000
2000
0
2
2, CONNIE
3*, DONNA
2, IONE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

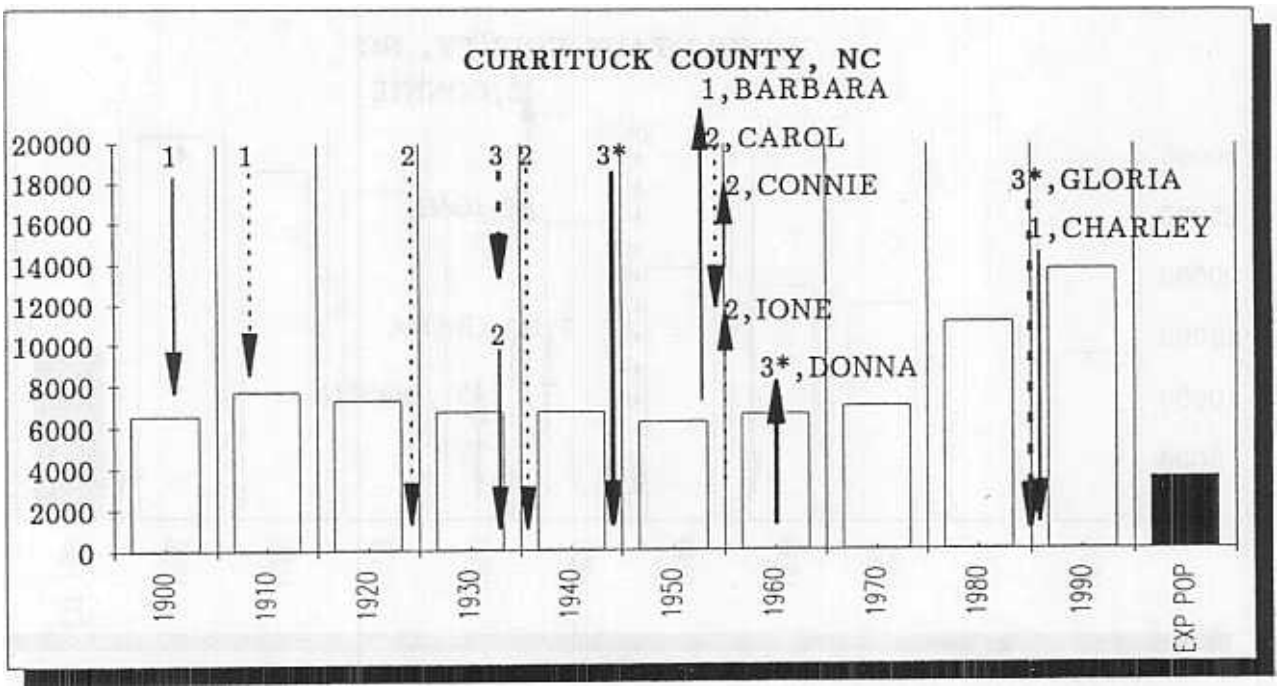

BERTIE COUNTY, NC
30000
25000
20000
15000
10000
5000
0
3*, DONNA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


CHOWAN COUNTY, NC
14000
12000
10000
8000
6000
4000
2000
0
2
2,CONNIE
3*,DONNA
2,IONE
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PERQUIMANS COUNTY, NC
14000
12000
10000
8000
6000
4000
2000
0
2
3*
2,CONNIE
2,IONE
1,BARBARA
3*,DONNA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PASQUOTANK COUNTY, NC
2,CONNIE
2
3*
2,IONE
1,BARBARA
3*,DONNA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


CAMDEN COUNTY, NC
2,CONNIE
3*,GLORIA
2
3*
2,IONE
1,BARBARA
3*,DONNA
6000
5000
4000
3000
2000
1000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

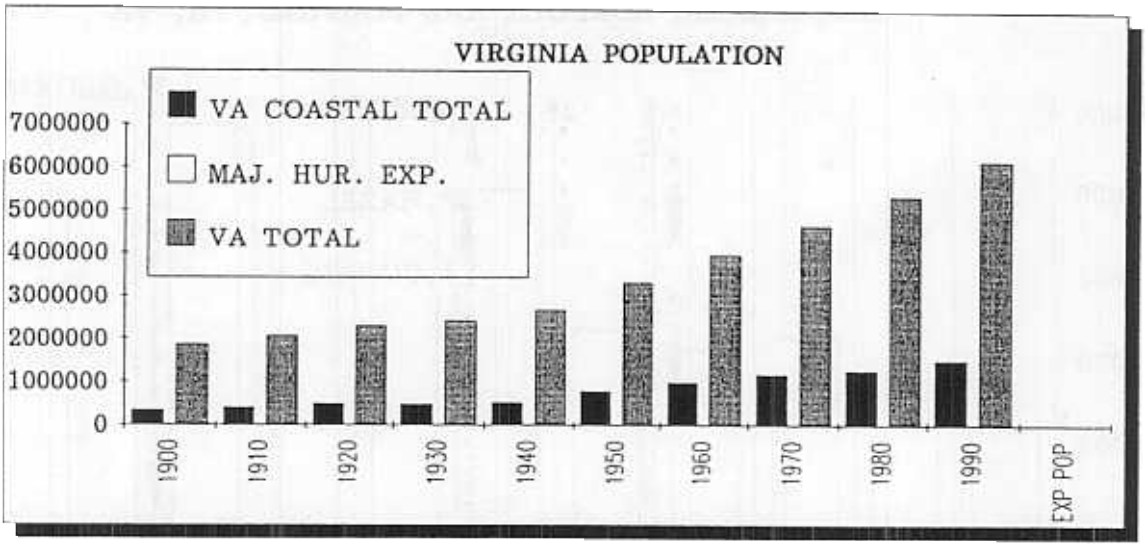

CURRITUCK COUNTY, NC
1,BARBARA
2,CAROL
2,CONNIE
2,IONE
3*,DONNA
3*,GLORIA
1,CHARLEY
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

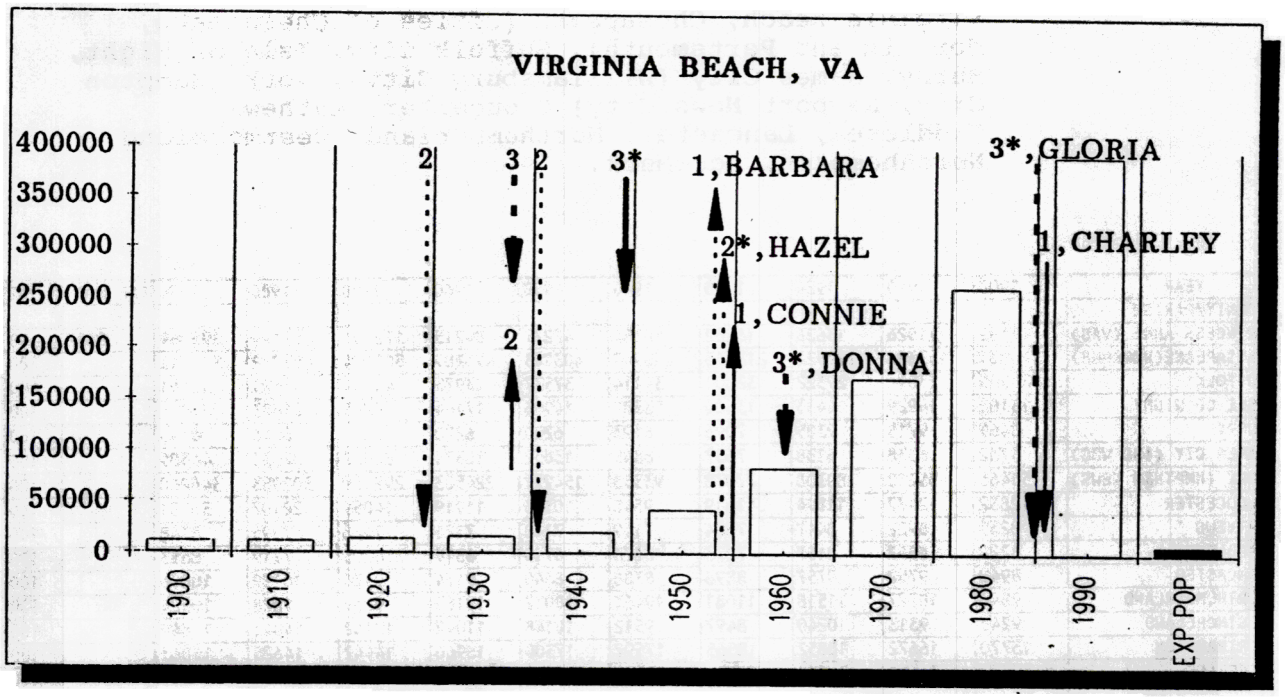
9. VIRGINIA 15)

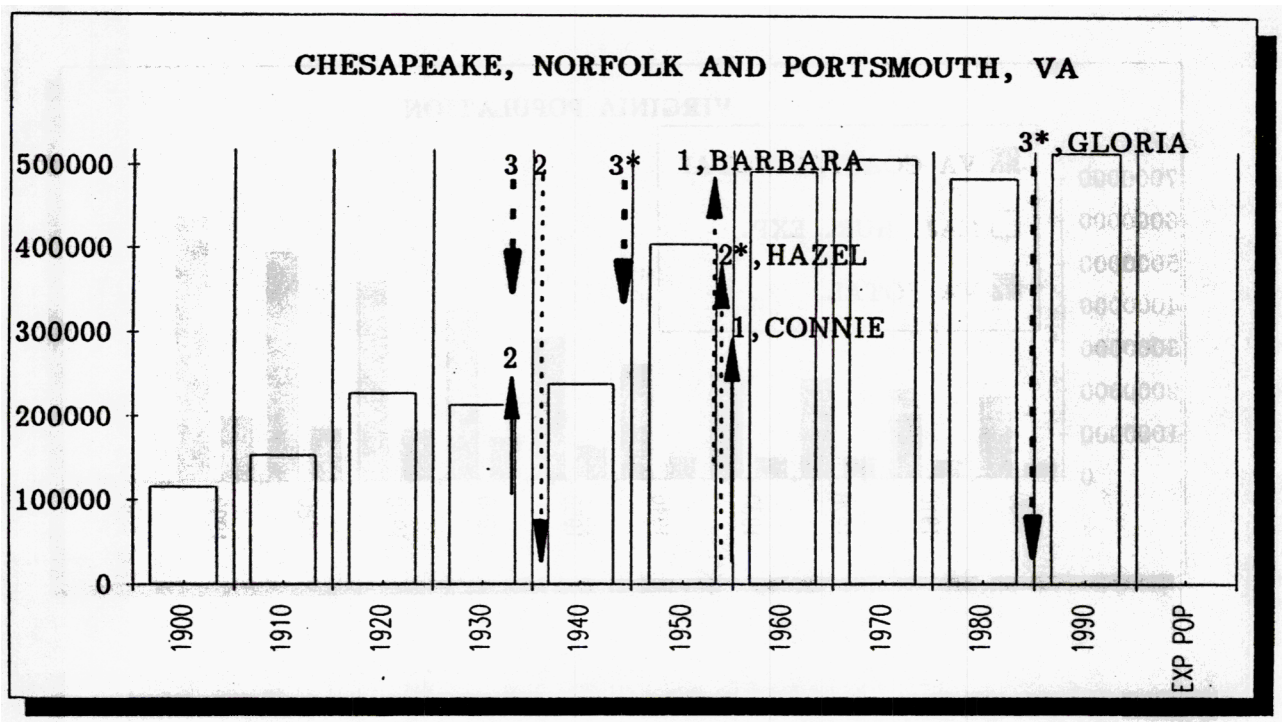
(NOTE: Several independent cities are listed instead of counties. See notes in Virginia table, Appendix C).

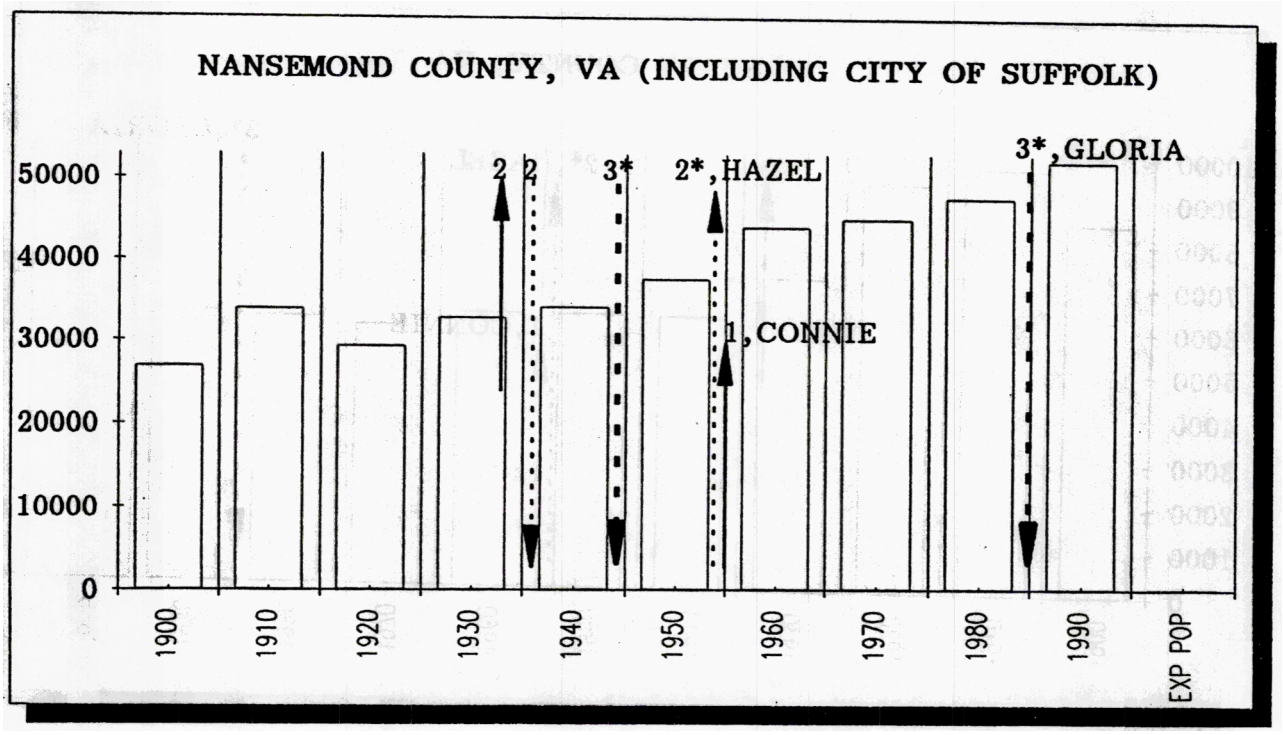
Virginia Beach, Chesapeake (Cities of Chesapeake, Norfolk and Portsmouth), Suffolk City, Isle of Wight Surry, James City (Williamsburg City), York (Hampton City, Newport News City) Gloucester, Mathews, Middlesex, Lancaster, Northumberland, Westmoreland, Northhampton, Accomack.

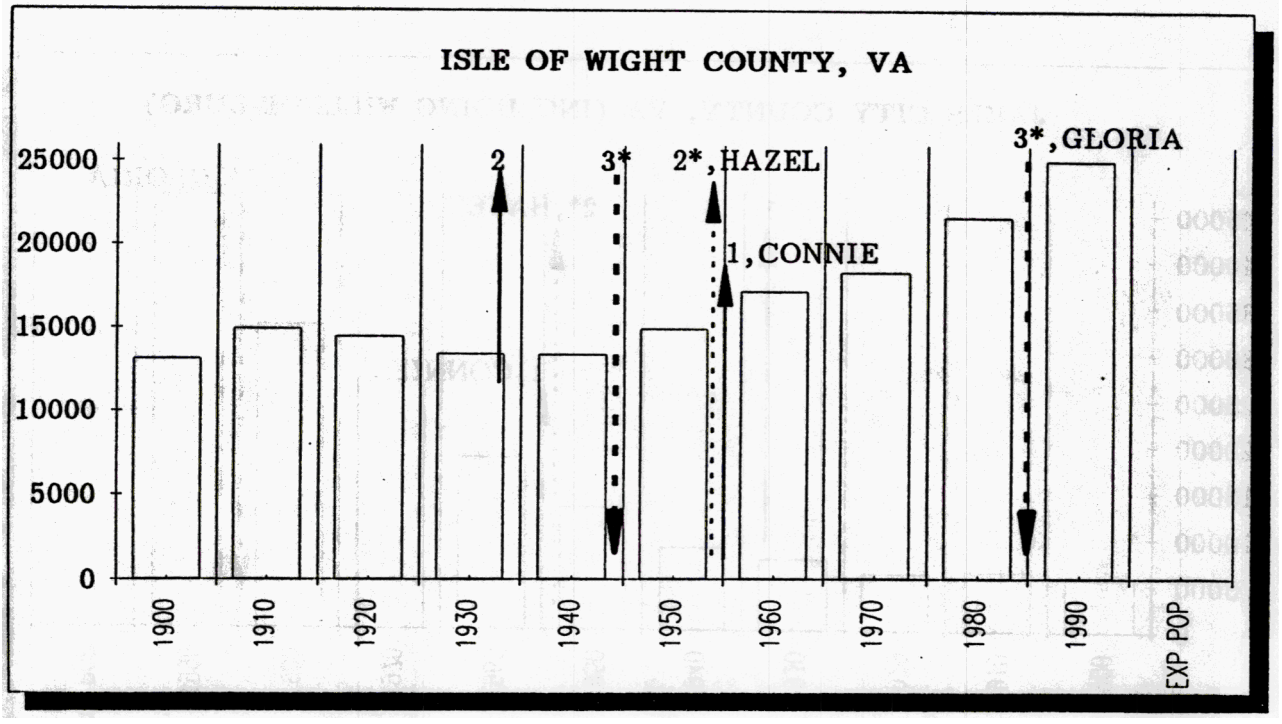
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
PRINCESS ANNE (VAB)	11192	11526	13626	16282	19984	42277	84215	172106	262199	393069	8887	98	1944
CHESAPEAKE(NOR&PMH)	114831	153386	227522	213353	238943	403923	493289	508494	485782	517112		100	
SUFFOLK	26905	33894	29322	32801	34114	37577	43975	45024	47621	52141		100	
ISLE OF WIGHT	13102	14929	14433	13409	13381	14906	17164	18285	21603	25053		100	
SURRY	8469	9715	9305	7096	6193	6220	6220	5882	6046	6145		100	
JAMES CTY (INC WBG)	5732	6338	6138	7657	8849	13052	18371	26922	32633	46389		100	
YORK (HMPTN&N NEWS)	51465	55228	80308	77078	93353	154977	224503	292159	302983	346260		100	
GLOUCESTER	12832	12477	11894	11019	9548	10343	11919	14059	20107	30131		100	
MATHEWS	8239	8922	8447	7884	7149	7148	7121	7168	7995	8348		100	
MIDDLESEX	8220	8852	8157	7273	6673	6715	6319	6295	7719	8653		100	
LANCASTER	8949	9752	9757	8896	8786	8640	9174	9126	10129	10896		100	
NORTHUMBERLAND	9846	10777	11518	11081	10463	10012	10185	9239	9828	10524		100	
WESTMORELAND	9243	9313	10240	8497	9512	10148	11042	12142	14041	15840		100	
NORTHAMPTON	13770	16672	18852	18565	17597	17300	16966	14442	14625	13061		100	
ACCOMACK	32570	36650	34795	35854	33030	33832	30635	29004	31286	31703		100	
VA COASTAL TOTAL	335365	398431	494314	476745	517575	777070	991098	1170347	1274597	1515325	8887	99	
VA TOTAL	1854184	2061612	2309187	2421851	2677773	3318680	3966949	4651448	5346279	6187358			

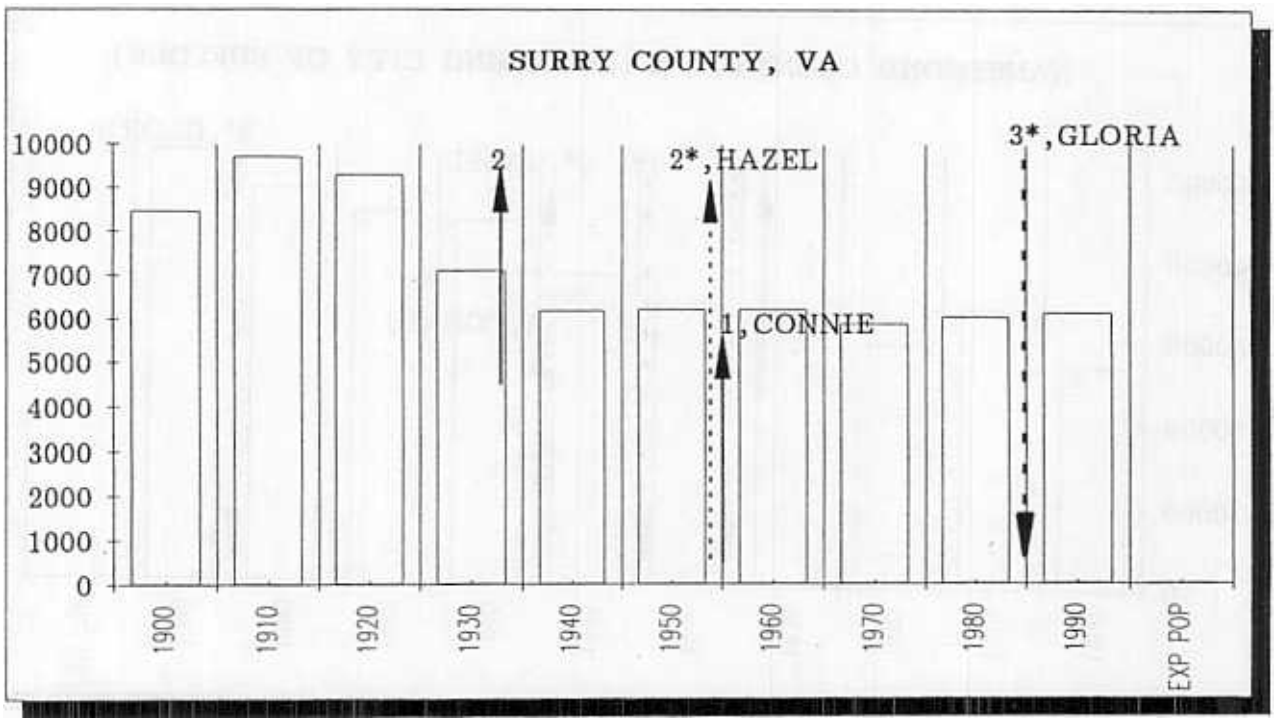


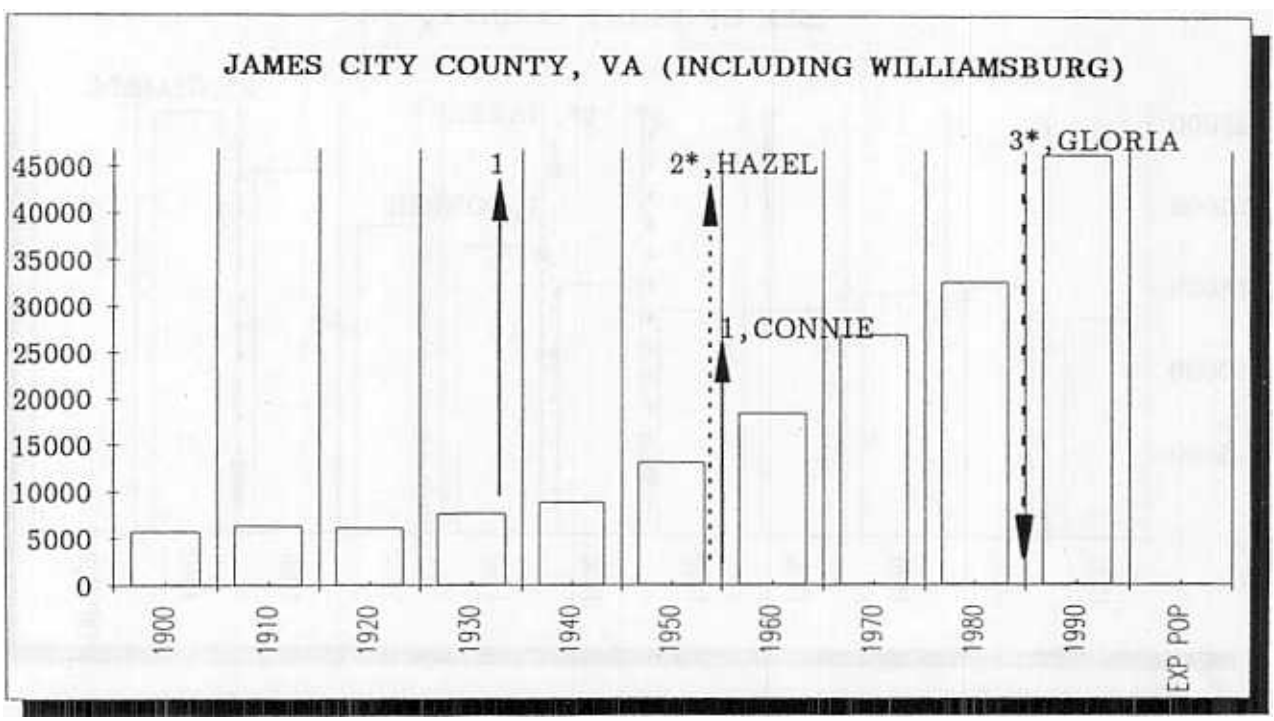

VIRGINIA BEACH, VA
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
2
3
2
3*
2
1, BARBARA
2*, HAZEL
1, CONNIE
3*, DONNA
3*, GLORIA
1, CHARLEY

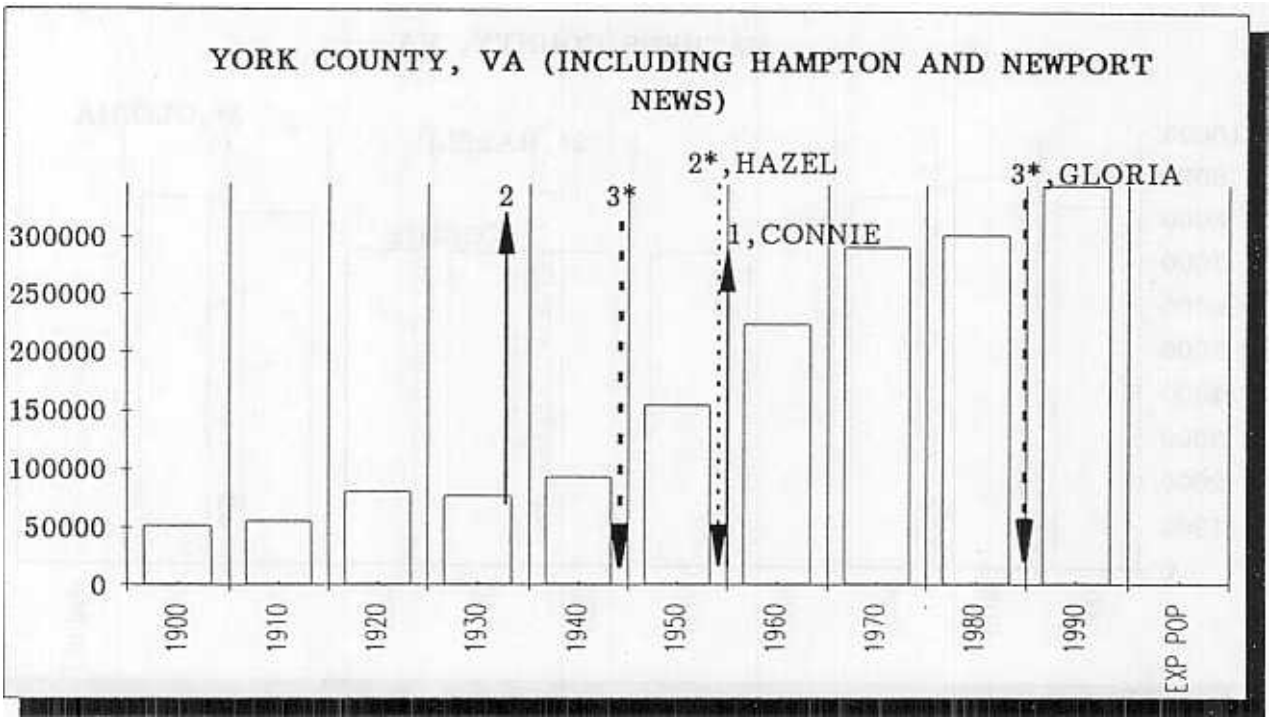

CHESAPEAKE, NORFOLK AND PORTSMOUTH, VA
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP
3
2
3*
2
1, BARBARA
2*, HAZEL
1, CONNIE
3*, GLORIA

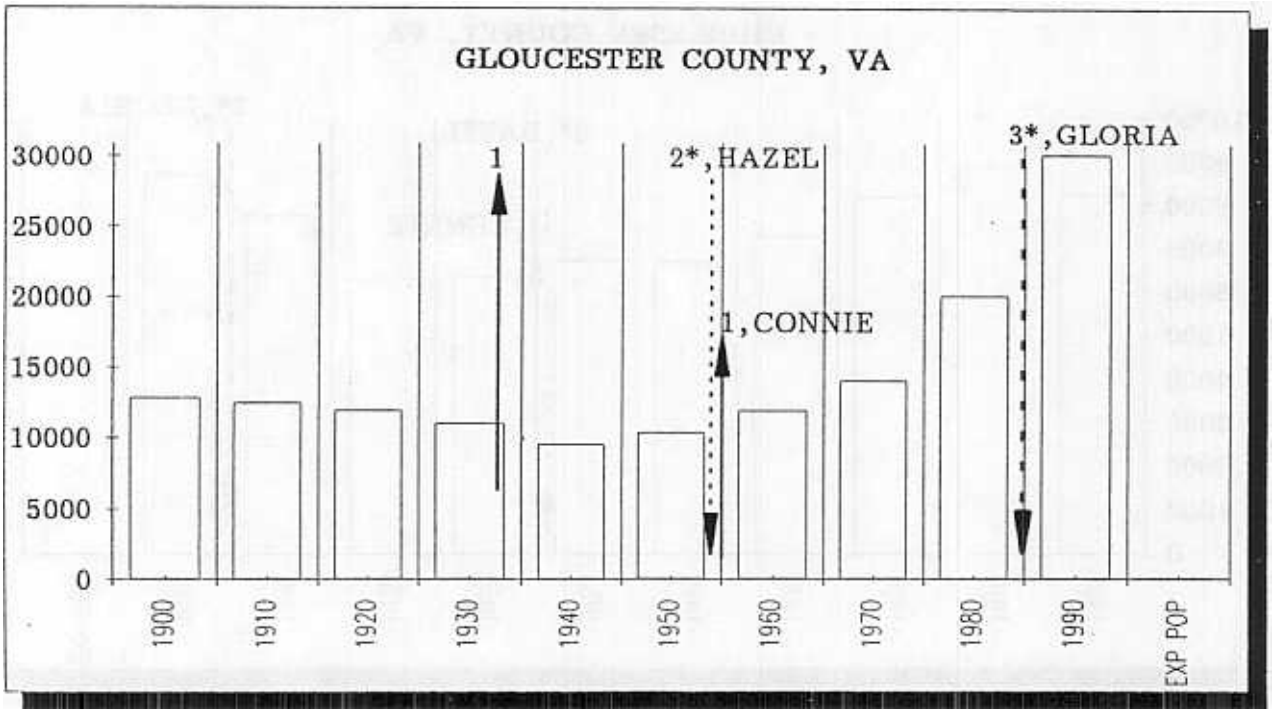

NANSEMOND COUNTY, VA (INCLUDING CITY OF SUFFOLK)
50000
40000
30000
20000
10000
0
2
2
3*
2*,HAZEL
1,CONNIE
3*,GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

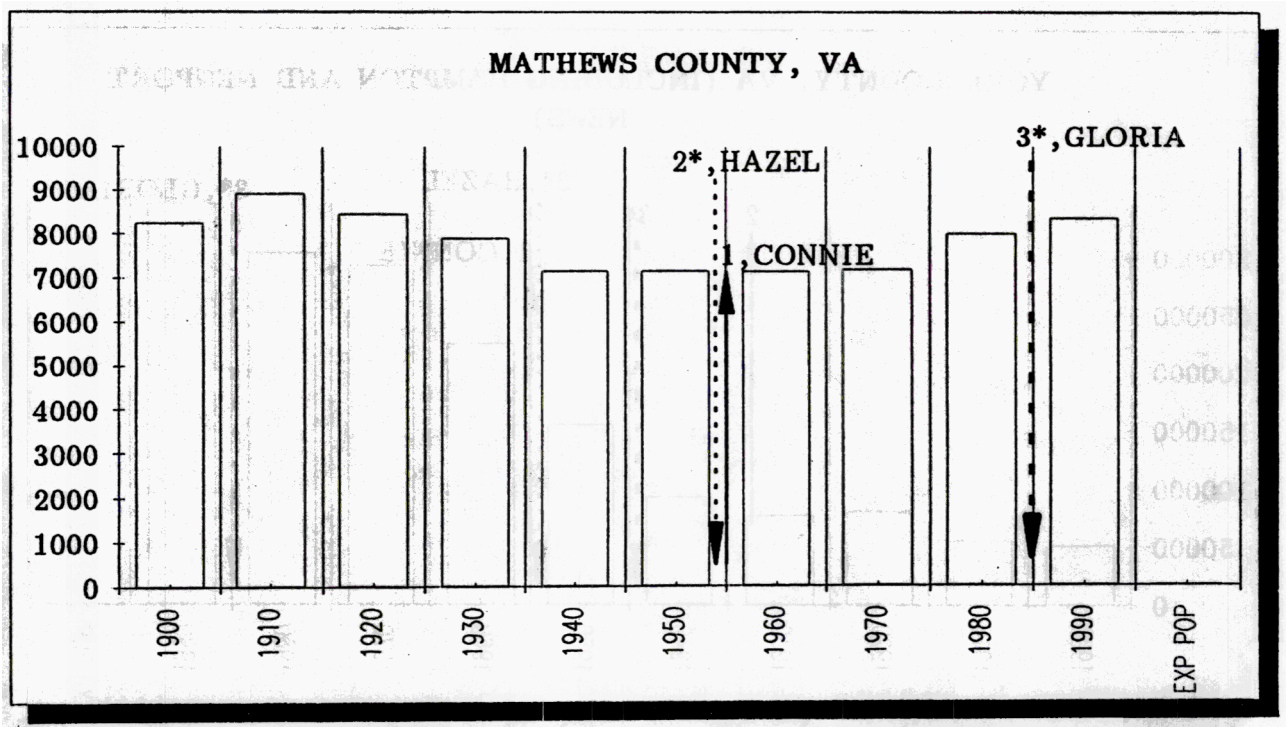

ISLE OF WIGHT COUNTY, VA
25000
20000
15000
10000
5000
0
2
3*
2*,HAZEL
1,CONNIE
3*,GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

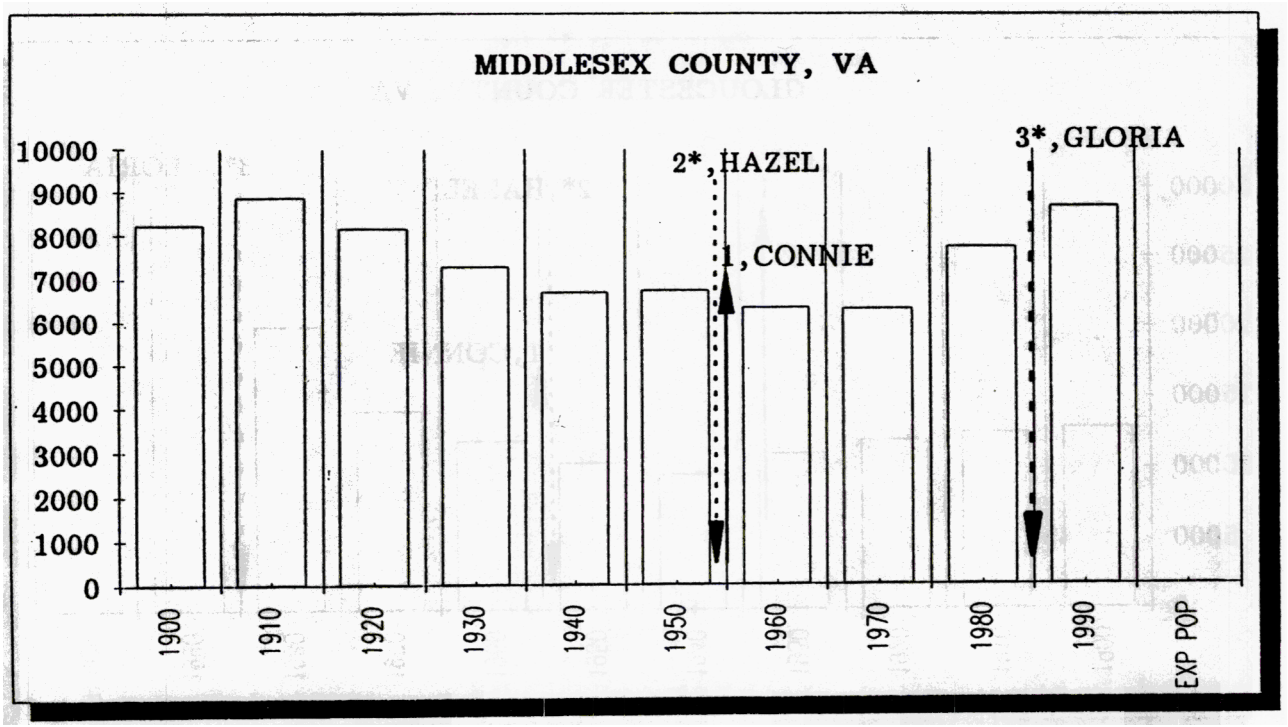

SURRY COUNTY, VA
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2
2*, HAZEL
1, CONNIE
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

