INTRA-METROPOLITAN MIGRATION:

SIX BOSTON AREA MUNICIPALITIES

by

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ABSTRACT

In this thesis I have tried to increase the confidence of the reader—and myself—in these main points.

1. Selective migration is both conceptually and numerically the most important component of population change for the planner in an American metropolitan area to understand. It is a judgement of the local community's present function for society and a considerable limitation upon its possible functions in the future.

2. Specifying both the origin and destination of a stream of movement in some detail is an aid in understanding the values which the movers will express in making it, and so in turn the number and kinds of persons who are likely to make the move.

3. The effect of selective migration among places of differential prestige is to increase segregation (as defined).

4. The effect of selective migration among specialized places is usually to increase their specialization.

5. If social choice ought to include the possibility of expressing unusual combinations of values, this trend is bad.

6. The prospective mover acts as if he imaginatively exaggerates the social class specialization of places. But he weights more strongly the value of a "fitting" degree of prestige in his destination than in his origin.

7. Age and occupation information alone may be sufficient to predict the main differentials among intro-metropolitan movement streams.

FIGURES

FURTHER DISCUSSION OF IV," FORMULATION OF HYPOTHESES"

I. GENERAL

II. SEGREGATION

III. SPECIALIZATION

IV. STREAMS AND "FARES"

I. STUDY DESIGN

Population composition is affected by three classes
of mechanisms: differential rates of births and deaths,
selective migration, and mobility between other demogra-
phic classifications, generally lumped as "social mobility."[1]
This paper first reports a study of a case of the second
of these, selective migration, in which I attempt to spe-
cify its most important current patterns at the metropoli-
tan scale. I propose next a theory more detailed than
the initial descriptive hypothesis, and find it to be sup-
ported at least in its broad outlines, by further data from
the same case. Finally, I explore a possible line of infe-
rence from the findings, testing the apparent trend of
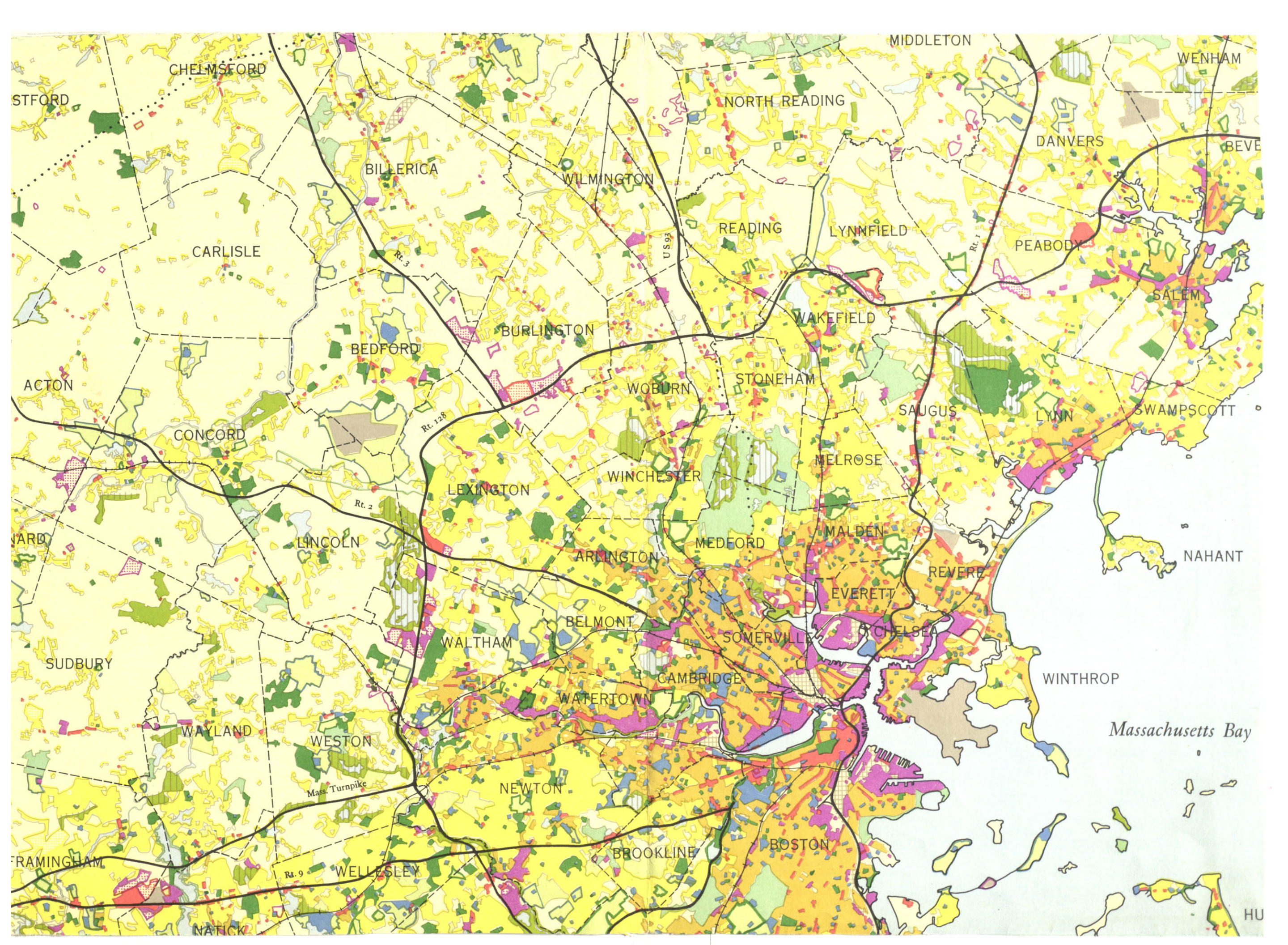events against a criterion of social choice.

The special case of selective migration chosen was
movement which begins and ends in separate municipalities
but within a single metropolitan region. It was chosen

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[1] Differential net survival rates will be to a large
extent, a product of the age structures of the groups in
question, determined by differential patterns of age selec-
tivity in migration. Social mobility on the other hand,
is a very diffuse concept: a recent empirical study iso-
lated at least eight wholly independent dimensions among
the variables commonly included in it. (Westoff, et al.,
"The concept of Social Mobility: An Empirical Inquiry,"
25 American Sociological Review, pp. 375-85). It is pre-
sumably also the slowest-moving of the three processes: one
family in several dozen may transmit a new set of "social"
characteristics to its offspring in the course of a genera-
tion; in the same time the several dozen families will have
made several dozen major moves.

as a starting point because it constitutes a significant
part of all mobility in such an area, and because it was
expected to be the most sensitive mode of movement to the
selectivity mechanisms I had in mind.

Data. Six whole municipalities were selected to serve as
origins, Lexington, Wayland, Brookline, Belmont, Billerica
and Somerville. The same places were used as destinations,
except that only the most urbanized portion of Brookline
was used. Characteristics relevant to this study, taken
from the 1960 Census PC-1 and Census Tract series, are
summarized in Table I and a section of the GBESC Land Use
Map. Key features will be proximity, noncontiguity, clear
differentiation of type and relatively uncluttered recent
histories. (But on the last point it should be noted that
Billerica's role as a working class outer suburb is some-
what ambiguous due to the demand of technical workers employed
locally and elsewhere for cheap suburban space.) Together,
their demographic profile is similar to that of the Boston
SMSA and they embrace together a fairly large range among
possible combinations of kinds of values on a location. To
facilitate comparative descriptions of the six places, they
were ranked according to rough estimates of their ratings
on the Shevky-Bell indices of Socio-Economic Status and
Urbanization.[2] The results coincided so closely with those

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[2] Shevky, Eshref and Bell, Wendell, Social Area Analy-
sis, Stanford, Calif., Stanford University Press, 1955.

TABLE I

DESCRIPTIVE STATISTICS

		Lexington	Wayland	Brookline (NC1-8)	Brookline Town	Belmont	Billerica	Somerville	6 Towns	SMSA
Population 1960	#	27691	10444	36318	54044	28715	17867	94697		
Same Res. in '55	%	55.7	50.5	49.0	53.6	66.2	55.4	57.8		
Diff. Res. in SMSA	%	32.2	N.A.	36.2	34.0	25.4	NA.	35.6		
Age under 5	%	11.4	14.2	4.8	5.9	8.1	15.0	11.1		
Age over 65	%	8.7	6.0	19.4	16.5	13.1	6.3	10.8		
Household Heads	#	6975	2791	13790	18944	8677	4553	28323		
Wives of Heads	%	86.0	86.5	56.2	60.7	76.0	84.0	70.3		
Women in Labor Force	%	9.0	27.3		34.6	36.0	52.4	50.0	36.2	36.6
Dwelling Units	#	7183			19646	8787		29219		
Renter Occ.	%	8.2			65.4	31.2		62.2		
In Mult. Dwg. (3+)	%	6.3	2.7		61.8	11.0		44.6		
Employed Males										
Prof. & Tech.	#	2013	679		3521	1875	401	1931	10420	96880
Other White Col.	#	2370	981		6533	2814	876	5602	19176	189762
Blue Col. & Other	#	2110	873		3702	2621	2720	15621	27647	325244
Prof. & Tech.	%	31.0	26.8		25.6	25.6	10.0	8.3	18.2	14.9
Other White Col.	%		34.4						33.5	29.1
B. Col. & Other	%	32.5	↓		26.9	35.8	68.1	67.5	48.4	55.0
Moved During '59	#	4627	1903	2410		3862	3679	18182		
Rank, SES Index (est.)		1	2	3	3	4	5	6		
Rank, Dist. From Core		4	5	2	2	3	6	1		
Rank, Urbanization (est.)		4	5	1	1	3	6	2		
									5 Towns	
Employed Males '50	#						Not Avail.			
A Prof. & Tech.	#	811	152		2920	1596		1725	7204	67775
B Other White Col.	#	1571	367		7784	3100		7127	19949	188781
C Blue Col. & Other	#	1716	606		3859	2613		18055	26849	345583
Net Increase '50 – '60		% / #	% / #							
A	#	148 / 1202	345 / 527		+601	+279		+206	+2815	29105
B	#	51 / 799	167 / 614		−1251	−286		−1525	−1649	981
C	#	23 / 394	44 / 267		−157	+8		−2434	−1922	20339

given by the single variables, "percent of employed males
in the professional technical group", and "distance from
downtown Boston", that the latter simpler indices were
used for this work. Six hundred and seventy-eight family
heads who moved among the six towns during '59, '60, and
'61 were identified on the municipal street listings of
persons aged over 20 by the entry under "residence on Jan.
1., previous year) beside their names. Where more than
one person of the same surname moved to the same address,
the family head was judged to be the oldest employed mar-
ried male. His sex, age, apparent relationship, and major
occupation class (using the Census Classification Manual)
were recorded, followed by those of each adult of the same
name who made the move, followed by those of each adult
of the same name who came from some other place or was
already there (specifying which.) A small sample mailed
questionnaire (see sample) sent to movers thus identified
revealed no problems with these data but did not prove use-
ful to supplement them. Since the Street Lists had been
compiled largely from the previous year's lists, some dou-
ble counting probably occurred due to failures to update
"new resident" entries.

