

1974

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Recommended Citation

Little, Roger D. and Turner, Raymond F. (1974) "Non-Caucasian Recruiting and the Occupational Structure of the Navy," *Naval War College Review*: Vol. 27 : No. 2 , Article 8.
Available at: <https://digital-commons.usnwc.edu/nwc-review/vol27/iss2/8>

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With the inception of the zero draft, the Armed Forces of the United States, and particularly the Navy, must face the problem of how to recruit the skilled individuals able to meet their highly technical demands. Furthermore, if this all-volunteer force is to remain a more or less accurate cross section of the Nation's population, its racial makeup must also be taken into consideration. Retraining for those non-Caucasians already in the Navy as well as selective recruitment offers Navy recruiting strategists an opportunity to solve both the problems of racial balance and technical ability. Recruitment along racial lines has been used by other agencies with varied success, nevertheless, if the Navy wishes to remain as a viable career alternate to a large segment of the Nation's population, some such system must be attempted.

NON-CAUCASIAN RECRUITING AND THE OCCUPATIONAL STRUCTURE OF THE NAVY

An article prepared

by

Professor Roger D. Little

and

Professor Raymond F. Turner

The inception of the all-volunteer armed force has placed the military service in competition with civilian employers for the available portion of the Nation's work force. While there are indications that the elimination of the draft has not severely hampered the services in meeting their immediate manpower needs, fears have been expressed that in time the racial composition of the services will deviate substantially from that of the civilian population.¹ Some studies have gone so far as to suggest the eventuality of predominately black enlisted ranks, although the Gates Commission Report did not agree with this prospect.² Even if this did occur over the long term, the Navy's immediate problem is one of attracting and retaining non-Caucasians.

The solution to the problem of how to employ an adequate racial cross

section of the population may well be found by upgrading the occupational opportunities available to minorities in the Navy. The implementation of a three-phase process may be a useful approach to this problem. First, those Navy occupational specialties where comparative shortages of non-Caucasian personnel presently exist must be identified. Second, the Navy should strive to improve the occupational opportunities of those non-Caucasians already in the Navy by providing a more rapid rate of upward occupational mobility. Third, concentrations of non-Caucasian manpower who possess the needed skills and who might be recruited must be located. These solutions all require the determination of the occupational distribution of the Navy in such a way that a meaningful comparison can be made with existing data on the regional

occupational distribution of the civilian work force. The inclusion of such analysis in an overall strategy for Navy recruiting would, if successful, enable the service to achieve its minority recruiting goals while realizing substantial cost reductions. Additionally, a more balanced distribution of non-Caucasians in the various Navy ratings could be viewed by the prospective non-Caucasian recruit as *prima facie* evidence of equal opportunity. This could only expand the Navy's potential sources of manpower in the context of the all-volunteer armed force.

Minority Status in the Navy. Not only has the Navy traditionally employed a smaller percentage of non-Caucasians (Negroids, Mongoloids, American Indians, and Malaysians), both officer and enlisted, than have the other services,³ but, as will be shown later, the non-Caucasians that have been enlisted are concentrated in the lower enlisted pay grades and less skilled occupations (which also may be lower paying).⁴ Cultural differences have weighed heavily in the Navy's failure to attract non-Caucasian sailors, and the lack of a seagoing tradition among some non-Caucasian peoples, most notably the black African nations, has been one of the reasons most often cited. Additionally, the relatively inferior economic and social status of non-Caucasians in the United States has prevented them from gaining the background necessary for training in the more skilled jobs. Thus it might be observed that the United States has failed to produce a proportional number of sailors from among non-Caucasian groups for many of the same reasons that the Nation has also failed to produce but a few non-Caucasian tennis players, golfers, and swimmers of exceptional ability. The facilities that tend to develop these orientations and talents have simply not been available to many non-Caucasian families. So while the policymakers of

the other services may be concerned that the all-volunteer force will bring forth an overabundance of qualified non-Caucasian enlistees, the Navy's concern is the recruitment of at least a proportional number of non-Caucasians with the capacity to learn the skills required by the Navy.