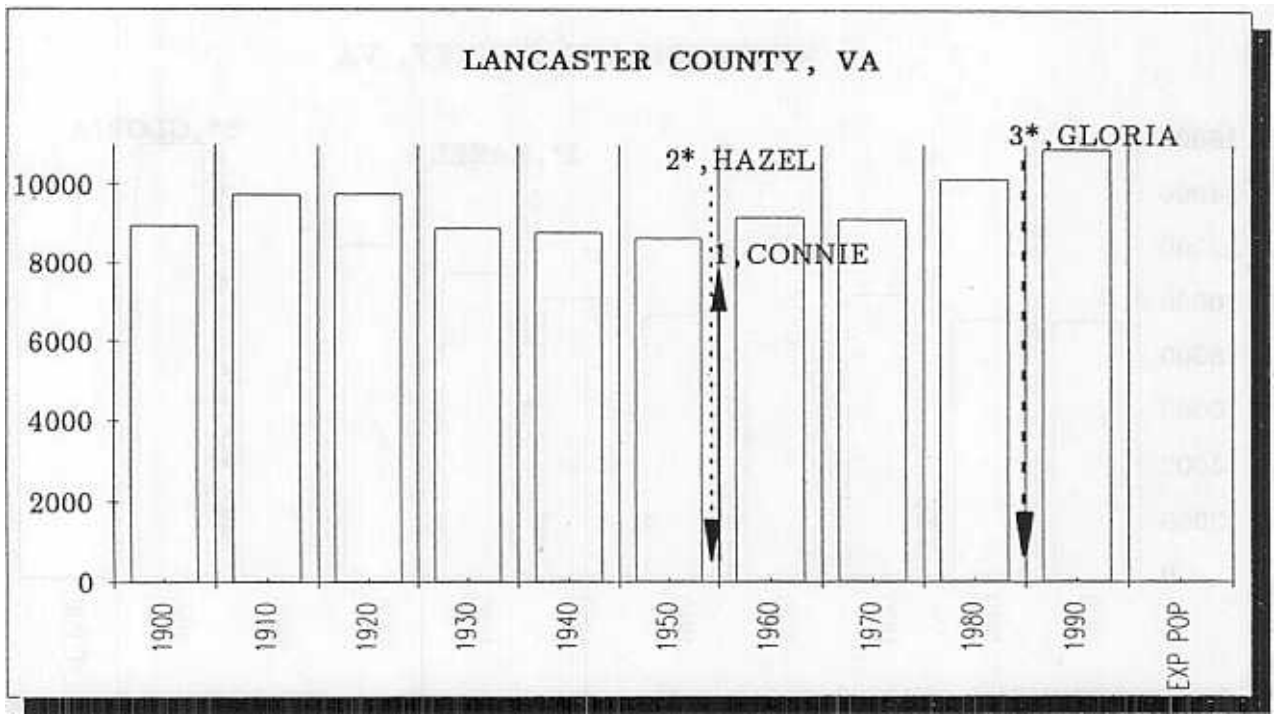

JAMES CITY COUNTY, VA (INCLUDING WILLIAMSBURG)
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1
2*, HAZEL
1, CONNIE
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

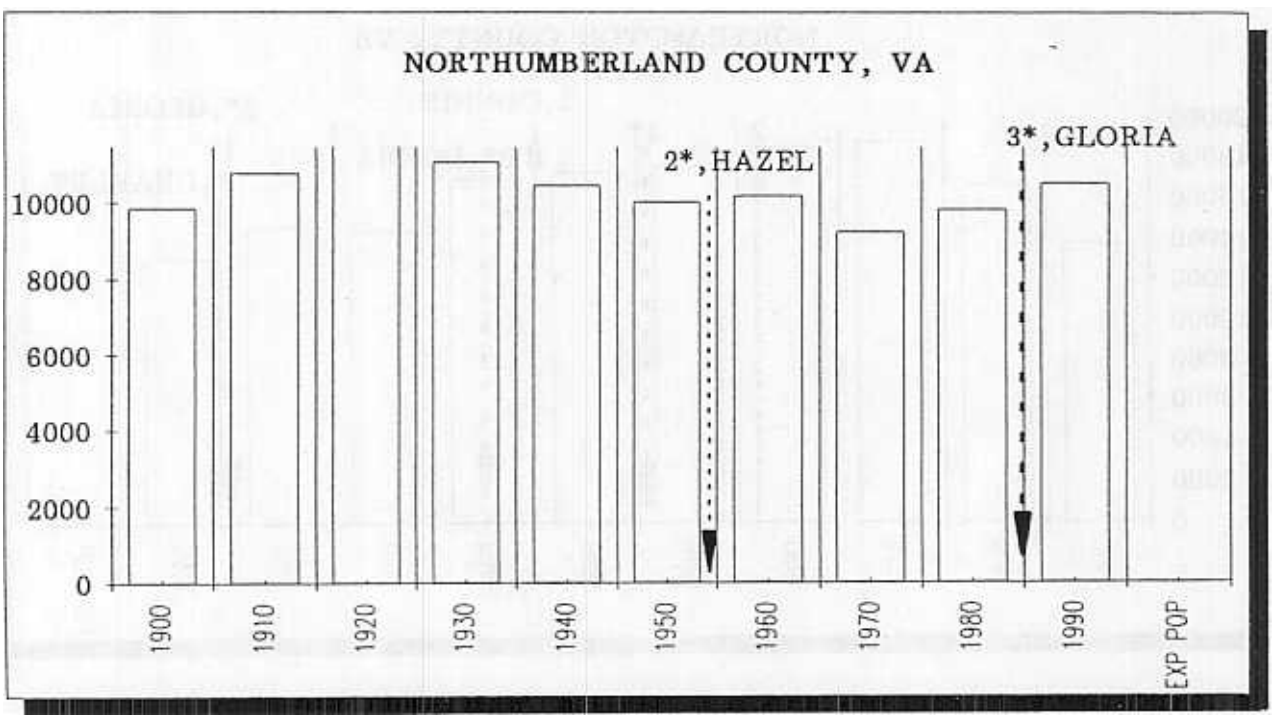

YORK COUNTY, VA (INCLUDING HAMPTON AND NEWPORT NEWS)
2
3*
2*, HAZEL
1, CONNIE
3*, GLORIA
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

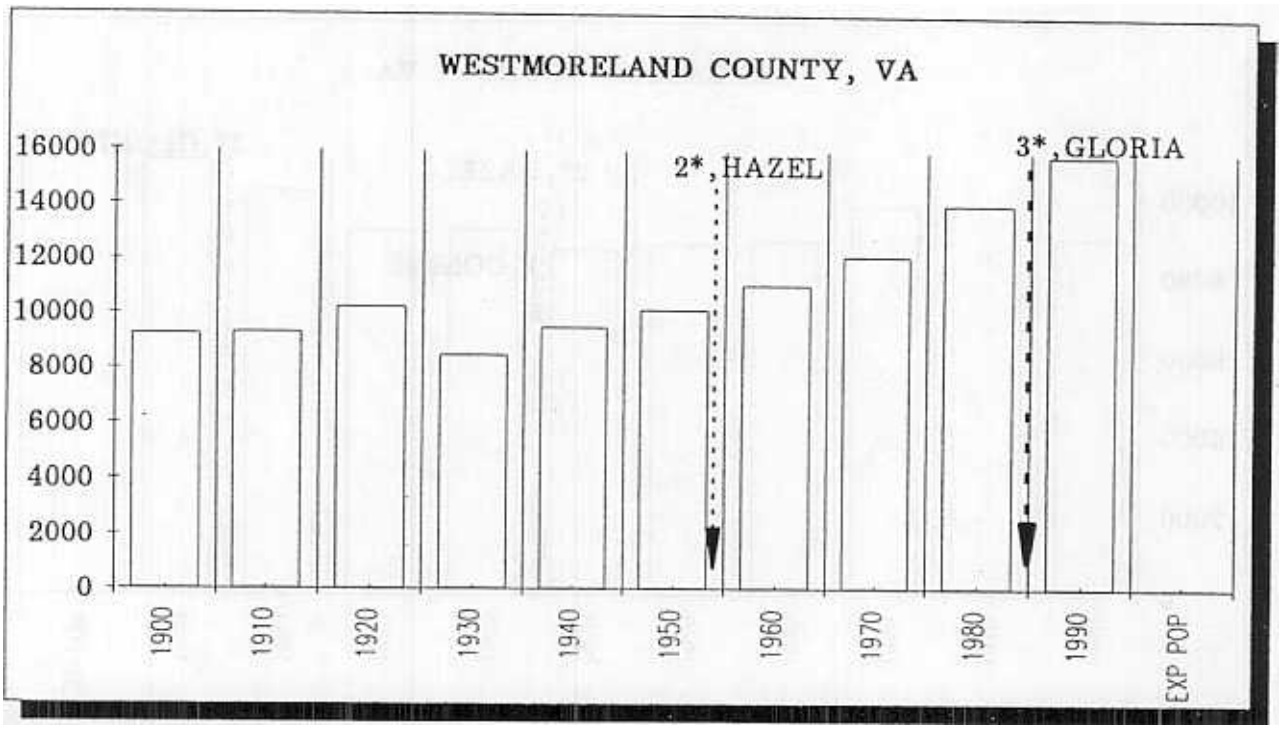

GLOUCESTER COUNTY, VA
1
2*, HAZEL
3*, GLORIA
1, CONNIE
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

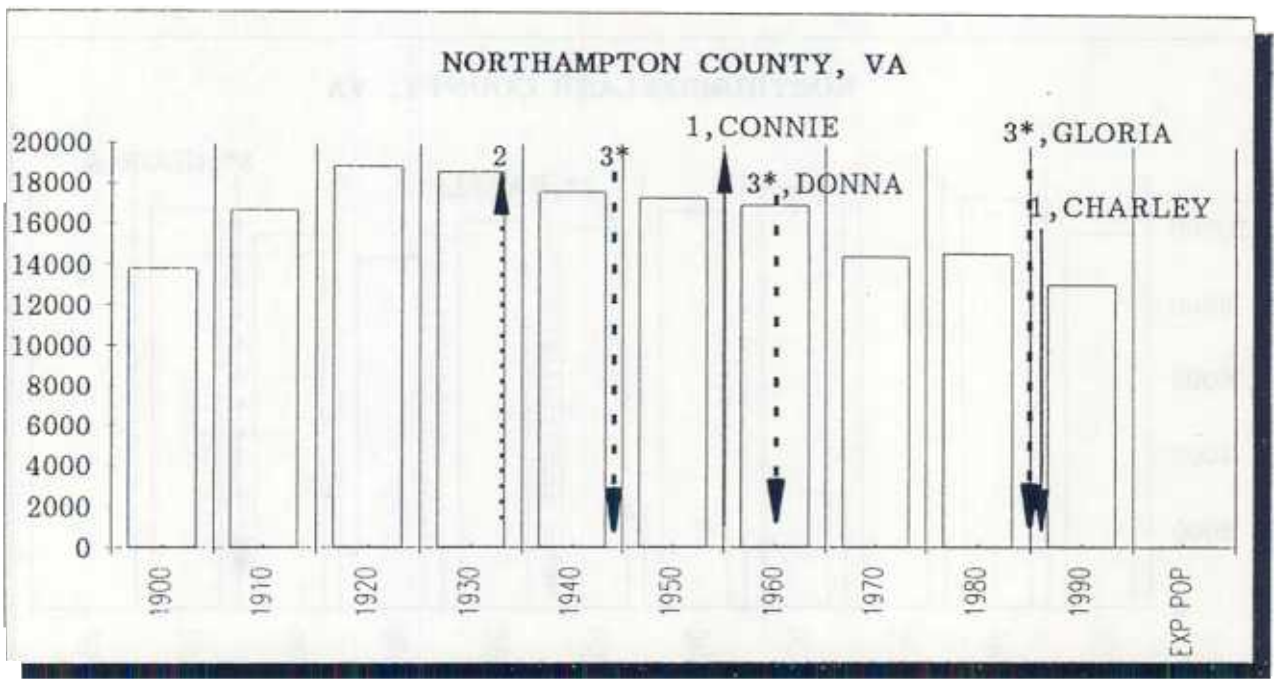

MATHEWS COUNTY, VA
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2*, HAZEL
1, CONNIE
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

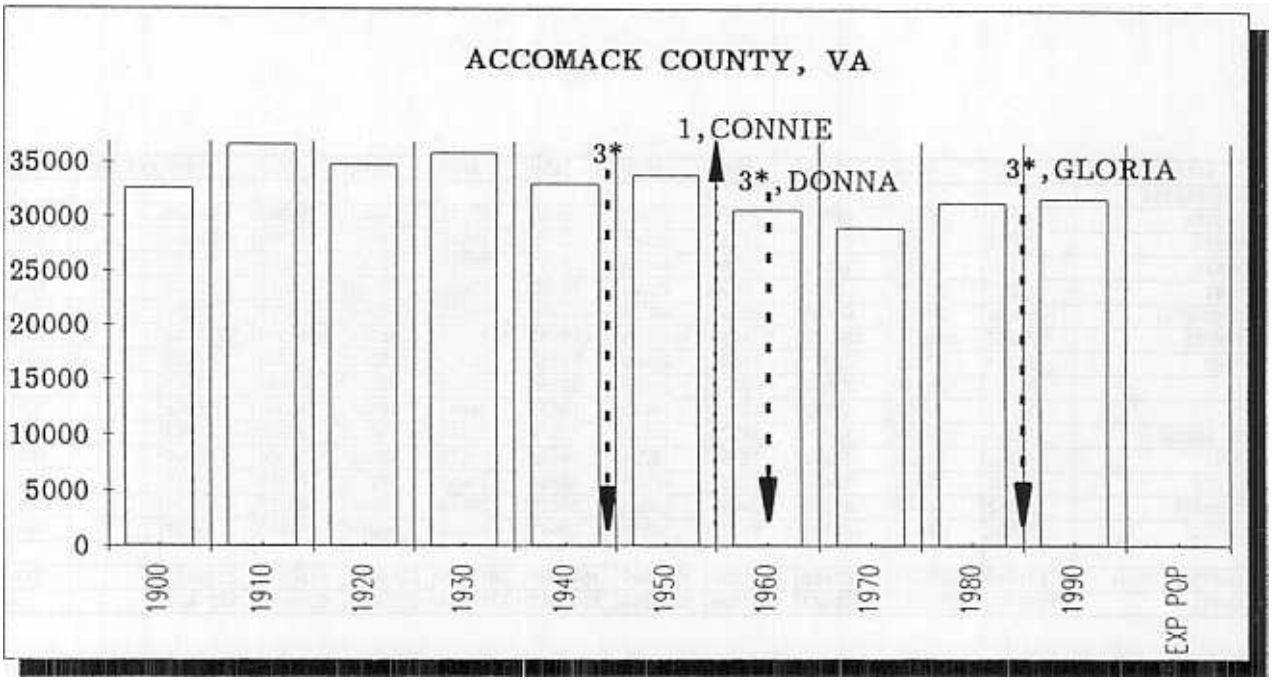

MIDDLESEX COUNTY, VA
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2*, HAZEL
1, CONNIE
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


LANCASTER COUNTY, VA
3*, GLORIA
2*, HAZEL
1, CONNIE
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


NORTHUMBERLAND COUNTY, VA
3*, GLORIA
2*, HAZEL
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


WESTMORELAND COUNTY, VA
16000
14000
12000
10000
8000
6000
4000
2000
0
2*, HAZEL
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

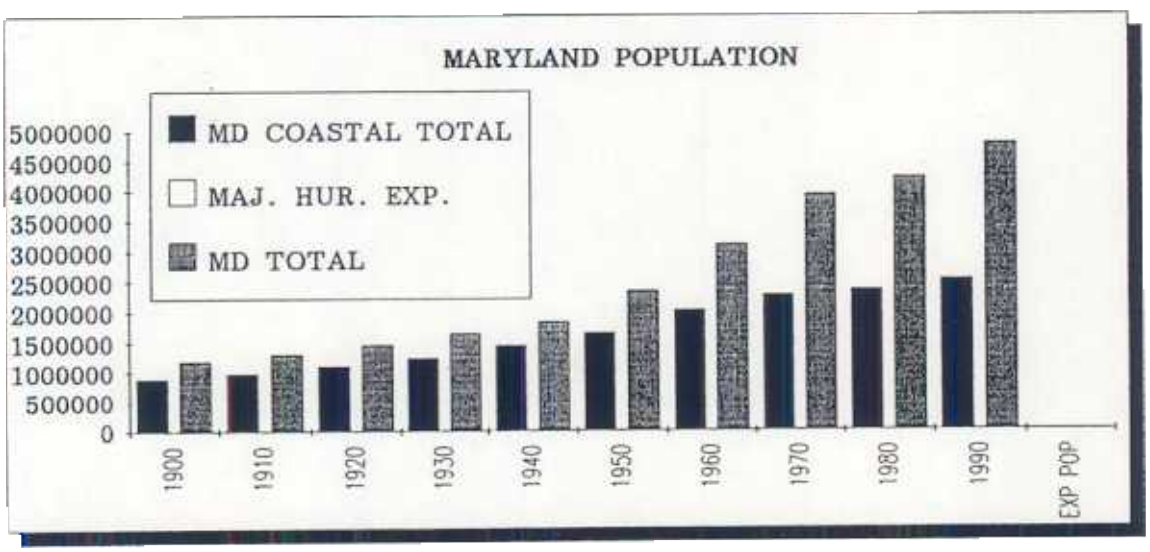

NORTHAMPTON COUNTY, VA
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
2
3*
1, CONNIE
3*, DONNA
3*, GLORIA
1, CHARLEY
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

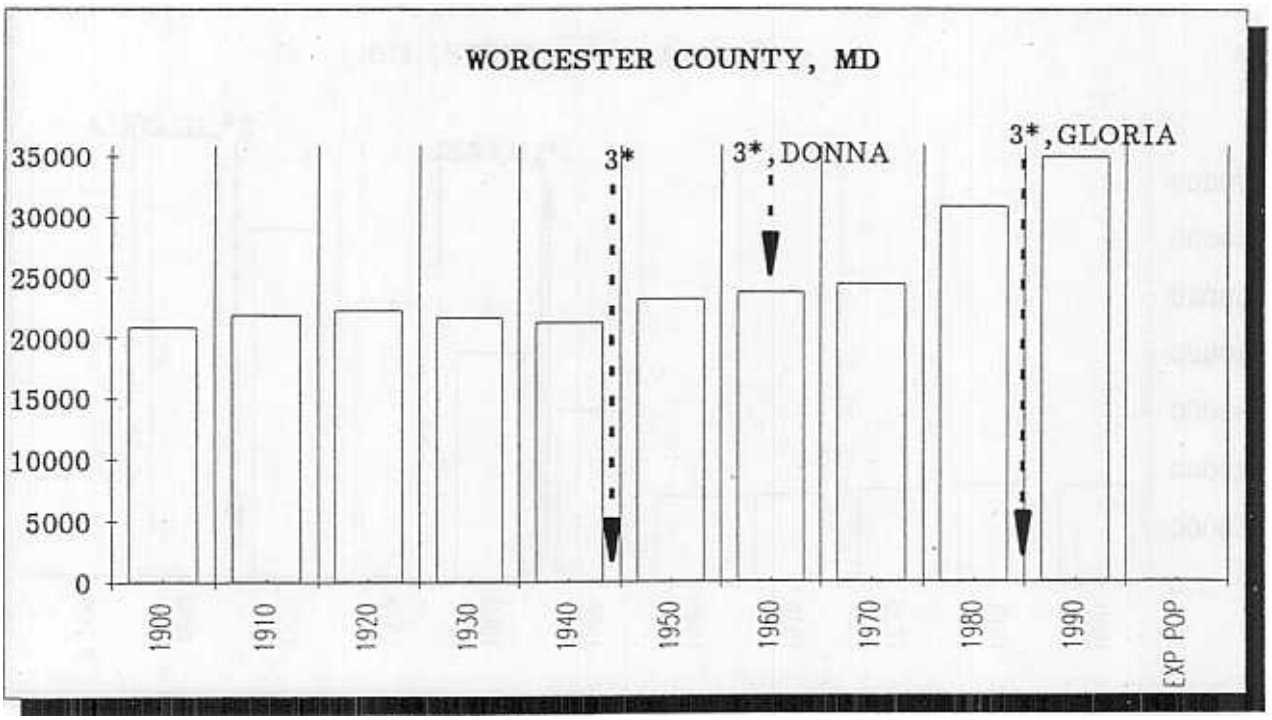

ACCOMACK COUNTY, VA
1, CONNIE
3*
3*, DONNA
3*, GLORIA
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

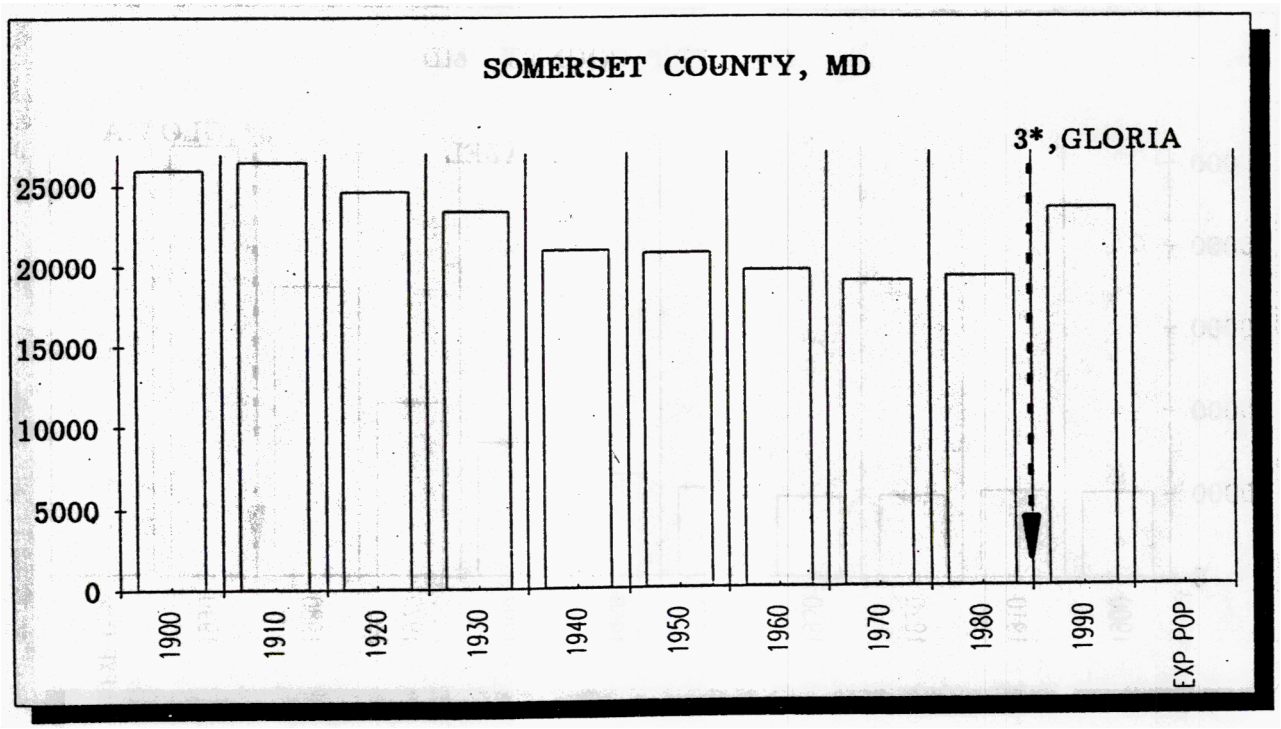
10 MARYLAND 14)

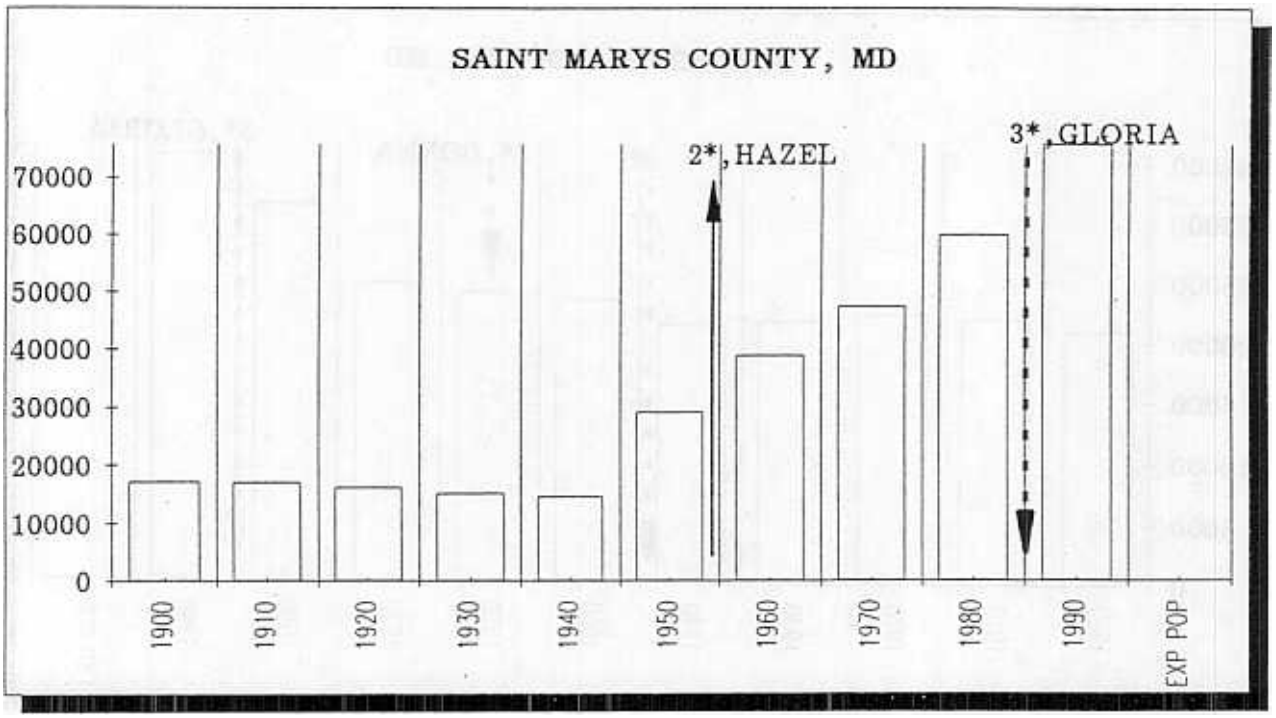
Worcester (Ocean City), Somerset, St. Marys, Calvert, Anne Arundel (Annapolis), Baltimore (includes Baltimore City), Harford, Cecil, Kent, Queen Annes, Talbot, Caroline, Dorchester, Wicomico.

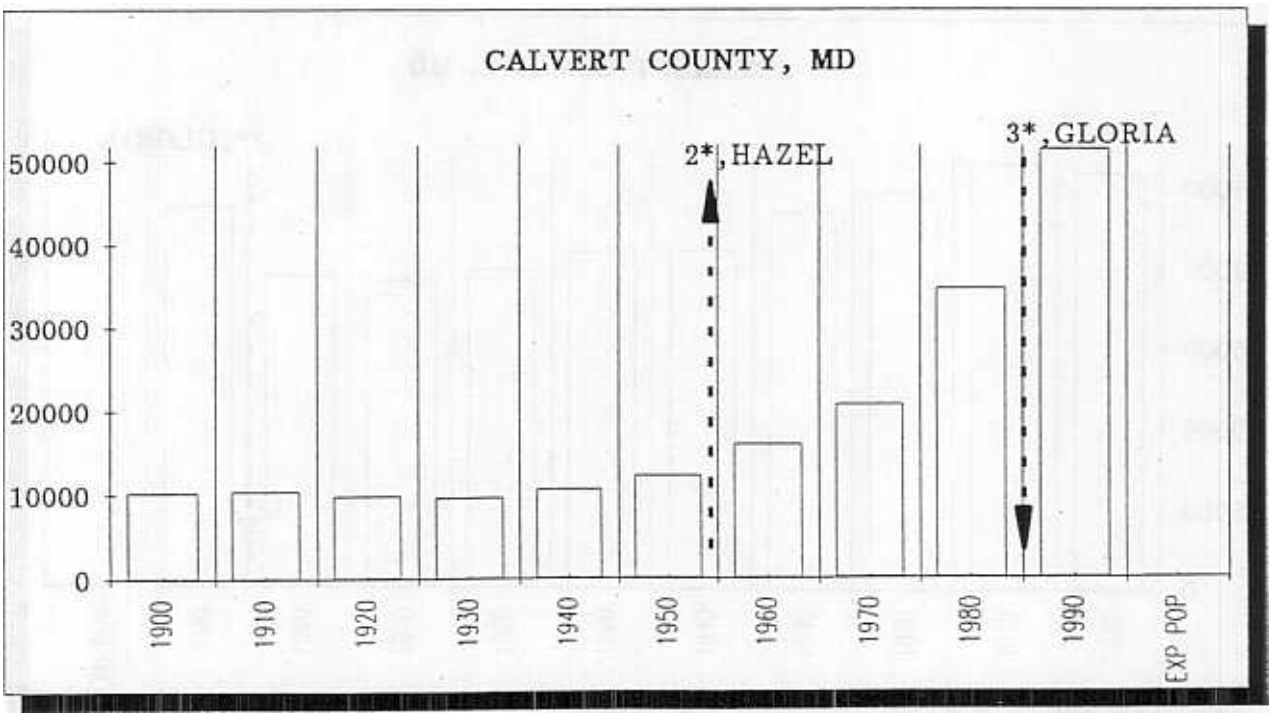
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
WORCESTER	20865	21841	22309	21624	21245	23148	23733	24442	30889	35028		100	
SOMERSET	25923	26455	24602	23382	20965	20745	19623	18924	19188	23440		100	
ST MARYS	17182	17030	16112	15189	14626	29111	38915	47388	59895	75974		100	
CALVERT	10223	10325	9744	9528	10484	12100	15826	20682	34638	51372		100	
ANNE ARUNDEL	39620	39553	43408	55167	68375	117392	206634	298042	370775	427239		100	
BALTIMORE	599712	680834	808643	929439	1114925	1219981	1431452	1526196	1442390	1438148			
HARFORD	28269	27965	29291	31603	35060	51782	76722	115378	145930	182132			
	24662	23759	23612	25827	26407	33356	48408	53291	60430	71347			
KENT	18786	16957	15026	14242	13465	13677	15481	16146	16695	17842			
QUEEN ANNES	18364	16839	16001	14571	14476	14579	16569	18422	25508	33953			
TALBOT	20342	19620	18306	18583	18784	19428	21578	23682	25604	30549			
CAROLINE	16248	19216	18652	17387	17549	18234	19462	19781	23143	27035			
DORCHESTER	27962	28669	27895	26813	28006	27815	29666	29405	30623	30236		100	
	22852	26815	28165	31229	34530	39641	49050	54236	64540	74339		100	
MD COASTAL TOTAL	891010	975878	1101766	1234584	1438897	1640989	2013119	2266015	2350248	2518634	0	100	
	1188044	1295346	1449661	1631526	1821244	2343001	3100689	3923897	4216440	4781468			

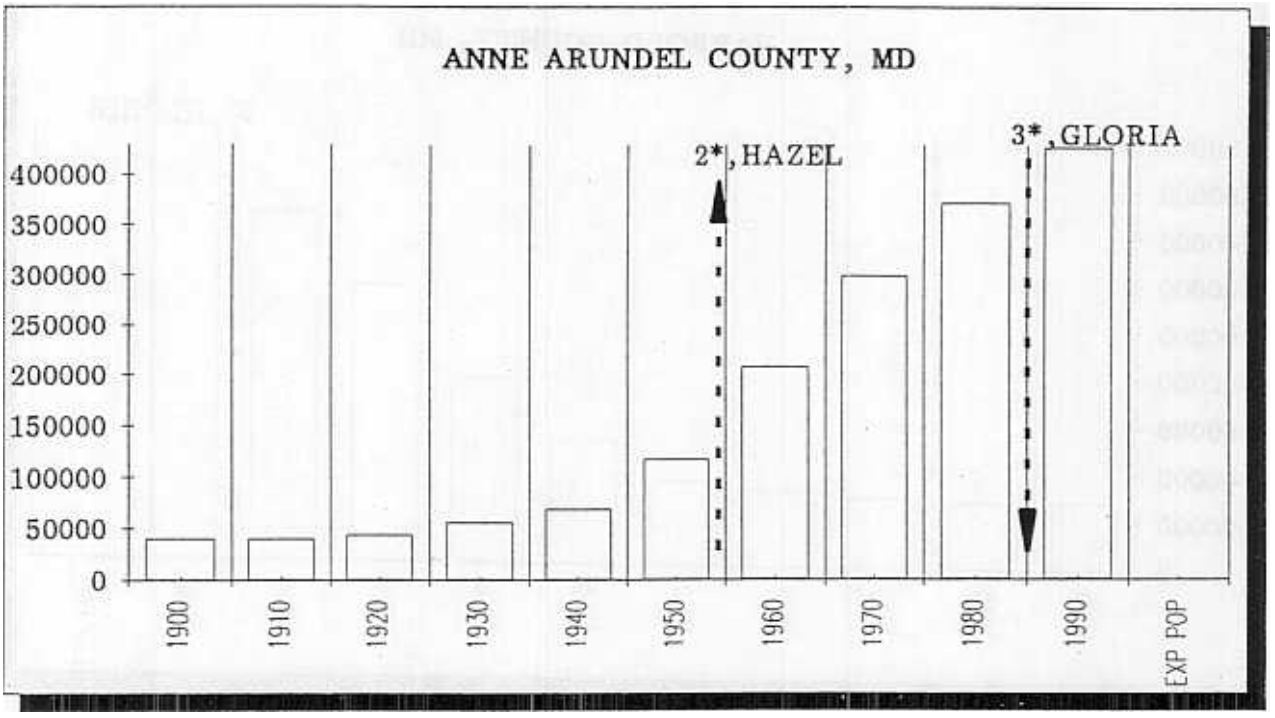


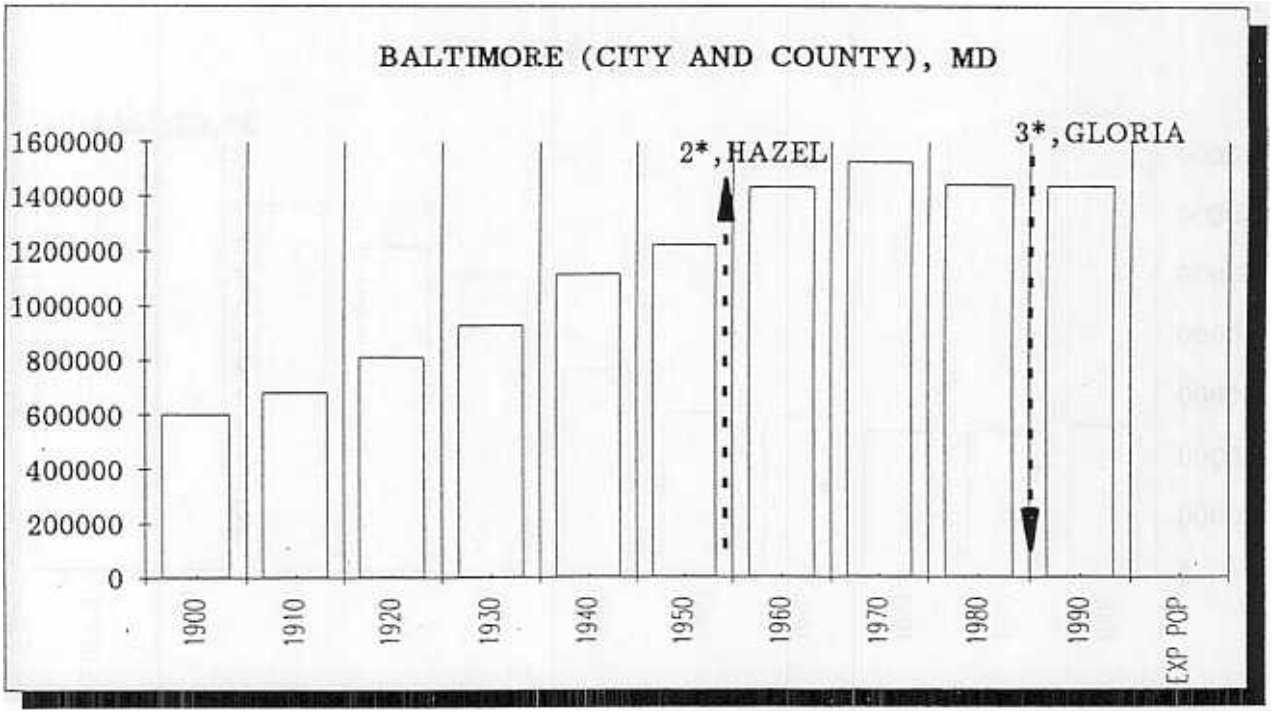

WORCESTER COUNTY, MD
3*
3*, DONNA
3*, GLORIA
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