Major occupations groups were consolidated into a
three-class system to test the first set of hypotheses,
and a four-class system for the second.[3] Their content

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[3]There is nothing magic about these groupings: they

1. When did your household move to its present address?_____, _____.
   month   year

2. How many persons now regularly live in the household, and what are their ages? (Please state number in each age group, including household head.)

   a. 0 - 11 months _____   e. 10 - 18 years _____
   b. 1 - 2 years _____   f. 18 and over _____
   c. 3 - 4 years _____   g. total all ages _____
   d. 5 - 9 years _____

   (Questions 3-6 apply to head of household only)

3. What are the household head's age and sex? _____ and_____.

4. What are the household head's present and most recent previous marital status, and when did the last change in his status occur?

	present (one ✓)	last previous (one ✓)	date of change (month, year)
a. single	_____	_____	_____
b. married	_____	_____	_____
c. widowed	_____	_____	_____
d. divorced or separated	_____	_____	_____

5. What is the household head's employment status and most recent previous status?

	present (one ✓)	previous (one ✓)	date of change (month, year)
employed full time	_____	_____	_____
employed part time	_____	_____	_____
retired	_____	_____	_____
student or other	_____	_____	_____

6. What is the occupation of the household head? Which of the following groups (check one) most closely describes it?

   a. professional or technical
   b. manager or supervisor
   c. clerical, sales, etc.
   d. craftsman, foreman, etc.
   e. machine operator, repairman, etc.
   f. service work, janitor, etc.
   g. day labor, goods movement, excavation, etc.

7. Has the household's expected annual income from all sources changed within the past year? (yes or no)
(If no to 7, please skip question 8.)

8. Has the household's expected income from all sources:
    a. increased by more than about 20%? _____
    b. decreased by more than about 10%? _____

9. How many rooms are there in your present and last previous residence?
    (Please count all rooms except those used as hallways or for storage.)
    Present_____and previous_____.

10. In what respects, if any, did you expect your present residence to suit your household's needs better than your previous one did?

You have my sincere thanks for your kind cooperation.

and key features for the study are as follows:

		A	B	C	1	2	3	4
Occupation	Prof. & Tech.	x			x			
	Other white col.		x			x		
	Crafts & Oper.			x			x	
	SVC & Labor			x				x
Median yrs. of Education	16 +	x			x			
	11.2 - 11.4		x			x		
	7.7 - 8.3			x			x	
	6.9 - 7.8			x				x

Using the three-class system, the population of the
six towns, the study "universe" and the SMSA are analyzed
for comparison of their 1960 profiles and of their recently
patterns of change on Table I. Note that the towns most
highly "specialized" in the professional-technical class,
have approximately the same numbers in the lower two classes
as in the highest, but that the top class has increased at
a vastly higher rate. Places specialized in the second and

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are convenient sizes for my data. Duncan, O.D., Residence
and Occupation, American Journal of Sociology, 60: 498
(1955) Table 3, shows that for Chicago, 1950, the Census'
major occupation groups were so distributed in the metro-
politan area that while a definite pattern of stratifica-
tion by "status" of occupation existed (and its order was
respected here) there were no clear breaking points which
might be called class lines for larger classes.

[4]From Bogue, The Population of the U.S., p. 510.

third classes show more considerable excesses of their "specialties", although in no case are these so great as they were ten years before. All the towns appear to reflect the upward shift of the metropolitan occupational profile during the '50 — '60 period, with the highest-status (and fastest growing towns feeling it most and the middle-status (and most nearly stable) towns feeling it least. To what degree these findings are explainable by intrametropolitan movement as opposed to social and inter-regional mobility or other factors may soon be seen.

II. BACKGROUND OF THE PROBLEM

From very early in the study of migration it has been recognized that shorter moves are more numerous than longer ones. This is true not only of interregional movement, in which the money cost of moving is obviously a selective factor, but also at the metropolitan scale, as demonstrated in the Cleveland area data collected by Howard Whipple Green. Stouffer explained this by his "Theory of Intervening Opportunities,"[5] which is simply a formulation of the assumption of indifference of mover to place. Stouffer's work showed that for any given rent class in Green's data, the number of movers from a specified origin into any narrow band Δx at a radius x away was very nearly proportional to the number of openings of that rent class within the band, divided by the total number circumscribed by its inner edge. (He assumed that most people will stay in their rent class). For a localized concentration of population, then, strong localized movement patterns will probably exist, and the larger the concentration is the more significant a part of all mobility should be involved in them.

44.5% of the Boston SMSA population moved between

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[5]Stouffer, S.A., "Intervening Opportunities: a Theory Relating Mobility and Distance", _American Sociological Review_, v. 5, pp. 845-67 (1941).

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1955 and 1960. Intra-metropolitan movement accounted for just 75% of all the moves. For the 4 towns of the 6 studied which lie in the SMSA, ratios varied from 71% to 89% for Somerville. It is difficult to estimate how much of this consists merely of movement within single municipalities, which I am not dealing with; rough estimates from street listings suggest that less than 1/4 of all moves are local in the medium-sized and smaller towns among those I studied, but as much as half of the moves ending in Somerville, the largest, may be local. If I interpret this as a firm minimum of 1/3 of all moves falling into the class I am studying, it will still be responsible for the turnover of 15% of the population of a large, apparently stable city in a five-year period: enough to alter drastically its composition in response to external changes only.

Intrametropolitan migration is performed by people who are close enough to have some firsthand knowledge of their destinations, yet it involves distances which in many cases must disrupt close neighborhood ties. (To maximize this condition only moves between noncontiguous locations were studied.) While the mover's spheres of face to face contact and convenient access are completely changed, this

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U. S. Bureau of the Census, "Census Tract Series. Boston SMSA" was the source of all data given on the metropolitan area.

broad area of cultural and job possibilities remains simi-
lar. Being highly sensitive to the detailed fit with the
environment of the family's needs then, such movement may
be symptomatic of the possibilities and limitations inhe-
rent in the structure of locational possibilities which
constitute in a sense the form of the metropolis. In other
words, a move between two places in the same metropolitan
area, being relatively unconstrained by outside forces,
represents a judgement of the destination's _locally inher-_
ent superiority over the origin with respect to the needs
of the mover.

Finally, movement at this scale may quite fruitfully
be idealized as a closed and self-maintaining system. This
idealization permits that the context of a given act be
explored in a more comprehensive way than is usually attemp-
ted. It is a point of view from which a family head's deci-
sion to move, say from an inner city to a suburb, not merely
reflects a probable change in his family size and a prefer-
ence for certain attributes of his destination, but also
creates a new destination for somebody else in the place
he left, reduces the number of destinations available in
the place he enters, and changes the population composi-
tion, density, and other elements of desirability of both
places, all factors which will affect the subsequent beha-
viour of others whose behaviour can be brought within the
same general scope of investigation as that of the isola-

lated mover. It is hoped that this paper will show the feasibility of migration study from such a point of view.

Several statements above have implied the occurrence of significantly different kinds of movement behaviour on different combinations of origin and destination, and the potential explanatory power of imputed characteristics of the streams themselves as defined by their routes. Since Peter Rossi's Why Families Move[7] was published in 1955, defending with the results of an interview series among intrametropolitan movers his thesis that moves are caused mainly by changes in the family's needs and are closely keyed to the life cycle, a number of students have applied similar methodology to the problem in support of hypotheses widely varying from Rossi's and sometimes contradictory. But as H. L. Ross observed in "Reasons for Moves to and from a Central City Area,"[8] each was explaining quite a different type of move. Rossi's moves were short and did not involve a drastic shift in location type, though unlike his successors he controlled both origin and destination. Bell, Leslie and Richardson and many others

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[7]Rossi, Peter, Why Families Move, Glencoe, Ill. The Free Press, 1955.

[8]Ross, H. L.,"Reasons for Moves,"Social Forces, v. 40, p. 261 (1961).

studied single groups of movers who went to somewhat specialized suburban developments, while Whitney and Gregg, controlling only length of move, were in fact dealing mainly with suburban destinations. Ross broke a sample of Brookline in-migrants into "local movers" (from other inner-city locations,) "centralizers" (in from a Boston suburb,) and "distance migrants" (in from outside the Boston SMSA,) and questioned them both about their last move and their next intended one (most planned eventually to live in a suburb). He found that local movers, like Rossi's sample, cited housing and space needs almost to the exclusion of other reasons while both the distance migrants and the centralizers were mainly interested in convenience of access. Class and lifestyle reasons, which Bell and the others studied, hardly having appeared among the first three groups, but dominated the same people's thinking in terms of an intended move to a Boston suburb. Ross concludes that the apparent conflicts among explanations of mobility may be resolved by controlling the length and direction of the move in question. At the metropolitan scale, however, it is doubtful that distance and bearing are particularly relevant except as they reflect the nature of the origin and destination of the move, which are strongly conditioned by local factors. I believe that more useful classifications of places must be developed in this connection than are now in use, before the hoped-for resolution of partial

generalizations into a comprehensive theory can be achieved. This study therefore focuses on relationships between the mover and the more strictly social characteristics of his origin and destination; otherwise, characteristics of places used as origins and destinations will be considered as intrinsic to them and not necessarily a function of geographical aspects of their location. (This simplification--ignoring geographic distance--is valid, if at all only for the scale of movement at which neither face to face propinquity nor main access limitations impinge; to minimize the distortions it may introduce, the locations selected for study were made no more distant than necessary to fill out a range of types, and all lie within the north and west sectors of the Boston metropolitan area.) A very suggestive concept with which to organize relationships of this kind is the general notion of selectivity.

III. PRELIMINARY ANALYSIS

The interactions between people or firms and the
geography of an area which go into locational decisions
are commonly looked at as if the movers were selecting
among places. This is a reasonable choice of viewpoint,
for geography seems to have a relatively stable, concrete
system of attributes compared with humanity. But men are
achieving such power to transform at will the physical
environment that it may now and then be enlightening to
look at how places select among movers, in hope that their
behaviour will be related in a sufficiently simple and sta-
ble way to convenient schemes for recognizing them in groups.