In view of this problem, one should bear in mind that while the Navy has little control over cultural and socio-economic constraints, the Navy is in a position to exercise positive control over the opportunities available to a prospective non-Caucasian sailor. To date the majority of non-Caucasian representation in the Navy's enlisted ranks has been in the service-oriented job categories. Such categories include, among others, food and laundry service workers and stewards. Because of the non-Caucasian concentration of manpower in these areas, it is probable that a prospective non-Caucasian sailor would perceive his future assignments as also being in these areas, particularly if his educational background is weak. Such a perception would be likely to deter enlistment for at least three reasons. First, service skills as they exist in the Navy are not easily transferred to well-paying civilian jobs. A recruit who is undecided about a Navy career at the time of his first enlistment will undoubtedly seek training during this tour which will enable him to qualify for a relatively high paying job in the civilian labor market should he decide against a Navy career. In other words, the potential recruit probably views the offer of valuable job training during the initial enlistment as a primary inducement to "give Navy life a chance." The expectation of no training or inadequate training will adversely influence his willingness to take such a chance. Second, since many service members retire after 20 years of active duty expecting to pursue a new career, the kinds of skills and experiences taken from the Navy are equally valuable to men in this

category. Third, many Navy occupations, but infrequently those in the service category, offer additional pay and bonuses, sometimes amounting to several thousands of dollars, as well as the expectation of rapid promotion. A potential recruit expecting to enter one of the service-oriented occupations could hope to receive few, if any, of these benefits.

Closely related to the motivation of a prospective recruit through training and occupational opportunities is the ability of the service to offer training that qualifies a recruit for the job of his choice. This is a function of the occupational structure of that service. This occupational structure, however, may influence the ability of the service to meet its manpower needs in a less direct but potentially damaging way. If the segment of the population from which enlisted personnel are traditionally drawn view the service as having an inferior set of occupational opportunities, they are unlikely to seriously consider enlistment. Should prospective non-Caucasian recruits gain evidence, either through the media or through personal acquaintance, that the Navy offers them only inferior or "dead end" occupations, it could reasonably be expected that recruitment of talented non-Caucasians would be adversely affected.

Beyond the importance of the Navy's occupational structure as an inducement to the prospective recruit, knowledge of this structure might possibly aid Navy recruiting in another way. When compared to the occupational structures of various regions within the Nation, one could identify those areas where the population possessed a high density of the characteristics which the Navy found to be in short supply. Recruiting efforts could then be made both more successful in meeting the manpower needs of the service and more cost effective if directed toward large pockets of manpower known to exhibit certain predetermined characteristics.

These considerations take on added importance in dealing with the recruitment of qualified non-Caucasians since the non-Caucasian population is frequently concentrated in urban areas and displays considerable diversity of occupational structure in different regions of the country.

Methodology. In order to analyze the problems and hypotheses suggested above, it was necessary to attempt a cross-classification of Navy specialties, or ratings, into the major occupational classifications used by the Bureau of the Census. Some degree of caution must be used in such cross-references, however, since the classification of a person into an occupational group is hardly an exact science even within a particular classification method.

Although judgment must play a part in occupational classifications (or cross-classifications), the end product—an occupational distribution of the work force—goes far beyond a categorization of the kinds of jobs which people perform. As Alba Edwards observed in 1943 when occupational classification systems were still in their formative stages:

Occupational statistics, classified by major industrial divisions, are useful for showing in summary form the industrial distribution of the Nation's labor force. They are useful in the analysis of problems in which the workers are considered merely or mainly as a productive force. But in the analysis of many of the problems which concern workers as people, and not merely as productive machines, as well as in the analysis of social and economic problems generally, there is, and long has been, a real need for statistics showing in summary form an occupational distribution of the Nation's labor force—a need for statistics that cut across industry

lines and bring together into one occupationally homogeneous group all workers belonging to the same social-economic class, with but minor regard to the particular industrial field in which they work.⁵

While a matching of specific jobs in the military with the civilian occupational structure involves some judgment and perhaps invites error, it does make possible a comparison of "all of the workers belonging to the same social-economic class" irrespective of their "industry." We are thus able to view the military service not only from the vantage point of being able to see its relation to the Nation's work force, but also to generalize on the attractiveness of the service with respect to the occupational opportunities it offers specific employment groups.