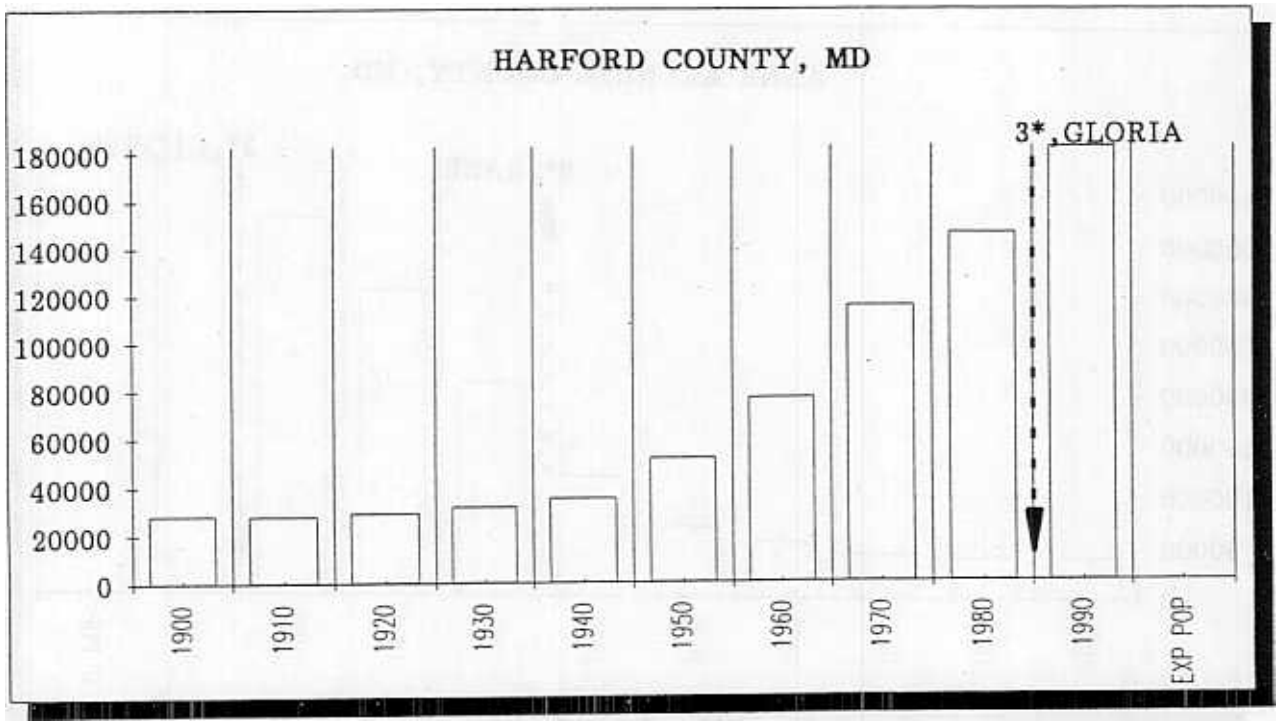

SOMERSET COUNTY, MD
3*, GLORIA
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

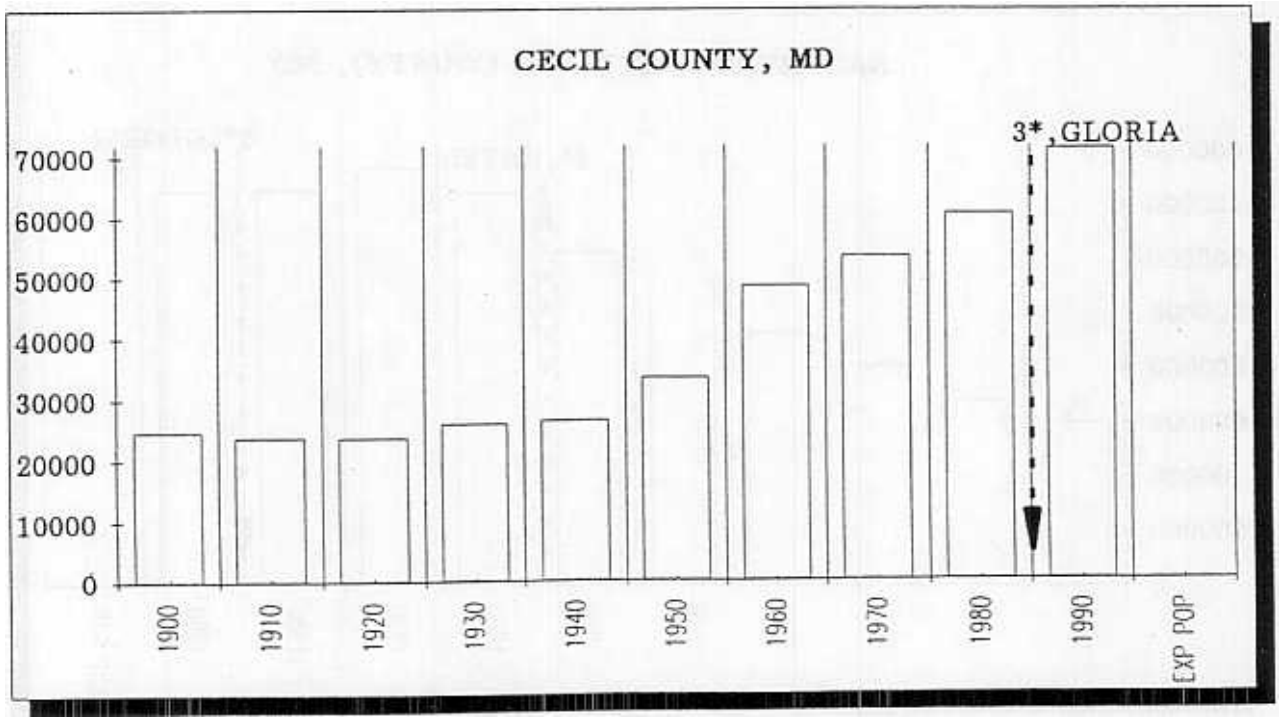

SAINT MARYS COUNTY, MD
2*, HAZEL
3*, GLORIA
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

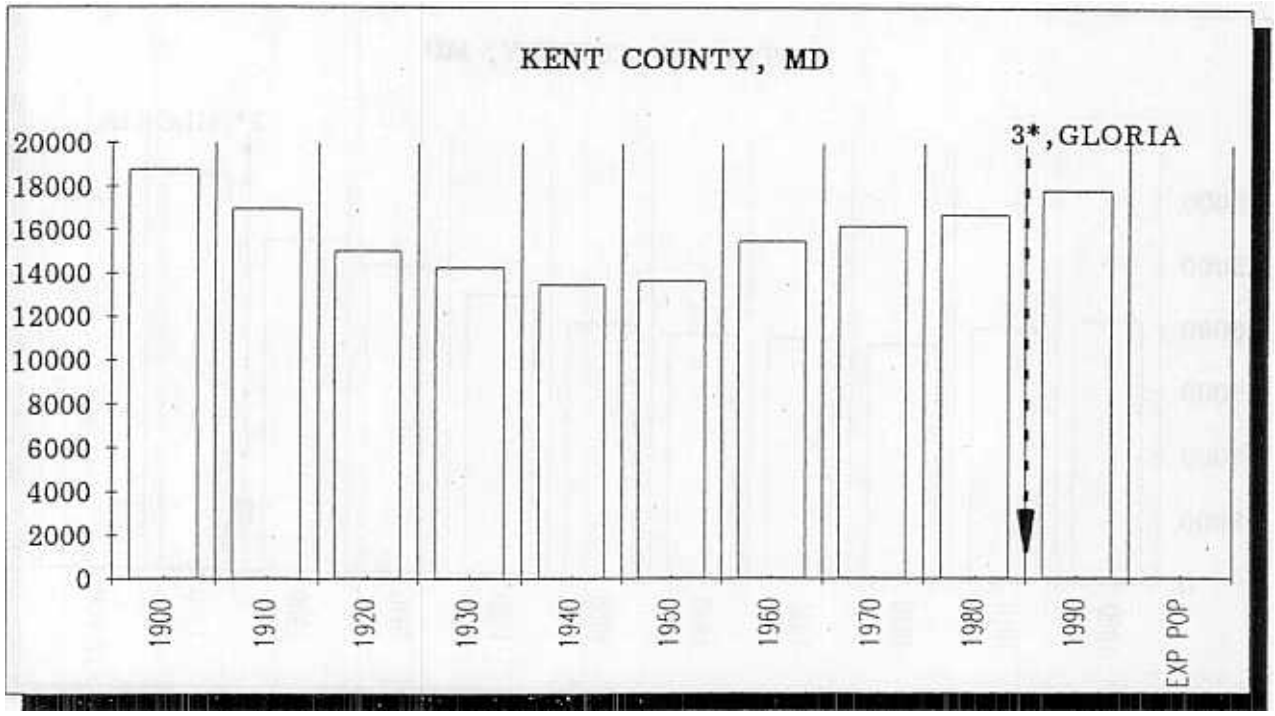

CALVERT COUNTY, MD
2*, HAZEL
3*, GLORIA
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

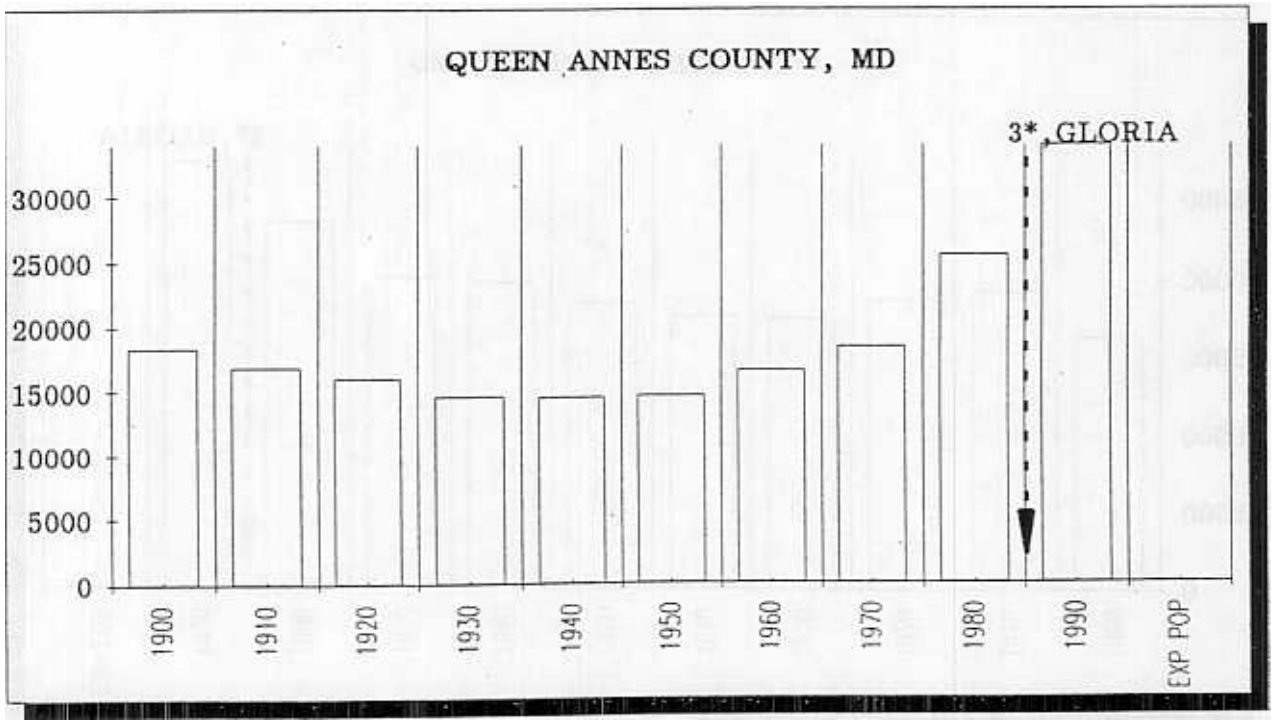

ANNE ARUNDEL COUNTY, MD
2*, HAZEL
3*, GLORIA
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

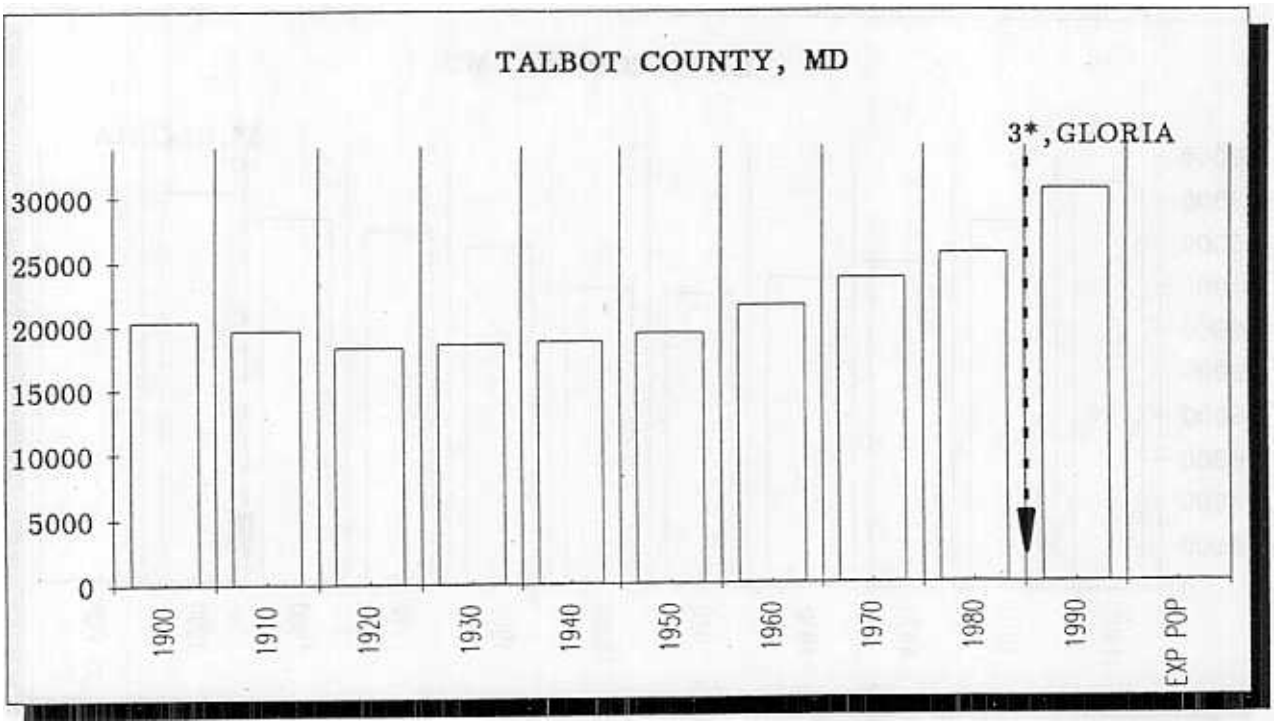

BALTIMORE (CITY AND COUNTY), MD
2*, HAZEL
3*, GLORIA
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

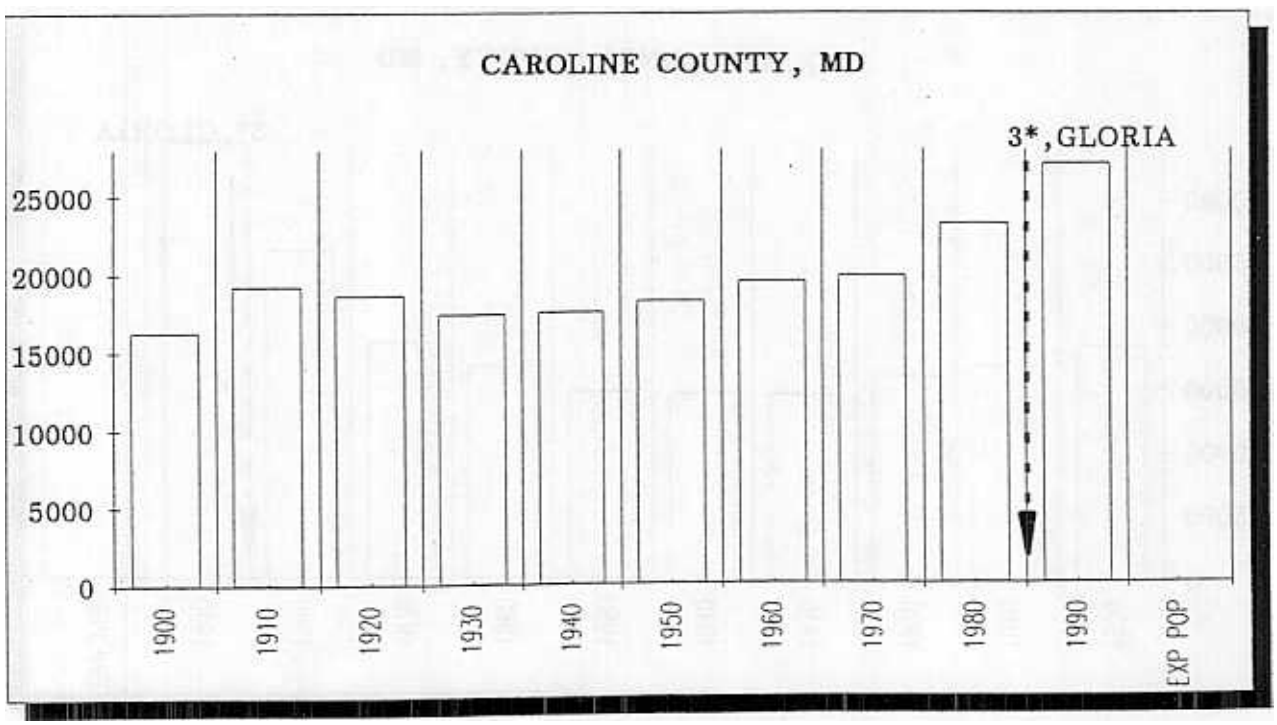

HARFORD COUNTY, MD
3*, GLORIA
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

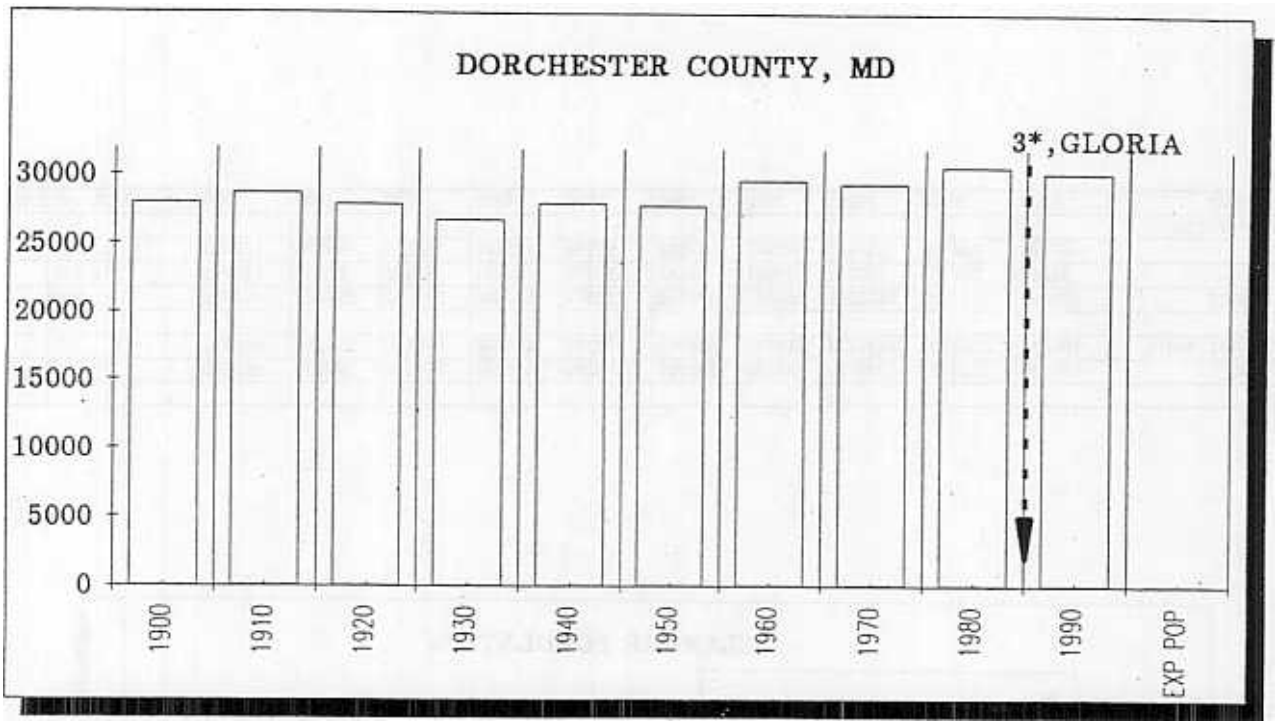

CECIL COUNTY, MD
3*, GLORIA
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

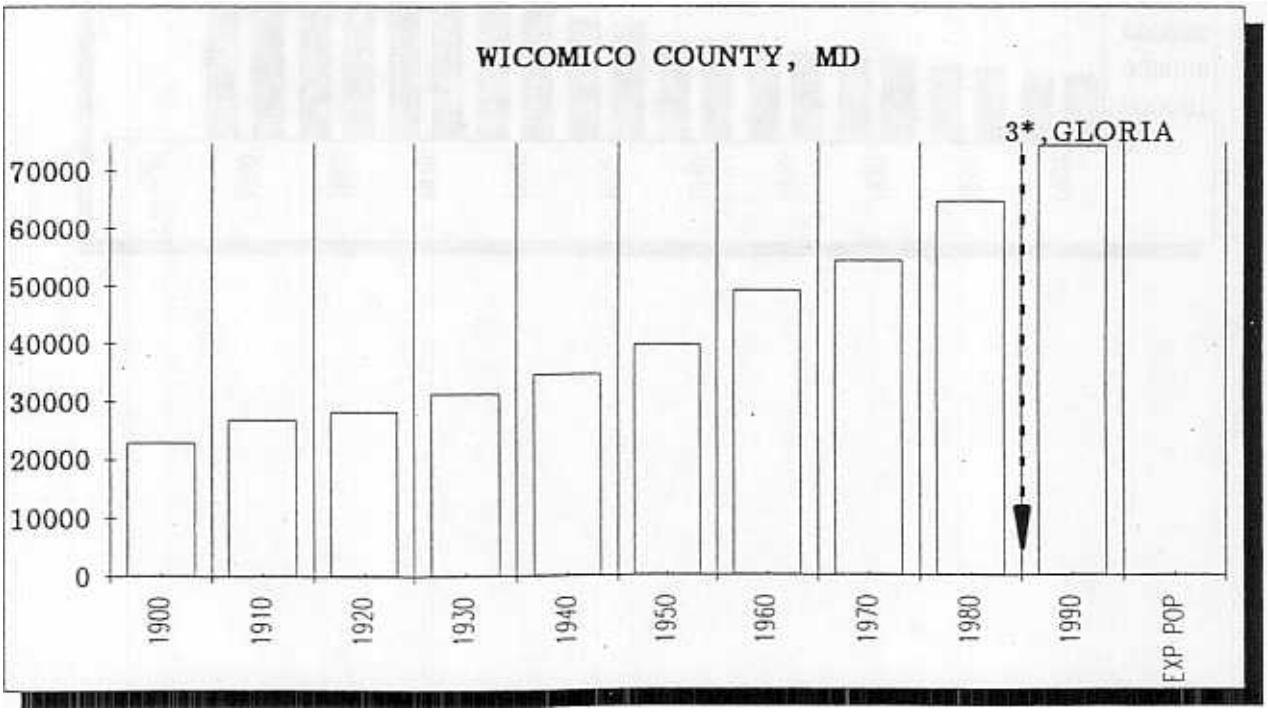

KENT COUNTY, MD
3*, GLORIA
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


QUEEN ANNES COUNTY, MD
3*, GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


TALBOT COUNTY, MD
3*, GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


CAROLINE COUNTY, MD
3*, GLORIA
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

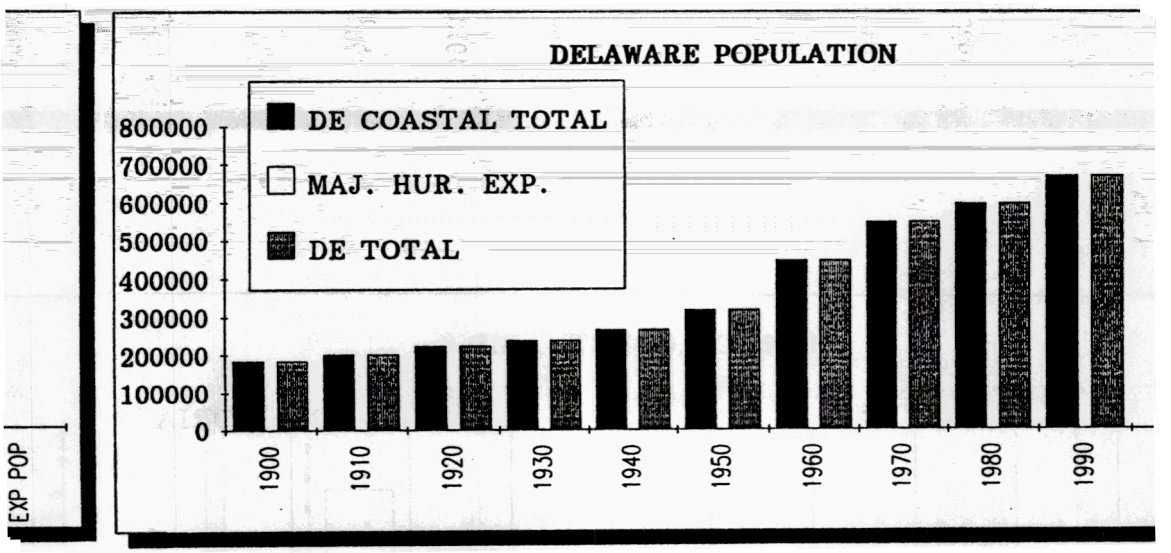

DORCHESTER COUNTY, MD
3*, GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

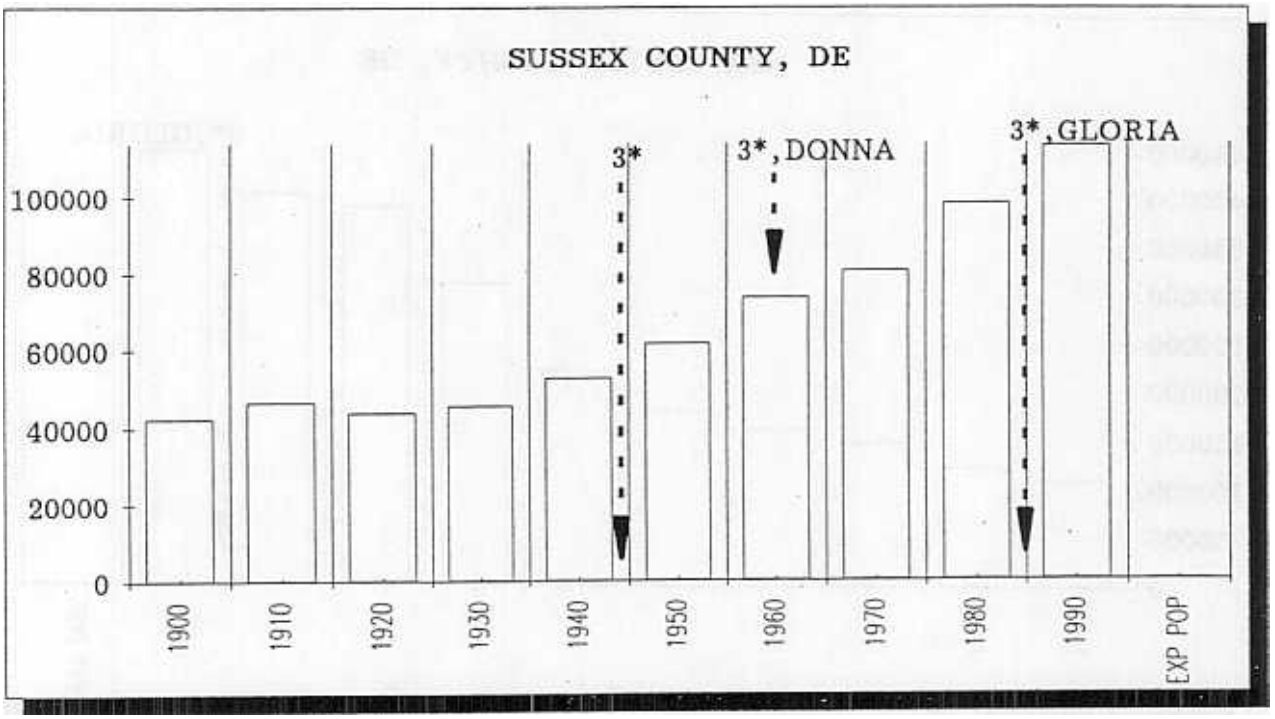

WICOMICO COUNTY, MD
3*, GLORIA
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

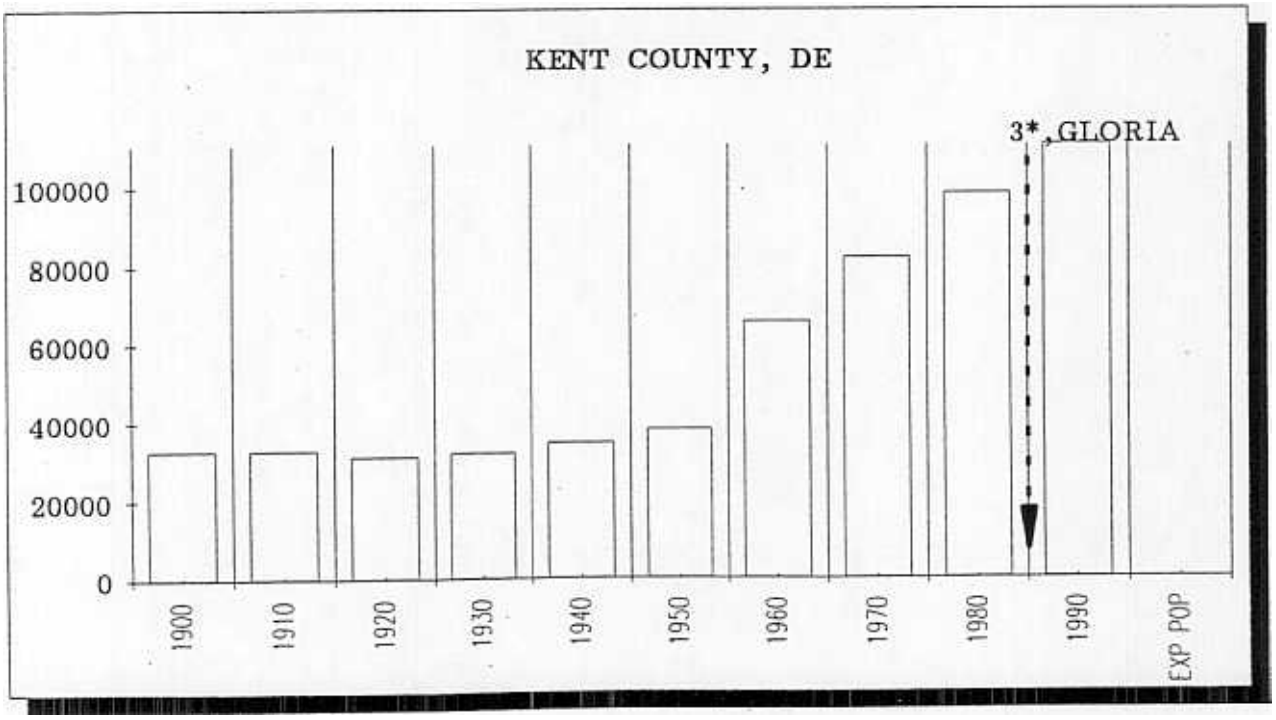
11. DELAWARE (3)

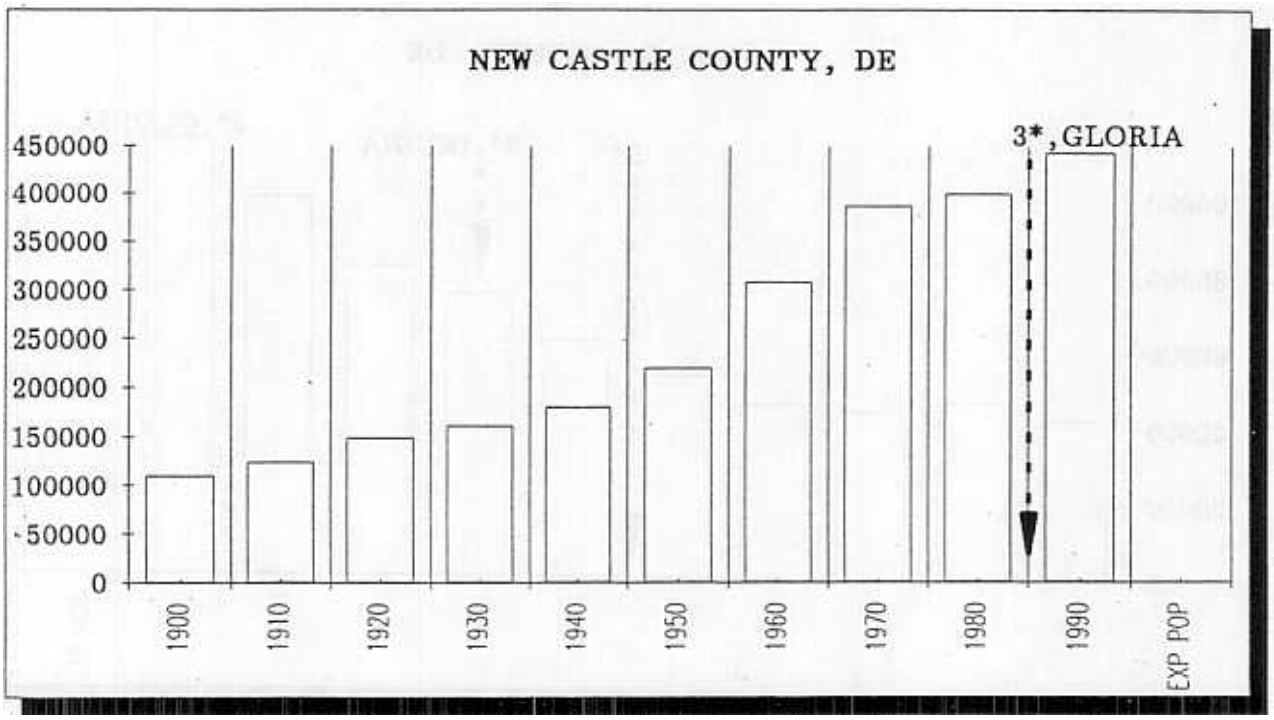
Sussex (Rehoboth Beach), Kent, New Castle (Wilmington)

YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
SUSSEX	42276	46413	43741	45507	52502	61336	73195	80356	98004	113229		100	
KENT	32762	32721	31023	31841	34441	37870	65651	81892	98219	110993		100	
NEW CASTLE	109697	123188	148239	161032	179562	218879	307446	385856	399002	441946		100	
DE COASTAL TOTAL	184735	202322	223003	238380	266505	318085	446292	548104	595225	666168	0	100	
DE TOTAL	184735	202322	223003	238380	266505	318085	446292	548104	595225	666168			




SUSSEX COUNTY, DE
3*
3*, DONNA
3*, GLORIA
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

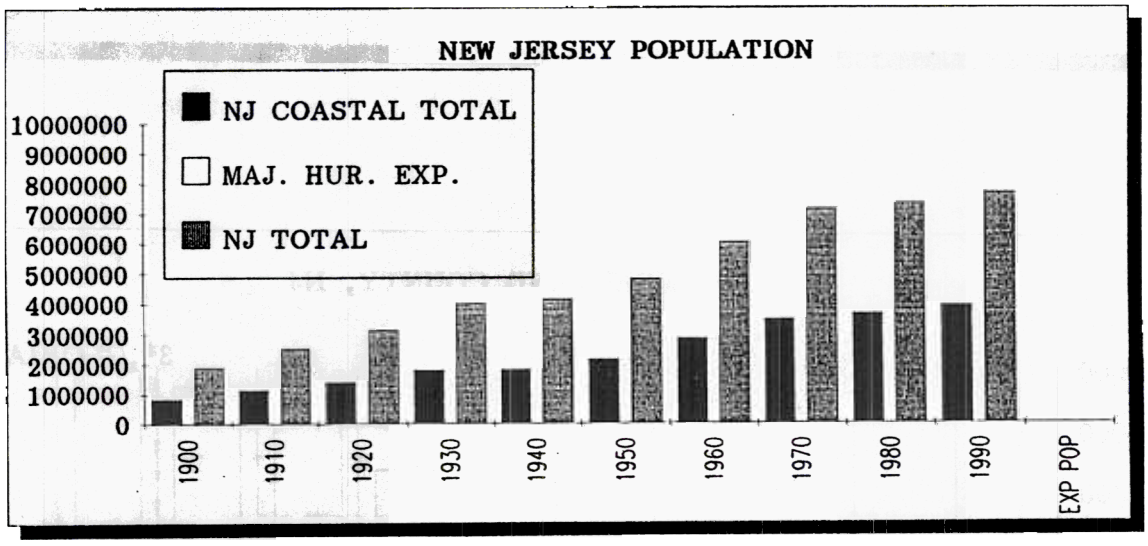

KENT COUNTY, DE
3*, GLORIA
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

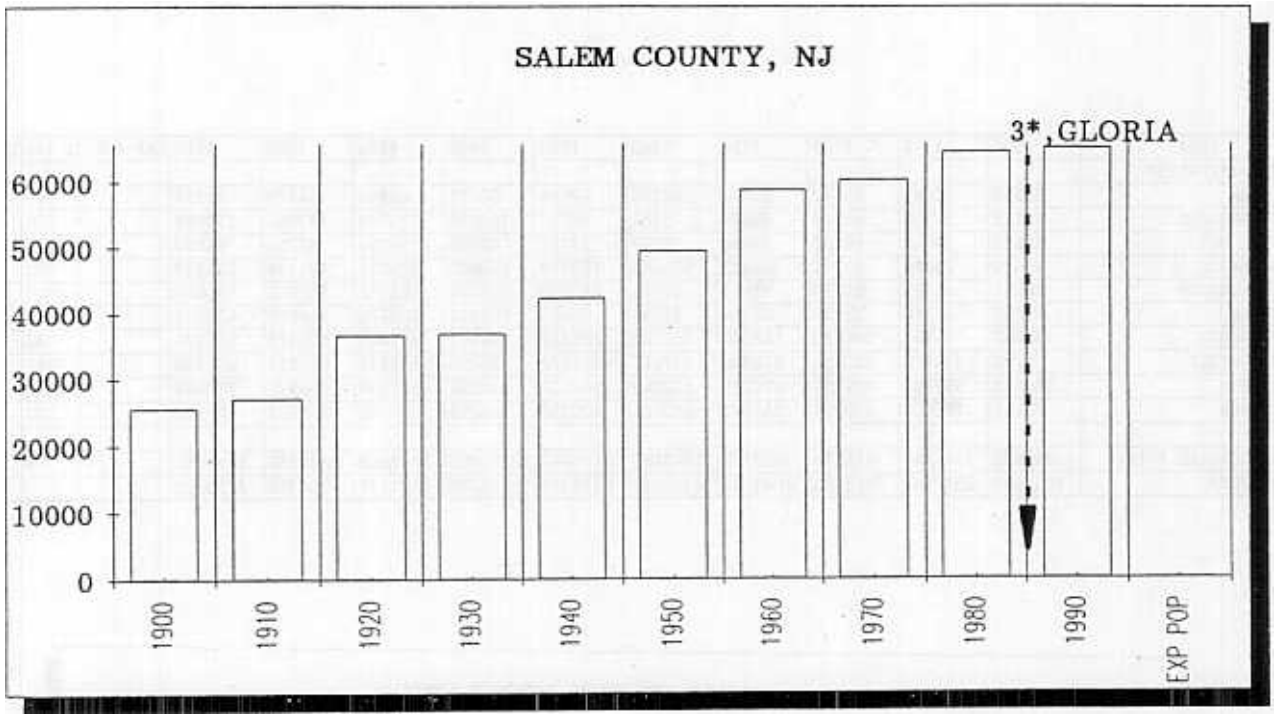

NEW CASTLE COUNTY, DE
3*, GLORIA
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

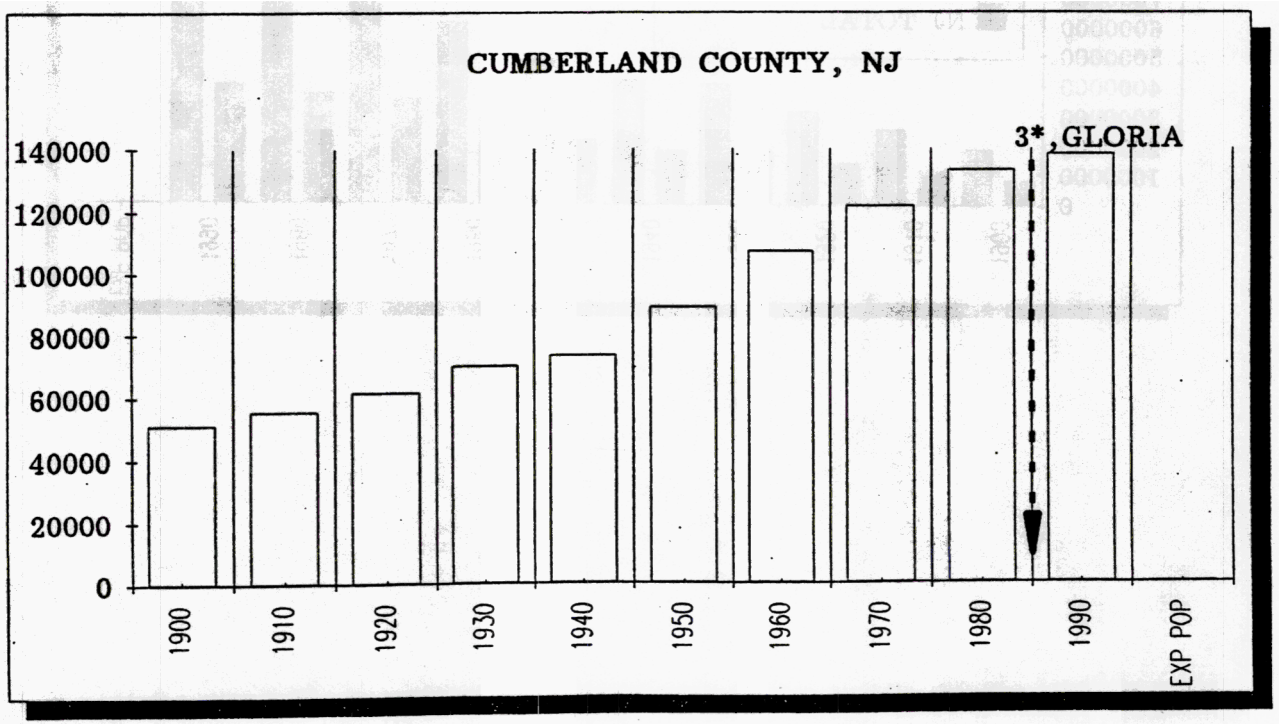
12. NEW JERSEY 10)

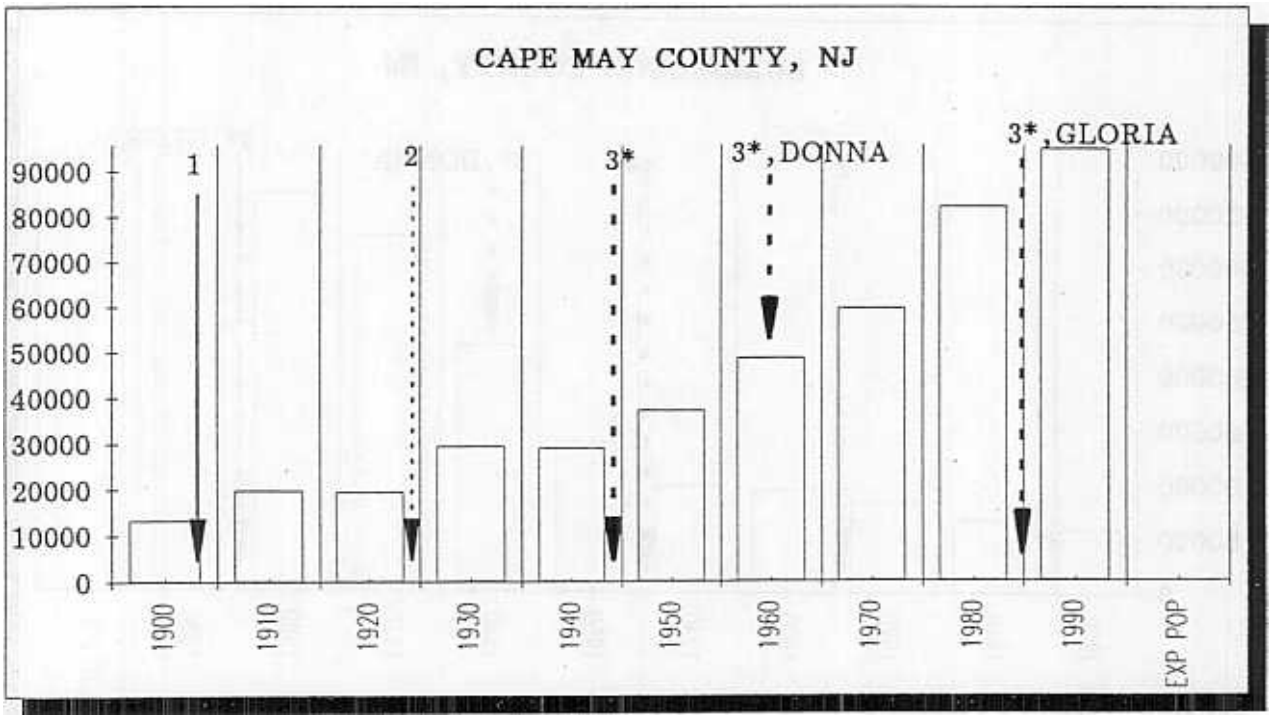
Salem, Cumberland, Cape May (Ocean City), Atlantic (Atlantic City), Burlington, Ocean, Monmouth (Asbury Park), Middlesex (Perth Amboy), Hudson (Jersey City), Bergen.

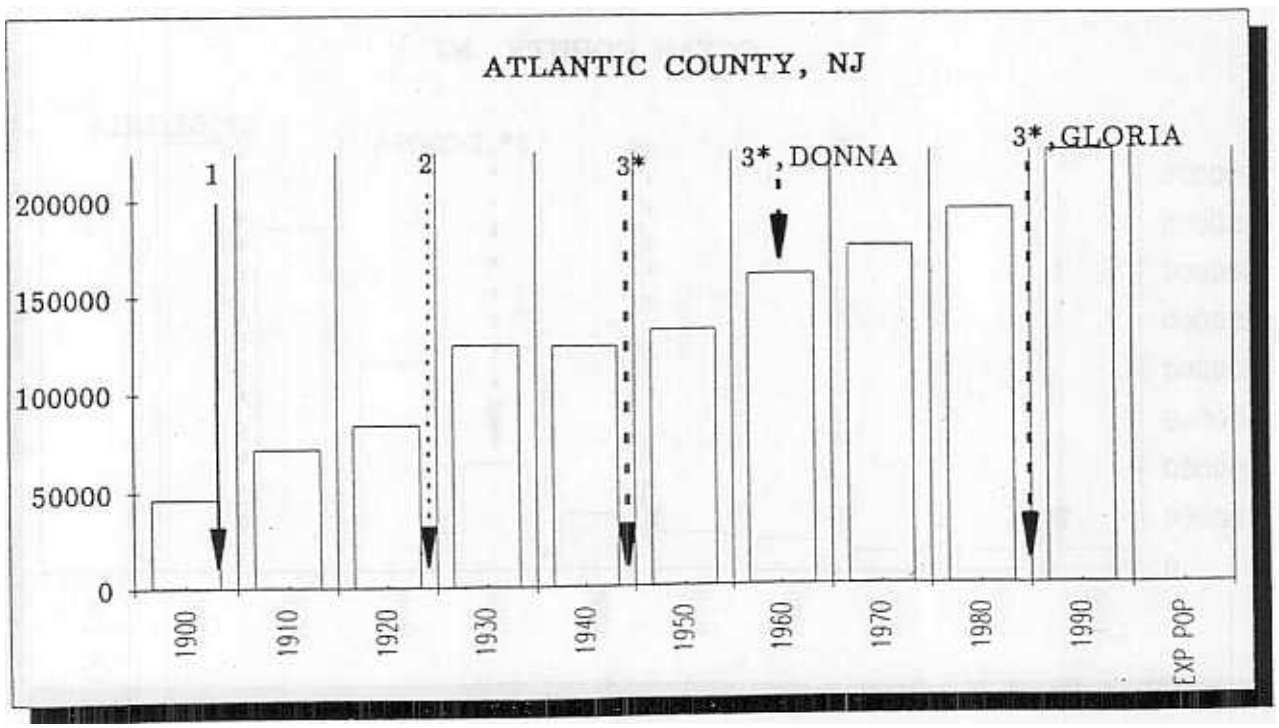
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
SALEM	25530	26999	36572	36834	42274	49508	58711	60346	64676	65294		100	
CUMBERLAND	51193	55153	61348	69895	73184	88597	106850	121374	132866	138053		100	
CAPE MAY	13201	19745	19460	29486	28919	37131	48555	59554	82266	95089		100	
ATLANTIC	46402	71894	83914	124823	124066	132399	160880	175043	194119	224327		100	
BURLINGTON	58241	66565	81770	93541	97013	135910	224499	323132	362542	395066		100	
OCEAN	19747	21318	22155	33069	37706	56622	108241	208470	346038	433203		100	
MONMOUTH	82057	94734	104925	147209	161238	225327	334401	461849	503173	553124		100	
MIDDLESEX	79762	114426	162334	212208	217077	264872	433856	583813	595893	671780		100	
HUDSON	386048	537231	629154	690730	652040	647437	610734	607839	556972	553099		100	
BERGEN	78441	138002	210703	369977	409646	539139	780255	897148	845385	825380		100	
NJ COASTAL TOTAL	840622	1146067	1412335	1807772	1843163	2176942	2866982	3498568	3683930	3954415	0	100	
NJ TOTAL	1883669	2537167	3155900	4041334	4160165	4835329	6066782	7171112	7364158	7730188			

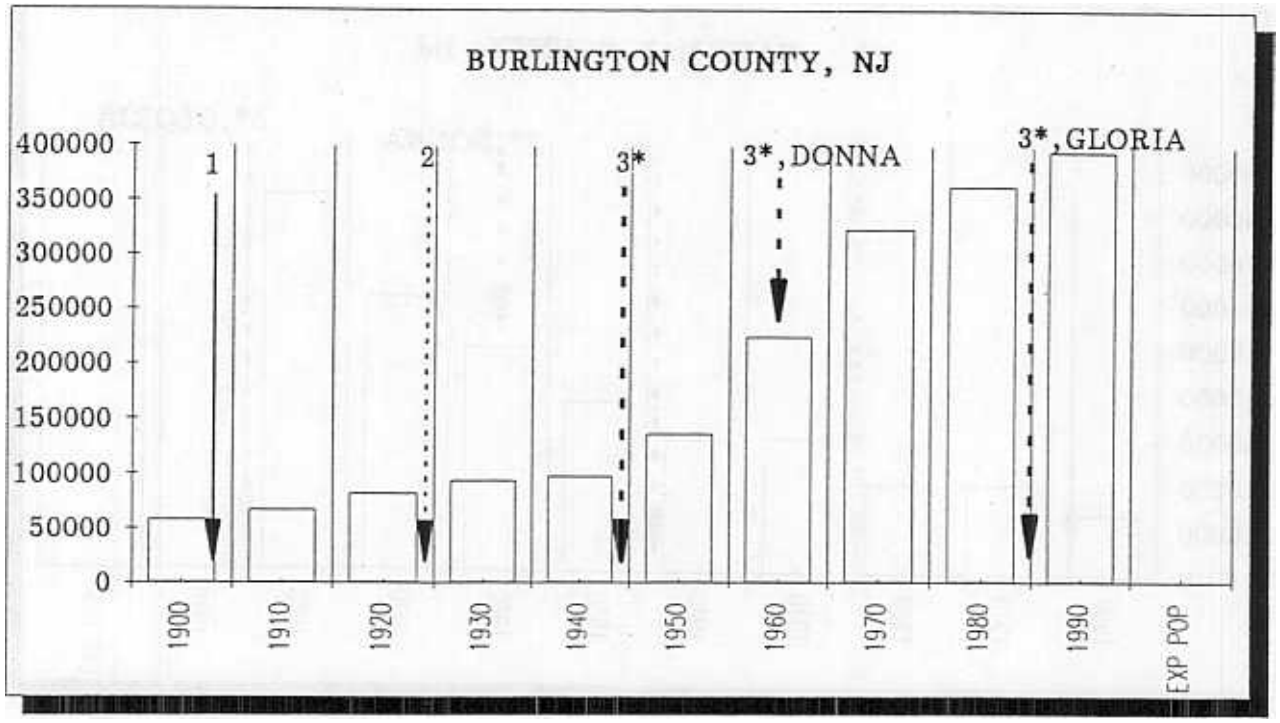


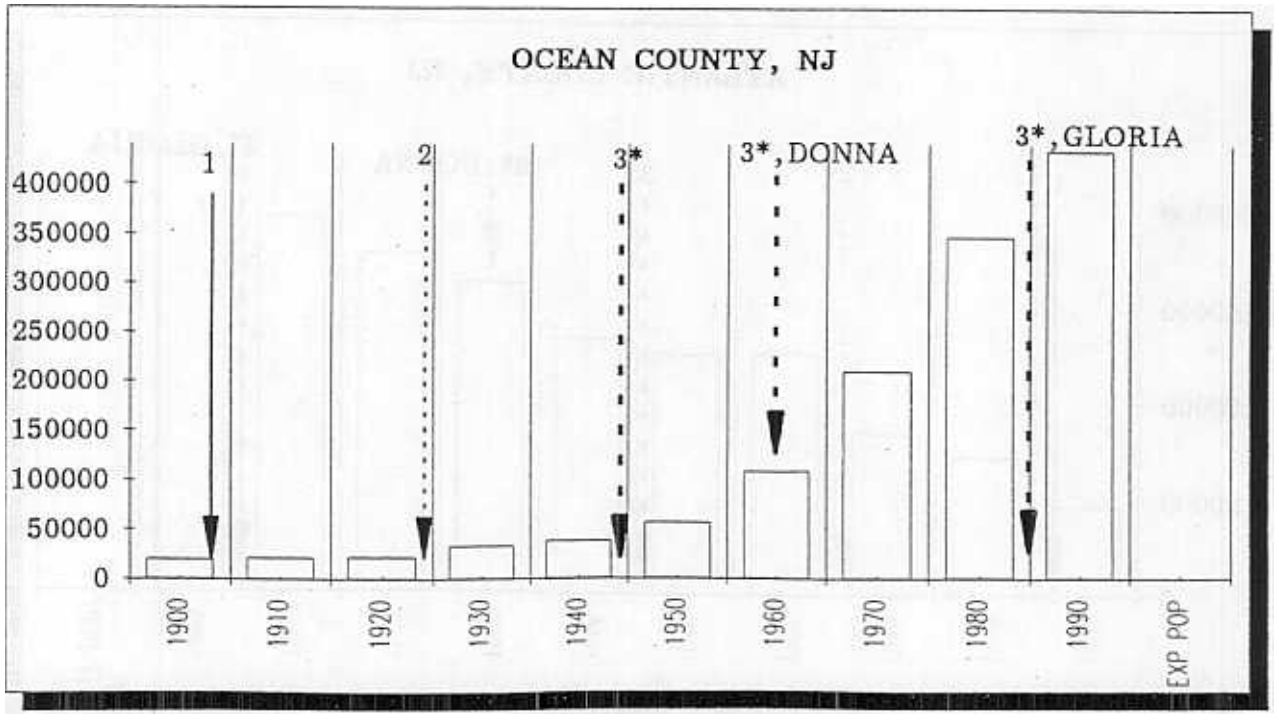

SALEM COUNTY, NJ
3*, GLORIA
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

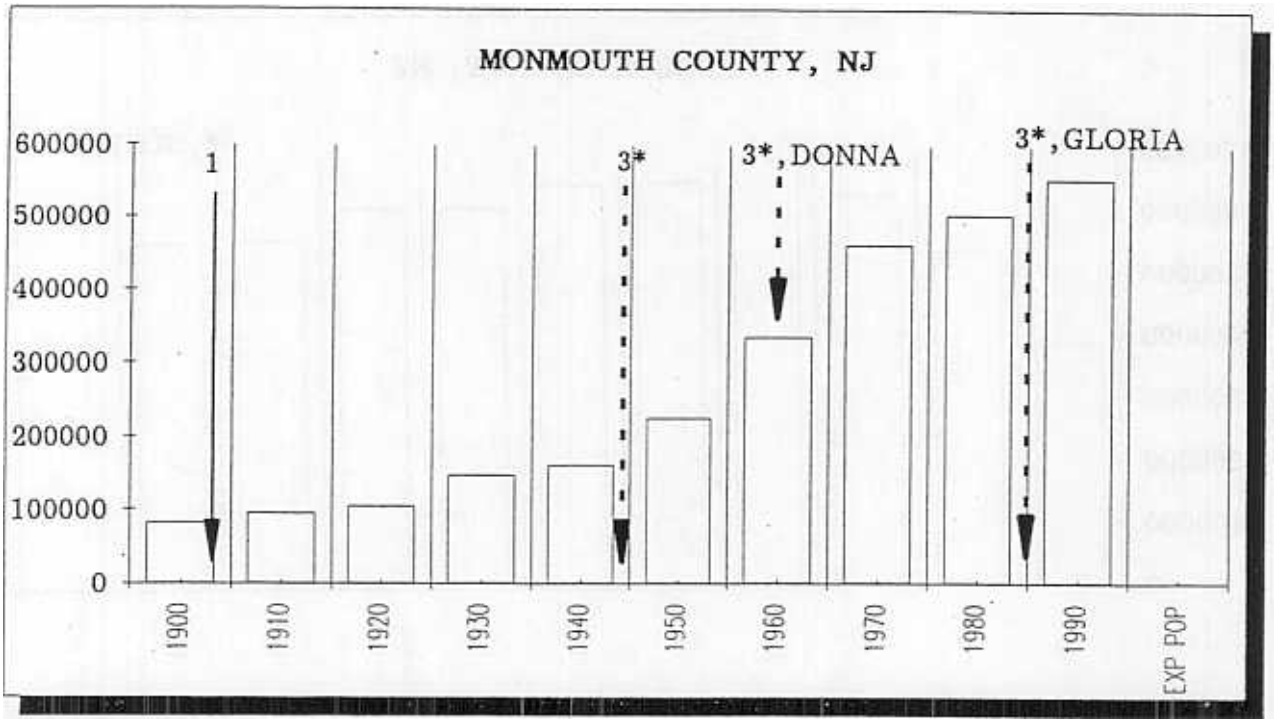

CUMBERLAND COUNTY, NJ
3*, GLORIA
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

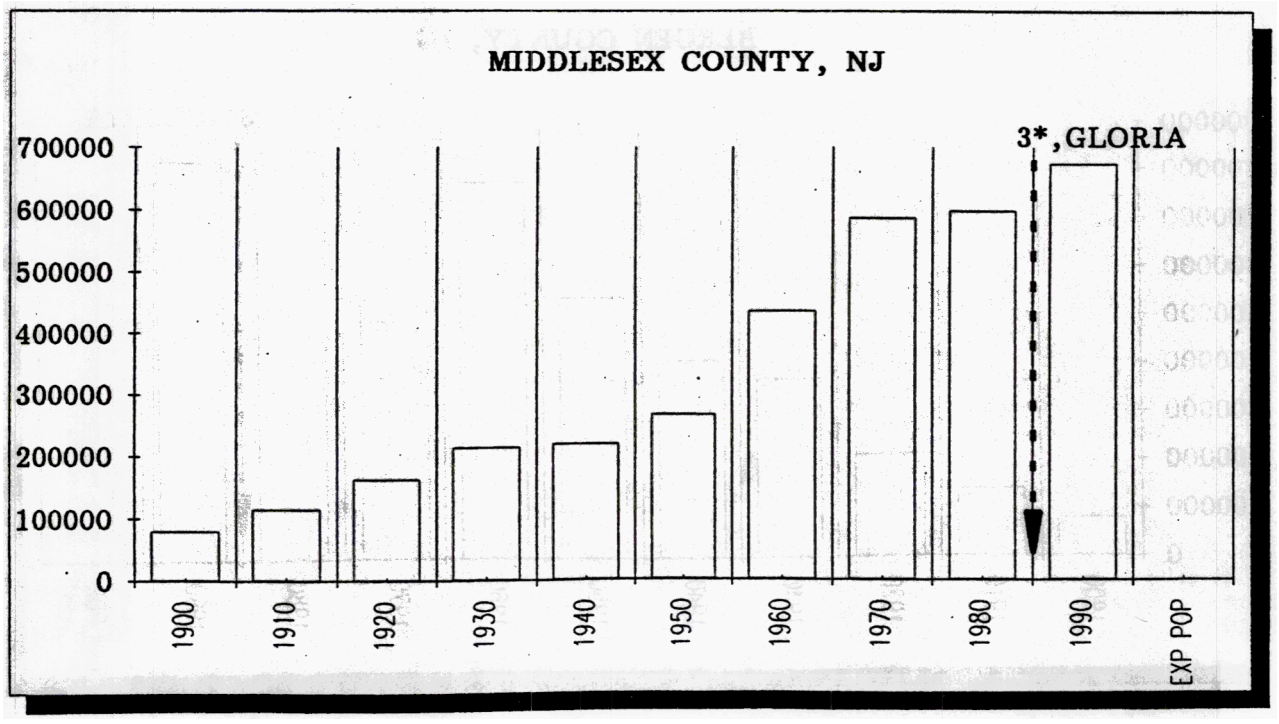

CAPE MAY COUNTY, NJ
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1
2
3*
3*, DONNA
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

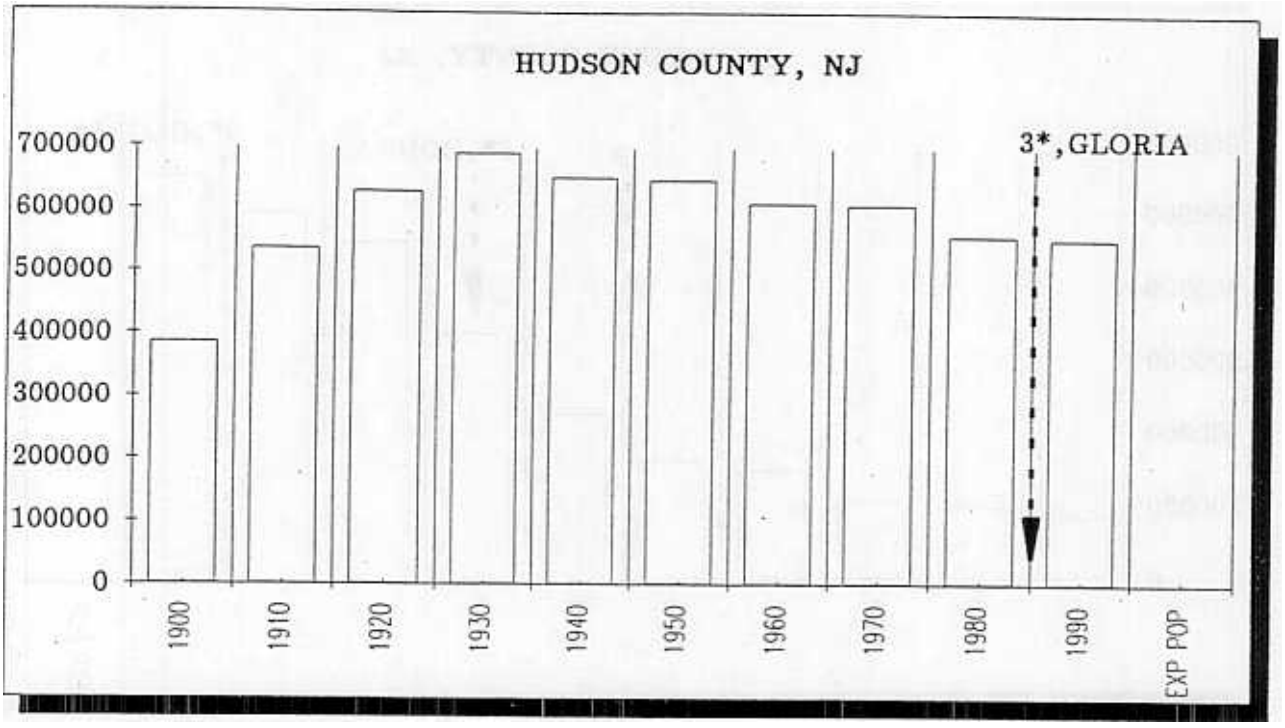

ATLANTIC COUNTY, NJ
200000
150000
100000
50000
0
1
2
3*
3*, DONNA
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

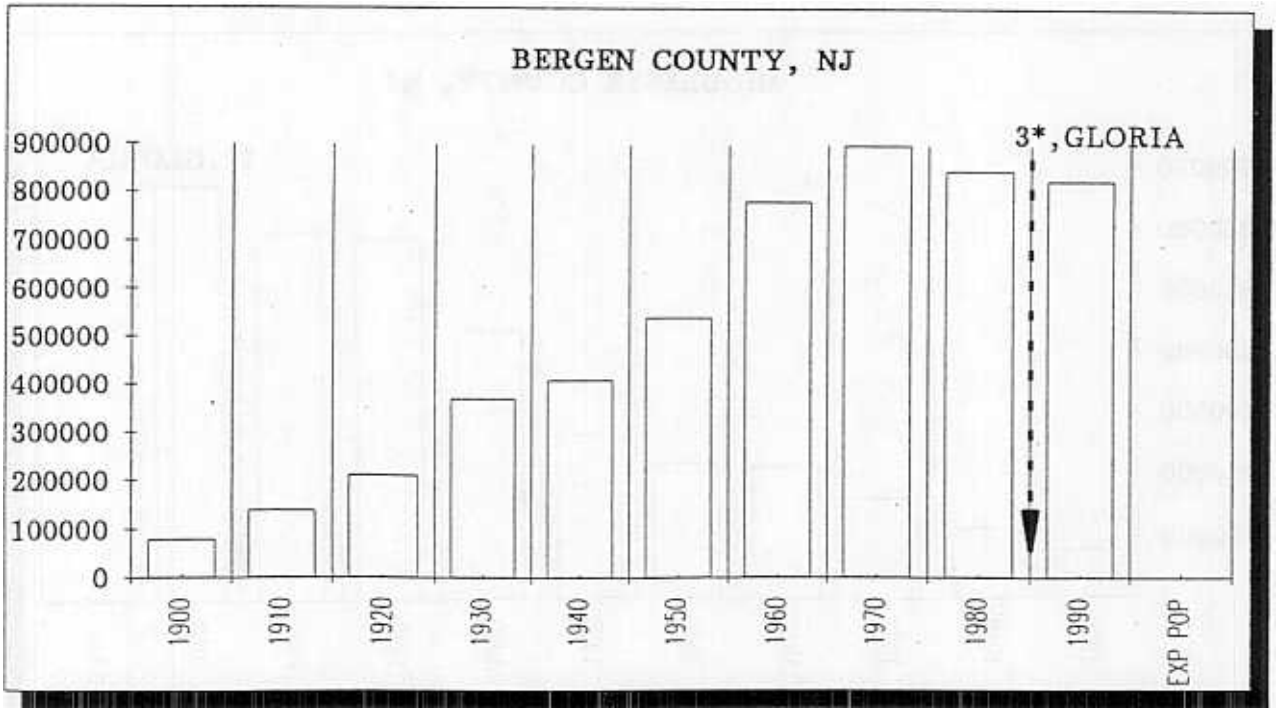

BURLINGTON COUNTY, NJ
400000
350000
300000
250000
200000
150000
100000
50000
0
1
2
3*
3*, DONNA
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


OCEAN COUNTY, NJ
400000
350000
300000
250000
200000
150000
100000
50000
0
1
2
3*
3*, DONNA
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MONMOUTH COUNTY, NJ
600000
500000
400000
300000
200000
100000
0
1
3*
3*, DONNA
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MIDDLESEX COUNTY, NJ
700000
600000
500000
400000
300000
200000
100000
0
3*, GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

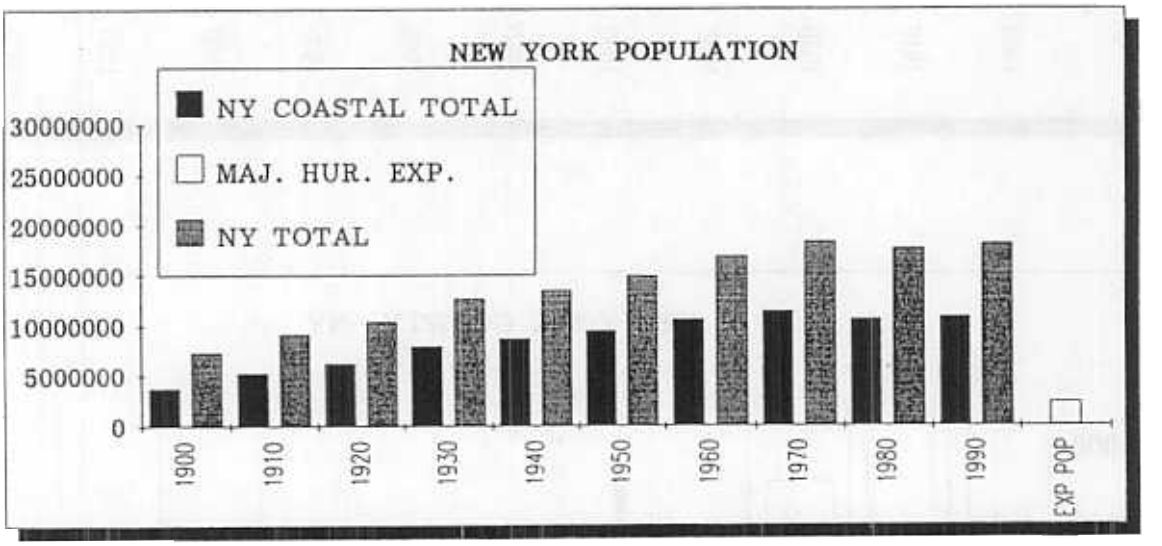

HUDSON COUNTY, NJ
3*, GLORIA
700000
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