Any place could be called a potential destination.
I will try to show that as such it would define a set of
characteristics of possible users. The characteristics
would specifically include (1) valuing the particular advan-
tages of the place at the purchase price or more, (2) having
knowledge of the place; having (3) sufficient adaptability
and (4) current occasion to move. If this is the case,
easily obtained information about a family's socio-economic
status, place of residence and stage of life-cycle might
allow construction of quite homogeneous categories of poten-
tial movers. To such a set of categories would correspond
a certain number of real people. If the definition of cate-
gories implied by an offering at a place and time is broad,

a great number of people will be included; demand will be
great and the precise description of eventual buyers impos-
sible to predict. If it is narrower, two possibilities
arise. As the specificity of definition is increased in
any respect the number of people and demand will fall pro-
portionately down to a certain point. But certain aspects
of the place which affect its definition may become capa-
ble of consolidation in the mind, like a face or a word.
To the extent that these elements fit with some common
ideas which are important to the public at that time and
general area, the place itself may become identified with
them and even serve to represent them in the common voca-
bulary. More people will know of it. It may be that the
ideas are not only apt but connote specially desirable or
undesirable things, such as a style of life, in which case
the proportionate number valuing the place's advantages
will also be affected. Thus the net effect of the conso-
lidation process will be a recasting of the whole form of
the place's mover-definition. The definition's geographic
scope and density of coverage will be vastly increased,
while its coverage of market types may focus on a large
group, a small group or no group at all. Desirable and
undesirable places from the point of view of a given social
grouping will thus be tremendously differentiated: demand
would be simply "on" or "off".

There are a number of forces capable of affecting

the narrowness of these mover-definitions in the aggregate,
and the possibilities of consolidation. I will try to
deal first with those which seem to be fairly inextricable
parts of our own time and culture.

The first relevant group of forces comes under the
head of the geographical diffusion of culture which is occur-
ring with the spread of education, mass communications, access
by highway and residential mobility. All but the last have
been measured and their pervasiveness documented. While
residential mobility is a recognized fact--with 18 to 21%
of the civilian population moving annually through the
past decade,[9] its causes, historical patterns and prospects
are less understood.

One common conclusion which may be drawn from the
existing studies, however, is that the most important influ-
ences on an individual's propensity to move have less to do
with capability and compulsion in a socio-economic sense
than with occasions arising out of personal status changes
in the aging and family development cycles: the age pattern
of mobility is by far its most significant part,[10] (and will
be analyzed in Section VI) and where significant variations

[9]Bogue, D. J., The Population of the U.S., Table 15-
1, p. 376. Glencoe, Illinois, The Free Press, 1959.

[10]Ibid., pp. 380-381.

appear in other demographic breakdowns such as income, they might be much diminished if age were controlled.[11]
Society is making more and more of such status changes.
Home ownership, for example, has spread primarily in response to special programs, aiming to fit as economically as possible the momentary needs of special groups; its legacy is the need for complementary types of housing for those who no longer fit. There are a number of other reasons to believe that high levels of mobility will continue and possibly increase, such as the prevalence of routine job transfer within large firms, the Administration's policy toward more integration of labor markets[12] prospects of rising percapita wealth, and the decentralization trend in many forms of economic activity.

A concomitant of mobility is increased geographic scope of appeal for any given place: more people will have knowledge of more places. This does not in itself affect the composition of demand for the given place, but it does put it in competition with a greater number of alternative locations; this places a greater premium on innovation in many types of situation.

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[11]_Detroit Area Study Supplement_, 1957, p. 8.

[12]_Economic Report of the President_, GPO, 1962, pp. 24-5.

In many ways people become quite well adapted to the habit of frequent moving. One interesting process in this connection is that popular ideas about places take simplified or even caricaturized, yet very concrete forms. For whereas the array of places which one keeps in mind for some tangential reason or another are seldom seen, and very schematic ideas are sufficient to distinguish them for one's own purposes, still the array overlaps those held by so many other people that one hears about most of them quite frequently: the ideas are so reinforced that they come to seem thoroughly concrete. In other words, mobility and decentralization as social patterns encourage consolidation of the image of a place—minimization of some of its expected values and exaggeration of the others.

Mobility must be related to geography as well as attitudes: it moves people. The central implication of our analysis, of course, is that it will move them very selectively in certain circumstances, so as to affect drastically the social composition of the sending and receiving areas. Changes in composition affect the strength and type of their appeal to future movers. Precedent is thus very important. It is a central part of the theories of residential growth and structure of both Hoyt and Firey.[13]

[13]Hoyt, Homer, The Structure and Growth of Residential Neighborhoods, U.S. G.P.O., 1939; Firey, Walter, Land Use in

The types of people and firms already in an area serve
by association, provision of desirable externalities, and
financial or social pressures to conform, to narrow the range
of people who will consider locating there, at the same time
broadening the ranges of people already there who will no
longer find it suitable. The effects fed back may not neces-
sarily reinforce a trend, of course. Values may change over
time and the setting fall from favor. The market may become
saturated. Or the main values available may be sought out
by types who by their presence inadvertently destroy the
thing desired, as is notably the case in some ethnic move-
ments. Nevertheless precedent usually should affect selec-
tivity positively.

This is due particularly to certain characteristics
of many American urban political systems; their territorial
divisions of governments, and the democratic process as it
applies to a bureaucracy of small jurisdiction. The terri-
torial division of governments is important because munici-
palities frequently are small and numerous, and homogeneous
enough to serve as the primary identification of a place.
The municipality has enough power over the allowable use
of land and its desirability for use at all, to be able
in some cases considerably to influence its own future

Central Boston, Cambridge, Harvard University Press, 1947.

composition. The most basic constraint on the way these
powers are used is majority rule by its politically active
residents: they are able to make one set of policy for all
the jurisdiction, and because of popular identification
as well as the nature of the regulations--though some of
them apply by zones--the outcome will be felt jurisdiction-
wide. Municipalities have strong reason in their revenue
situation to influence their future composition; democra-
tic process will tend to narrow the range of appeal of their
policies in this area.

So one might conclude that in a modern metropolitan
setting, some consolidation of type will be reflected in
the composition of movement to and from most places, and
a very great degree of specialization will occur for some.
The caricaturized image of a place, once established in
the public mind, might become very resistant to change,
since it would be constantly confirmed by the selective
movement it was stimulating, lending great momentum to the
process. Taken as a descriptive hypothesis, the idea
of self-accelerating specialization was tested here for
the obvious case of specialization by socio-economic sta-
tus, as evidenced by the occupation of the mover and occu-
pational compositions of places. While status is only one
element of the image of a place, it has the advantage for
my purpose of being much studied and relatively easily eva-
luated by standard indices applicable to most places. It

is not apt to yield multiple hierarchies which would be
hard to analyze. The work of Shevky and Bell[14] and their
many successors,[15] testing the empirical relatedness of
social variables as descriptors of areas, find that its
components are very closely related at least for areas of
census tract size, supporting the choice of this as a major
dimension of a place's image. Since it was only necessary
(for the manipulation performed), to establish a rank order
among the six places studied, it was not felt necessary to
evaluate additional variables such as rent which are normally
included in the Shevky-Bell Social Area Index for status.

The hypothesis can be given a number of more or
less powerful statements based on the discussion in Part
III, to be tested against the data on places and movers.
Such statements can range from simply predicting some over-
all net trend for the sum of all cases, to a highly expli-
cit ordering of expected characteristics of each practi-
cally separable case in the given body of information, intro-
ducing countless parameters. The first extreme would allow
great confidence in its findings, but slight ability to

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[14]Shevky, Eshref, and Bell, Wendell, Social Area
Analysis, Stanford, Calif., Stanford University Press, 1955.

[15]Beshers, Urban Social Structure, New York, Free
Press of Glencoe, 1962, Chapter 6.

generalize from the practically unreproducible situation except on the merits of the study design. The latter extreme type of statement would become impossibly difficult to substantiate or refute when it reached the degree of disaggregation,complexity and fine distinction at which the error in the constructed indices approached the order of magnitude of the differences between them. Statements of the former kind are commonly called social criticism, while the latter is reverently dubbed theory, but this should in no way prejudge its comparative usefulness.

I shall work here with three different expressions of my hypothesis of self-aggrevating specializations, for I believe that interesting interpretations may be drawn from the study at each of their levels. The process will be viewed first as increasing overall segregation, then as local specialization, and finally as an expression of individually perceived values. The second statement may be deduced from the last, and the first from the second, given certain constraints which will be discussed. But the more powerful statements need not have covered the whole cause of the process, and such an inadequacy can be revealed by testing a less powerful statement and finding it better substantiated.

IV. DEVELOPMENT OF HYPOTHESES

Segregation may be defined as the mean geographic distance separating all pairs of persons separated by a unit social distance in a society divided by the mean separation of pairs taken randomly, where social distance is expressed as an inverse function of the probability of some primary interaction such as marriage between groups. For such gross classification as is used here, social distance must be approximated by difference in rank of occupation class. The tendency of intrametropolitan selective movement should be to increase overall segregation. A simple expression of occupational composition, e.g. percent of labor force in the highest major occupational group, ranks places quite well in terms of socio-economic status, as determined by more complex indexes. In particular, successively lower-ranked places (by the first expression) are found to have the main bulk of their male working population in successively lower occupational classes. In such a situation, segregation will increase if the propensity to move upward some unit social distance between locations, of the members of any class, is the same or greater than that of the next class below and the same or less than that of the next class above.

Thus segregation may well be increasing despite the

"desegregation" of particular communities. For both social-
psychological and institutional reasons, however, it seems
more likely that places will specialize about major exist-
ing elements of their composition. The part which the
movements under study play in this can be readily evaluated
by calculating the rate of growth or shrinkage due to net
migration for each class in each locality. The largest
growth (or slightest shrinkage) for a place should occur
in a class of the same or higher rank than the fastest
growing class in the next place below, and of the same
or lower than the rank of the fastest growing class in
the next place above.

To support these three hypotheses properly, data
would have to be found on all the significant streams impin-
ging on the localities. In interpreting the effect of only
thirty out of hundreds of major possibilities as indicators
of what is happening to the metropolis, I am entirely depen-
dent upon the realism of the study's universe as initially
designed. Whether each relevant type of behaviour received
its proper weight as a result of my rough-and-ready samp-
ling is at best an open question. The next hypothesis cat-
ches up a scrap of theory to permit generalizing from a more
controlled enumeration of the actors.

The importance of each move-possibility to each poten-
tial mover is what we want to explain: if this is known,
then we can predict what movements will come out of any

initial situation. One measure of importance is the n-dimensional vector of the probabilities to make the move applying to each of n classes of persons at the origin, respectively, over a unit time. This allows reasonable comparison of moves by the relative "push" at different origins for a destination at a time (so long as the classification "kind of person", gives homogeneous sets.) It allows very simple projection. But one half of Stouffer's theory of intervening opportunities states that the size of a class of movers in a stream will be directly proportional to the rate at which all appropriate opportunities occur within the destination of the stream. One might expect then, that from the point of view of a single origin, a large, rather unattractive destination could readily be confused with a small, highly attractive one. But by the same reasoning, dividing each probability by some measure of the "opportunities" at the respective destination would yield comparable measures of attractiveness having the dimension propensity to move per available destination. These are analogous to economic values of "net fares" for the moves which might be arrived at in separate markets by each class of mover. These can be used to evaluate differentials of "push" as well as "pull". (The "net" qualification is essential to the analogy: special location costs such as transportation and taxes may lower the relative enthusiasm of some classes more than that of others.)