The method by which this cross-classification was accomplished involved a three-step process. First, each individual Navy occupation was matched with the civilian occupation to which it is most highly correlated. To minimize the margin of error in this exercise, the *Military-Civilian Job Comparability Manual*,⁶ a publication of the Department of Defense, recommended for employers seeking to hire veterans, which identifies the civilian occupation most highly related to a Navy rating, was used. Second, the occupation in question was located within the classification system used by the Bureau of the Census. For this phase of the process, the *Alphabetical Index of Industries and Occupations*⁷ was used. Third, the individual Navy ratings, having been cross-classified, were grouped into the various census categories as shown in table 1. Additionally, data detailing the "on-board" population, manpower allowance, and racial distribution for the different ratings was aggregated according to census groups and is shown in table 2. In order to maximize the accuracy of the cross-classifications, no

attempt was made to classify Navy personnel who had no designated occupational specialty. These include only seamen (SN), firemen (FN), airmen (AN), and constructionmen (CN), personnel whose duties involve a very wide variety of unspecified tasks. Although one might expect that these "unclassified personnel" (who, incidentally, are found only in the lowest three pay grades) would best be designated as nonfarm labor when cross-classified into census groupings, such a categorization, given the diversity of tasks involved, would be imprecise at best and consequently was not attempted. Moreover, the *Military Civilian Job Comparability Manual* does not indicate a related job for these personnel.

Column (1) of table 2 indicates the distribution of enlisted Navy personnel by the Bureau of the Census occupational groups after their cross-classification according to table 1. Additionally, table 2 provides three distributions of these persons by race. Columns (2) through (5) show the number and percentages by race within each occupational group. The distribution of all Navy personnel, including those designated as "unclassified," is shown in columns (6) and (7). Columns (8) and (9) detail how classified Navy personnel are distributed by race. For the purpose of comparing Navy data with the U.S. census data or that of the Bureau of Labor Statistics, the third breakdown is superior to the second since these columns distribute Navy enlisted workers with identifiable occupations just as the census assigns an occupation to all civilian workers in calculating their statistics. So, rather than considering a distribution with elements that cannot be compared to the census and consequently deflating the value of those elements that were comparable, we judged it more meaningful to compare populations which are similarly defined.

Of immediate interest is the data

TABLE I—CROSS-CLASSIFICATION OF U.S. NAVY ENLISTED RATINGS WITH BUREAU OF THE CENSUS OCCUPATIONAL GROUPINGS

Occupational Groups ^a	Navy Titles Included ^{b, c}
I. Classified	
A. White Collar	
1. Professional and Technical	EW, ST, FT, MT, ET, DS, CTM, CTI, JO, DM, MV, AT, AX, AQ, AG, ID, PH, PT, HM, DT, HN, DN
2. Managers and Administrators	PI, CU, EQ, AF, AV
3. Sales	None
4. Clerical	RD, RM, CTT, CTA, CTO, CTR, YN, PN, DP, SK, DK, PC, AC, AK, AZ
B. Blue Collar	
1. Craftsmen	OT, TM, GM, MN, IM, MM, EN, BT, BR, EM, IC, ML, CE, EO, CM, BU, AD, AW, AO, AE, AM, AS, OM, LI, ME, HR, SF, PM, SW, VT, AB
2. Operatives	BM, QM, SM, EA, PR
3. Nonfarm laborers	None
C. Service	
1. Private household workers	None
2. Service except private household	CS, SH, DC, SD, TN
D. Farm Workers	
	None
II. Unclassified	SN, FN, CN, AN
<p><i>Sources:</i> a. U.S. Bureau of the Census, <i>1970 Census of Population Alphabetical Index of Industries and Occupations</i>, (Washington, D.C.: U.S. Govt. Print. Off.).</p> <p>b. Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), <i>Military-Civilian Job Comparability Manual</i> (Department of Defense, not dated).</p> <p>c. See appendix A for the titles corresponding to the standard Navy Alpha Code designations.</p>	