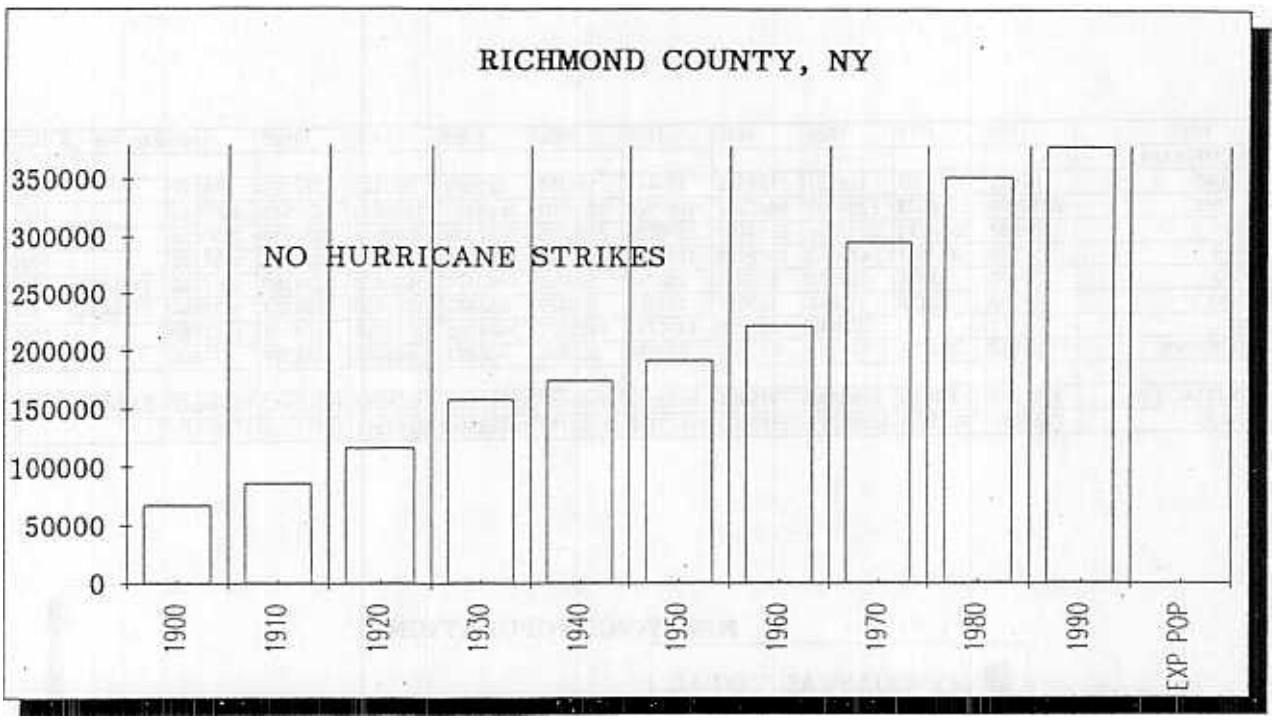

BERGEN COUNTY, NJ
3*, GLORIA
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

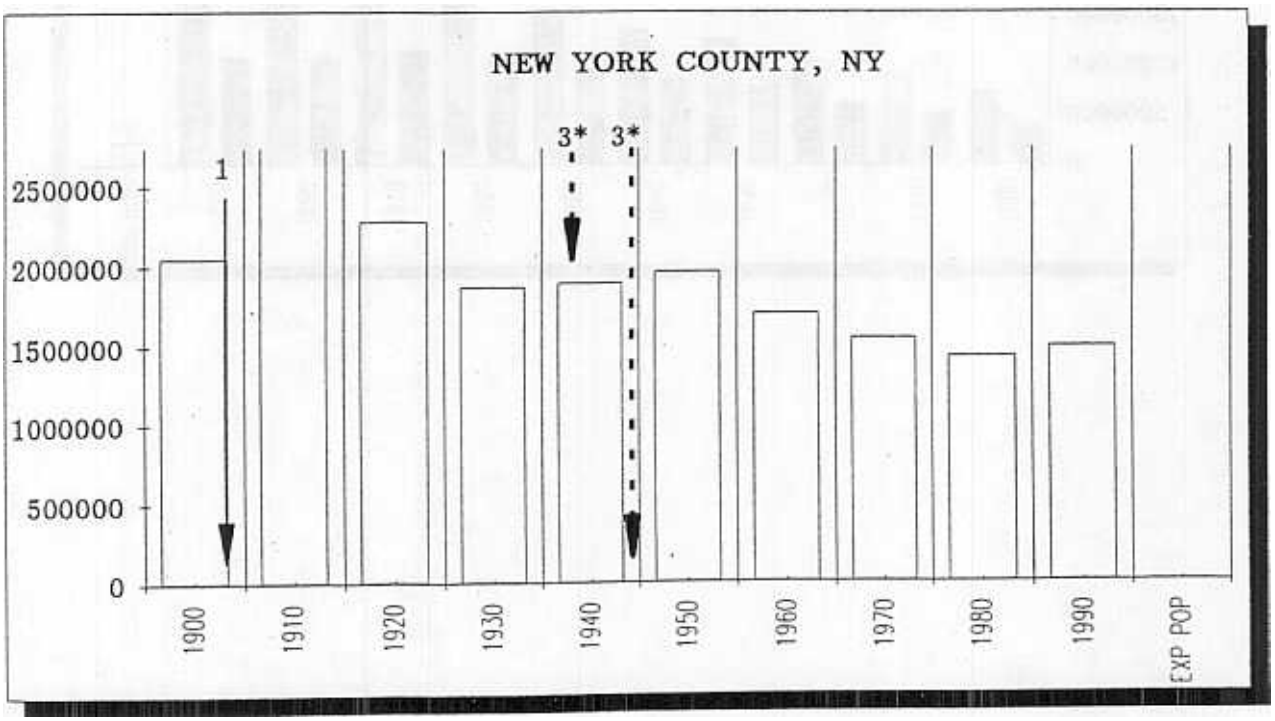
13. NEW YORK (8)

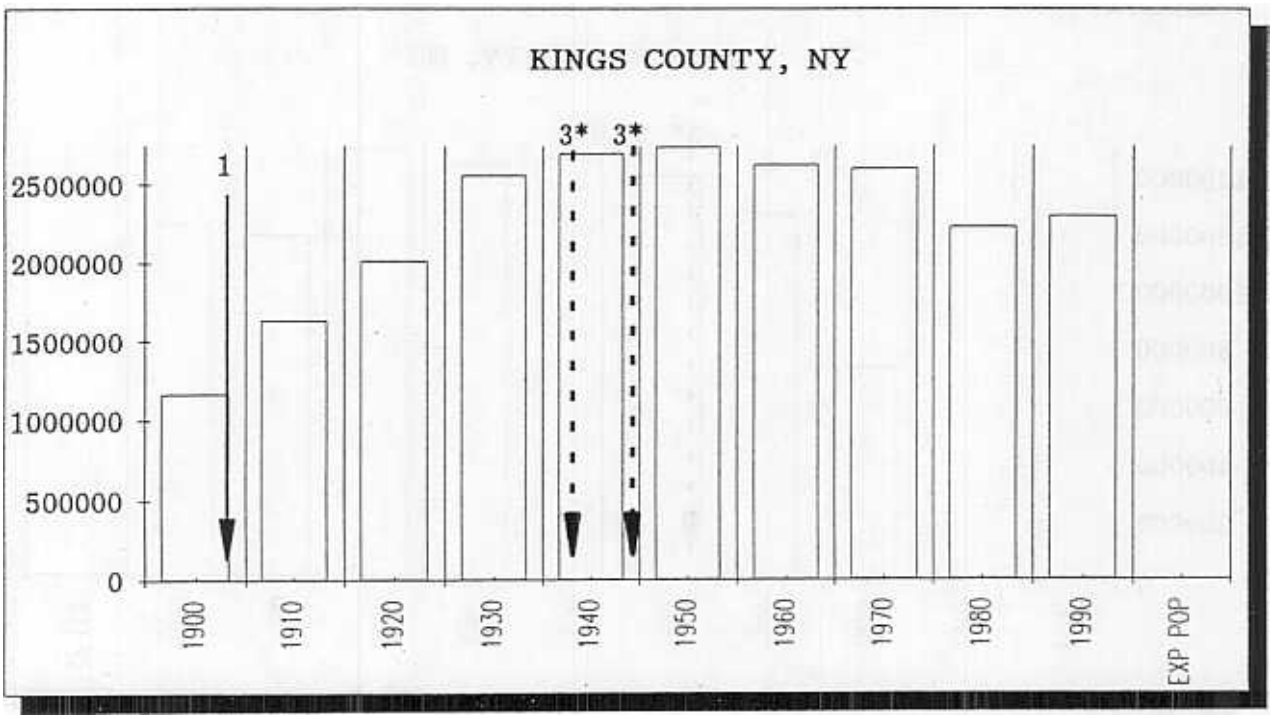
Richmond (Staten Island), New York (Manhattan), Kings (Brooklyn), Queens, Nassau (Jones Beach), Suffolk (Westhampton), Bronx (Bronx), Westchester.

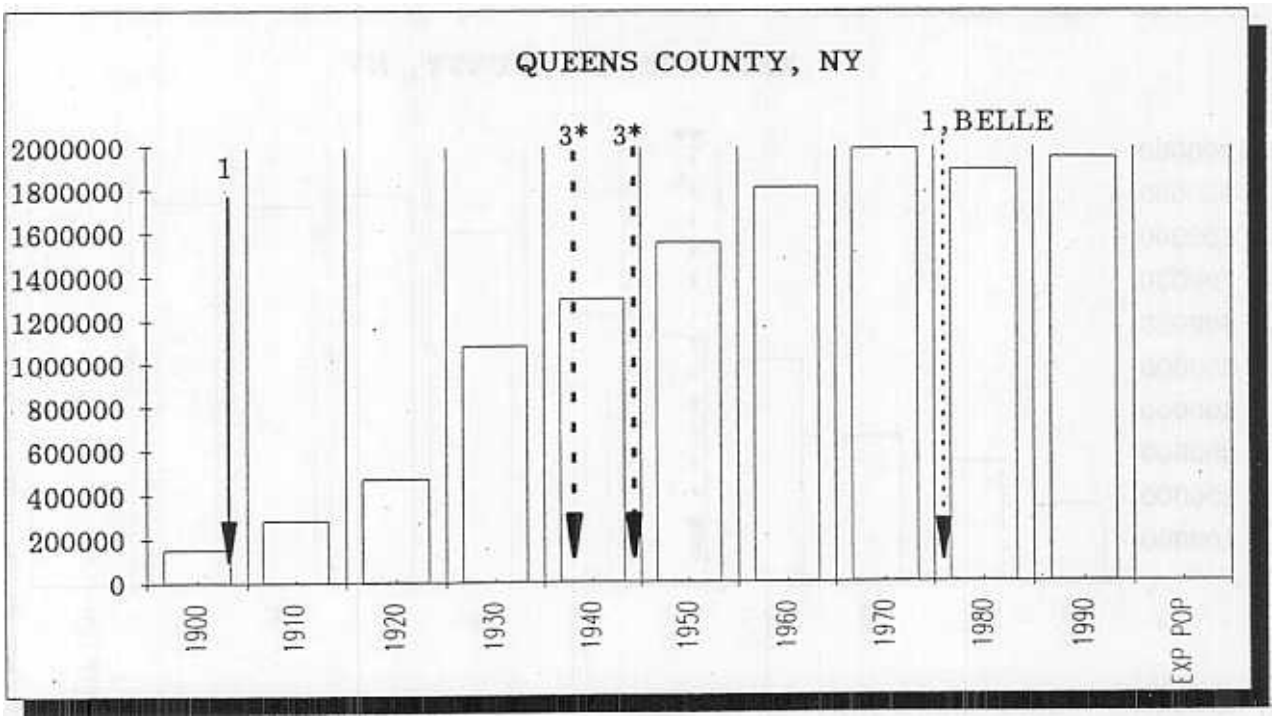
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
RICHMOND	67021	85969	116531	158346	174441	191555	221991	295443	352121	378977		100	
NEW YORK	2050600	2762522	2284103	1867312	1889924	1960101	1698281	1539233	1427533	1487536		100	
KINGS	1166582	1634351	2018356	2560401	2698285	2738175	2627319	2602012	2230936	2300664		100	
QUEENS	152999	284041	469042	1079129	1297634	1550849	1809578	1987174	1891325	1951598		100	
NASSAU	55448	83930	126120	303053	406748	672765	1300171	1428838	1321582	1287348	1135667	12	1985
SUFFOLK	77582	96138	110246	161055	197355	276129	666784	1127030	1284231	1321864	1134433	14	1985
BRONX			732016	1265258	1394711	1451277	1424815	1471701	1169115	1203789		100	
WESTCHESTER	184257	283055	344436	520947	573558	625816	808891	894406	866599	874866		100	
NY COASTAL TOTAL	3754489	5230006	6200850	7915501	8632656	9466667	10557830	11345837	10543442	10806642	2270100	79	
NY TOTAL	7268894	9113614	10385227	12588066	13479142	14830192	16782304	18241391	17557280	17990455			

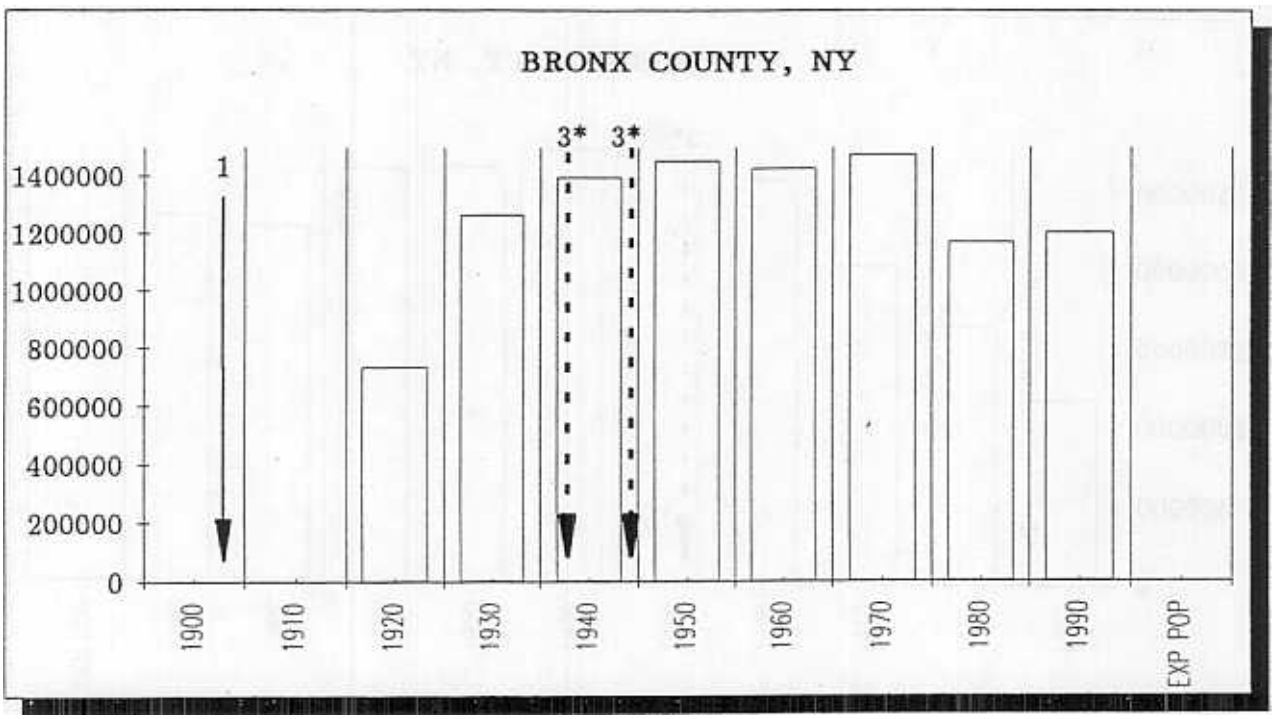


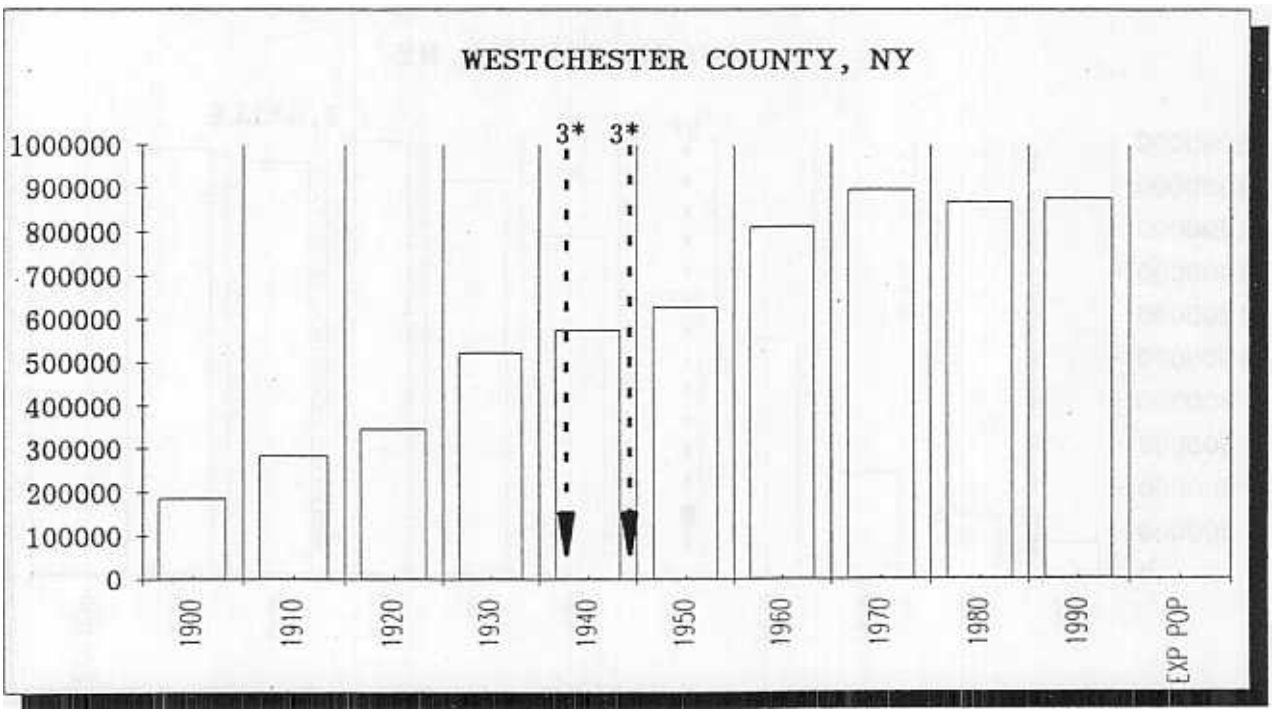

RICHMOND COUNTY, NY
NO HURRICANE STRIKES
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


NEW YORK COUNTY, NY
1
3*
3*
2500000
2000000
1500000
1000000
500000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


KINGS COUNTY, NY
3*
3*
1
2500000
2000000
1500000
1000000
500000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


QUEENS COUNTY, NY
1,BELLE
3*
3*
1
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

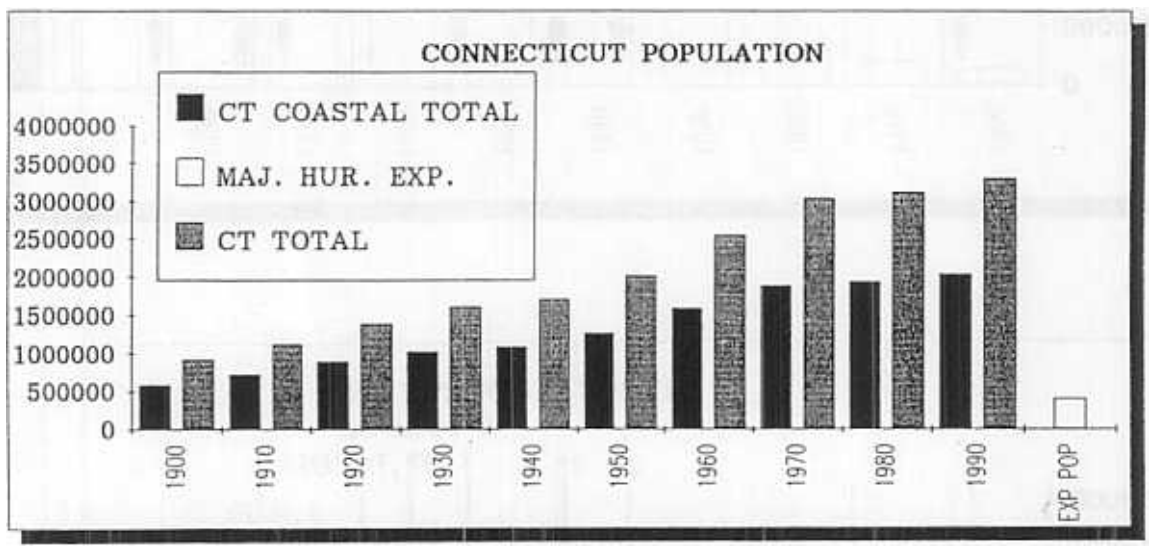

BRONX COUNTY, NY
1400000
1200000
1000000
800000
600000
400000
200000
0
1
3*
3*
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

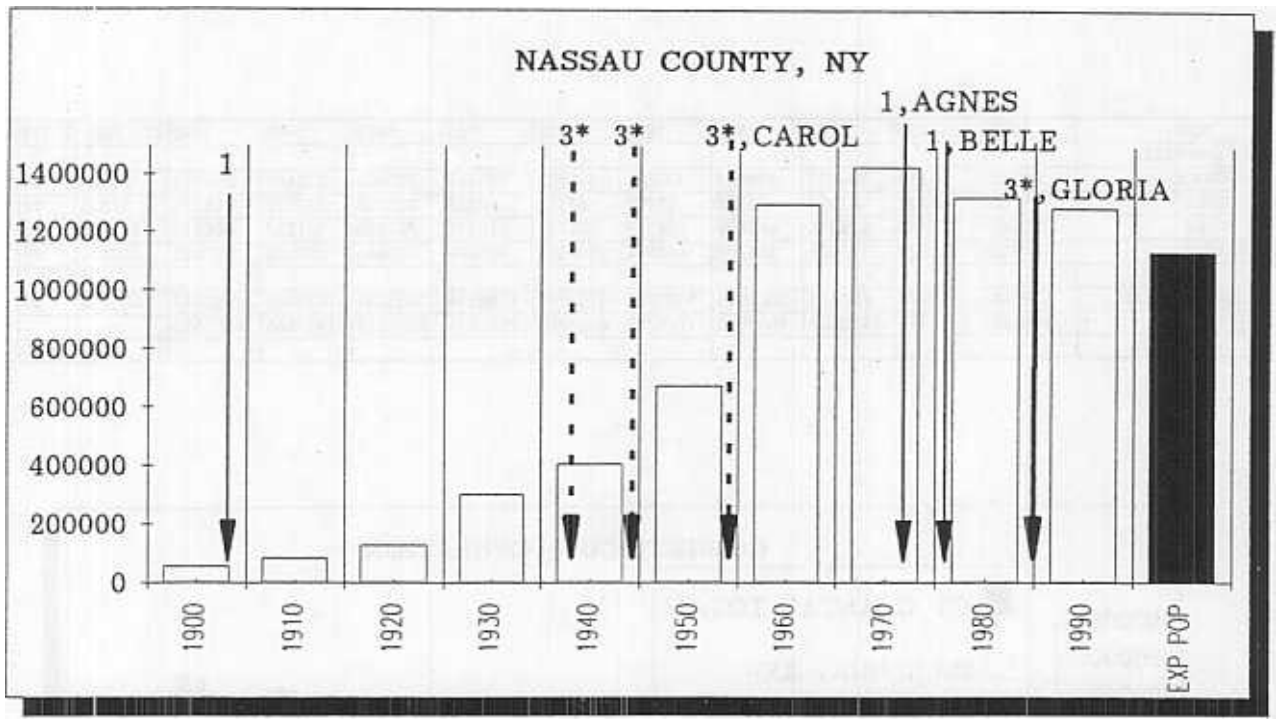

WESTCHESTER COUNTY, NY
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
3*
3*
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

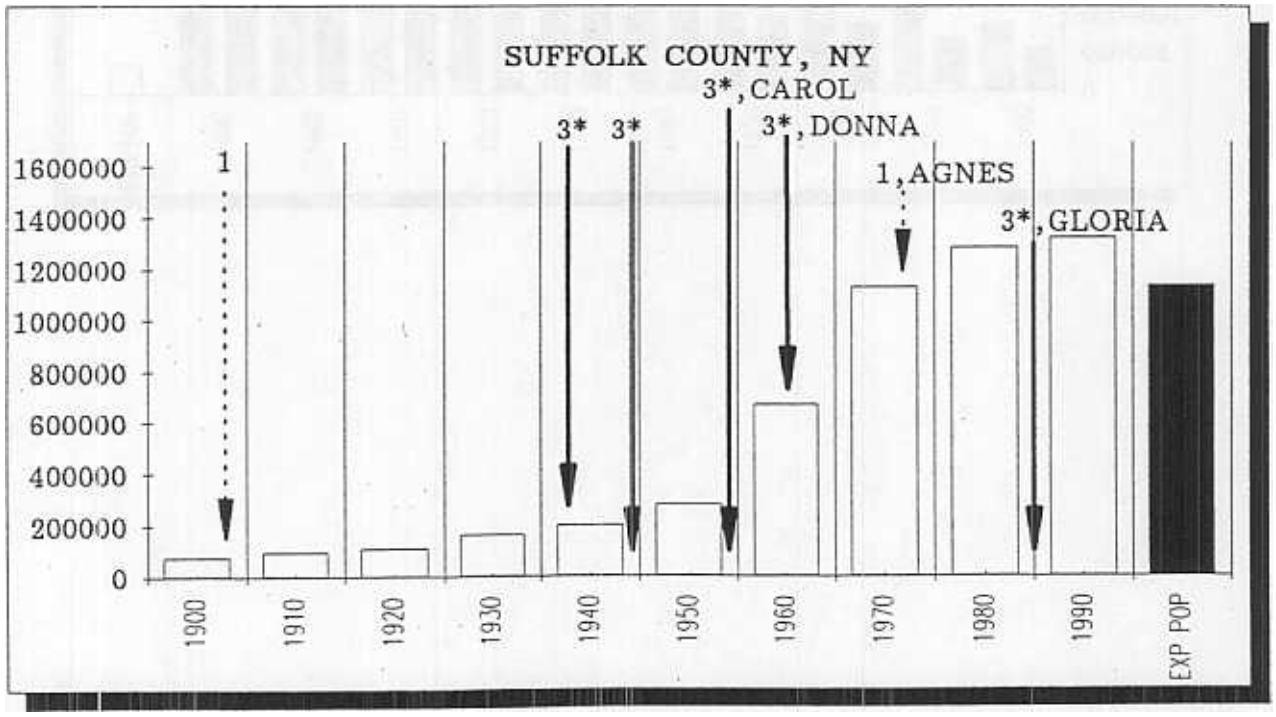
14. CONNECTICUT (4)

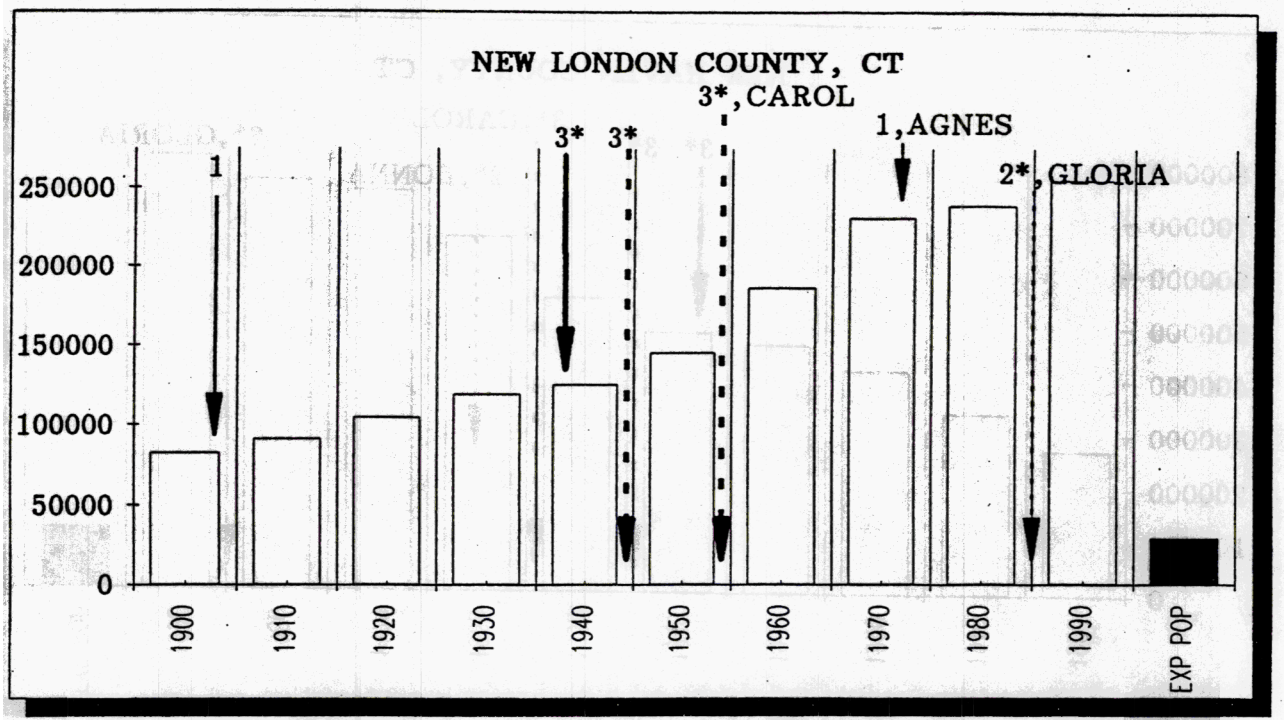
New London (New London), Middlesex, New Haven, Fairfield (Bridgeport).

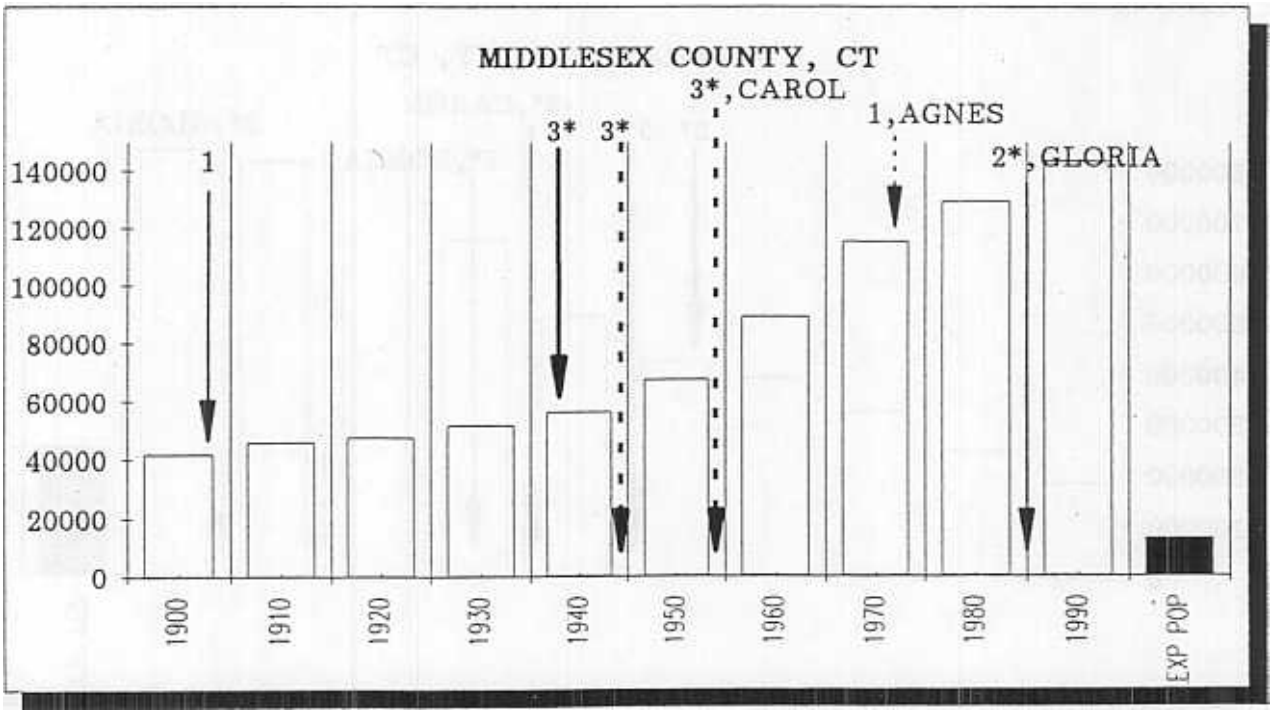
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
NEW LONDON	82758	91253	104611	118966	125224	144821	185745	230654	238409	254957	28886	89	1938
MIDDLESEX	41760	45637	47550	51388	55999	67332	88865	115018	129017	143196	12833	91	1938
NEW HAVEN	269163	337282	415214	463449	484316	545784	660315	744948	761337	804219	111873	86	1938
FAIRFIELD	184203	245322	320936	386702	418384	504342	653589	792814	807143	827645	247614	70	1954
CT COASTAL TOTAL	577884	719494	888311	1020505	1083923	1262279	1588514	1883434	1935906	2030017	401206	80	
CT TOTAL	908640	1114756	1380631	1606903	1709242	2007280	2535234	3032217	3107576	3287116			