A central point of the discussion was that people
may tend to select locations as if they had caricaturized
notions of the profiles of values inherent in the places
they leave and those they enter. People of different socio-
economic status, it is generally agreed, use space for dif-
ferent purposes and under different constraints. If so,
the tendency to caricaturize should be reflected in the
composition of streams between places of differing rank
as a tendency to seek a higher degree of perceived "good-
ness of fit," with their image of a location; the class
content of these images, by the same token, may be inferred
from movement behaviour--specifically, from relative "pushes"
and "pulls" revealed by comparisons of fares. (I believe
this would be an excellent way to define the "status" of a
community.) If again the places under study can be ranked
consistently by the separate criteria of status and composi-
tion, "fares" on possible moves should arrange themselves as
follows. A class's fare to any given destination is highest
from some origin, and decreases progressively from succes-
sively higher and lower ranked places. The most popular
origin of the highest class will rank below or the same as
the most popular origins of the next class below it, and
so forth. A class's fare out of any given origin is again
highest for some destination and graded off smoothly with
social distance above or below it; however the most popu-
lar destination of a class in that place will be the same

<u>or</u> <u>higher</u> <u>than</u> <u>that</u> <u>of</u> <u>the</u> <u>next</u> <u>class</u> <u>below</u> <u>it.</u> Variations
from this pattern probably will have to be explained by
non-status factors, and where they occur the influence of
status considerations should still be discernible in the
relative skewing of the class structure of the move com-
pared with the four moves surrounding it.

The vector of opportunities is in the nature of a
bugger factor. Since my own moves hardly dent it, I have
no convenient way of handling it for predictions except
to assume it constant. To do so, if the net fares are the
closest, I can come to a description of the underlying truth
of the situation, is to declare that the simple probabili-
ties on the origin populations are equally dependable.

V. FINDINGS I

Segregation. Table II gives the number of movers of each class for each stream in the form of a 6 x 6 matrix of origins (in columns) and destinations (in rows) with three class entries in each cell. Locations descend from the NE corner in order of decreasing status. Adjacently ranked locations were assumed to be separated by a unit status difference for the sake of simplicity. A move may then be weighted by the number of stations it travels; a class's "propensity to make a unit of net upward movement," NP, (from the first hypothesis) will be the sum of weighted upward moves less the sum of weighted downward moves divided by the number of people in the class. (See p. 25   ). These were found to be (per thousand, 3 years).

$$NPa = 21.4 \qquad NPb = 9.6 \qquad NPc = -4.3$$

This is clearly consistent with my segregation hypothesis. The B's are separated from the A's by 11.8 station-moves and from the C's by 13.9, indicating that white collar-blue collar may be a slightly more powerful distinction than professional-bureaucratic.

Stratification. Table III lists the outer sums of columns (moves into a place) and rows (moves out) from the matrix given in Table IV. These are followed by calculations of net migration (+ = excess of moves in) and rate of gain or loss due to migration among the study towns for A's, B's and C's.

TABLE II   31

NUMBER OF MOVES BY
ORIGIN, DESTINATION AND
OCCUPATION CLASS

Origin	Occ. Class.	Lex.	Way.	Brk. (NC1-8)	Bel.	Bill.	Som.
Lexington	A		6	4	11	3	4
	B		5	3	7	5	5
	C		0	0	5	13	13
Wayland	A	0		0	1	0	0
	B	1		0	0	0	0
	C	0		1	0	0	0
Brookline Town	A	20	10		11	0	10
	B	11	7		19	0	7
	C	1	1		5	0	16
Belmont	A	26	2	5		2	7
	B	23	1	4		5	8
	C	13	0	1		6	16
Billerica	A	3	1	1	1		2
	B	3	0	1	1		4
	C	5	0	1	1		24
Somerville	A	24	4	4	17	26	
	B	26	0	6	19	24	
	C	25	0	9	25	99	

TABLE III   32

OUTER SUMS OF MOVES BY TOWN AND CLASS, WITH IMPLIED NET RATES

Town	Class	Moves In	Moves Out	Net Moves In	Net In Per 100 empl. males
Lexington	A	73	28	45	2.2
	B	64	25	39	1.6
	C	44	31	13	0.6
Wayland	A	23	1	22	3.2
	B	13	1	12	1.2
	C	1	1	0	0
Brookline	A	14	51	-37	-1.1
	B	14	44	-30	-0.5
	C	12	22	-11	-0.3
Belmont	A	41	42	-1	-0.1
	B	46	41	+5	+0.2
	C	36	36	0	0
Billerica	A	31	8	23	5.8
	B	34	9	25	2.9
	C	118	31	87	3.2
Somerville	A	23	75	-52	-2.7
	B	24	73	-49	-0.9
	C	69	158	-89	-0.6

Four towns, Lexington, Wayland, Belmont and Somer-
ville, fit the increasing-stratification stratification
hypothesis. Brookline and Billerica do not; these are
our two exceptions from the Burgess model. In fact, dis-
tance from the core city provides a more consistent order-
ing of status-specific rates of change than does status of the
place itself.

Behavior. Calculations of net fares were made using employed
males by place and occupation class as an approximation of
household heads (potential movers), and one year's gross in-
migration by place as an approximation of opportunities.
(It was not desired, even if it had been feasible, to spe-
cify appropriate opportunities for the different classes,
as Stouffer did; it is precisely the way a person's style
of living changes which we want to explain.) Net fares are
given in the same matrix format as the movers on Table IV.
Sums of fares by class out of each place as an origin and
mean fares to each as a destination are also given to cla-
rify the general agreement of the data with the "caricature"
hypothesis given above, (p. 28). Even at this level the pat-
tern is much less clear for destinations (columns) than for
origins (rows). When examined in their disaggregated form,
the rows do not ever contradict their half of the hypothesis,
but the columns become quite chaotic. Actual misfit of a
person's needs with his municipal-scale environment, appa-
rently, is not so consistently assessed (on the basis of

TABLE IV   34

NET FARES

Origins		Lex.	Way.	Brk NC1-8	Bel	Bill	Som	Outer Sum of Rows
Lexington	A		16	8	14	7	1	46
	B		11	5	8	5	1	30
	C		–	–	6	16	3	25
Wayland	A	–		–	4	–	–	4
	B	2		–	–	–	–	2
	C	–		4	–	–	–	4
Brookline	A	12	16		8	–	2	38
	B	4	5		8	–	½	18
	C	½	1		3	–	2	7
Belmont	A	30	5	11		3	2	51
	B	17	2	6		5	2	32
	C	11	–	1		6	3	21
Billerica	A	16	13	10	6		3	48
	B	8	–	5	3		2	18
	C	4	–	–	–		5	9
Somer- ville	A	27	11	8	23	37		106
	B	10	–	4	9	12		35
	C	4	–	2	4	17		27
Average Fares By Destination & Class	A	18.8	12.6	8.3	12.4	8.4	1.5	
	B	8.6	3.7	4.6	7.3	5.2	1.0	
	C	3.7	–	2.1	3.6	12.8	3.1	

socio-economic factors) as is anticipated goodness of fit
in his destination when he makes his decision to move. In
the former case more individualistic criteria may have to
be found.

The indices of demand which we have tested, while
conforming to the letter of the rather loose organizations
hypothesized,do so reluctantly at best. It seems evident
that the smoothly scaled differentiations of these loca-
tions--those, that is, which can fit in a single hierarchy--
are strongly related to movement behaviour, but that a really
useful explanation will have to take into account some var-
iables independent of these. In the ludicrous extreme, a
separate set of values would have to be defined for every
mover with respect to every possible location. But even
at gross aggregations of persons and places such as are
employed here, it may be nonetheless possible to construct a
manageable family of dimensions which do less violence to
the uniqueness of person and place if they are properly
grounded in theory. Distance from the center of the core
city has already been found useful; some theoretical plau-
sibility for this might be developed out of analogy with
the "urbanization" dimension defined by Shevky and Bell
for smaller areas, slippery though it is at the present
stage of theory development.

But let me enumerate without hypothesizing expli-
cit connections, a few other characteristic features of

the moves as they seem to be reflected in the matrix of
net fares. This postscript may be construed as intellec-
tual slag, or more generously as a very small step in the
evolution of a typology.

Reversibility would not be expected from the dis-
cussion, but it may possibly be inferred from the data
in at least two cases. Billerica and Somerville are appa-
rently closely linked in both directions compared to the
attraction of each place to residents of the other four
locations. Lexington and Belmont are similarly linked
Routes of travel connect each pair fairly directly. The
figures may reflect cycles of movement or merely unusual
familiarity due to their effective proximities. The for-
mer possibility would be very interesting ground in which
to study the emerging role of the family in urban society.

Erratic Scaling of the net fares makes them hard
to interpret, but it may not be significant in view of the
slender data upon which their numerators are based.

The highest fares to leave a place apply--but not
with perfect consistency--to Lexington and Somerville, at
the extremes of the hierarchy, but also to Belmont, which
is extreme only in its politics.
Size and Stability. The breakdown by relatively small muni-
cipalities and single years proves to be too detailed to
provide groups of movers large enough to be analyzed on every
possible route. The three-year aggregation finally employed

allows gross analysis of most of the moves, e.g. by three or four occupational classes, but when these are further broken down by age (as is attempted in the next section), a great many empty cells appear and it becomes necessary to deal only with sets of several moves, e.g. the outer sums.

No move drastically changed scale in the three years covered. (See Table V). The steadiest streams were from Somerville and Brookline, into Lexington, and perhaps Wayland and Belmont. More generally, streams originating in large places were fairly steady. Large streams originating from small places tended to fluctuate.

Occupational profiles (not completely tabulated by year) were apparently steadier as to general type than the gross sizes of the streams. The moves from small places to large ones are apparently the least predictable.

Direct Social Contacts. It was possible to identify from the street listings certain social contacts connected with the moves. New marriages where husband and wife did not previously live in the same town appeared at most destinations, but came exclusively from middle- and upper-status origins. They occurred mostly on downward moves, and the man was of same or higher status than his bride or came from a higher status place only a little more than half the time. Upward marriages seldom occurred on upward moves.