clearly representing the heavy concentration of non-Caucasian Navy personnel in the service worker category. There are nearly as many non-Caucasian service workers as there are Caucasian service workers, although non-Caucasians comprise only about 10 percent of the Navy. As can be seen in column (7), one-third of the Navy's non-Caucasian personnel (3.1/9.6) can be found among service workers whose rates involve less than 7 percent of all "on board" personnel. Or, from another perspective, column (5) shows that, if nonclassified personnel are excluded, non-Caucasians are so heavily concentrated among service workers that in no other designated

occupation do they reach their servicewide participation rate of 9.6 percent. Additionally, column (5) shows that non-Caucasians comprise less than 1 percent of those in the "managers and administrators" classification which, in our cross-classification, is made up of exclusively master chief petty officers (pay grade E-9). These are the most senior Navy enlisted personnel in terms of military precedence and generally receive the highest pay.

While it is true that, in addition to service workers, unclassified workers also surpass the Navy-wide participation rate for non-Caucasians, it was noted before that unclassified workers are

TABLE 2—OCCUPATIONAL GROUP OF CURRENT ON BOARD NAVY ENLISTED PERSONNEL BY RACE, MARCH 1971

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) (9)	
	Total	Caucasian Number	Percent	Non-Caucasian Number	Percent	As Percent USN Caucasian Non-Caucasian		As Percent Classified Personnel Caucasian	Non-Caucasian
On Board	556,505	503,168	90.4	53,337	9.6	90.4	9.6	90.7	9.3
Unclassified	134,450	120,375	89.5	14,075	10.5	21.6	2.5	—	—
Classified	422,055	382,793	90.7	39,262	9.3	68.8	7.1	90.7	9.3
White Collar	187,817	176,940	94.2	10,877	5.8	31.8	2.0	41.9	2.6
Professional and Technical	104,151	100,139	96.1	4,012	3.9	18.0	.7	23.7	1.0
Managers and Administrators	638	633	99.2	5	.8	.1	.0	.2	.0
Sales	—	—	—	—	—	—	—	—	—
Clerical	83,028	76,168	91.7	6,860	8.3	13.7	1.2	18.1	1.6
Blue Collar	199,154	188,192	94.5	10,962	5.5	33.8	2.0	44.6	2.6
Craftsmen ¹	174,090	165,216	94.9	3,874	5.1	29.7	1.6	39.2	2.1
Operatives	25,064	22,976	91.7	2,088	8.3	4.1	.4	5.4	.5
Nonfarm laborers	—	—	—	—	—	—	—	—	—
Service Workers	35,084	17,661	50.3	17,423	49.7	3.2	3.1	4.2	4.1
Private household	—	—	—	—	—	—	—	—	—
Service except private household	35,084	17,661	50.3	17,423	49.7	3.2	3.1	4.2	4.1
Farm Workers	—	—	—	—	—	—	—	—	—

Sources: a. Department of the Navy, Bureau of Naval Personnel, *Navy and Marine Corps Military Personnel Statistics*, 31 March 1971 (NAVPERs 15658).

b. Department of the Navy, Bureau of Naval Personnel, *Citizenship and Race by Rating of Enlisted Personnel on Active Duty*, 31 March 1971 (PERS-N212).

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exclusively in the lowest three of the Navy's pay grades. The disproportionate percentage of non-Caucasians in these pay grades can be found in column (5) of table 3. Additionally, the general trend toward lower percentages of non-Caucasians in the higher pay grades is clearly represented. Although Navy-wide participation by non-Caucasians in the most senior pay grade, E-9, is greater than the rate of non-Caucasian participation in those ratings composed exclusively of E-9's, as discussed in the preceding paragraph, Navy-wide participation in this pay grade, 2.7 percent, is still significantly less—less than one-third—of the Navy-wide participation rate of 9.6 percent for non-Caucasians.