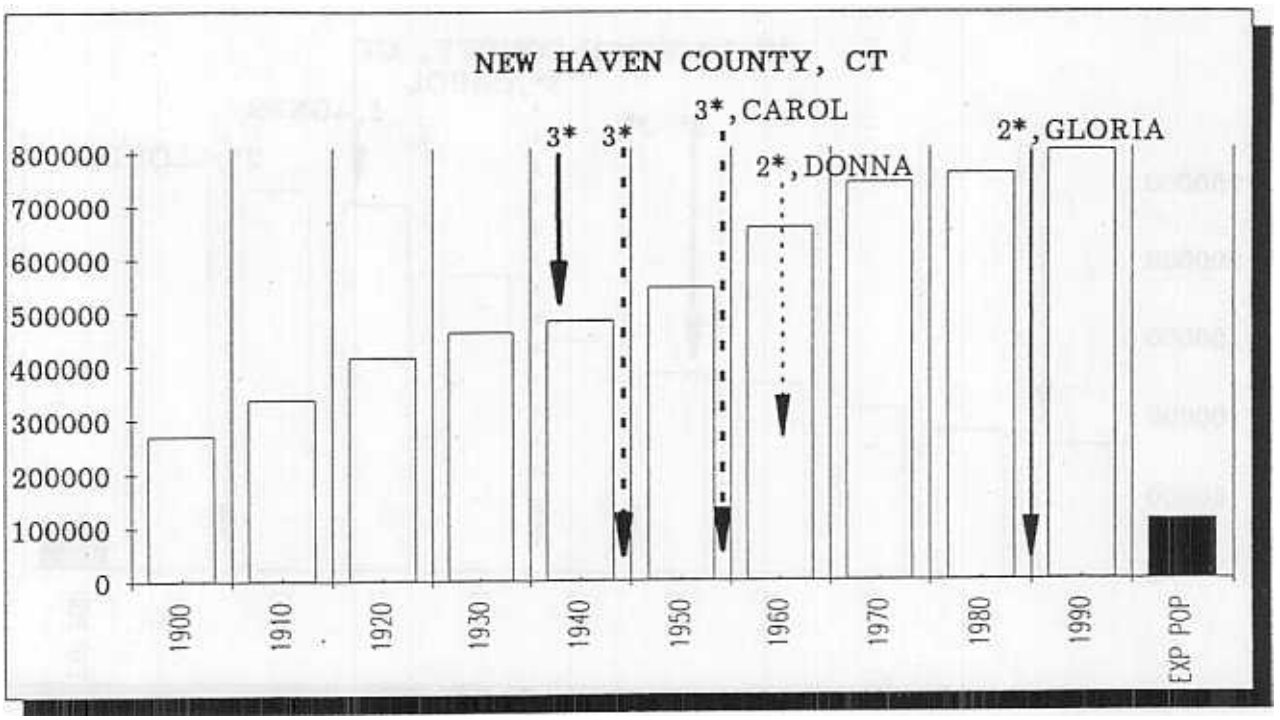


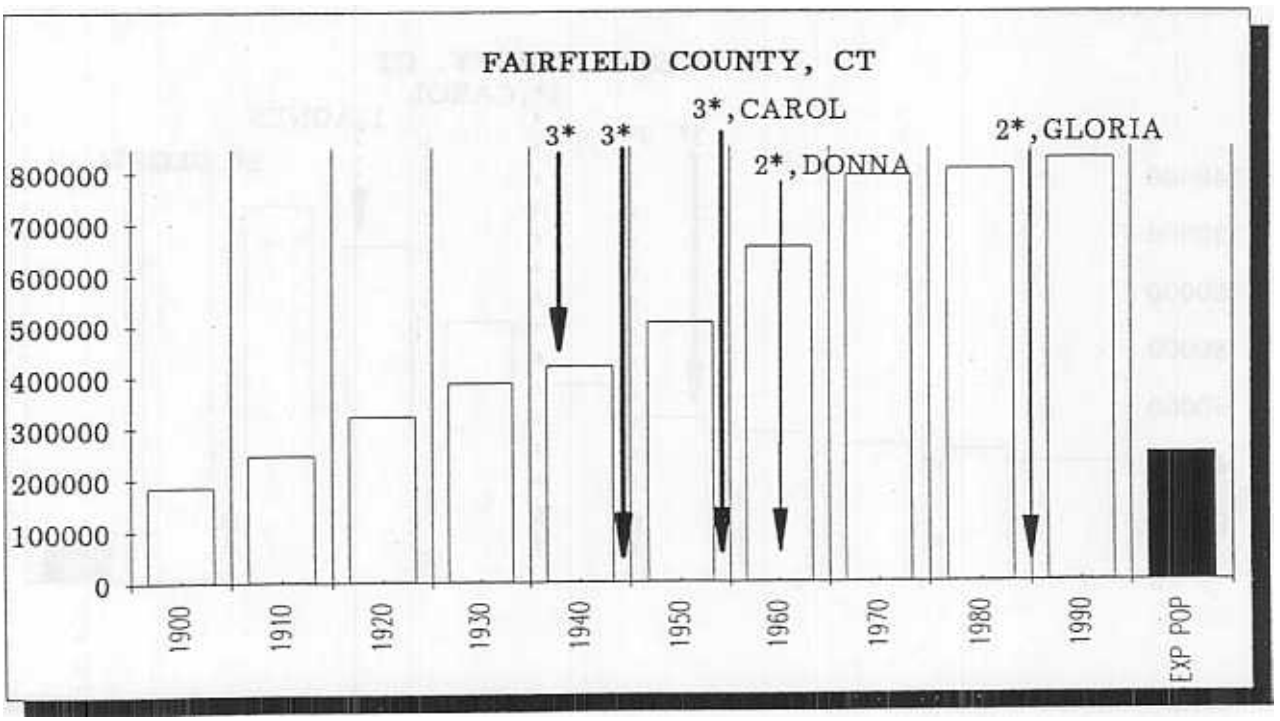

NASSAU COUNTY, NY
1,AGNES
3* 3*
3*,CAROL
1,BELLE
1
3*,GLORIA
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


SUFFOLK COUNTY, NY
3*,CAROL
3* 3*
3*,DONNA
1
1,AGNES
3*,GLORIA
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


NEW LONDON COUNTY, CT
3*, CAROL
1, AGNES
3*
3*
1
2*, GLORIA
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


MIDDLESEX COUNTY, CT
3*, CAROL
1, AGNES
3*
3*
1
2*, GLORIA
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

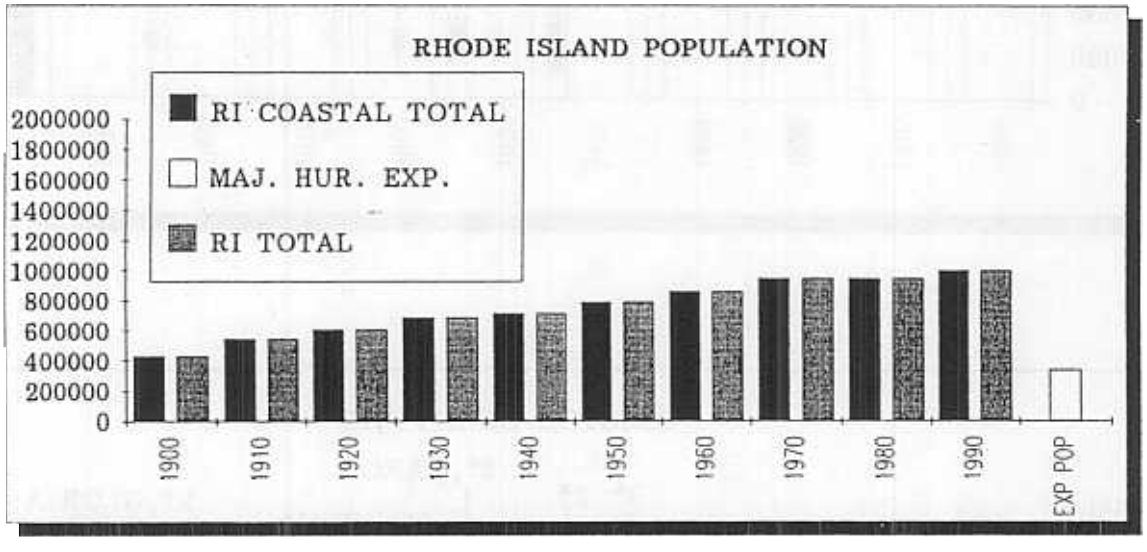

NEW HAVEN COUNTY, CT
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
800000
700000
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

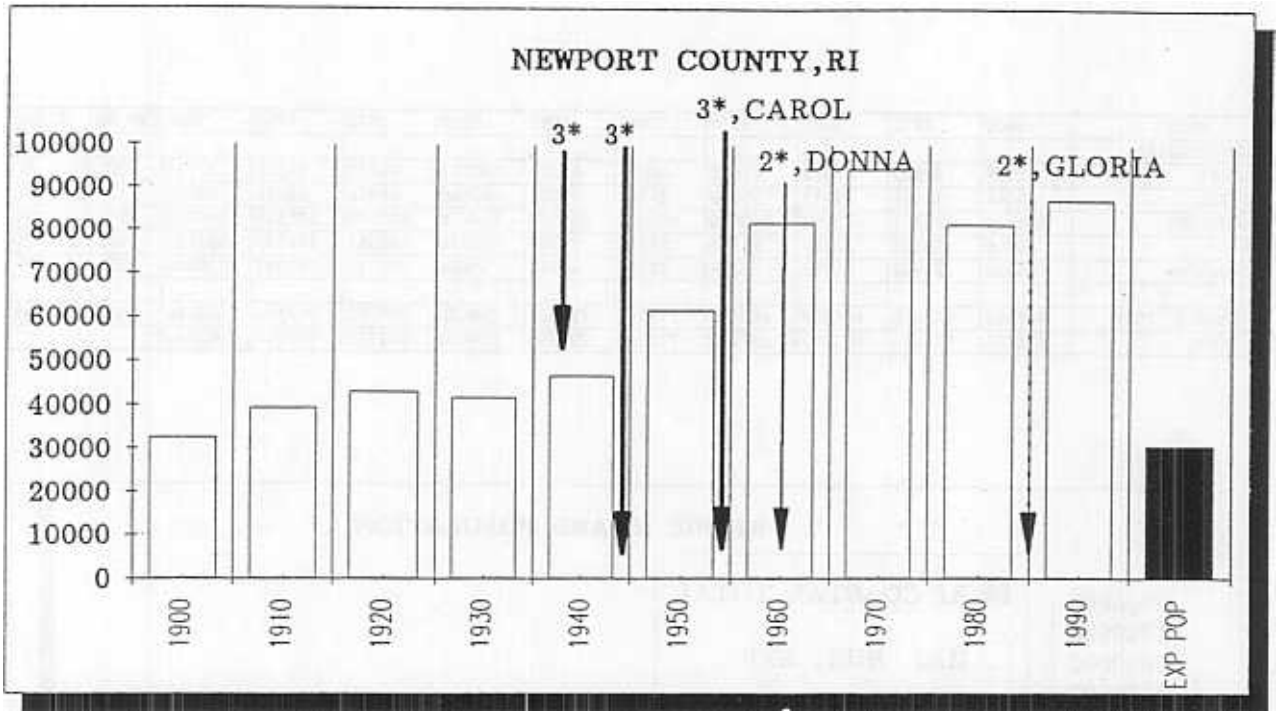

FAIRFIELD COUNTY, CT
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
800000
700000
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

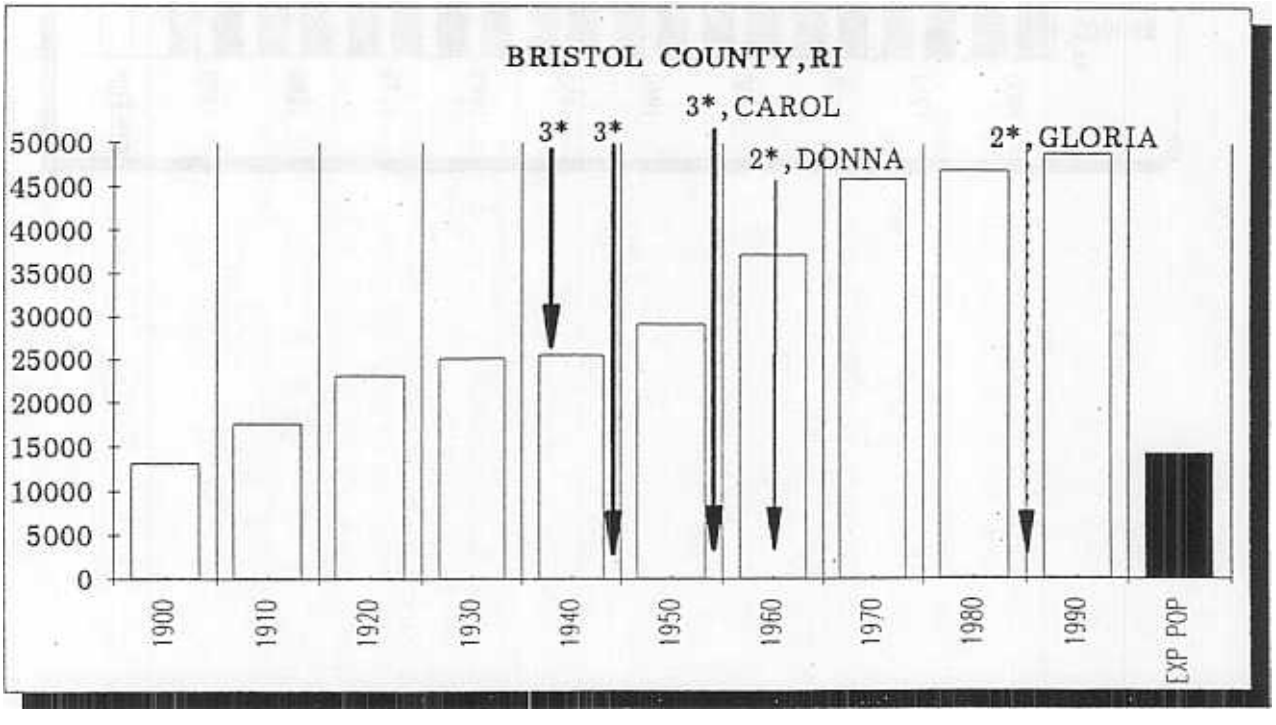
15. RHODE ISLAND (5)

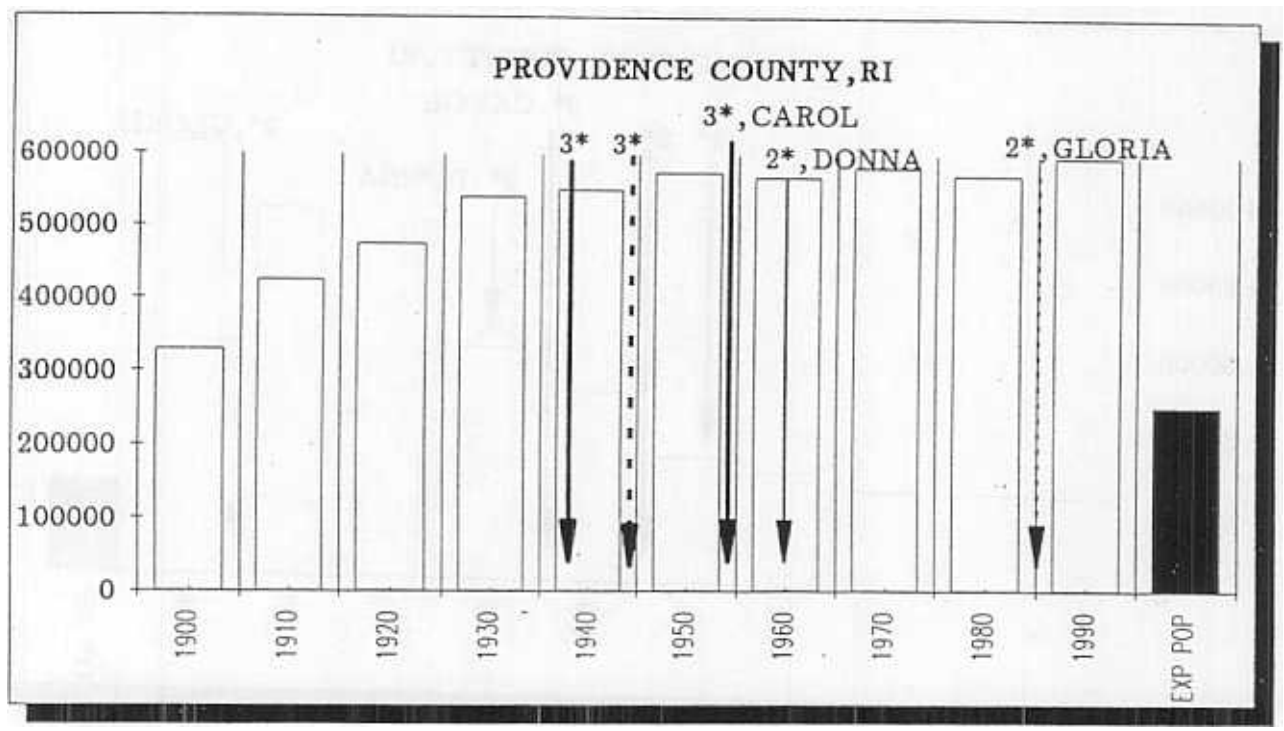
Newport (Newport), Bristol (Bristol), Providence (Providence), Kent, Washington (Narragansett Point).

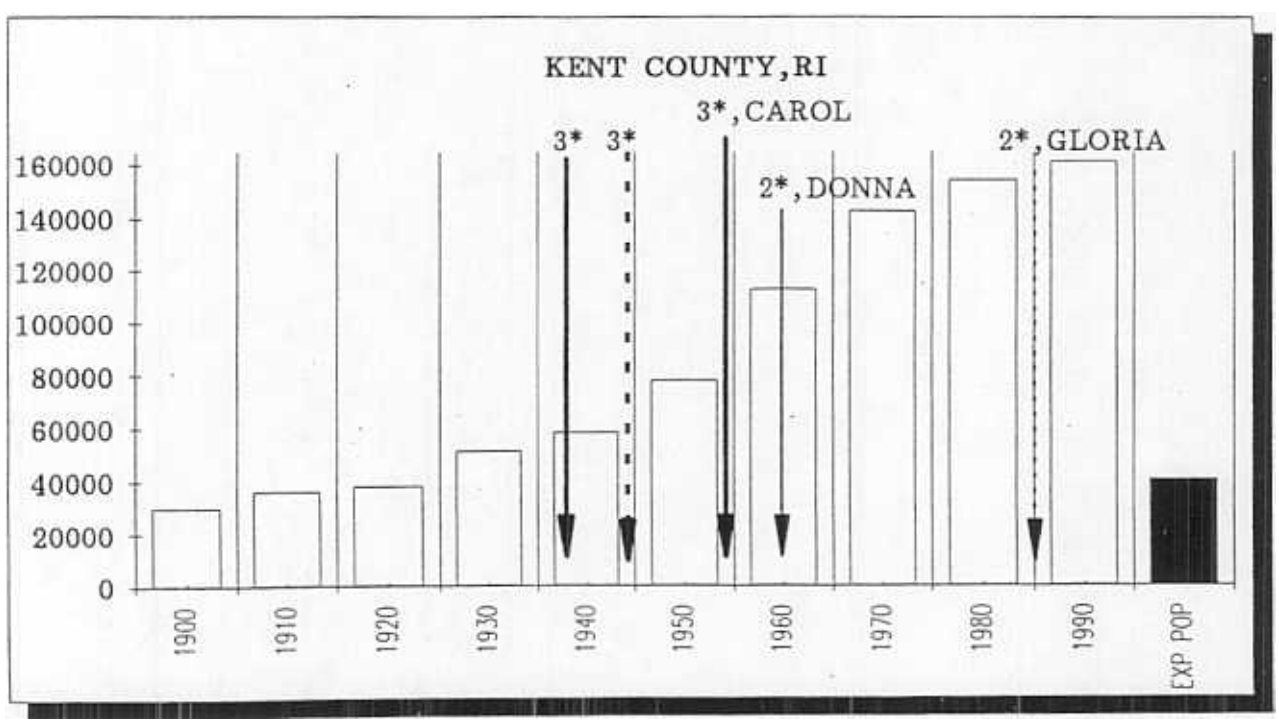
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
NEWPORT	32599	39335	42893	41668	46696	61539	81891	94228	81383	87194	30589	65	1954
BRISTOL	13144	17602	23113	25089	25548	29079	37146	45937	46942	48859	14182	71	1954
PROVIDENCE	328683	424353	475190	540016	550298	574973	568778	581470	571349	596270	251325	58	1954
KENT	29976	36378	38269	51390	58311	77763	112619	142382	154163	161135	40259	75	1954
WASHINGTON	24154	24942	24932	29334	32493	48542	59054	85706	93317	110006	23156	79	1954
RI COASTAL TOTAL	428556	542610	604397	687497	713346	791896	859488	949723	947154	1003464	336356	66	
RI TOTAL	428556	542610	604397	687497	713346	791896	859488	949723	947154	1003464			

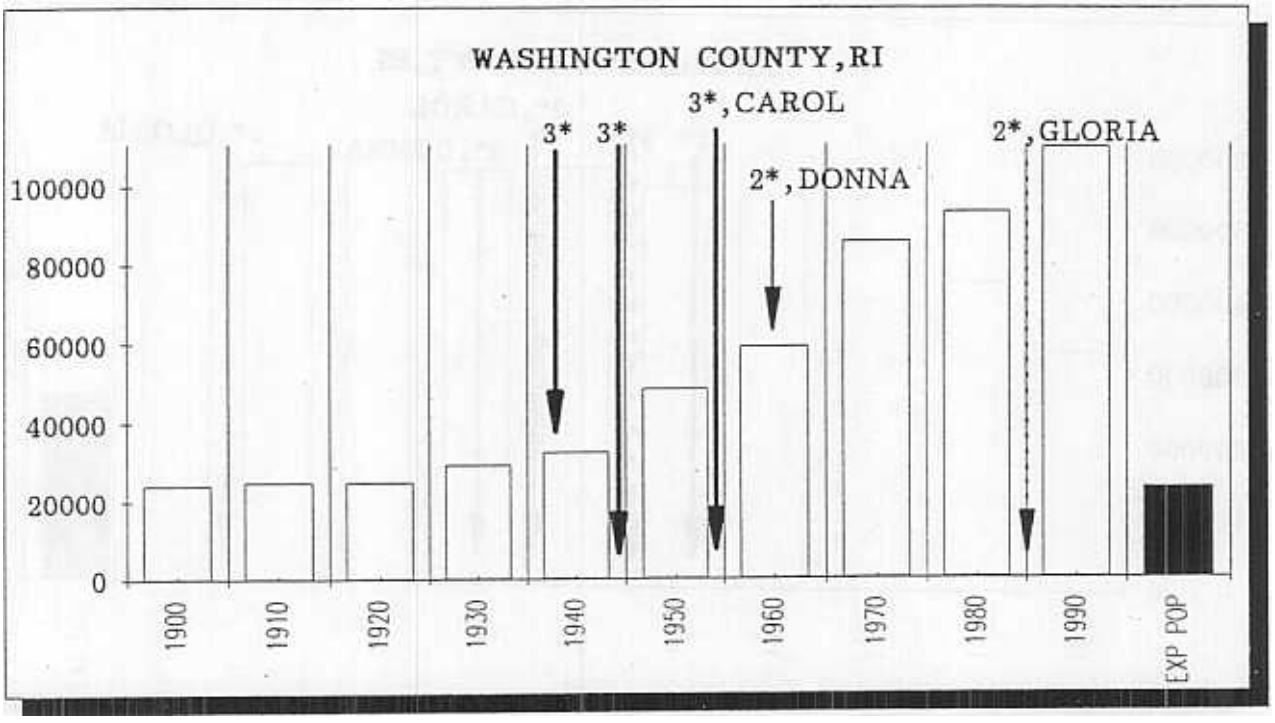



NEWPORT COUNTY, RI
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


BRISTOL COUNTY, RI
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PROVIDENCE COUNTY, RI
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

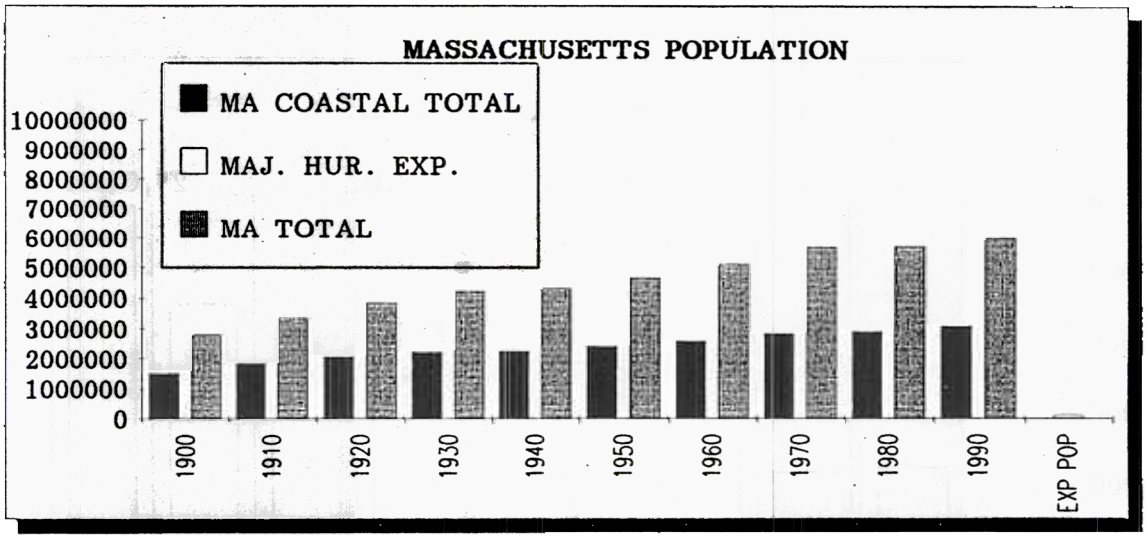

KENT COUNTY, RI
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
160000
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

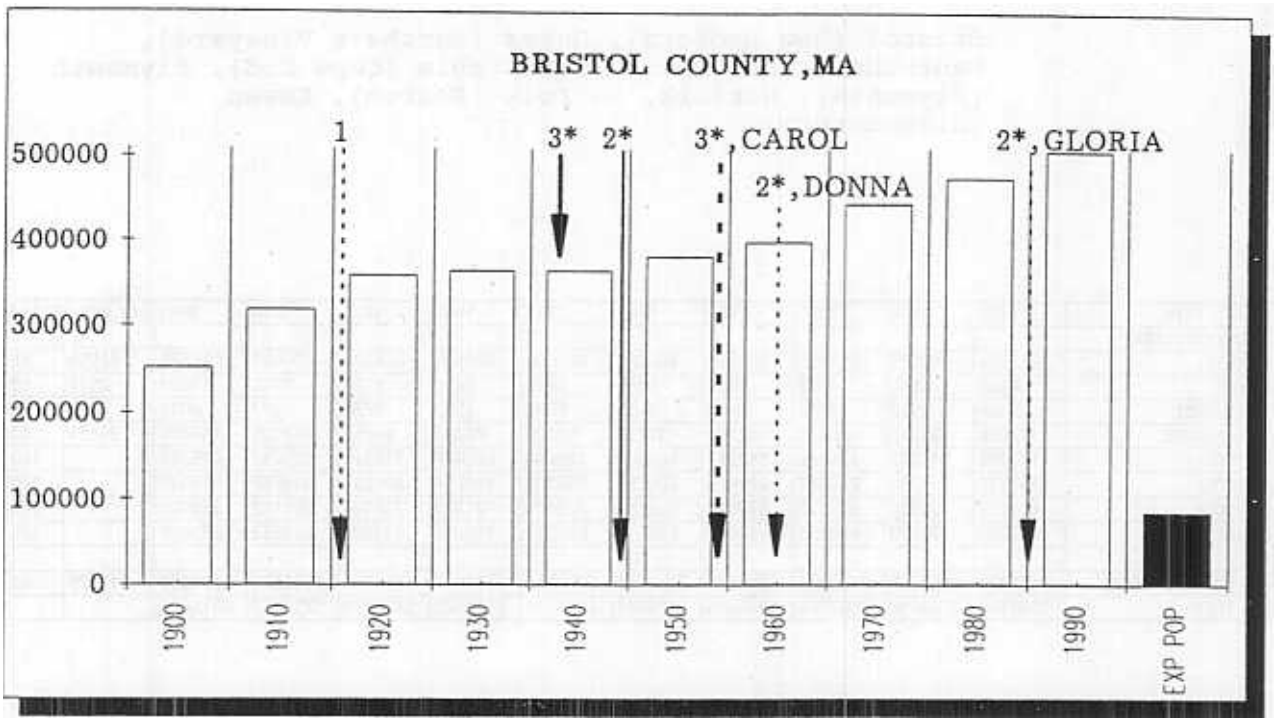

WASHINGTON COUNTY, RI
3*, CAROL
3*
3*
2*, DONNA
2*, GLORIA
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

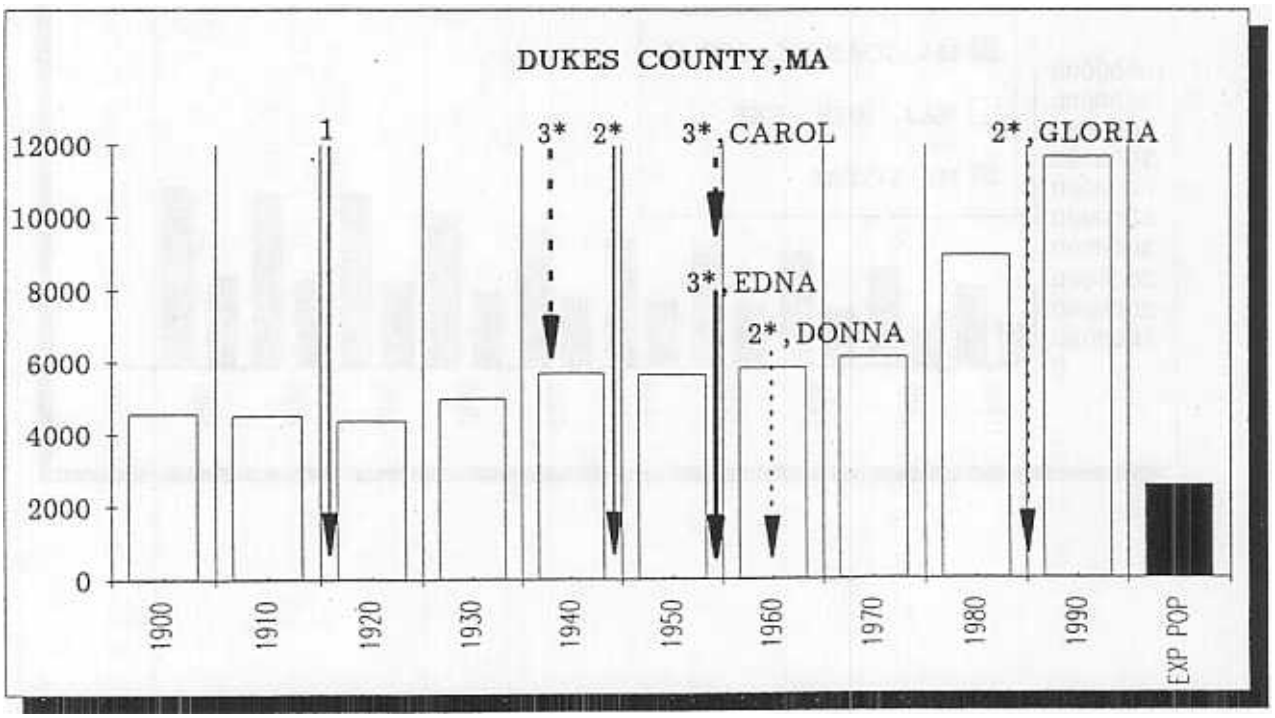
16. MASSACHUSETTS (8)

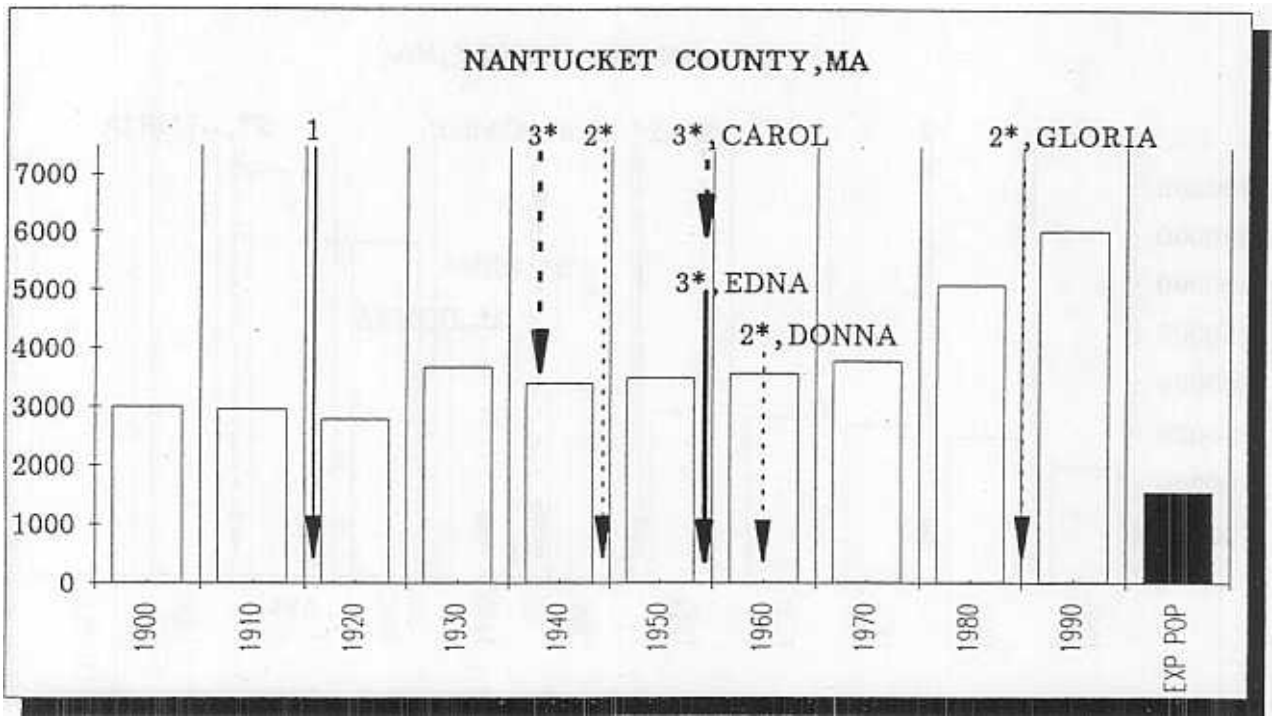
Bristol (New Bedford), Dukes (Martha's Vineyard), Nantucket (Nantucket), Barnstable (Cape Cod), Plymouth (Plymouth), Norfolk, Suffolk (Boston), Essex (Gloucester).