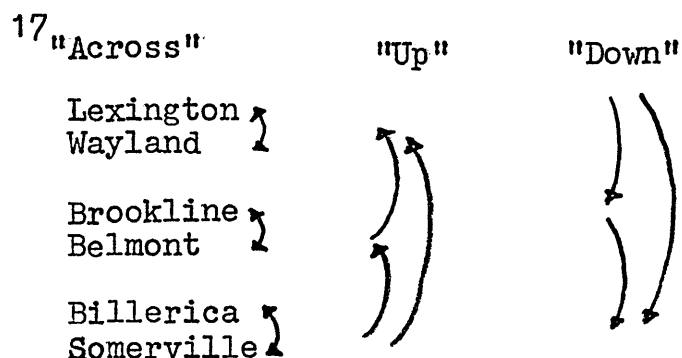Contact with the extended family (same name) was

TABLE V   38

SIZE & STABILITY

Origins	Year	Lex.	Way.	Brk. (NC1–8)	Bel.	Bil.	Som.
				Destinations			
Lexington	'59		2	2	12	6	7
	'60		4	3	4	6	4
	'61		5	5	10	10	18
	Tot.		11	10	26	22	29
Wayland	'59	1		1	0		
	'60	0		0	1		
	'61	0		0	0		
	Tot.	1		1	1		
Brookline	'59	11	4		14	0	20
	'60	13	6		18	1	17
	'61	10	6		10	1	6
	Tot.	34	16		42	2	43
Belmont	'59	16	1	3		7	11
	'60	31	2	4		1	14
	'61	18	3	7		7	15
	Tot.	65	6	14		15	40
Billerica	'59	3	1	0	1		13
	'60	7	0	0	2		12
	'61	1	0	3	1		7
	Tot.	11	1	3	4		32
Somerville	'59	27	2	6	29	40	
	'60	26	1	8	27	46	
	'61	26	2	7	14	72	
	Tot.	79	5	21	70	158	

made mostly on upward moves, but appeared at all destina-

tions. (A recent study by Litwak[16] found that such ties

may actually encourage geographic mobility.) A tally of

these, using adjacently ranked pairs of places[17] is given

in Table VII; though not numerous they suggest that these

processes are not unrelated to more direct interactions,

and that the lowest class grouping is relatively more depen-

dent upon them than are the other two.

Other Findings. Average moves per year within the system

were calculated for occupation classes. Their profile is

unique in that A's were twice as mobile as any other class,

in contrast with the very slight occupational differentials

revealed in national and Boston intraregional mobility

figures from the U. S. Census.[18]

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[16]Litwak, E., Family Cohesion and Geographic Mobi-
lity, American Sociological Review, v. 25, pp. 385-397 (June,
1960).

[17]"Across"   "Up"   "Down"

    Lexington
    Wayland

    Brookline
    Belmont

    Billerica
    Somerville

[18]U. S. Census, Bureau of 1950 Census of Populations,
Special Report P-E no. 48, Population Mobility States and
State Economic Areas, G.P.O., 1956, Table 19.

TABLE VII

40

RGM OF FAM. HEAD: IDENTIFIABLE SOCIAL INTERACTIONS.

		Up	Across	Down
A's	F.Wed Up	3	0	5
	F.Wed Down	2	1	3
	Ext. Fam.	4	0	0
B's	F. Wed Up	3	3	8
	F. Wed Down	4	0	1
	Extd. Fam.	5	–	3
C's	F. Wed Up	1	6	6
	F. Wed Down	4	1	11
	Extd. Fam.	11	9	2
All Clas- ses	F. Wed Up	7	6	19
	F. Wed Down	10	2	15
	Extd. Fam.	20	9	5

Age tallies for towns which had these data were also made, (see for instance Table VI) and showed move types to be highly selective of age without revealing an obvious pattern. Such selectivity could profoundly alter my generalizations about composition change, however, in that a person moving to a place at age twenty, if he stays, will alter its composition twice as long as one who moves there at the age of forty-five.

Prediction Model. Neither the realism of the study design nor the density of information are sufficient to justify such an experiment. In particular, towns on the geographic perimeter of the network of locations (e.g. Wayland) are involved to a smaller degree than towns in its interior (e.g. Belmont).

TABLE VI.

AGE OF FAM. HEAD: IDENTIFIABLE SOCIAL INTERACTIONS. See Note, p. 39

		Up	Across	Down
A's	20-24	4	3	6
	25-29	19	3	13
	30-34	34	4	4
	35-44	36	3	7
	45-64	14	9	4
	65+	1	-	1
	Total A	108	49	40
B's	20-24	5	3	6
	25-29	15	4	12
	30-34	13	4	2
	35-44	30	8	3
	45-64	30	11	5
	65+	3	-	2
	Total B	96	57	40
C's	20-24	6	5	2
	25-29	18	4	20
	30-34	9	4	5
	35-44	18	7	14
	45-64	23	10	5
	65+	1	-	1
	Total C	75	129	67

VI. A THEORY RELATING AGE, OCCUPATION AND LOCATION PRESTIGE

The difficulties encountered in the last section
point up the limitations not only in my data but in the
unstructured and descriptive nature of my initial discus-
sion. To strengthen both the general findings and their
theoretical background let us look for some intervening
mechanisms in the sorting-out process I have inferred. I
will use as the guide the "model" or statement of self-main-
taining mechanisms in an urban American system of social
stratification given by James Beshers in Chapter 8 of <u>Urban
Social Structure</u>.[19] Its distinctive features are: (1) the
existence of a single hierarchy of rank, whose <u>order</u> must
be agreed upon by the actors (but not necessarily the <u>posi-
tion</u> of class boundaries), (2) monagamy and patrilinear
status assignment: a male's status will not change from
birth, and he will act like his father--his status will be
taken by his wife when he marries. I find it useful here
to add the possibility of a child acquiring bonafide status
characteristics (eg. the use of learned symbols) through
peer group and school--the realism of this addition is
attested to in the studies of the social psychologists
W. A. Davis and Frederick Elkin on the socialization of

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[19]Beshers, James, <u>op. cit.</u>

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the child;   (3) the probability of marriage between per-
sons of different classes declines as the social distance
between their classes increases, and (4) persons act so as
to maximize self respect. Not all may choose to act this
way with respect to the self-maintaining aspects of the
stratification system, but as long as some do so in a per-
sistent and successful way, their action will become limi-
tation on the actions of all: whether he knows it or not,
the non-conformist and his children are in their assigned
places.

Self-respect is successfully sustained by manipula-
ting institutions and symbols to maximize the chance of
upward mobility of children, particularly of daughters,
by marriage, and minimizing the chance of their downward
mobility. In a traditional mode of response, this is done
by maintaining existing long-term deference-generating arrange-
ments. A second mode of response he calls purposive-rational,
in which strategies are chosen to optimize the results of
anticipated changes, and are adapted as conditions change.
This mode is very common in our culture for elite as well
as middle classes. Neither mode is possible where oppor-
tunities are fluctuating and unpredictable: in such a case
self respect can be bolstered only in a short-run hellenis-

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20 Elkin, Frederick, The Child and Society, McGill
University, Random House, 1961, pp. 56-87; Davis, W. A.
The Father of the Man, Cambridge, Harvard University Press,
1947, pp. 83-84.

tic mode of response. However, external conditions may be predictable but adverse, in which case institutions may be devised, in either of the first two modes, to protect self-respect, as by in-group, out-group mechanisms.

Symbols of status fall in the general categories of material wealth, learned behaviour and biological characteristics. The second, learned behaviour, is as Beshers states, "the traditional bastion of Western European [and American] snobbery."

Social classes may be defined as sets of persons who display specified combinations of symbols. Each realistic combination will have a specified rank among all others. If the symbols are being used in accordance with the general maxim of self-respect, this will mean that the more important forms of interaction--which could lead to marriage--will be most frequently allowed among members of the same class, and that the probability of any such contact occurring between members of different classes will decrease as the difference between their ordinal ranks increases. Forms of interaction which might be measured to indicate social distance in this sense are reflected by the Bogardus social distance scale, in order of decreasing importance: marriage, eat meals together at home; same neighborhood (a smaller unit than that used in this study;) same school, same job.

Locational behaviour at the scale we are considering is evidently not a primary index of social distance:

our hierarchy of places cannot be arranged in such a way
that the matrix of propensities will reveal movement over
smaller social distances to be more likely than over greater
social distances for all cases. (See Table VIII.) It is
probably related both to class structure and to other varia-
bles. So let me sketch out a system of symbols which may
serve to define a more detailed structure of class charac-
teristics as they affect movement in a set of places graded
according to prestige.

To begin with I will require that there be a clear
breaking point between possession and non-possession of a
symbol, and that all consistent combinations of symbols
form a single hierarchy which is a reasonable approxima-
tion of common notions of class structure. To show that
they form a single hierarchy, as Beshers points out in
his article "Urban Social Structure as a Single Hierarchy,"[21]
I must at least demonstrate that each possible inconsistent
combination will probably in the long run contain fewer
cases than any consistent combination (which might be done
inferentially through examining commonly recognized means
of entering and leaving the "non-class" in question). It
will also be helpful to point out where such cases are
likely to exhibit pathologies.

The first proposed symbol is the "bureaucratic"

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[21] Beshers, James, "Urban Social Structure as a Sin-
gle Hierarchy," Social Forces, v. 41, No. 3, pp. 233ff
(March, 1963).

TABLE VIII

PROPENSITIES BY CLASS: MOVES

PER 1000 EMPL. MALES AT ORIGIN

	Lex.	Way.	Brk.	Bel.	Bill.	Som.
Lexington		3	2	5 1/2	2 1/2	2
		2	1 1/4	3	2	2
		-		2 1/2	6	6
Wayland	-			1 1/2		
	1			1 1/2		
	-		-1			
Brk.	5 3/4	3		3		3
	1 3/4	1		3		1
	1/4	1/4		1 1/3		4 1/3
Belmont	14	1	2 2/3		1	3 3/4
	8	1/3	1 1/2		1 3/4	3
	5		1/4		2 1/4	6
Billerica	7 1/2	2 1/2	2 1/2-2 1/2			5
	3 1/2		1 1/4-1 1/4			4 1/2
	1 3/4					9
Somerville	12 1/2	2	2	8 3/4	13 1/2	
	4 2/3		1	3 1/3	4 1/4	
	1 2/3		3/5-	1 3/5	6 1/3	

wealth-time function,[22] which declines at worst only gradually in the years after peak earnings are reached, as distinguished from the sharply peaked, rapidly declining function characteristic of sporadic jobs having unpredictable employment opportunities. Although decline in the latter case is accelerated by loss in later years of the physical strength often demanded for such jobs, the distinction is not between non-manual and manual, but between those who have and those who lack access to institutional arrangements providing job security and quasi-public saving toward the post-peak years. I infer typical bureaucratic and non-bureaucratic functions as shown, vertical scale to be disregarded.
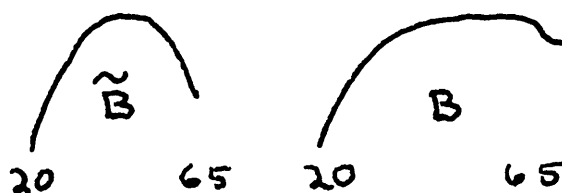
The second symbol I would like to use might be called familism in the special sense of concern with the internalization in children at a receptive age of a status orientation equivalent to or higher than the status of the parents, an ability to discern particularly from the behaviour of others whether or not they are of lower status. Its reference point,

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[22] Litvak, E. "Occupational Mobility and Extended Family Cohesion", American Sociological Review, v. 25, p. 9.

the parent's status, may be any high or low level, and may of course be defined in much subtler dimensions than those I am using here. This ability may be developed through the sole agency of the family, but may also be modified through the child's peer group and school experience in the ages of about six to eleven.[23] When the first child enters this sensitive period with respect to learned status traits the household head will be, on the average, thirty years old, and pass beyond it when he is thirty-five.[24] The great majority will fall between 29 and 33.