Table 4 presents a comparison of Navy active duty personnel to manpower allowances for the various occupational specialties in terms of U.S. census job classifications. Although column (5) discloses that the Navy's overall stock of manpower in 1971 was slightly in excess of allowance, 101.5 percent, the specific areas of manpower surplus deserve closer attention. Un-

classified personnel and service workers both show a general surplus, but all other occupational classifications are below manpower allowance. Perhaps the most significant observation thus far can be made when the data from tables 2 and 4 are placed in juxtaposition. Only in those occupational classifications where a general surplus of manpower exists does a rate of participation for non-Caucasians in excess of their Navy-wide participation rate also exist. Conversely, only in those occupational classifications where a general shortage of manpower exists is there a rate of participation for non-Caucasians less than their Navy-wide participation rate. Should the Navy seek to adjust these surpluses and shortages in a manner that would also effect a more consistent participation rate among occupations for non-Caucasians, it would seem that consideration might be given to at least two policies. First, in order to redistribute manpower according to race, retraining in a white- or blue-collar skill might be made available to non-Caucasians already in a service category on a

TABLE 3—CURRENT ON BOARD NAVY ENLISTED PERSONNEL
BY PAY GRADE AND RACE, MARCH 1971

	(1) Total	(2) Caucasian		(4) Non-Caucasian	
		Numbers	Percent	Numbers	Percent
All Pay Grades	556,505	503,168	90.4	53,337	9.6
E-9	3,382	3,290	97.3	92	2.7
E-8	9,125	8,634	94.6	491	5.4
E-7	38,632	34,911	90.4	3,721	9.6
E-6	79,200	69,634	87.9	9,566	12.1
E-5	91,595	83,632	91.3	7,963	8.7
E-4	125,545	117,121	93.3	8,424	6.7
E-3	135,497	121,768	89.9	13,729	10.1
E-2	55,825	49,030	87.8	6,795	12.2
E-1	17,704	15,148	85.6	2,556	14.4

Source: Department of the Navy, Bureau of Naval Personnel, *Citizenship and Race By Pay-Grade of Enlisted Personnel on Active Duty*, 31 March 1971 (PERS-N212).

TABLE 4—OCCUPATIONAL GROUP OF NAVY ENLISTED PERSONNEL, ALLOWANCES AND CURRENT ON BOARD STATUS, MARCH 1971

	On Board		Allowance	Percent Allowance On Board
	Number	Percent		
Total	556,505	100.0	548,132	101.5
Unclassified	134,450	24.3	115,710	116.2
Classified	422,055	75.7	432,422	97.6
White Collar	187,817	33.7	192,235	97.7
Professional and Technical	104,151	18.7	105,524	98.7
Managers and Administrators	638	.1	851	75.0
Sales	---	---	---	---
Clerical	83,028	14.9	85,860	96.7
Blue Collar	199,154	35.7	206,987	96.2
Craftsmen	174,090	31.3	181,790	95.8
Operatives	25,064	4.4	25,197	99.5
Nonfarm laborers	---	---	---	---
Service Workers	35,084	6.3	33,200	105.7
Private households	---	---	---	---
Service except private households	35,084	6.3	33,200	105.7
Farm Workers	---	---	---	---

Source: Department of the Navy, Bureau of Naval Personnel, *Navy and Marine Corps Military Personnel Statistics*, 31 March 1971 (NAVPERS 15658).

priority basis. Second, recruiting programs might be patterned in such a way as to emphasize the procurement of non-Caucasians for occupational specialties where non-Caucasian participation is comparatively low.

An approach to the second of these policy measures—identifying and recruiting in those locations where there appears to exist an abundance of particular workers with a history of needed specialties—is to examine either the occupational characteristics data published decennially by the Bureau of the Census or that based on more frequent samples as published by the Bureau of Labor Statistics. The most disaggregated data available has been compiled by the Bureau of Labor Statistics from samples taken in the Standard Metropolitan Statistical Areas (SMSA). While this data might be most useful in putting the suggested procedures into operation, it was considered too bulky for present purposes.⁸ The statistics instead utilized are unpublished data from the Current Population Survey.⁹ They are chosen

because they agree most closely with the data of the Navy statistics and are disaggregated only to the extent of breaking the United States into four major regions: Northeast, North Central, South, and West.¹⁰ In any event, even a detailed analysis which used the Standard Metropolitan Statistical Area data would undoubtedly first examine the regional distributions for general clues as to which regions might contain the SMSA's with the occupational characteristics desired.

