

A FOLLOW-UP STUDY OF NAVAL ACADEMY GRADUATES
OF THE CLASS OF 1951

Henry N. Ricciuti

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Abstract

The primary purpose of this research was to study the relationships between undergraduate ratings of "aptitude-for-service" (or leadership potential") at the Naval Academy, and shipboard officer performance subsequent to graduation. For 324 members of the class of 1951, officer performance measures (fitness report ratings) for shipboard assignments held during approximately the first year after graduation were correlated with the following measures of undergraduate performance: a) aptitude-for-service ratings for three cruises and two academic periods; b) class standings in selected courses, physical training and conduct; and c) ability test scores.

The post-graduation fitness report measures showed consistently positive, although not particularly high correlations with undergraduate aptitude-for-service ratings. These correlations were somewhat higher (.22 to .33) for ratings made during the academic year than for ratings based on summer training cruises (.14 to .33). Also undergraduate ratings by midshipmen yielded generally higher correlations with the post-graduation performance measures than did ratings by officers. The over-all findings indicated that the aptitude-for-service ratings were superior to the other undergraduate measures as predictors of subsequent officer performance, and led to the conclusion that these ratings represent an evaluation of important correlates of future success as a Naval officer, as judged by fitness report estimates.

For a sub-sample of 98 individuals, a study was made of the relationships between post-graduation officer performance and several biographical or background factors, as well as several indices of the individual's manner of rating others at the Naval Academy. The principal finding of interest was a positive relationship ($r = .28$) between officer fitness report ratings and the age of the individual.

It is suggested that continued longitudinal studies be made in order to determine the long-range value of the aptitude-for-service ratings and of the other Naval Academy performance measures in predicting officer success in various types of duty assignments.

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OF THE CLASS OF 1951

1. Background and purpose of study

This research is concerned with a study of the relationship between certain measures of the performance of midshipmen at the United States Naval Academy and the subsequent performance of these individuals after graduation as commissioned officers. Principal interest is centered upon the question of the extent to which undergraduate ratings of "aptitude-for-service," or "leadership potential," are related to the quality of shipboard performance of Naval officers during the first year after commissioning.

The present study grew out of a previous investigation dealing with the development of personality tests for the selection of Naval officers (1). The first phase of this earlier research had been concerned with a detailed study of the aptitude-for-service ratings utilized at the Naval Academy as measures of leadership potential, and led to the conclusion that these ratings constituted a satisfactory interim criterion for the validation of personality tests. It was recognized at the time, however, that to evaluate these aptitude-for-service ratings more fully, their relation to post-graduate officer performance needed to be investigated. Several studies in the other services (e.g., 3, 4, 5) had reported encouraging relationships between similar student leadership ratings and subsequent measures of commissioned officer performance. Since the Bureau of Naval Personnel was interested in an investigation of this particular question, provisions were made under a new contract for the present study of the degree to which Naval Academy aptitude-for-service ratings are predictive of officer performance subsequent to graduation.

2. Procedure

In carrying out the previously mentioned study (1), a variety of measures of undergraduate performance had been assembled for 621 members of the class of 1951 at the Naval Academy. These measures included ability test

scores, aptitude-for-service ratings for several different periods, and class standings in academic courses, physical training and conduct (based on number of demerits). In addition, for a sub-sample of 207 cases certain biographical data and several indices of the individual's manner of rating others had been collected and studied. Briefly stated, the general procedure of the present investigation involved the collection of ratings of officer performance for the first year after graduation on the individuals included in the earlier study (utilizing Bureau of Naval Personnel records), and an analysis of the relationships between these post-graduation performance ratings and the various undergraduate measures. The details of this procedure are described more fully in the paragraphs which follow.

a. Subjects

(1) Large sample: Of the 621 cases on whom undergraduate data were available, it was possible to collect post-graduation performance measures on 403 individuals. The principal loss here was due to the fact that a large number of midshipmen had been commissioned in the United States Air Force (151) or Marine Corps (42), and no data were available for these individuals in the Navy files. Of the 403 officers for whom post-graduation performance ratings were collected, 68 cases were omitted in order to keep the group as homogeneous as possible with respect to type of job assignment, and 11 were omitted because of insufficient data, thus leaving a total number of 324 individuals constituting the large follow-up sample.