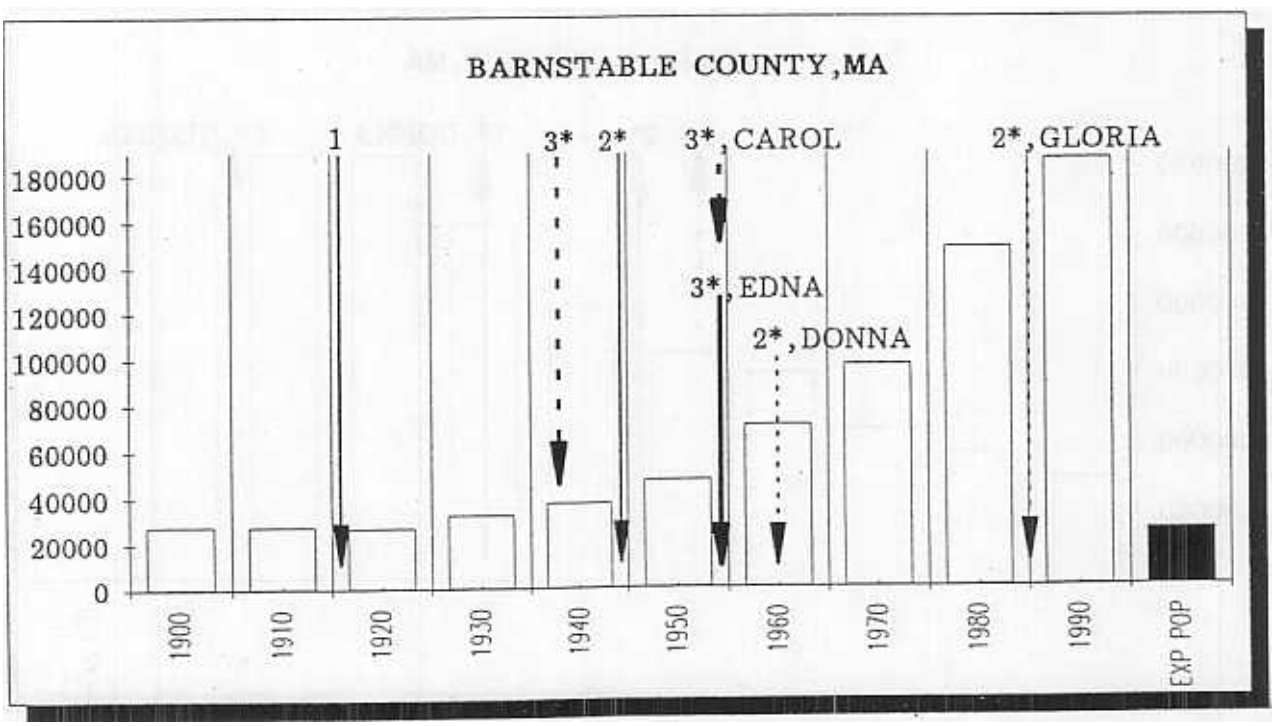
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
BRISTOL	252029	318573	359005	364590	364637	381569	398488	444301	474641	506325	84958	83	1938
DUKES	4561	4504	4372	4953	5669	5633	5829	6117	8942	11639	2507	78	1954
NANTUCKET	3006	2962	2797	3678	3401	3484	3559	3774	5087	6012	1543	74	1954
BARNSTABLE	27826	27542	26670	32305	37295	46805	70286	96656	147925	186605	24671	87	1954
PLYMOUTH	113985	144337	156968	162311	168824	189468	248449	333314	405437	435276		100	
NORFOLK	151539	187506	219081	299426	325180	392308	510256	604854	606587	616087		100	
SUFFOLK	611417	731388	835522	879536	863248	896615	791329	735190	650142	663906		100	
ESSEX	357030	436477	482156	498040	496313	522384	568831	637887	633632	670080		100	
MA COASTAL TOTAL	1521393	1853289	2086571	2244839	2264567	2438266	2597027	2862093	2932393	3095930	113679	96	
MA TOTAL	2805346	3366416	3852356	4249614	4316721	4690514	5148578	5689170	5737037	6016425			

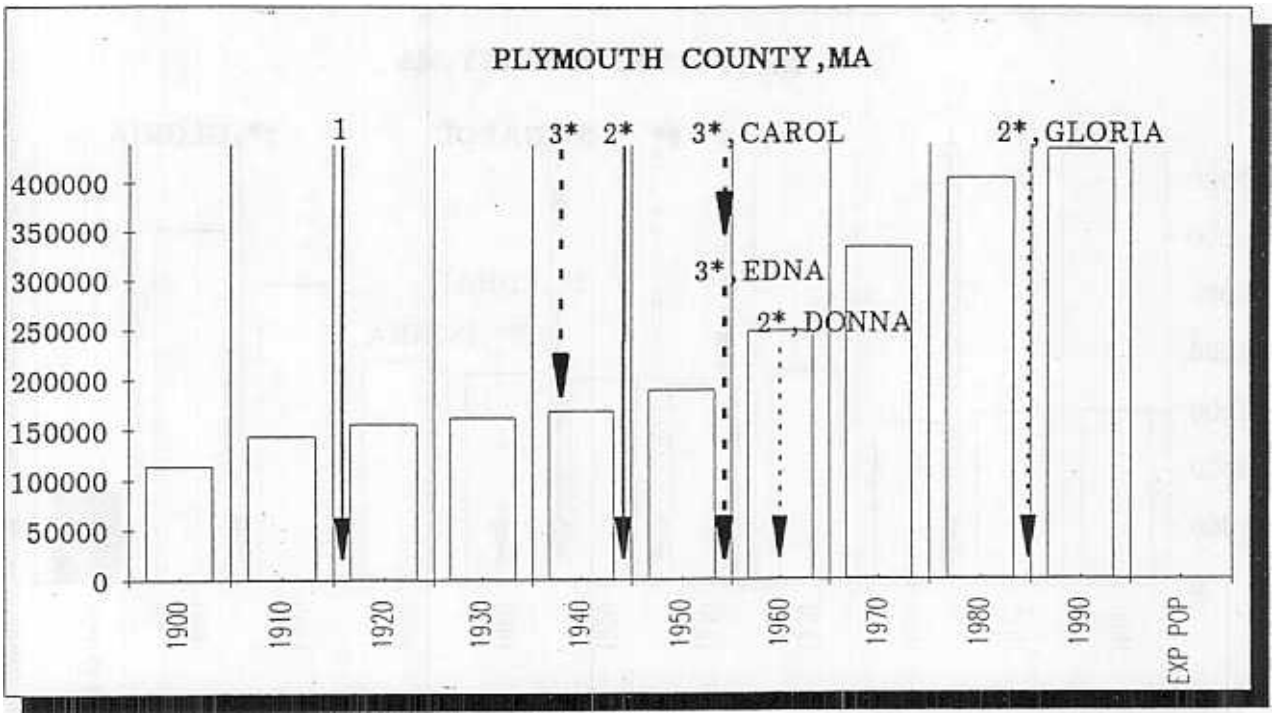


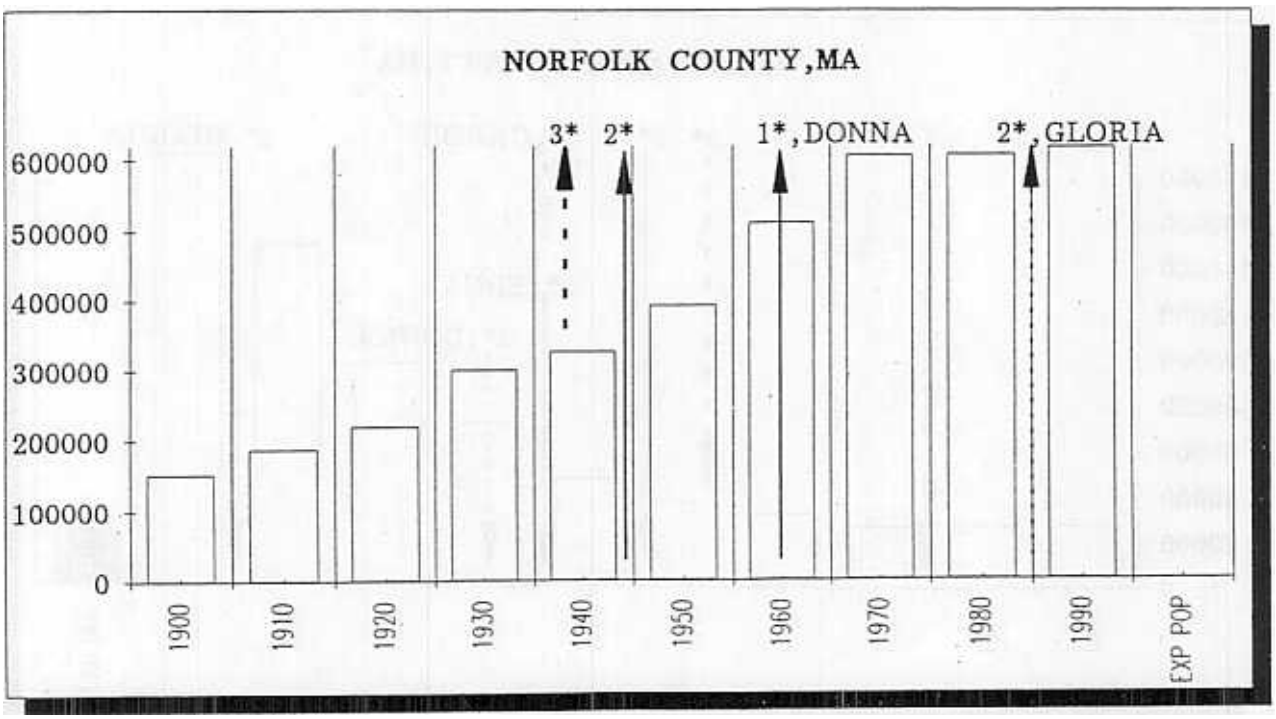

BRISTOL COUNTY,MA
500000
400000
300000
200000
100000
0
1
3*
2*
3*,CAROL
2*,DONNA
2*,GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

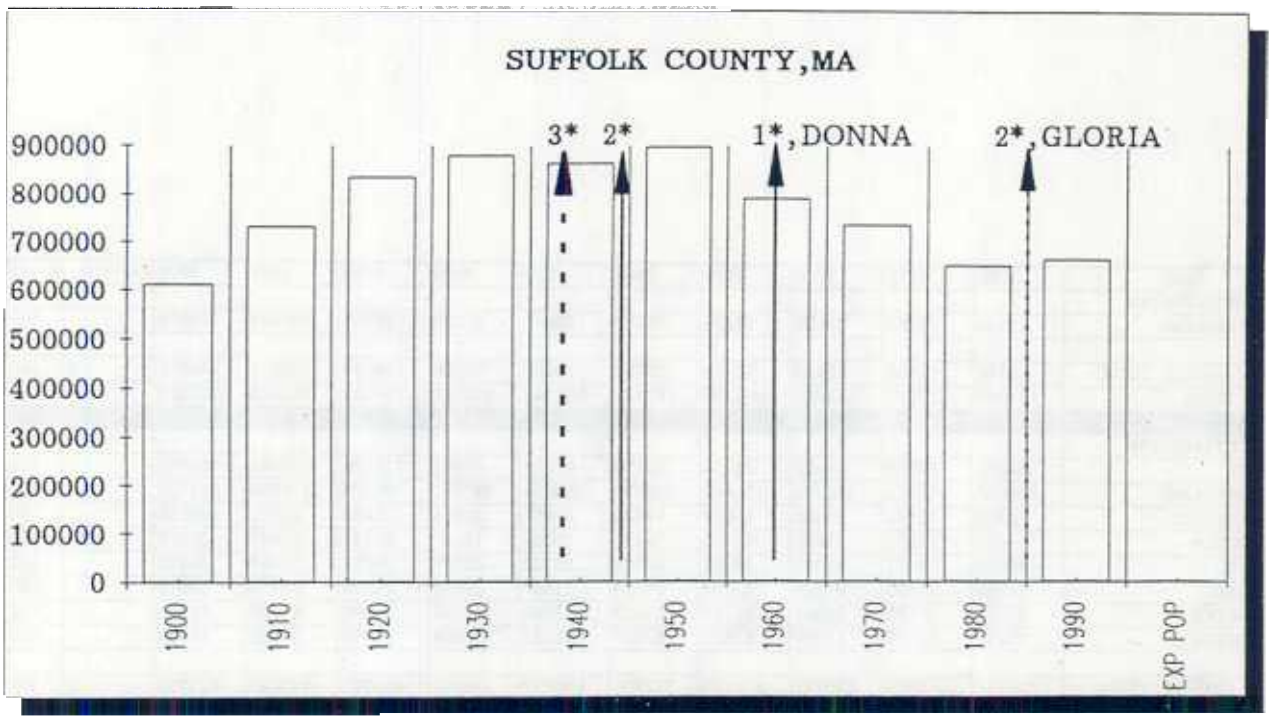

DUKES COUNTY,MA
12000
10000
8000
6000
4000
2000
0
1
3*
2*
3*,CAROL
3*,EDNA
2*,DONNA
2*,GLORIA
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

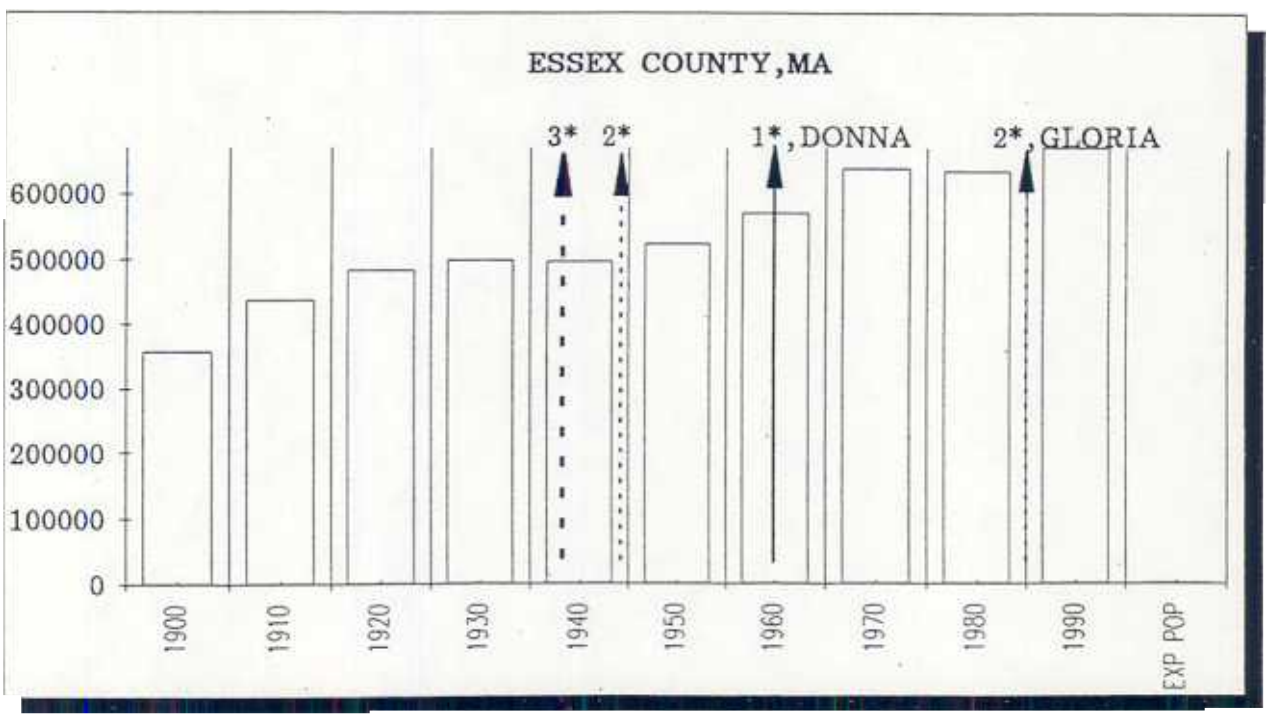

NANTUCKET COUNTY,MA
1
3*
2*
3*, CAROL
2*, GLORIA
3*, EDNA
2*, DONNA
7000
6000
5000
4000
3000
2000
1000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


BARNSTABLE COUNTY,MA
1
3*
2*
3*, CAROL
2*, GLORIA
3*, EDNA
2*, DONNA
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


PLYMOUTH COUNTY,MA
1
3*
2*
3*,CAROL
2*,GLORIA
3*,EDNA
2*,DONNA
400000
350000
300000
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


NORFOLK COUNTY,MA
3*
2*
1*,DONNA
2*,GLORIA
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


SUFFOLK COUNTY,MA
3*
2*
1*,DONNA
2*,GLORIA
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


ESSEX COUNTY,MA
3*
2*
1*,DONNA
2*,GLORIA
600000
500000
400000
300000
200000
100000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

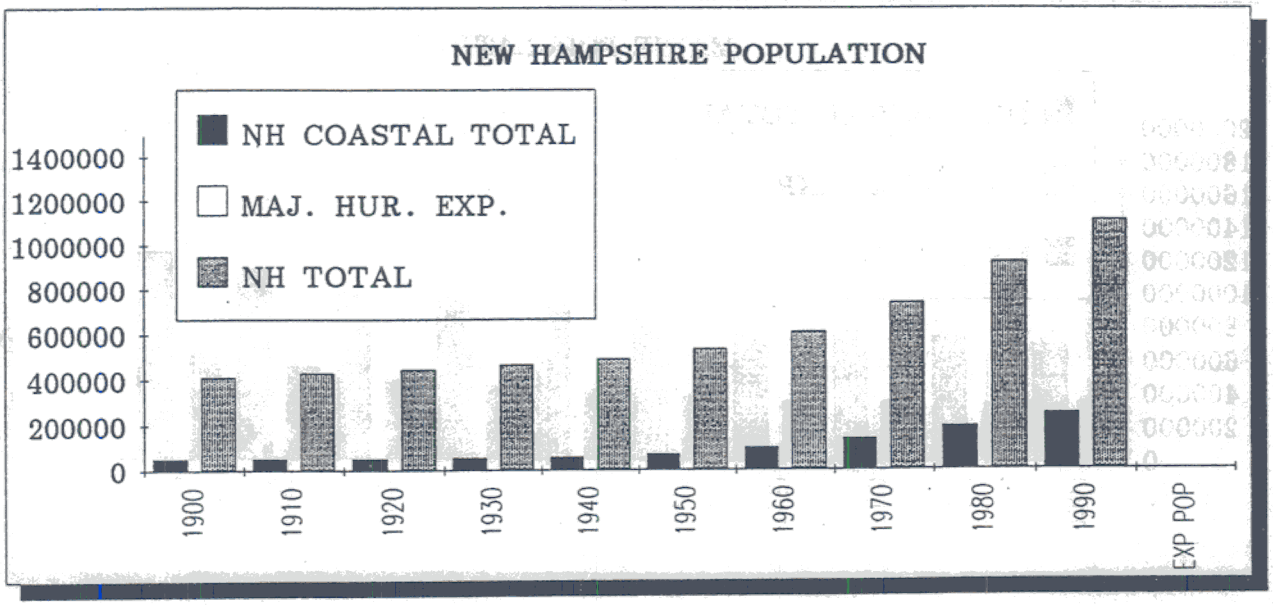
17. NEW HAMPSHIRE (1

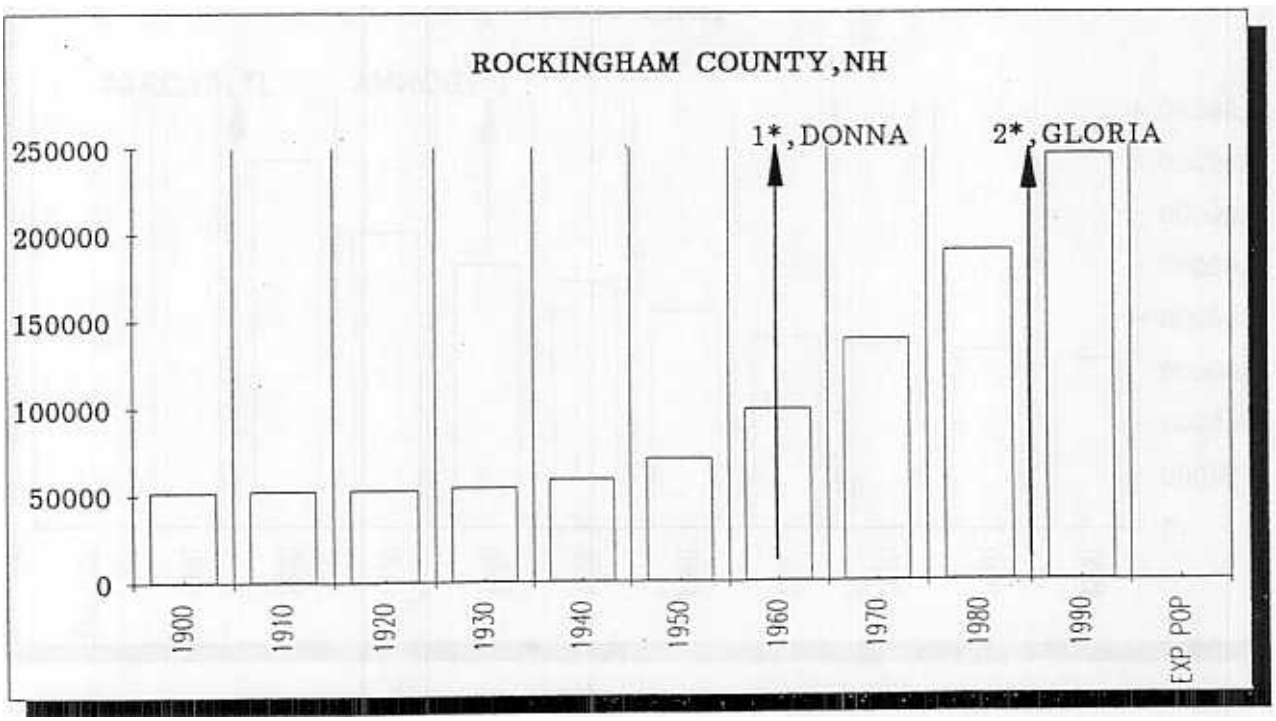
Rockingham (Portsmouth)

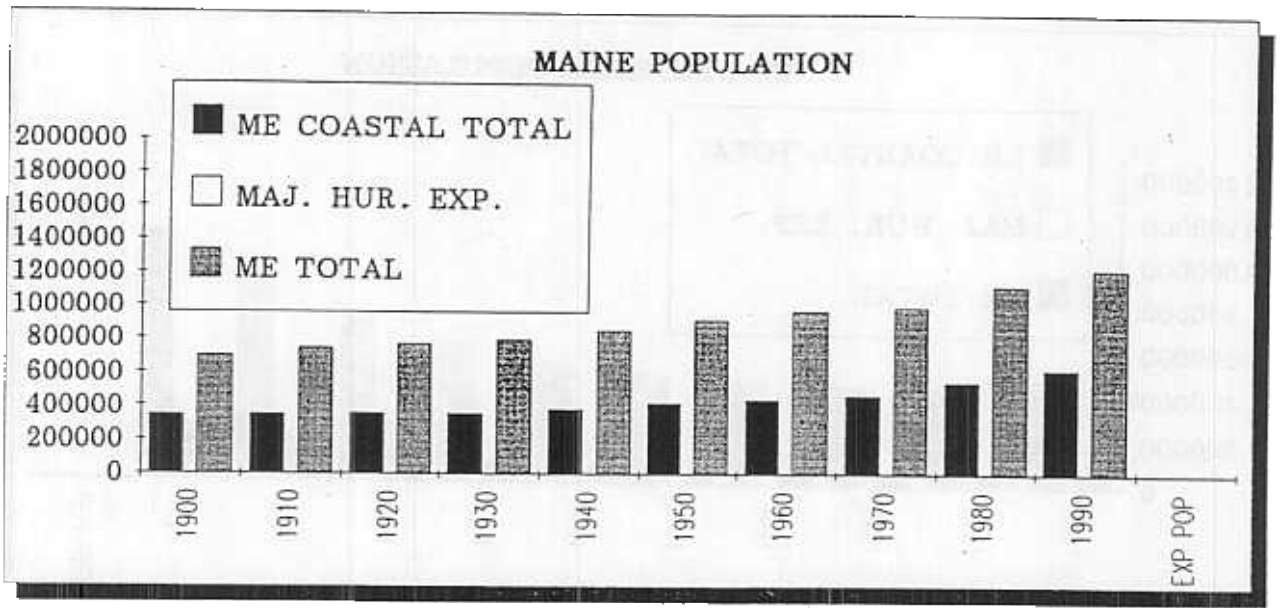
MAINE (8)

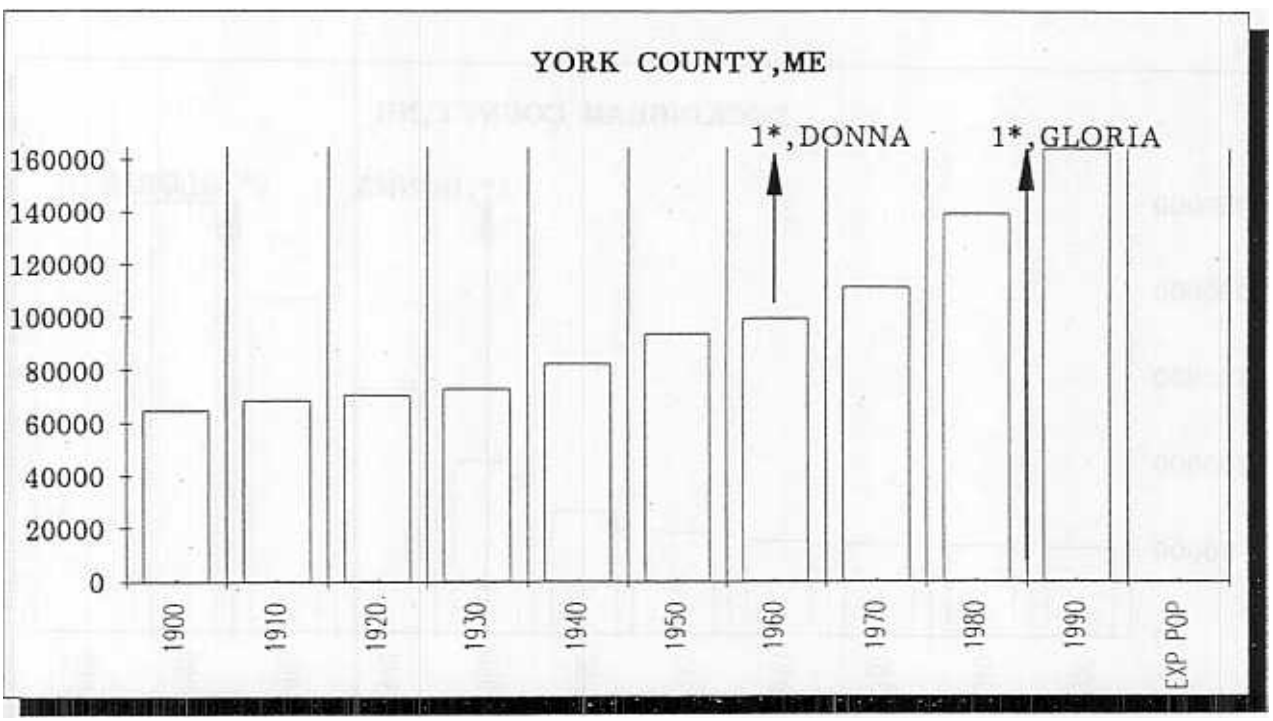
York, Cumberland (Portland), Sagadahoc, Lincoln, Knox, Waldo, Hancock, Washington (Eastport).

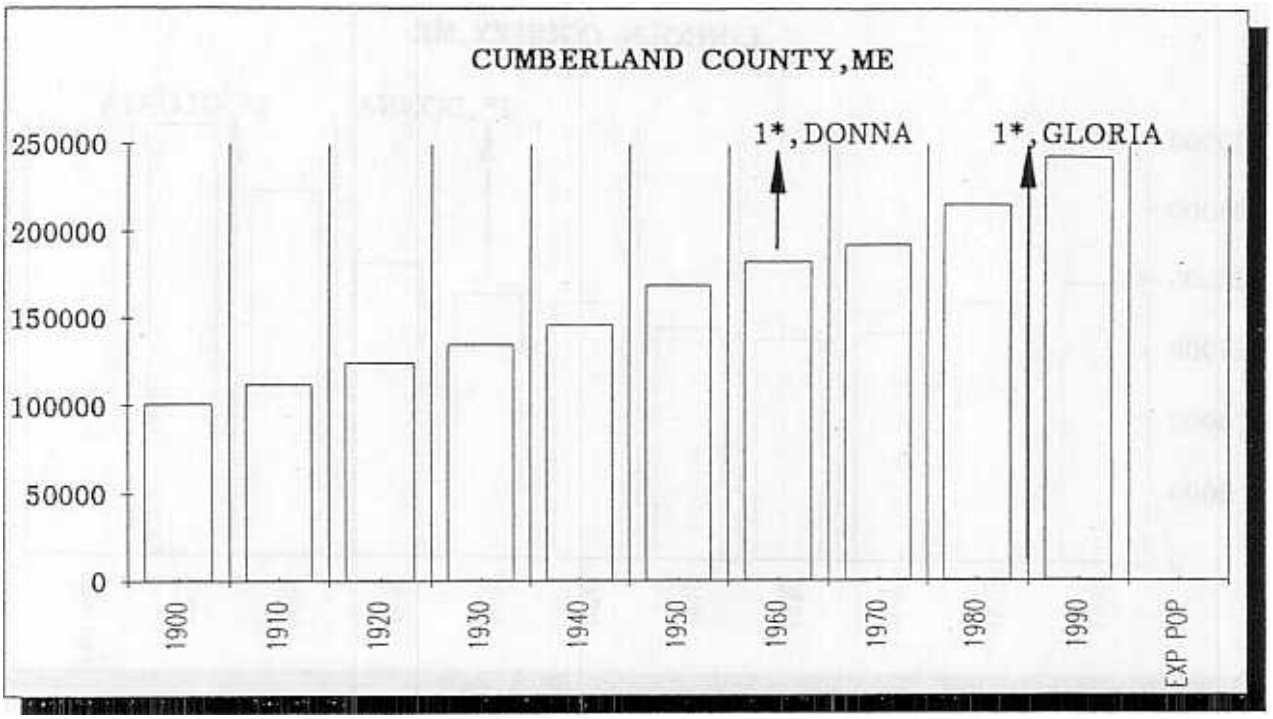
YEAR	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	EXP POP	% INE	LAST
COUNTY/PARISH													
ROCKINGHAM	51118	52188	52498	53750	58142	70059	99029	138951	190345	245845		100	
NH COASTAL TOTAL	51118	52188	52498	53750	58142	70059	99029	138951	190345	245845	0	100	
NH TOTAL	411588	430572	443083	465293	491524	533242	606921	737681	920610	1109252			
COUNTY/PARISH													
YORK	64885	68526	70696	72934	82550	93541	99402	111576	139666	164587		100	
CUMBERLAND	100689	112014	124376	134645	146000	169201	182751	192528	215789	243135		100	
SAGADAHOC	20330	18574	23021	16927	19123	20911	22793	23452	28795	33535		100	
LINCOLN	19669	18216	15976	15498	16294	18004	18497	20537	25691	30357		100	
KNOX	30406	28981	26245	27693	27191	28121	28575	29013	32941	36310		100	
WALDO	24185	23383	21328	20286	21159	21687	22632	23328	28414	33018		100	
HANCOCK	37241	35575	30361	30721	32422	32105	32293	34590	41781	46948		100	
WASHINGTON	45232	42905	41709	37826	37767	35187	32908	29859	34963	35308		100	
ME COASTAL TOTAL	342637	348174	353712	356530	382506	418757	439851	464883	548040	623198	0	100	
ME TOTAL	694466	742371	768014	797423	847226	913774	969265	993722	1124660	1227928			

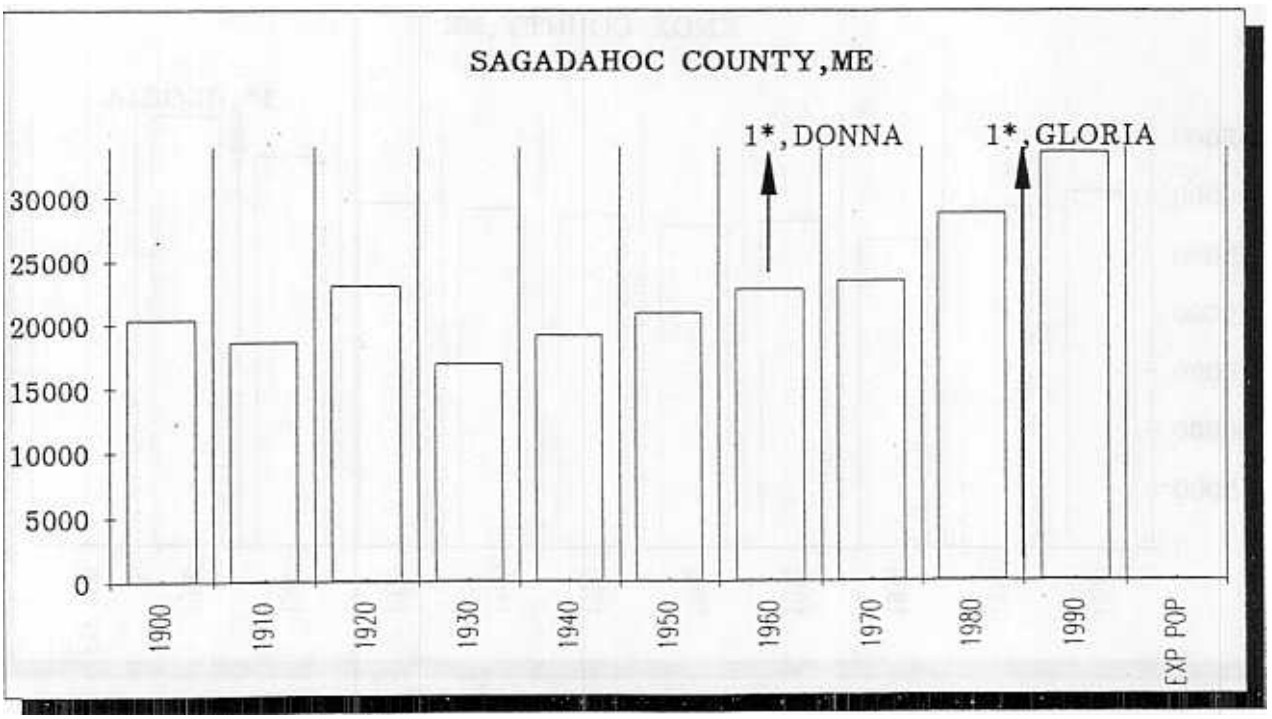

NEW HAMPSHIRE POPULATION
NH COASTAL TOTAL
MAJ. HUR. EXP.
NH TOTAL
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

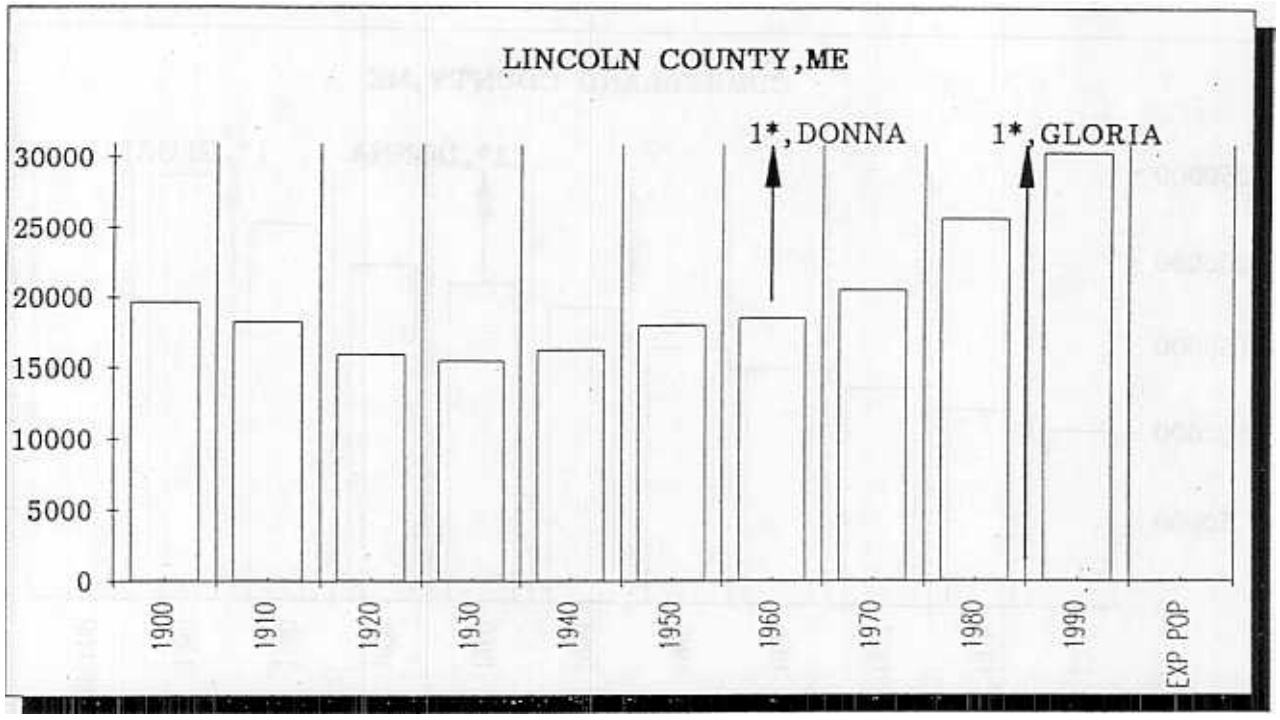

ROCKINGHAM COUNTY,NH
1*, DONNA
2*, GLORIA
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