Matching Manpower Needs. Table 5 represents the United States and regional occupational structures by race. In 1971 white-collar occupations employed nearly one-half of the Nation's civilian work force but only about one-third of the Navy's enlisted personnel (table 4). Among all civilians more than 50 percent of the white workers, but only about 30 percent of the nonwhite workers, were employed in these occupations. This corresponds with respective Navy occupation per-

TABLE 5—OCCUPATION OF EMPLOYED PERSONS FOR REGIONS BY RACE, AVERAGE ANNUAL PERCENTAGES, 1971

	United States			Northeast		North Central		South		West	
	Total	White	Non-White	White	Non-White	White	Non-White	White	Non-White	White	Non-White
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White Collar	48.3	50.6	29.1	52.9	38.4	46.9	31.8	51.1	20.4	53.1	44.8
Professional and Technical	14.0	14.8	9.0	15.6	11.4	13.5	9.2	13.9	6.9	16.4	13.1
Managers & Administrators	11.0	11.8	4.1	11.4	4.1	10.6	4.1	12.9	3.0	12.4	7.7
Sales	6.4	6.9	2.3	6.8	2.4	6.4	2.4	7.2	1.7	7.4	4.2
Clerical	17.0	17.4	13.7	19.1	20.5	16.4	16.0	17.1	8.7	17.2	19.7
Blue Collar	34.4	33.7	39.9	34.1	36.8	34.5	42.7	34.5	42.3	30.3	31.3
Craftsmen	12.9	13.5	7.9	13.3	8.2	13.2	8.5	14.2	7.4	12.9	8.5
Operatives	16.4	15.8	21.6	16.7	21.8	16.7	25.3	16.0	21.9	12.5	15.6
Nonfarm laborers	5.1	4.5	10.3	4.1	6.8	4.6	8.8	4.4	13.1	4.9	7.2
Service Workers	13.5	11.8	27.6	11.8	24.6	12.6	25.3	10.1	31.3	13.3	21.3
Private household	1.8	1.2	7.3	1.0	4.7	1.4	4.3	1.1	10.7	1.6	2.5
Service except private household	11.6	10.6	20.3	10.8	19.9	11.2	20.9	9.1	20.6	11.7	18.8
Farm Workers	3.8	3.9	3.4	1.2	0.1	6.1	0.3	4.2	6.0	3.3	2.6
Farmers & farm managers	2.1	2.3	0.7	0.6	0.0	3.8	0.1	2.7	1.2	1.4	0.9
Farm laborers & foremen	1.7	1.6	2.7	0.6	0.1	2.3	0.2	1.5	4.8	1.9	1.7

Source: a. Calculated from unpublished data provided by the Bureau of Labor Statistics from the U.S. Department of Labor's Current Population Survey.

centages of approximately 30 and 20. A nonwhite civilian worker is more than twice as likely to be in a service occupation as a civilian white worker. In the Navy, as observed before, this ratio is about 5 to 1. These figures support the earlier suggestion that non-Caucasians may well view the occupational opportunities offered by the Navy as less promising than those in the civilian economy, hence their low enlistment rates.

While this data is true for the Nation as a whole, there exists considerable diversity of occupational structure when a regional comparison is made. Nonwhite workers are twice as likely to be in white-collar occupations in the Northeast and West as they are in the South. While in the West nonwhites are more likely to hold blue-collar than white-collar occupations, blue-collar work employs a relatively small percentage of the work force, and the racial makeup in this category is approximately equal. Nonwhites are about twice as likely as whites to be in service occupations in the Northeast and North Central, but in the South they are three times as frequently found in these occupations. This diversity of structure is generally greater in the more detailed occupational categories and, as suggested above, would undoubtedly be far greater for disaggregated regional data.