Finally, the completion of study at least to the bachelor degree and probably beyond will be a powerful symbol. While its efficacy in procuring prestigious employment is useful here for identification purposes, its particular significance lies in the high probability that the offspring will likewise be extensively educated. This will tend to stretch out child-rearing costs into later phases of the life cycle.

These three symbols, each with two possible values, provide me with eight combinations. I will use only four of these and call the rest inconsistent, thus:

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[23]Davis, op. cit., pp. 83-84.

[24]Based on a 1953 Current Population Survey as interpreted in Glick, Paul C., American Families, New York, John Wiley, 1957, pp. 56-57.

	W(t) (Security)	F (Familism)	D (Degree)
C_1	+	+	+
C_2	+	+	0
C_3	+	0	0
C_4	0	0	0

This is equivalent to stating, Degree only if Familism and F only if Security, which appears to be empirically sup- ⟋ portable. One is not likely to have achieved the 3rd without his parent having the second or the second without the first. If this were universally true, then none of my inconsistent combinations,

	W(t)	F	D
I_1	+	0	+
I_2	0	+	+
I_3	0	+	0
I_4	0	0	+

would be possible.

Obviously any of them is likely to turn up once in a while, but note that he is extremely unlikely to transmit a similar set to his offspring. I_1 and I_4 have degrees, but are not concerned with making their children purposive or ambitious. The son of the former, having wealth to draw on, will be a prodigal, effectively a C_3, while the latter's son will be a C_4. One cannot be so categorical about I_2 and I_3, for having learned to indoctrinate their children but

being often unable to provide them with a properly nice peer group or a good enough formal schooling to get a scholarship, they may transform into consistent C_1's, C_2's, or C_3's depending largely upon the success of the home indoctrination.

For the time being let me sustain the assumption used earlier, that places may be arranged in a single hierarchy of classes. This implies that all different aspects of the value of a location will be related in such a way that all persons may agree on the order in which they should be placed. Assume an effective pricing system. The higher a place is ranked, then, the more expensive will be a unit amount of living space within it at that time--though its value may be differently assessed by members of different classes. Movement will now be propelled by the life cycle.

Family space needs first arise when the family is formed--the head leaves his parents' family or some non-family accommodations, and soon thereafter has his first child. In our culture this now typically happens early in the third decade of life. All of our wealth-time curves are low at this stage: we expect that as we ascend in the hierarchy of places we will find greater and greater propensities to leave the location in this age bracket. Most C_3's and C_4's whose parents are located in higher-ranked places will tend toward the bottom ranking places where space is cheapest; C_1's and C_2's, to the extent that they

resistant to frequent moving, may anticipate child status indoctrination needs and choose an intermediate position. (C_1's in my sample are approximated by a very high mobility group, professional and technical, and do appear more tolerant of a low prestige location during this period of family formation.

In the fourth decade people have more children and need more space. Early in the fourth decade, however, familism will become more dominant for C_1's and C_2's as their first child ages, and they will tend upwards; the lower placed they are the greater will be their propensity to move despite the obvious strain on their resources. C_3's and C_4's are not bothered by familism, and should usually find that quite enough of their income, though now peaking, is absorbed by their family's likewise peaking space needs.

During the fifth and sixth decades, space needs fall off as children leave one by one. For C_1's, however, falling costs in this area are offset by the now rising costs of their sons' higher education. Out of sensitivity to the marriage market and pure consumership they are unlikely to move downward, (though if daughters as well as sons are sent off, to be educated, such a move is possible), and an upward move is precluded by the unlikelihood of appreciable further gains in wealth. C_2's and C_3's, however, who share his income pattern, will be free at this stage to acquire a smaller amount of more prestigiously located space. What-

ever their position they will develop an increased propensity to move upwards. C_4's wealth will be dwindling in this stage; the higher his location is the more likely he will be to move downwards. After 65 most incomes will fall off, but mobility at this age is falling off and death rates are increasing with age: for simplicity, let them die where they are.

VII. FINDINGS II

The matrix of moves by class and age was condensed by casting out the Billerica row and column, since it lacked complete age data. Wayland was retained despite the many empty cells it contributed. These decisions had the effect of reducing the significance of downward moves to and upward moves from Somerville, while exaggerating the rank-distance between Lexington and the towns below it. Weighted tallies of upward and downward moves by age and class, given in Table IX, do not exactly agree with previous findings for this reason. Downward moves of C_3's and C_4's are particularly underweight.

The column "Net Up per 10 Year Age Cohort" gives a summary age profile of mobility tendencies between ranks of location for each class of the four-class hierarchy. It is apparent that white collar families in this sample are formed at an earlier age than are blue collar families. The only notable inconsistency with the patterns predicted ("Expect" column) is the relatively strong net upward tendency of C-3's in the ages 20-30. This may be related to high pay scales in these occupations (craftsmen, foremen and operatives) compared with those which applied to their parents' generation when they were in their most mobile years. An earlier peak wealth than was expected, or possibly a strong unexpected strain of familism in these groups, may be defects in the scheme of classification. Since C_1's

TABLE IX

PLACE – RANKS TRAVERSED

BY CLASS AND AGE

Class	Age	Weighted Moves Up	Weighted Moves Dn.	Gross Weighted Moves	Net Weighted Moves Up	Net Up per 5 yr Cohort	Expect
	20-24	10	18	28	-8	-8	–
	25-29	42	29	71	13	13	
C 1	30-34	75	10	85	65	65	+
	35-44	101	21	122	80	40	
	45-64	34	16	50	18	5	
	20-24	12	16	28	-4	-4	–
	25-29	33	34	67	-1	-1	
C 2	30-34	33	7	40	26	26	+
	35-44	71	15	86	56	28	
	45-64	78	15	93	63	16	+
	20-24	13	3	16	10	10	–
	25-29	35	24	59	11	11	
C 3	30-34	14	7	21	7	7	
	35-44	33	27	60	6	3	
	45-64	46	7	53	39	10	+
	20-24	3	1	4	2	2	–
	25-29	4	13	17	-9	-9	
C 4	30-34	3	8	11	-5	-5	
	35-44	12	12	24	0	0	
	45-64	12	10	22	2	1	
All Classes	65+	70	44	114	26		

complete most of their upward movement at an earlier age than C_2's and C_2's before C_3's, there would be a continuing increase of segregation--as measured by instantaneous studies--even within an apparent equilibrium state as measured by the types of criteria used above in Section III. We may conclude, then, that age selectivity in this case reinforces the general trends found in the previous section.

The greatest research needs in this subject are for tighter, more elegant theory. This can only be developed with the aid of longer internally comparable time series of data to allow great specificity of move type (e.g. employing more homogeneous origins and destinations.). Although the small density of the data used here puts severe limitations upon the confidence with which quantitative inferences may be drawn, clarity is more essential. Until cause and effect can be properly defined and traced out in real sequences, the leanest and fattest accumulations of data will be equally useless.

VIII. DISCUSSION AND SPECULATION

An interesting line of inference from the cycle
of findings about segregation is suggested by relaxing
the assumption that the different kinds of value a per-
son might see in a location are actually reducible to a
common dimension. In fact each location represents a very
complicated package-deal of attributes which are valuable
to some potential user: it may have a good labor pool,
poor shopping facilities, great drainage, terrible water
supply, wonderful schools, dirty government, and so on.
Most of the situation will have to be taken as it is by
the eventual buyer: he can't buy some elements and leave
others out of the deal. Even if he does not use them him-
self he must pay for their availability, for somebody else
who values them will be bidding against him for the use of
the location.[25] So the location might be described at a
given point in time as a vector of many value-dimensions.

For purposes of illustration take two of them—say
schools and water—to represent all possible dimensions
of value. Every available location in the metropolis will
correspond to a point somewhere in school, water space;
together they form the set of all available school-water
combinations. Due to cultural, institutional and environ-

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[25]Actually he will not pay for the sum of all pos-
sible advantages, but the largest sum of compatible advan-
tages.

mental constraints the set will be somewhat organized,
such that there will be some areas of dense coverage and
others very sparse. The dense areas may be generalized
with convex boundaries and the resulting pattern be called
the school-water form of the metropolis, (Fig. I)
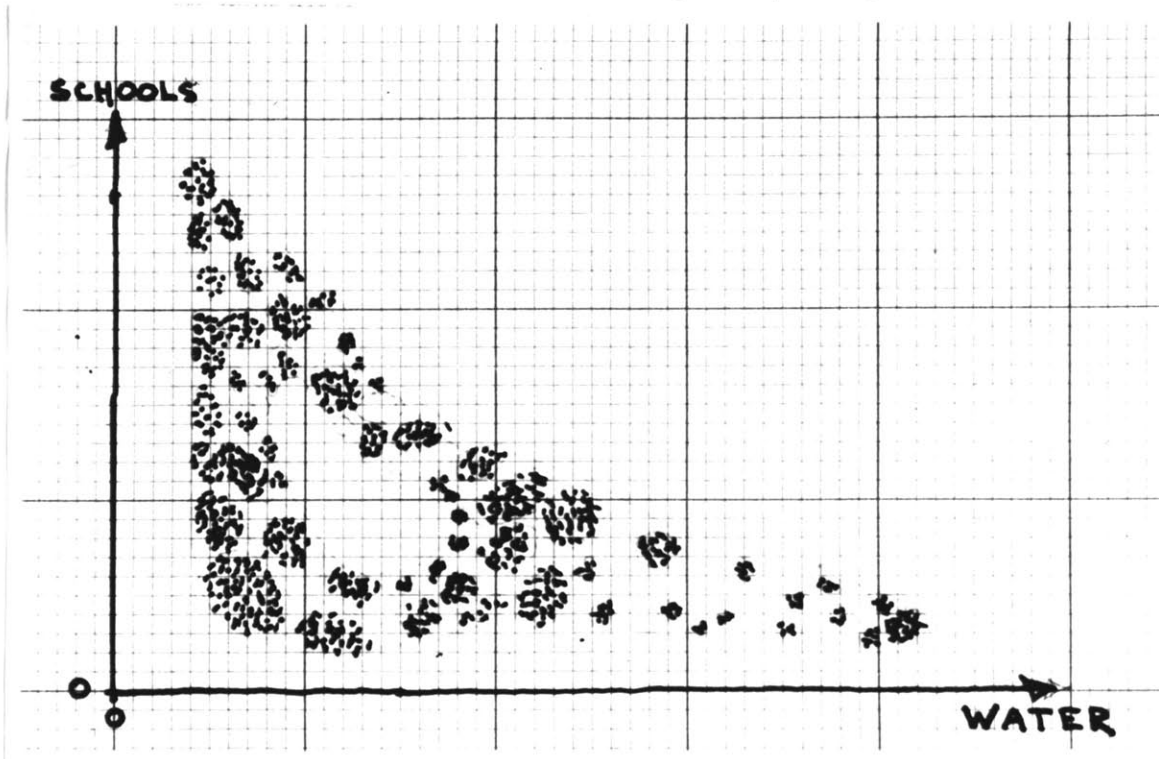
and would look like a constellation of clusters of possi-
bilities. "Form" is usually an attribute of something whose
component parts can be seen as if they made up a complete
and unique thing. Its use is reasonable here in a social-
psychological sense to the extent that all places in the
metropolis are consciously possible destinations of the
mobile citizen.