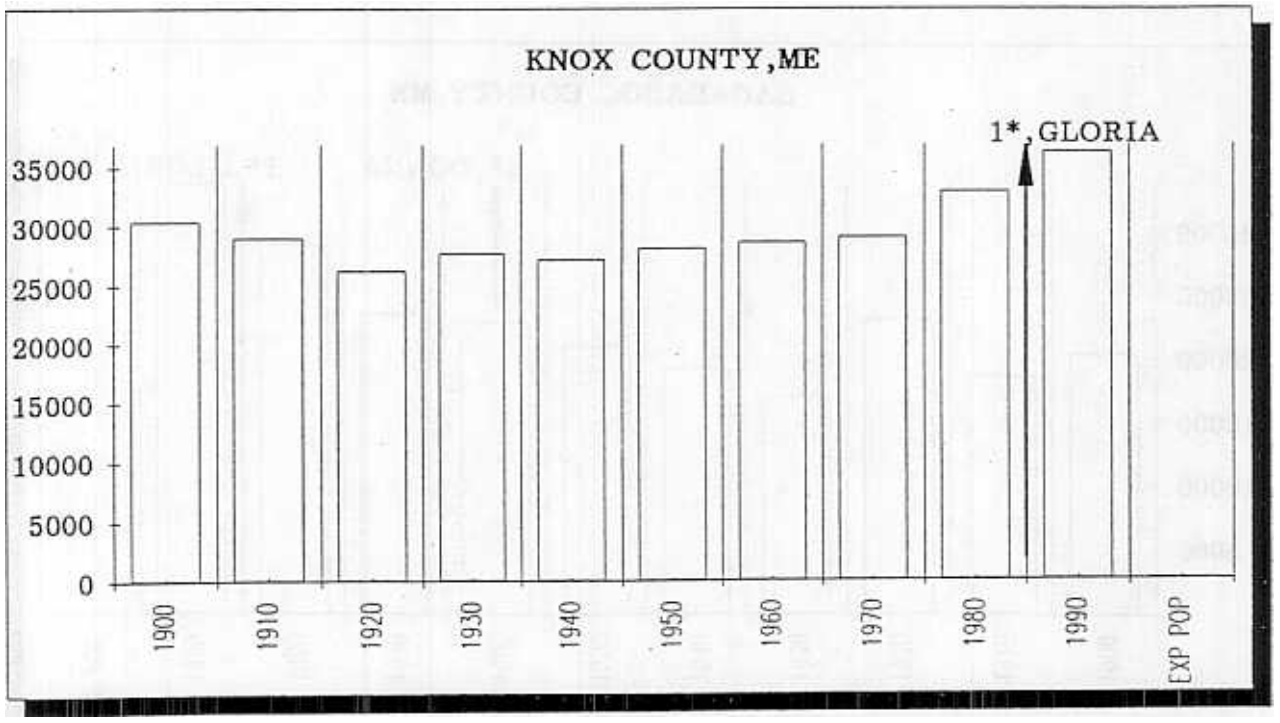

MAINE POPULATION
ME COASTAL TOTAL
MAJ. HUR. EXP.
ME TOTAL
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

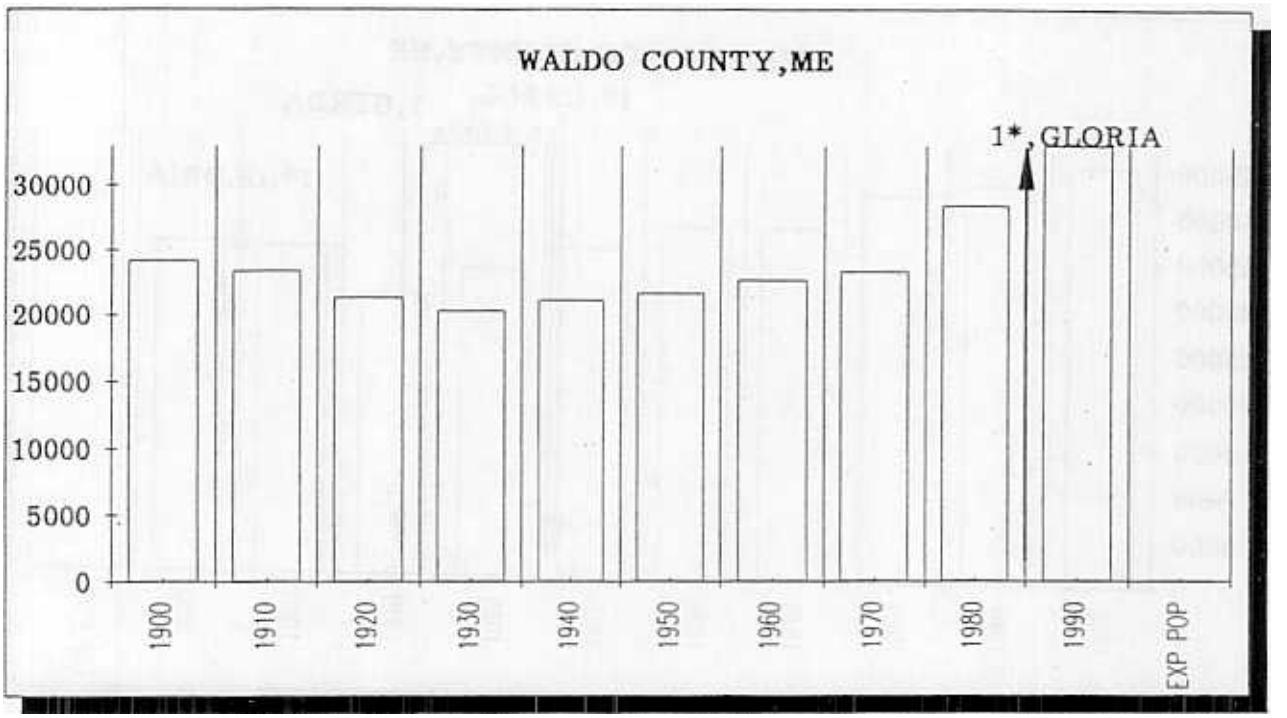

YORK COUNTY,ME
1*,DONNA
1*,GLORIA
160000
140000
120000
100000
80000
60000
40000
20000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

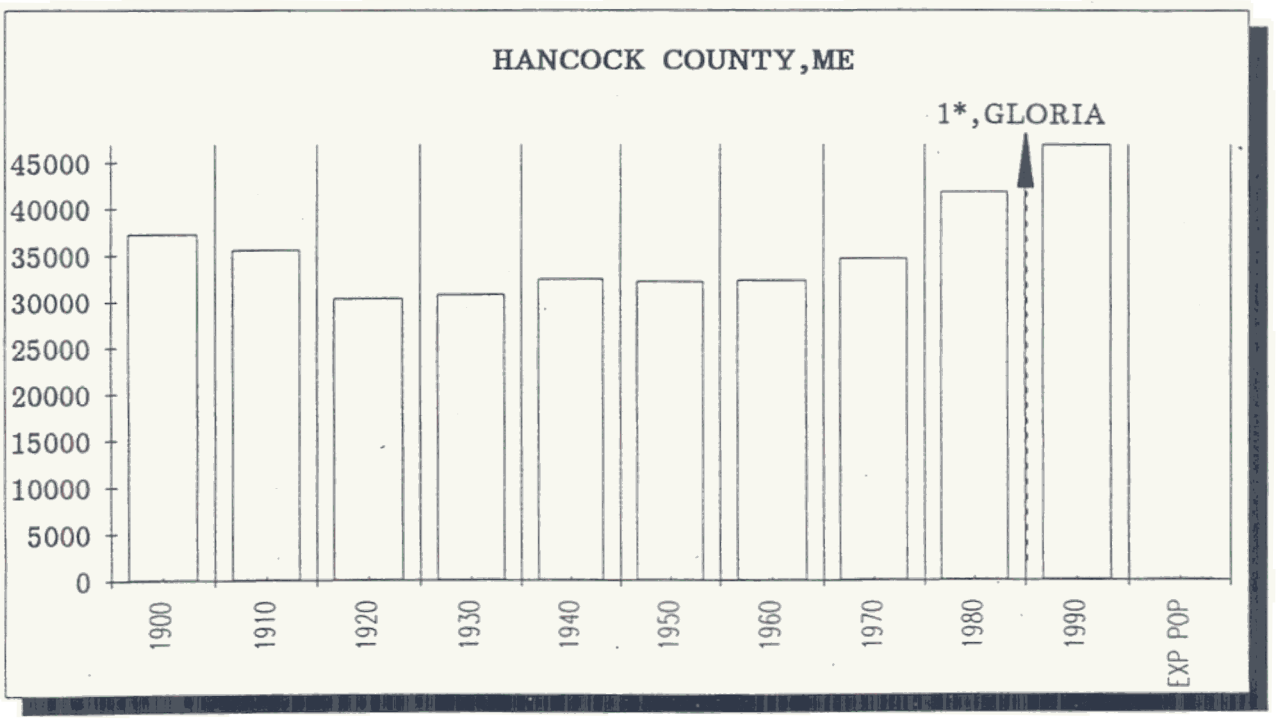

CUMBERLAND COUNTY,ME
1*,DONNA
1*,GLORIA
250000
200000
150000
100000
50000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

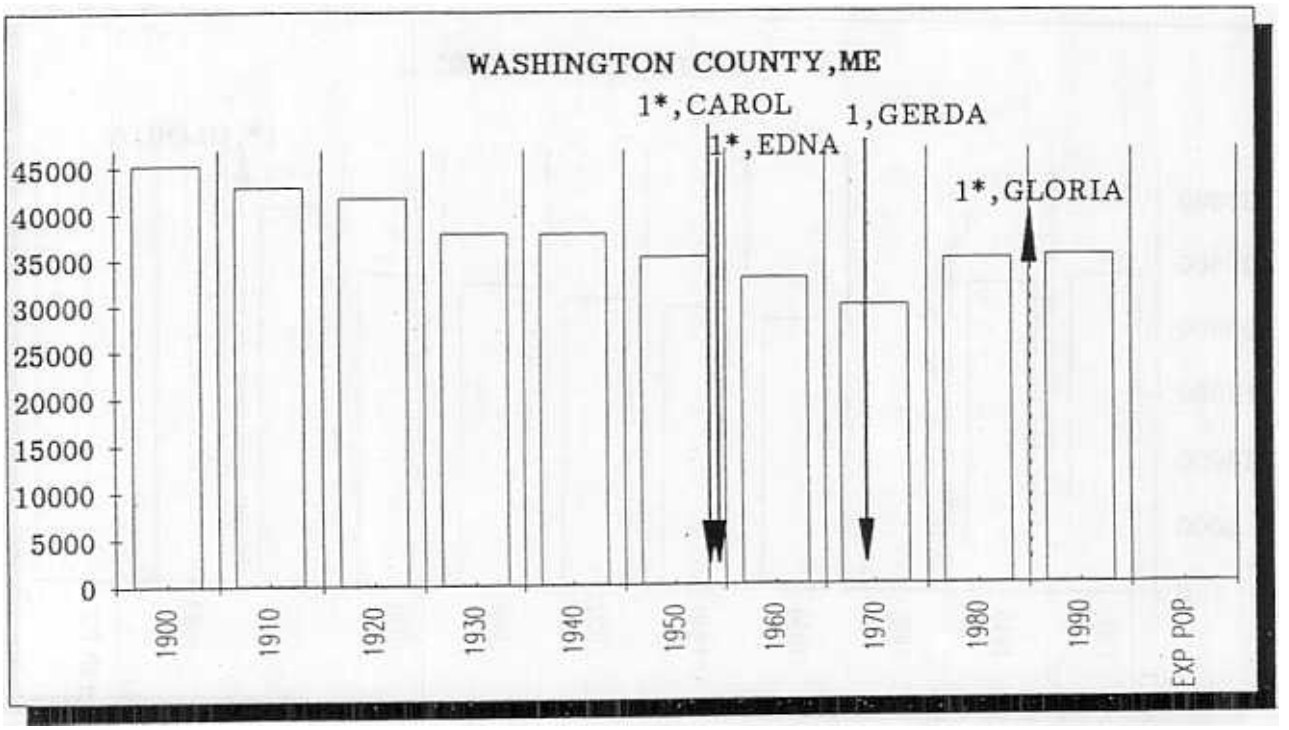

SAGADAHOC COUNTY,ME
1*,DONNA
1*,GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


LINCOLN COUNTY,ME
1*,DONNA
1*,GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


KNOX COUNTY,ME
1*,GLORIA
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


WALDO COUNTY,ME
1*,GLORIA
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


HANCOCK COUNTY,ME
1*,GLORIA
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP


WASHINGTON COUNTY,ME
1*,CAROL
1,GERDA
1*,EDNA
1*,GLORIA
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
EXP POP

APPENDIX C

A TABULAR HURRICANE CLIMATOLOGY BY COUNTIES, TEXAS TO MAINE, 1900-1990

This climatology is a convenient reference for the hurricane history of individual coastal counties as well as for states. It is apparent at a glance when any particular county was last affected by a hurricane. Also, it can be determined whether a hurricane was large or small by the number of counties affected. The severity of a hurricane, of course, is indicated by its Saffir/Simpson Scale classification. Another useful feature of these tables is that the time between hurricane occurrences is readily apparent both for counties and states.

One point to keep in mind is that while some areas have not experienced a major hurricane during this century, severe hurricanes have been recorded prior to 1900. Examples of this include Savannah, Apalachicola, and New York City, as indicated below.

Savannah: It is obvious at a glance that the Georgia coast has had very few direct hits in this century. However, Savannah was devastated by a severe hurricane (possibly a category 4) in 1893.

Apalachicola: In previous editions of this publication, the following note appeared concerning Apalachicola: "Climatology indicates that Franklin county, Florida (which includes Apalachicola), as well as five adjacent counties, has not received a direct hit by a major hurricane in this century. Here again, records indicate that severe hurricanes have affected that area prior to 1900. In the period from 1894 through 1898, three hurricanes moved within 50 miles of Apalachicola. The 1894 hurricane had winds of 120 mph - a category 3. A total of nine hurricanes moved within 100 miles of Apalachicola during the 13 year period 1886-1898." The validity of this caution was proven when Franklin and Gulf counties were directly hit by hurricane Elena, category 3, in 1985. The statement, and its implied caution, still applies to Wakulla, Jefferson, Taylor, and Dixie counties.

New York City: Early records indicate that a major hurricane affected the New York City area in 1821. This hurricane possibly was as severe as the New England hurricane of 1938. However, New York City has not received a direct hit by a major hurricane during the 20th century. In fact, records indicate that the 1821 hurricane is the only major hurricane whose center passed over a part of New York City in the last 200 years.

The main point to be illustrated by the above examples of hurricanes prior to 1900 is that **no particular area along the Gulf or Atlantic coast of the United States is immune to direct hits by major hurricanes**, regardless of how the climatology appears to have been in recent years.

The layout of this climatology is chronologically in years, top to bottom, and usually nine counties per page left to right from Texas to Maine. Minimal effort was applied to keep states grouped on the same page, but not at the expense of additional pages. Dual symbols were necessary in illustrating the hurricane climatology. While arrows were used with the graphs in Appendix B, arrows were not appropriate in a tabular presentation such as in this appendix. The key for symbols (non-arrows) is repeated below along with examples of Saffir/Simpson Scale numbers as used in this appendix.

Key for Symbols

Plain Number - Direct Hit

(- Indirect Hit

- Exiting or Inland

* - Forward Speed greater than 30 mph

Examples

1	Direct Hit by a Category 1 Hurricane
	Indirect Hit (or fringe hit) by a Category 1 Hurricane
2	Direct Hit by an Inland or Exiting (moving from land to water) Category 2 Hurricane
3*	Direct Hit by a Category 3 Hurricane moving greater than 30 mph
	Indirect Hit by an exiting Category 3 Hurricane moving greater than 30 mph
	Direct Hits by a Category 3 and a Category 2 Hurricane in the same year, with the Category 3 Hurricane occurring first
(3,1),3	Indirect Hits by Categories 3, and 1 hurricanes followed by a direct hit by a Category 3 Hurricane in the same year. Occurrences were in the order listed.
E4	Direct Hit by a Category 4 Hurricane in the eastern part of Monroe County, Florida. (An East or West designation was used for Monroe county FL only.)

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

CAMERON COUNTY TO CALHOUN COUNTY TEXAS

YEAR	CAMERON	WILLACY	KENEDY	KLEBERG	NUECES	SAN PATRICIO	ARANSAS	REFUGIO	CALHOUN
1900									
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909	2	(2)	(2)						
1910	(2)	(2)	2	2	(2)	(2)			
1911									
1912			(1)	1	1	1	1	1	
1913			1	1	1	1	(1)	(1)	
1914									
1915									
1916		(3)	3	3	3	(3)			
1917									
1918									
1919	(4)	(4)	4	4	4	4	4	4	(4)
1920									
1921									2
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929							(1)	(1)	1
1930									
1931									
1932									
1933	2,3	2,3	(2),3						
1934					2	2	2	2	(2)
1935									
1936				(1)	1	1	1	1	(1)
1937									
1938									
1939									
1940									
1941									(3)
1942					(3)	(3)	3	3	3
1943									
1944									
1945					2	2	2	2	2
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954									
1955									
1956									
1957									
1958									
1959									
1960									
1961					(4)	(4)	4	4	4
1962									
1963									
1964									
1965									
1966									
1967	3	3	3	3	3	(3)	(3)	(3)	
1968									
1969									
1970			(3)	(3)	3	3	3	3	(3)
1971			(1)	(1)	1	1	1	1	1
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980	3	3	(3)	(3)	(3)	(3)	(3)		
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

JACKSON COUNTY, TEXAS TO CAMERON PARISH, LOUISIANA

YEAR	JACKSON	MATAGORDA	BRAZORIA	GALVESTON	HARRIS	CHAMBERS	JEFFERSON	ORANGE	CAMERON
1900			4	4	4	4			
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909		3	3	3	(3)	(3)			
1910									
1911									
1912									
1913									
1914									
1915		(4)	4	4	4	4	(4)	(4)	
1916									
1917									
1918							(3)	(3)	3
1919	(4)	(4)							
1920									
1921	2	2	(2)	(2)	(2)				
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929	1	1							
1930									
1931									
1932		(4)	4	(4)	(4)				
1933									
1934									
1935									
1936									
1937									
1938									1
1939									
1940						(2)	2	2	2
1941	(3)	3	3	3	3	3	(3)	(3)	
1942	3	3	(3)	1	1	1	(1)		
1943			(2)	2	2	2	(2)		
1944									
1945	2	2	(2)	(2)	(2)				
1946									
1947			1	1	1	1			
1948									
1949		2	2	2	2	2	(2)	(2)	
1950									
1951									
1952									
1953									
1954									
1955									
1956									
1957							(4)	4	4
1958									
1959			1	1	1	1			
1960									
1961	4	4	4	(4)	(4)	(4)			
1962									
1963				1	(1)	1	1	(1)	(1)
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971	1	1	1	(1)					2
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983		(3)	3	3	2	3	(3)		
1984									
1985									1,(1)
1986							1	1	
1987									
1988									
1989				1,1		1	1		
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

VERMILION PARISH TO ORLEANS PARISH, LOUISIANA

YEAR	VERMILION	IBERIA	ST. MARY	TERREBONNE	LAFOURCHE	JEFFERSON	PLAQUEMINES	ST. BERNARD	ORLEANS
1900									
1901							2	2	(2)
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909					4	4	4	4	4
1910									
1911									
1912									
1913									
1914									
1915					4	4	4	4	4
1916									
1917									
1918	(3)								
1919									
1920			(2)	2	(2)				
1921									
1922									
1923		1	1	(1)					
1924									
1925									
1926			3	3	3				
1927									
1928									
1929									
1930									
1931									
1932									
1933									
1934			3	3	(3)				
1935									
1936									
1937									
1938	1								
1939									
1940									
1941									
1942									
1943									
1944									
1945									
1946									
1947						3	3	3	3
1948					1	1	1	1	1
1949									
1950									
1951									
1952									
1953									
1954									
1955									
1956							2		
1957	(4)								
1958									
1959									
1960							(1)		
1961									
1962									
1963									
1964		(3)	3	3	(3)				
1965				(3)	3	3	3	3	3
1966									
1967									
1968									
1969							5	(5)	(5)
1970									
1971	2	2	(2)						
1972									
1973									
1974	(3)	3	3	3	(3)	(3)			
1975									
1976									
1977				1					
1978									
1979			1	(1)					
1980									
1981									
1982									
1983									
1984									
1985	1,1	1	1	1	(1)	(1)	(1)		
1986									
1987									
1988							1	1	
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY
ST. TAMMANY PARISH, LA; MISSISSIPPI; ALABAMA; TO OKALOOSA COUNTY, FL.

YEAR	ST. TAMMANY	HANCOCK	HARRISON	JACKSON	MOBILE	BALDWIN	ESCAMBIA	SANTA ROSA	OKALOOSA
1900									
1901	(2)	2	2	2	(2)				
1902									
1903									
1904									
1905									
1906			(3)	3	3	(3)	(3)		
1907									
1908									
1909	4	(4)	(4)	(4)					
1910									
1911									
1912						1	1	(1)	
1913									
1914									
1915	4	(4)	(4)	(4)					
1916			(3)	3	3,2	(3),2	(3),2	2	2
1917					(3)	(3)	3	3	3
1918									
1919									
1920									
1921									
1922									
1923									
1924									
1925									
1926				(3)	3	3	3	3	(3)
1927									
1928									
1929									
1930									
1931									
1932				(1)	1	(1)			
1933									
1934									
1935									
1936									
1937									3
1938									
1939									
1940									1
1941									
1942									
1943									
1944									
1945									
1946									
1947	(3)	(3)	(3)	(3)					
1948	1	(1)	(1)						
1949									
1950					(1)	1	(1)		
1951									
1952									
1953									
1954									
1955									
1956								(1)	1
1957									
1958									
1959									
1960			1	1					
1961									
1962									
1963									
1964									
1965	(3)	(3)	(3)						
1966									
1967									
1968									
1969	(5)	5	5	(5)					
1970									
1971									
1972									
1973									
1974									
1975								(3)	3
1976									
1977									
1978									
1979			(3)	3	3	3	(3)	(3)	
1980									
1981									
1982									
1983									
1984									
1985		3	3	3	3	(3)			
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

WALTON COUNTY TO LEVY COUNTY, FLORIDA.

YEAR	WALTON	BAY	GULF	FRANKLIN	WAKULLA	JEFFERSON	TAYLOR	DIXIE	LEVY
1900									
1901									
1902									
1903		1							
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
1914									
1915		1							
1916	(2)								
1917	3	(3)							
1918									
1919									
1920									
1921									
1922									
1923									
1924		1	1	1	(1)				
1925									
1926									
1927									
1928									
1929	(2)	2	2	(2)	(2)				
1930									
1931									
1932									
1933									
1934									
1935								2	2
1936	3	(3)							
1937									
1938									
1939	1	1	1	(1)					
1940									
1941			(2)	2	2				
1942									
1943									
1944									
1945									
1946									
1947									
1948									
1949									(1)
1950								(3)	3
1951									
1952									
1953	(1)	1							
1954									
1955									
1956	1								
1957									
1958									
1959									
1960									
1961									
1962									
1963									
1964									
1965									
1966				2	2	2	2	(2)	(2)
1967									
1968									
1969									
1970									
1971									
1972		(1)	1	1	(1)				
1973									
1974									
1975	3	3	(3)						
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985		2	3,2	3,2	(2)	(2)	(2)		(3)
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

CITRUS COUNTY TO LEE COUNTY, FLORIDA.

YEAR	CITRUS	HERNANDO	PASCO	PINELLAS	HILLSBOROUGH	MANATEE	SARASOTA	CHARLOTTE	LEE
1900									
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909									
1910		3	3						
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918									
1919									
1920									
1921		(3)	(3)			(3)	3	3	3	3
1922									
1923									
1924									
1925									(1)
1926			3						
1927									
1928									
1929									
1930									
1931									
1932									
1933									
1934									
1935			(4)					(3)	(3)
1936									
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944			3	3					(3)
1945		1					1	1	1
1946			(1)	(1)					1
1947			(2)	2					
1948									
1949	(1)	(1)					(1)		
1950	3	3					3	3	(3)
1951									
1952									
1953									
1954									
1955									
1956									
1957									
1958									
1959									
1960		3	3						
1961									
1962									
1963									
1964									
1965									
1966			(2)	(2)				(2)	(2)
1967									
1968	2						2	(2)	(2)	(2)
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

COLLIER COUNTY TO MARTIN COUNTY, FLORIDA

YEAR	COLLIER	MONROE	DADE	BROWARD	PALM BEACH	HENDRY	GLADES	OKEECHOBEE	MARTIN
1900									
1901									
1902									
1903				2	2	1	1		(2)
1904									
1905									
1906		E1,2	1,2	(1),2	(1,2)				(1)
1907									
1908									
1909		E3	(3)						
1910	3	W3				2	2		
1911									
1912									
1913									
1914									
1915									
1916		W1							
1917									
1918									
1919		W4							
1920									
1921									
1922									
1923									
1924	1	W1							
1925									
1926	3	E(3)	4,(3)	4	(4)	3	3	(3)	(4)
1927									
1928			(4)	(2,4)	2,4	4	4	4	2,4
1929	3	E3	3						
1930									
1931									
1932									
1933		E(1)	(1)	(3)	3	(2)	(2)	2	3
1934									
1935	(4)	E5,W(1)	(5),2	2					
1936									
1937									
1938									
1939									1
1940									
1941	2	E(2)	2						
1942									
1943									
1944	(3)	W(3)							
1945		E3	3	(3)		2	2	(2)	
1946									
1947	2	2	(4),1	4,1	4	3	(3)	(3)	(4)
1948	3	W3,2	(3),2	(3,2)	2	2	(2)		2
1949				(3)	3	(3)	(3)	3	3
1950		W(3)	3	3	(3)	2	2	2	(3)
1951									
1952									
1953									
1954									
1955									
1956									
1957									
1958									
1959									
1960	4	E4	(4)	(4)		(2)	(2)	(2)	
1961									
1962									
1963									
1964	2	W(2)	2	2	2,2	(2)			1,2
1965	(3)	E3	(3)	(3)					
1966		1							
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979					2				2
1980									
1981									
1982									
1983									
1984									
1985		W(2)							
1986									
1987		W1							
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

ST. LUCIE COUNTY TO NASSAU COUNTY, FLORIDA.

YEAR	ST.LUCIE	INDIAN RIV.	BREVARD	VOLUSIA	FLAGLER	ST.JOHNS	DUVAL	NASSAU
1900								
1901								
1902								
1903								
1904								
1905								
1906								
1907								
1908								
1909								
1910								
1911								
1912								
1913								
1914								
1915								
1916								
1917								
1918								
1919								
1920								
1921			(2)	2	2			
1922								
1923								
1924								
1925								
1926	(4),2	(4),2	2	2	(2)			
1927								
1928	(2),4	(4)	(4)				2	2
1929								
1930								
1931								
1932								
1933	1,3	1,(3)	(1,3)					
1934								
1935								
1936								
1937								
1938								
1939	1	(1)	(1)					
1940								
1941								
1942								
1943								
1944				(2)	(2)	2	2	(2)
1945								
1946								
1947	(4)	(4)	(4)	(4)				
1948								
1949	(3)	(3)	(3)					
1950								
1951								
1952								
1953								
1954								
1955								
1956								
1957								
1958								
1959								
1960				2	2	2	(2)	
1961								
1962								
1963								
1964	1	1	(1)		(2)	2	2	(2)
1965								
1966								
1967								
1968					1	1		
1969								
1970								
1971								
1972								
1973								
1974								
1975								
1976								
1977								
1978								
1979	2	2	2	(2)				
1980								
1981								
1982								
1983								
1984								
1985								
1986								
1987								
1988								
1989								
1990								

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

GEORGIA

YEAR	CAMDEN	GLYNN	MCINTOSH	LIBERTY	BRYAN	CHATHAM
1900						
1901						
1902						
1903						
1904						
1905						
1906						
1907						
1908						
1909						
1910						
1911						2
1912						
1913						
1914						
1915						
1916						
1917						
1918						
1919						
1920						
1921						
1922						
1923						
1924						
1925						
1926						
1927						
1928	1	1	1	1	1	1
1929						
1930						
1931						
1932						
1933						
1934						
1935						
1936						
1937						
1938						
1939						
1940						2
1941						
1942						
1943						
1944						
1945						
1946						
1947				(2)	2	2
1948						
1949						
1950						
1951						
1952						
1953						
1954						
1955						
1956						
1957						
1958						
1959						
1960						
1961						
1962						
1963						
1964	(2)					
1965						
1966						
1967						
1968						
1969						
1970						
1971						
1972						
1973						
1974						
1975						
1976						
1977						
1978						
1979						2
1980						
1981						
1982						
1983						
1984						
1985						
1986						
1987						
1988						
1989						
1990						

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY
SOUTH CAROLINA TO ONSLOW COUNTY, NORTH CAROLINA.

YEAR	BEAUFORT	COLLETON	CHARLESTON	GEORGETOWN	HORRY	BRUNSWICK	NEW HANOVER	PENDER	ONSLOW
1900									
1901									
1902									
1903									
1904									
1905									
1906				(3)	3	3	(3)	(3)	
1907									
1908									
1909									
1910									
1911	2	2	(2)						
1912									
1913									
1914									
1915									
1916			1	1					
1917									
1918									
1919									
1920						1	1	(1)	
1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928	1	1	1	1	1				
1929									
1930									
1931									
1932									
1933									
1934									
1935									
1936									
1937									
1938									
1939									
1940	2	(2)	(2)						
1941									
1942									
1943									
1944						1	1	1	(1)
1945									
1946									
1947	2	(2)	(2)						
1948									
1949									
1950									
1951									
1952	1	1	1						
1953									
1954				(4*)	4*	4*	4*	4*	(4*)
1955						1	1	1	(3,1,3)
1956									
1957									
1958						(3)	(3)	(3)	(3)
1959	3	3	1,3	1,(3)					
1960						3*	3*	3*	3*
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979	2	(2)							
1980									
1981									
1982									
1983									
1984						2	2		
1985	1								
1986									
1987									
1988									
1989			4	4	(4)				
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY
CARTERET COUNTY TO CHOWAN COUNTY, NORTH CAROLINA.

YEAR	CARTERET	PAMLICO	BEAUFORT	HYDE	DARE	TYRRELL	WASHINGTON	BERTIE	CHOWAN
1900									
1901					1				
1902									
1903									
1904									
1905									
1906									
1907									
1908	1						(1)	(1)	1
1909									
1910									
1911									
1912									
1913	1						1		1
1914									
1915									
1916									
1917									
1918									
1919									
1920									
1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933	3	(2)		(2)			(3)	(3)	(2),3
1934									
1935									
1936									
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944	(3*)								3*
1945									
1946									
1947									
1948									
1949									1
1950									
1951									
1952									
1953	1						1	(1)	1
1954	(2)								(2)
1955	(3,3)	(2,2)		(2,2)			3,(3)	(2,2)	3,3
1956									
1957									
1958	(3)								(3)
1959									
1960	3*	3*	(3*)	(3*)			3*	3*	3*
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									(1)
1969									
1970									
1971	1						(1)		(1)
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(3*)						(3*)		3*
1986	1						1		1
1987									
1988									
1989									
1990									
3*									
1	1								

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY
PERQUIMANS COUNTY, NORTH CAROLINA TO SURRY COUNTY, VIRGINIA.

YEAR	PERQUIMANS	PASQUOTANK	CAMDEN	CURRITUCK	VA. BEACH	CHESAPEAKE	SUFFOLK	I. OF WIGHT	SURRY
1900									
1901				1					
1902									
1903									
1904									
1905									
1906									
1907									
1908				(1)					
1909									
1910									
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918									
1919									
1920									
1921									
1922									
1923									
1924				(2)	(2)				
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933	2	2	2	2,(3)	2,(3)	2,(3)	2	2	2
1934									
1935									
1936				(2)	(2)	(2)	(2)		
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944	(3*)	(3*)	3*	3*	3*	(3*)	(3*)	(3*)	
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953	(1)	(1)	1	1	(1)	(1)			
1954				(2)	(2*)	(2*)	(2*)	(2*)	(2*)
1955	(2,2)	2,(2)	2,(2)	2,(2)	1	1	1	1	1
1956									
1957									
1958									
1959									
1960	3*	3*	3*	3*	(3*)				
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985			(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)
1986				1	1				
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

JAMES CITY COUNTY THROUGH NORTHAMPTON COUNTY, VIRGINIA.

YEAR	JAMES CITY	YORK	GLOUCESTER	MATHEWS	MIDDLESEX	LANCASTER	N'UMBERLAND	WESTMORLAND	NORTHAMPTON
1900									
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
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1915									
1916									
1917									
1918									
1919									
1920									
1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933	1	2	1						(2)
1934									
1935									
1936									
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944		(3*)							(3*)
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)	
1955	1	1	1	1	1	1			1
1956									
1957									
1958									
1959									
1960									(3*)
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)
1986									1
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY
ACCOMACK COUNTY, VIRGINIA TO CECIL COUNTY, MARYLAND.

YEAR	ACCOMACK	WORCESTER	SOMERSET	ST. MARYS	CALVERT	A. ARUNDEL	BALTIMORE	HARFORD	CECIL
1900									
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
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1931									
1932									
1933									
1934									
1935									
1936									
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944	(3*)	(3*)							
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954				2*	(2*)	(2*)	(2*)		
1955	(1)								
1956									
1957									
1958									
1959									
1960	(3*)	(3*)							
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

KENT COUNTY, MARYLAND THROUGH DELAWARE

YEAR	KENT	QUEEN ANNES	TALBOT	CAROLINE	DORCHESTER	WICOMICO		SUSSEX	KENT	NEW CASTLE
1900										
1901										
1902										
1903										
1904										
1905										
1906										
1907										
1908										
1909										
1910										
1911										
1912										
1913										
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1915										
1916										
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1933										
1934										
1935										
1936										
1937										
1938										
1939										
1940										
1941										
1942										
1943										
1944								(3*)		
1945										
1946										
1947										
1948										
1949										
1950										
1951										
1952										
1953										
1954										
1955										
1956										
1957										
1958										
1959										
1960								(3*)		
1961										
1962										
1963										
1964										
1965										
1966										
1967										
1968										
1969										
1970										
1971										
1972										
1973										
1974										
1975										
1976										
1977										
1978										
1979										
1980										
1981										
1982										
1983										
1984										
1985	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)		(3*)	(3*)	(3*)
1986										
1987										
1988										
1989										
1990										

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

SALEM COUNTY TO HUDSON COUNTY, NEW JERSEY.

YEAR	SALEM	CUMBERLAND	CAPE MAY	ATLANTIC	BURLINGTON	OCEAN	MONMOUTH	MIDDLESEX	HUDSON
1900									
1901									
1902									
1903			1	1	1	1	1		
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918									
1919									
1920									
1921									
1922									
1923									
1924			(2)	(2)	(2)	(2)			
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933									
1934									
1935									
1936									
1937									
1938									
1939									
1940									
1941									
1942									
1943									
1944			(3*)	(3*)	(3*)	(3*)	(3*)		
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954									
1955									
1956									
1957									
1958									
1959									
1960			(3*)	(3*)	(3*)	(3*)	(3*)		
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

BERGEN COUNTY, NEW JERSEY AND NEW YORK

YEAR	BERGEN	RICHMOND	NEW YORK	KINGS	QUEENS	NASSAU	SUFFOLK	BRONX	WESTCHESTER
1900									
1901									
1902									
1903			1	1	1	1	(1)	1	
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918									
1919									
1920									
1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933									
1934									
1935									
1936									
1937									
1938			(3*)	(3*)	(3*)	(3*)	3*	(3*)	(3*)
1939									
1940									
1941									
1942									
1943									
1944			(3*)	(3*)	(3*)	(3*)	3*	(3*)	(3*)
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954						(3*)	3*		
1955									
1956									
1957									
1958									
1959									
1960							3*		
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972						1	(1)		
1973									
1974									
1975									
1976					(1)	1			
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(3*)					3*	3*		
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

CONNECTICUT AND RHODE ISLAND

YEAR	NEW LONDON	MIDDLESEX	NEW HAVEN	FAIRFIELD	NEWPORT	BRISTOL	PROVIDENCE	KENT	WASHINGTON
1900									
1901									
1902									
1903	1	1							
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
1914									
1915									
1916									
1917									
1918									
1919									
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1921									
1922									
1923									
1924									
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									
1933									
1934									
1935									
1936									
1937									
1938	3*	3*	3*	3*	3*	3*	3*	3*	3*
1939									
1940									
1941									
1942									
1943									
1944	(3*)	(3*)	(3*)	3*	3*	3*	(3*)	(3*)	3*
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									
1954	(3*)	(3*)	(3*)	3*	3*	3*	3*	3*	3*
1955									
1956									
1957									
1958									
1959									
1960			(2*)	2*	2*	2*	2*	2*	2*
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972	1	(1)							
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	(2*)	2*	2*	2*	(2*)	(2*)	(2*)	(2*)	(2*)
1986									
1987									
1988									
1989									
1990									

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

MASSACHUSETTS

YEAR	BRISTOL	DUKES	NANTUCKET	BARNSTABLE	PLYMOUTH	NORFOLK	SUFFOLK	ESSEX
1900								
1901								
1902								
1903								
1904								
1905								
1906								
1907								
1908								
1909								
1910								
1911								
1912								
1913								
1914								
1915								
1916	(1)	1	1	1	1			
1917								
1918								
1919								
1920								
1921								
1922								
1923								
1924								
1925								
1926								
1927								
1928								
1929								
1930								
1931								
1932								
1933								
1934								
1935								
1936								
1937								
1938	3*	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)	(3*)
1939								
1940								
1941								
1942								
1943								
1944	2*	2*	(2*)	2*	2*	2*	2*	(2*)
1945								
1946								
1947								
1948								
1949								
1950								
1951								
1952								
1953								
1954	(3*)	(3*),3*	(3*),3*	(3*),3*	(3*,3*)			
1955								
1956								
1957								
1958								
1959								
1960	(2*)	(2*)	(2*)	(2*)	(2*)	1*	1*	1*
1961								
1962								
1963								
1964								
1965								
1966								
1967								
1968								
1969								
1970								
1971								
1972								
1973								
1974								
1975								
1976								
1977								
1978								
1979								
1980								
1981								
1982								
1983								
1984								
1985	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)	(2*)
1986								
1987								
1988								
1989								
1990								

COUNTY HURRICANE STRIKES (1900-1990) BY SAFFIR-SIMPSON CATEGORY

NEW HAMPSHIRE AND MAINE

YEAR	ROCKINGHAM	YORK	CUMBERLAND	SAGADAHOC	LINCOLN	KNOX	WALDO	HANCOCK	WASHINGTON
1900									
1901									
1902									
1903									
1904									
1905									
1906									
1907									
1908									
1909									
1910									
1911									
1912									
1913									
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1941									
1942									
1943									
1944									
1945									
1946									
1947									
1948									
1949									
1950									
1951									
1952									
1953									1*
1954									1*
1955									
1956									
1957									
1958									
1959									
1960	1*	1*	1*	1*	1*				
1961									
1962									
1963									
1964									
1965									
1966									
1967									
1968									
1969									1
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985	2*	1*	1*	1*	1*	1*	1*	(1*)	(1*)
1986									
1987									
1988									
1989									
1990									