Having assumed that the Navy is seeking greater percentages of non-Caucasians in the skilled ratings and having identified these occupations where shortages and surpluses occur, it is possible to suggest areas where the Navy might recruit to meet its specific needs. For example, if the Navy desired to recruit more nonwhite craftsmen, being below allowance in that occupation, it would not choose to look in the South which has a relatively small percentage of these workers when compared to other regions. Similarly, an attempt to avoid the recruitment of additional nonwhite sailors with service

work orientations would also indicate that the Navy should avoid the southern region. These statements are by no means meant to be substantive with respect to the Navy's actual recruiting at the present time but are used to illustrate a process by which a target oriented recruitment plan could be implemented. As was suggested earlier, data from SMSA's would probably be well suited to actually pinpointing specific recruiting areas. Variables which might further aid in the selection of recruiting areas could be the education level of a region's population, its age distribution, and the distribution according to sex in the various occupations. The overall occupational structure, however, would appear to be the most important single element and the one which recruiters should initially determine, if cost-effective recruiting of non-Caucasian personnel is to be expedited.

The adverse opportunities structure for non-Caucasians in the Navy has created a situation which is not likely to be self-correcting. The direct and negative feedback that a prospective sailor receives from acquaintances with experience in the Navy can only seldom be overcome by aggressive recruitment alone. Fortunately, the Navy is in a good position to make immediate progress toward upgrading the occupational structure of non-Caucasians. Since there is a surplus of personnel in the service work category and manpower shortages generally exist elsewhere, an increased selective retraining rate of those non-Caucasians already in the Navy, especially those in their second and third enlistments, could markedly improve present occupational opportunities for both those in the service and for the prospective recruit. Of more important long-run significance to the attainment of the proper racial distribution in occupational structures is the Navy's recruiting program. Realizing that the armed services are perhaps the

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only organizations recruiting nationwide across a broad range of skill levels, it is necessary that this program be efficient and cost effective in finding recruits capable of increasing the number of direct accessions into higher ranks. Armed with knowledge of the Navy's

needs and with presently available distributions of regional occupational data, the Navy's recruiting strategists should be better able to locate areas where their efforts will make a maximum contribution toward meeting the manpower needs of an all-volunteer Navy.

BIOGRAPHIC SUMMARY



Assistant Professor Roger D. Little is a member of the Department of Economics at the U.S. Naval Academy. He is a graduate of Tufts University and holds M.A. and Ph.D. degrees from the Univer-

sity of Houston. Having participated in the NROTC program as an undergraduate he completed a tour of active duty as an officer in the U.S. Marine Corps Reserve serving with the First Marine Corps Aircraft Wing in Japan and as communications officer for the Marine Corps Air Facility, Futema, Okinawa. Presently in his fourth year at the Academy, Professor Little additionally teaches part time at the graduate level in the MBA program for The George Washington University. While his primary research area is black and white occupational differences, he pursues an active interest in aspects of technological change and productivity.

BIOGRAPHIC SUMMARY



Raymond F. Turner holds a B.B.A. and M.B.A. from the University of Cincinnati. He has served as an Assistant Professor of Economics at the U.S. Naval Academy and at Anne Arundel Community College,

Arnold, Maryland. He has also taught the extension course in National Security Management for the Industrial College of the Armed Forces. Formerly a U.S. Navy Supply Corps Officer, Mr. Turner served in South Vietnam as the General Stores Officer at Naval Support Activity, Da Nang and later as the Special Projects Officer for Logistics on the staff of the Commander, U.S. Naval Forces, Vietnam in Saigon. In addition to being an active participant in the Naval Reserve, Mr. Turner is presently a Ph.D. candidate in economics at the Catholic University of America, Washington, D.C.