For our purposes the form of the metropolis in
attribute space might be described in terms of gross cover-

age, net coverage and grain.[26] Together they describe the
quality of the metropolis in terms of the likelihood of
being able to find a location suited to one's needs, and
once located the degree to which the needs would have
to change before a re-fitting would be feasible.[27]

By gross coverage I mean the range among extreme
combinations of values. (note that "value" in the sense
I am using it is an economic, not ethical concept, and
implies correspondence with real demands.) While choice
is often used in this sense in the planning literature,
gross coverage doesn't seem as critical a variable as
the other two. Hardly anyone is likely to progress dia-
metrically across the range of possibilities in a life-
time, and there is no difference in kind between the costs
of adaption imposed on peripheral types--which gross cove-
rage does indicate--and those imposed on marginal types
in intermediate ranges--which it does not. (Fig. II).

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[26] Apologies to Professor Kevin Lynch.

[27] Other considerations such as susceptibility to
ranking, might be added.

GROSS COVERAGE

Net coverage would mean the area of gross cover-
age less the major gaps. (Minor gaps, those areas of pos-
sible choice specification from which adaption to an adja-
cent real possibility would not impose severe costs, have
already been generalized over in defining metropolitan form).
Net coverage would therefore be increased by the addition
to the form of a significantly large group of possibilities
of significantly different value combination from those
then available--a marketable innovation--and would be decreased
by its removal, as by sale or obsolescence. It indicates
the richness of the form, its capacity to satisfy felt needs
at the moment, regardless of kind. It is important to recog-
nize that this is a very different criterion from that nor-
mally employed in welfare economics, where, according to

Pareto's criterion, "if the sum of the benefits, measured
by changes in capital values, exceeds the sum of the costs,
the (public) action is termed desirable."[28]

If individual persons' needs were stable in time,
grain, or the spacing of type clusters, would not make much
difference so long as net coverage didn't change. But fine
grain increases both the probability that shifting needs will
still be able to make a reasonable fit in the future and the
readiness of the form itself to be transformed in the long run.
Grain Fig. III.
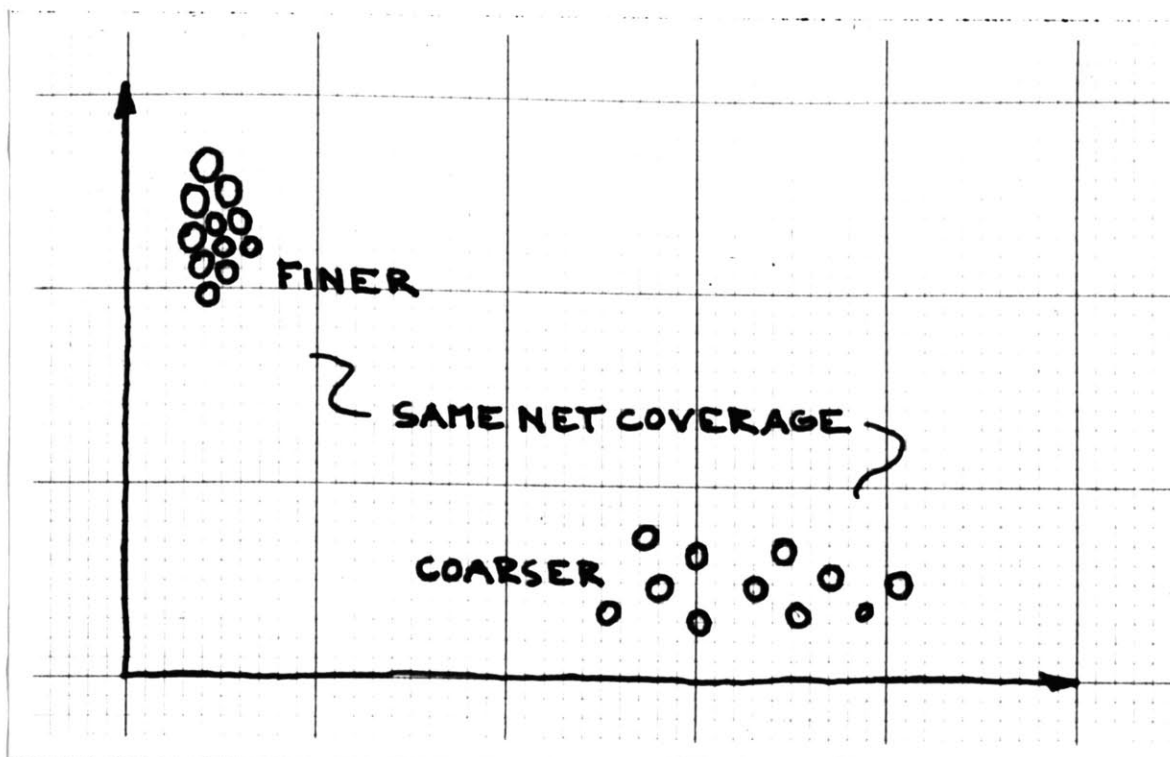
Recalling that the dimensions of metropolitan form are in
units of value, a thing which is sensitive not only to policy

[28]Davis and Whinston, The Economics of Urban Renewal
in Law and Contemporary Problems, v. 26, p. 106.

but to many other influences including every routine pur-
chase and sale, a certain fineness of grain is obviously
needed for the form to retain its richness over time.

The effect of the image consolidation process as
discussed is to reduce some or most dimensions of value
on a location or group of locations, while inflating a
few by giving them wide currency as the popular identifi-
cation of the place.

Consolidation Fig. IV.

THE NEIGHBORING SUBDIVISIONS OF
WISE ACRES AND PURITY FALLS,
1953 to 1963
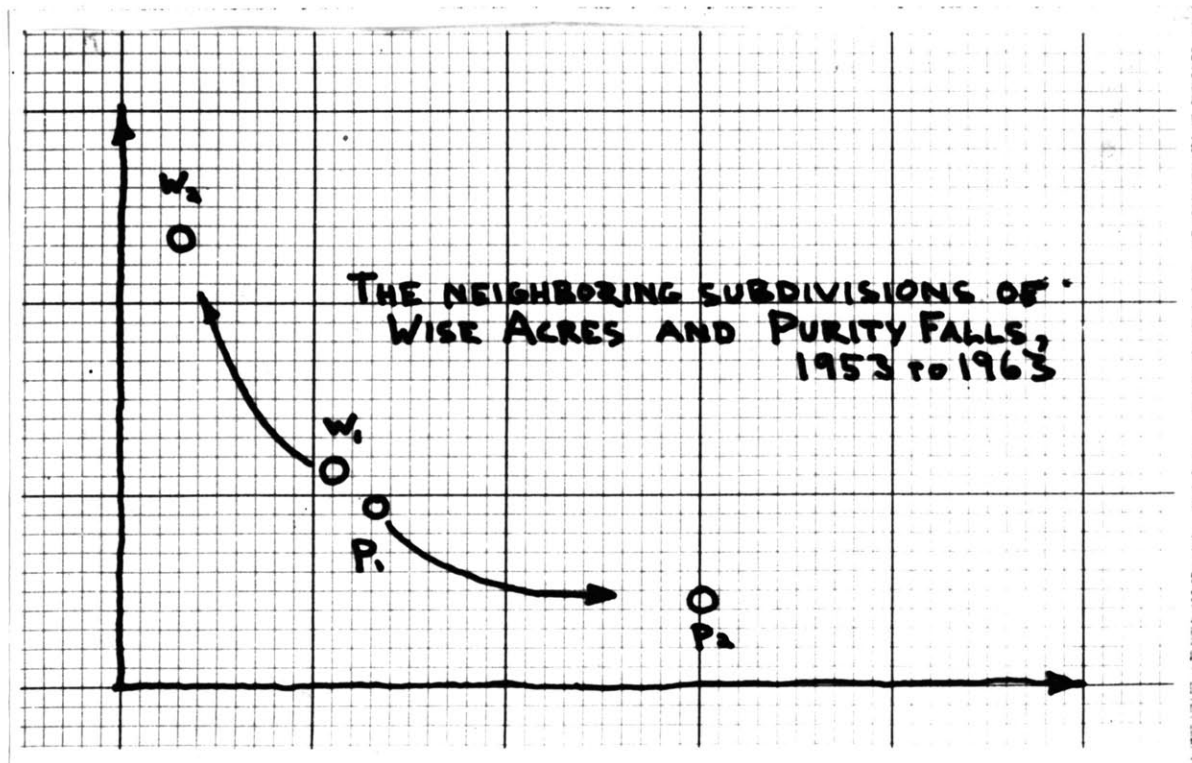
As is evident from the diagram the effect of this is
to increase the cartesian distance among location values in
attribute space. Grain becomes coarser, but the gross cover-
age of the form increases. Where consolidation applies
separately to unitary locations or type-clusters whose geo-

graphic composition is heterogeneous, net coverage is not
changed. Where clusters contain similar geographic identi-
fications however, which for jurisdictional reasons they
are likely to do, consolidation will reduce the size of
separate clusters, cutting down net coverage.

Fig. V.