NOTES

1. See, for example, Joseph A. Califano, Jr., "The Question of an All-Volunteer U.S. Armed Force," *Congressional Digest*, May 1971, p. 147.
2. *The Report of the President's Commission on an All-Volunteer Force* (Washington: U.S. Govt. Print. Off., 1970), pp. 145-150.
3. *Ibid.*, p. 144.
4. Rarely do Navy enlisted personnel in less skilled occupations qualify for proficiency pay and variable reenlisted bonuses.
5. Quoted in James G. Scoville, *The Job Content of the U.S. Economy, 1940-1970* (New York: McGraw-Hill, 1969), pp. 5-6.
6. Office of the Assistant Secretary of Defense Manpower (Manpower and Reserve Affairs), *Military Civilian Job Comparability Manual* (Department of Defense, not dated).
7. U.S. Bureau of the Census, *1970 Census of Population Alphabetical Index of Industries and Occupations* (Washington: U.S. Govt. Print. Off.).
8. For similar reasons we did not utilize more detailed occupational breakdowns, although these are often available.
9. These data do not show the sex of the worker. Sex was deliberately excluded from the analysis even though the Navy is, of course, predominately male. This factor is rapidly changing, and the Navy undoubtedly will be more efficient when larger numbers of females are recruited to fill specific needs.
10. Most census publications specify the states included in each region.

APPENDIX A

STANDARD NAVY TITLES WITH ALPHA CODE DESIGNATIONS

Aerographers's Mates (AG)	Fire Control Technicians (FT)
Air Controlmen (AC)	Firemen (FN)
Aircraft Maintenancemen (AF)	Gunner's Mates (GM)
Aircrew Survival Equipmentmen (PR)	Hospitalmen (HN)
Airmen (AN)	Hospital Corpsmen (HM)
Aviation Antisubmarine Warfare Operators (AW)	Hull Maintenance Technicians (HT)
Aviation Antisubmarine Warfare Technician (AX)	Illustrator Draftsmen (DM)
Aviation Boatswain's Mates (AB)	Instrumentmen (IM)
Aviation Electrician's Mates (AE)	Interior Communications Electricians (IC)
Aviation Electronics Technicians (AT)	Journalists (JO)
Aviation Fire Control Technicians (AQ)	Lithographers (LI)
Aviation Machinist's Mates (AD)	Machinery Repairman (MR)
Aviation Maintenance Administrationmen (AZ)	Machinist's Mates (MM)
Aviation Ordnancemen (AO)	Minemen (MN)
Aviation Storekeepers (AK)	Missile Technicians (MT)
Aviation Structural Mechanics (AM)	Molders (ML)
Aviation Support Equipment Technicians (AS)	Musicians (MU)
Avionics Technicians (AV)	Ocean Systems Technicians (OT)
Boatswain's Mates (BM)	Opticalmen (OM)
Boilermakers (BR)	Patternmakers (PM)
Boilermen (BT)	Personnelmen (PN)
Builders (BU)	Photographer's Mates (PH)
Commissarymen (CS)	Photographic Intelligencemen (PT)
CTA (Administrative)	Postal Clerks (PC)
CTI (Interpretive)	Precision Instrumentmen (PI)
CTM (Maintenance)	Quartermasters (QM)
CTO (Communications)	Radarmen (RD)
CTR (Collection)	Radiomen (RM)
CTT (Technical)	Seamen (SN)
Communication Yeoman (CYN)	Shipfitters (SF)
Construction Electricians (CE)	Ship's Servicemen (SH)
Construction Mechanics (CM)	Signalmen (SM)
Constructionmen (CN)	Sonar Technicians (ST)
Constructionmen (CU)	Steelworkers (SW)
Damage Controlmen (DC)	Stewards (SD)
Data Processing Technicians (DP)	Stewardsmen (TN)
Data Systems Technicians (DS)	Storekeepers (SK)
Dental Technicians (DT)	Torpedoman's Mates (TM)
Dentalmen (DN)	Tradesmen (TD)
Disbursing Clerks (DK)	Utilities Men (UT)
Electrician's Mates (EM)	Yeomen (YN)
Electronics Technicians (ET)	
Electronics Warfare Technicians (EW)	
Engineering Aides (EA)	
Enginemen (EN)	
Equipmentmen (EQ)	
Equipment Operators (EO)	