JURISDICTIONAL IDENTIFICATIONS SLIGHTLY
SPECIALIZED ; HIGHLY SPECIALIZED
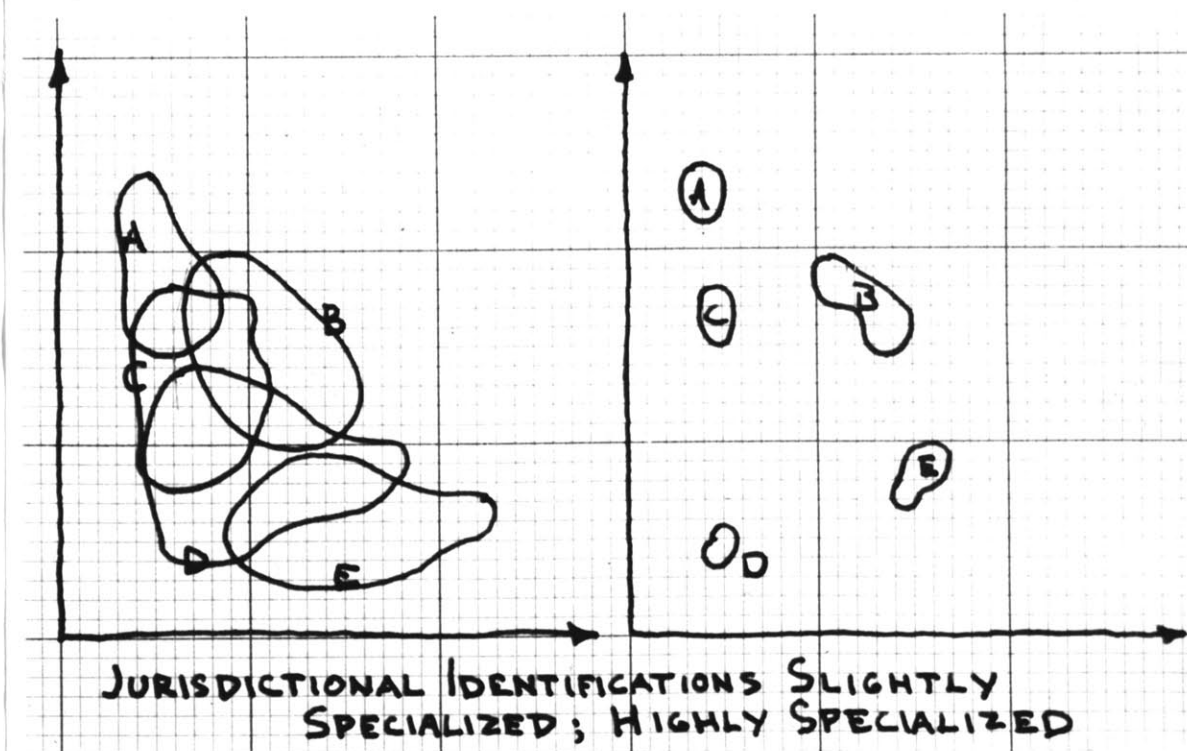
Some individuals' situations—specifically those
of the most popular choice specifications of the moment—
are made considerably more economical. If there were no
institutional restrictions on innovation or other rigidi-
ties, it would make for a very attractive pattern. Wherever
large enough interstices developed between clusters there
would be a profit to be made by somebody—individual, cor-
porate or public—who could think up an economical way of

filling it with an offering.

In reality this possibility is severely limited
by the extensive and growing yet tactically inflexible
powers over the use and value of land which are held by
the government. They are administered primarily by the
municipality and to some extent by special districts in
furtherance of strictly local objectives: these bodies
cater to the service, solidary and emulative needs of their
present and occasionally their potential citizens. They
have virtual autonomy over some aspects of land use in
the form of general prohibitions which they usually must
make as severe as those employed by their most restrictive
neighbor. Jurisdictional identifications may appear in the
metropolitan form in complete overlap, in which each muni-
cipality would be a miniature model of the metropolis--
formerly "independent" cities such as Waltham and prewar
Peabody come to mind--but these powers used competitively
should yield in time a complete lack of overlap. Consoli-
dation leads to specialization of many jurisdictions' com-
position; moreover, it is likely to impose a residual
specialization and imputed type-consolidation on the remain-
ing ones, either separately or as a class. Indeed, we have
seen earlier that at least for values relating to socio-
economic status, specialization of type at the scale of the
municipality and its concomitant, region-wide segregation,
appear to be established and self-accelerating processes.

To the extent that this merely reduces areas of overlapping
jurisdictions in the sense used above, it is neutral accor-
ding to the choice-pattern criteria, but in fact large
gaps must be presumed to exist already within the social
forms of American settlement.

There are, of course, existing sources of innova-
tion but there are also such formidable rigidities that
gap-filling programs seldom hit their mark for long. The
"incubator" possibilities of central areas[29] and of outlying,
preferably unincorporated land are available to few and
with severe practical limitations. Whereas the municipa-
lity and the Federal government are increasingly able to
manipulate location values, a hopeful analogy with the
operation of a free market, such as that of Robert Warren,[30]
is frustrated by the lack of effective institutional sour-
ces of value-maximizing conditions,autonomy of the agents
and flexibility of production. A full defense of this
point would require another thesis or two.

Referring to pp. 62 , type-consolidation was in
general expected to increase the gross coverage of a metro-
politan form and coarsen its grain, improving many peoples'
momentary situations but reducing the ease of personal tran-

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[29]New York Metropolitan Region Plan, 1959, Hoover
and Vernon, The Anatomy of a Metropolis, New York, 1962,
pp. 45-49, 71.

[30]Warren, Robert, Municipal services market model,
unpublished manuscript, University of Washington, 1962.

sitions (e.g. through the life cycle) and making the form itself less amenable to transformation. When bounded areas such as municipalities specialize in this process, (p. 63) net coverage is also reduced (except to the extent that compensating innovations are made.)

The penalty of these changes is borne in time by society at large, but it is felt first by the types or ages of citizens which are marginal among the emerging specializations. The penalties are the subjective costs of conformity or stigma, or the economic cost of duplicating those elements of the locational package-deal which one chooses not to tolerate.

IX. SUMMARY

In this thesis I have tried to increase the confidence of the reader—and myself—in these main points.

1. Selective migration is both conceptually and numerically the most important component of population change for the planner in an American metropolitan area to understand. It is a judgement of the local community's present function for society and a considerable limitation upon its possible functions in the future.

2. Specifying both the origin and destination of a stream of movement in some detail is an aid in understanding the values which the movers will express in making it, and so in turn the number and kinds of persons who are likely to make the move.

3. The effect of selective migration among places of differential prestige is to increase segregation (as defined).

4. The effect of selective migration among specialized places is usually to increase their specialization.

5. If social choice ought to include the possibility of expressing unusual combinations of values, this trend is bad.

6. The prospective mover acts as if he imaginatively exaggerates the social class specialization of places. But he weights more strongly the value of a "fitting" degree of prestige in his destination than in his origin.

7. Age and occupation information alone may be sufficient to predict the main differentials among intro-metro-politan movement streams.

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APPENDIX, 5-15-63.

FURTHER DISCUSSION OF IV, "DEVELOPMENT OF HYPOTHESES".

I. General.

The preliminary analysis of factors affecting intra-metropolitan movement patterns led us to the conviction that a process of self-accelerating specialization of local populations may be incipient or in progress in the larger American metropolitan areas.

It was decided to conceptualize the set of variables affected by this process at three levels. The first dealt with segregation, as affected by the net movement of classes within a system of locations; the second, with specialization, from the growth or shrinkage of classes in individual locations; and the third, with the behaviour of classes with respect to specific sequenced pairs of indivdual locations. A hypothetical rule was then devised for each conceptualization to distinguish cases of non-increasing specialization from cases of positively increasing specialization. These are the three underlined hypotheses in the text, pp. 25, 26 and 28.

The rules define increasing segregation situations only for certain characteristic patterns of population distribution with respect to the status or prestige of locations. In particular, the highest-status places must be the most specialized of all places in the highest social class, and the least specialized of all places in the lowest social

class; the lowest-status-places must meet the reverse of
this condition and the other places be smoothly scaled be-
tween according to rank. This condition holds for the six
towns. So long as this condition is met, caricaturized or
stratified patterns of net fares will always imply speciali-
zation of places about the previously dominant classes of
their populations, and either of these patterns will also
imply increasing mean separation of members of separate
classes in the region. This is true because the rank-com-
position rule eliminates the possibility of an inversion,
which would yield inconsistent ordering of place-status by
the various possible criteria for judging status.

II. Segregation.

The idea was developed in the preliminary analysis
that it may be a fair approximation to consider all noncon-
tiguous locations within a metropolitan area to be equi-
distant. From this point of view the definition of segre-
gation given on p. 25 becomes rather difficult to interpret.
Perhaps a better phrasing of the sense in which the word is
used would be that segregation is the correspondence of indi-
vidual and locational status distances in the population dis-
tribution of a region. Such a correspondence will be affected
in time by relationship among the aggregate patterns of move-
ment of the several social class. The aspect of these patterns
which I chose to measure is the net number of upward place-
ranks traversed by members of a class per thousand potential

movers of that class: that is, each move was weighted by the
number of places it moved through the hierarchy of places,
summed with the others and divided by the base population.

Some objection might be made to the device of weight-
ing the moves, for only the rank order and not the social
distance among the locations had been established. Taking
a more conservative course of demonstration then, here is
a tally of unweighted upward and downward moves by class:

A		B		C	
U	D	U	D	U	D
144	61	127	68	158	99

From these may be calculated unweighted net upward propensi-
ties (per ten thousand).

$$UNP_B = 79.8 \qquad UNP_B = 30.7 \qquad UNP_C = 21.3$$

making it even more clear that the occupation classes are
diverging in the hierarchy of places studied.

III. Specialization.

The second rule, dealing with specialization, is a
more powerful statement of the same qualitative condition.
To satisfy it, the movement of classes must be such that they
not only become increasingly separated in terms of average
location-status distance, but also impose separately on each
location, through time, the same population composition rela-
tive to the places above and below it in the hierarchy which
is prescribed for it by the rank-composition rule (discussed
above).

IV. Streams and Fares.

The third conceptualization of the specialization phenomena deals separately with each possible "stream" or combination of origin and destination, and introduces two parameters to make the streams more easily comparable. The format in which the raw data were organized is that of Table II: a 6 x 6 matrix of "streams", where the vertical position of a cell denotes the location status rank of its origin, and the horizontal position of a cell denotes the location-status rank of its destination. By inspecting the raw data in a matrix form, certain valid generalizations are possible: differential characteristics of places as destinations (pulls) may be evaluated by scanning separate rows (since all entries in a row have the same origin), and differential characteristics of places as origins (pushes) may similarly be evaluated by scanning separate columns.

Inferences drawn from the structure of separate columns and rows, due primarily to the objection that each of the places is different in size. But according to Stouffer's theory (as explained, pp. 10, 27) we may expect "push" to be proportional to the number of available vacancies (cumulated through the period of study) at the destination. If the size of each stream is adjusted, then, by dividing by these or similar parameters of the size of its respective origin and destination, it should be possible to interpret the resulting quantities as comparable expressions of the desirability of the moves. The quantities were called "net fares" in order to connote this property.

The rule given to govern the structure of the net fares matrix is essentially a statement of the principle developed in the preliminary analysis, that there are socially accepted notions of a proper fit between personal and locational status, and that these are expressed in the selectiveness of both out-migration and in-migration. A stream, of course, is both out and in, so the principle provides a double constraint on its composition.