(2) Small sample: For the same reasons mentioned above, the original undergraduate sub-sample of 207 cases was reduced to a total number of 98 cases available for analysis in the follow-up study.

b. Post-graduation performance measures

The measures of post-graduation officer performance utilized in this study were taken directly from the official officer "fitness report" forms.¹ These forms constitute the formal medium through which the quality

¹Formally named "Report on the Fitness of Officers," Form Navpers-310 (Rev. 10-51).

of every officer's job performance is periodically evaluated and recorded. The forms, which call for a variety of evaluative judgments, are ordinarily filled in and submitted by each officer's immediate superior every six months, as well as on every occasion when the officer himself, or his superior, is transferred. Three of the evaluative judgments contained on the fitness report form were utilized in the present investigation:²

(1) Performance of duty in present assignment -- For this judgment, the reporting superior assigns marks on a 0.0 to 4.0 scale.

(2) Desirability -- In this case, the judge is presented with the following question: "Considering the possible requirement of war, indicate your attitude toward having this officer under your command. Would you: (a) particularly desire to have him, (b) be pleased to have him, (c) be satisfied to have him, or (d) prefer not to have him?"

(3) Over-all estimate -- For this judgment, the reporting senior is asked to designate the officer as (a) outstanding, (b) excellent, (c) above average, (d) average, or (e) below average, as compared with other officers of his grade and approximate length of service.

For each individual in the study three performance measures were obtained by separately averaging, for each of the three items mentioned above, all appropriate ratings available as of October 1, 1952. These ratings covered the period beginning with graduation in June 1951. In order to keep the group relatively homogeneous with regard to the type of job performance being evaluated in the ratings, it was decided to include only those performance ratings covering regular shipboard duty assignments of Ensigns commissioned as line officers. This necessitated the elimination of 68 individuals whose ratings covered primarily shore duties, Basic Flight Training, or Supply Corps assignments. At the same time, occasional ratings based on assignments of this sort were eliminated from the composites of some individuals included in the study.

A finer breakdown into more homogeneous job-assignment sub-groups was not considered feasible in the present study, although this would be

² These three judgments are contained in items 8, 9, and 10 on the official fitness report form.

highly desirable in more extensive future investigations. For example, it might be profitable to make separate studies of officers assigned to large and small ships, since the job characteristics and job demands may be quite different in these two situations. It might be pointed out that the performance ratings of almost one-half of the group included in this study involved destroyer assignments, and in only three cases are assignments on two different types of vessels included in the composite ratings for a given individual.

The number of ratings entering into each of the three composite performance measures obtained for each individual ranged from 1 to 4, as follows: 1 rating, $N = 61$; 2 ratings, $N = 170$; 3 ratings, $N = 88$; and 4 ratings, $N = 5$. In the case of individuals for whom a single rating only was available, this rating had been made no earlier than December 1951.

An examination of the stability of the fitness report measures obtained on different occasions yielded the following results. For the 170 individuals on whom two sets of ratings were available, the correlation between the first and second rating was found to be .72 for the "performance of duty" measure and .70 for the "over-all estimate" rating. In the case of the 88 individuals having three sets of ratings, the correlations for the "performance of duty" and "over-all estimate" measures were .73 and .70 respectively between the first and second rating, .53 and .54 between the second and third rating, and .43 and .45 for the first and third rating.

c. Under-graduate performance measures (Large sample)

The various measures of undergraduate performance included in the present study are described in the paragraphs which follow. They are also listed in Table 1, page 7.

(1) Aptitude-for-service ratings -- These ratings constitute an evaluation of the midshipman's aptitude for the military service, or his potential value to the Navy as an officer and leader. They consist of composite ratings by fellow students as well as by superior officers, relative to the student's performance of duty, attitude, bearing and dress, and

over-all desirability as a potential junior Naval officer. Included in the present analysis are Midshipmen Composite and Officer Composite ratings for the 1948, 1949, and 1950 summer training cruises, as well as for two academic periods: 2nd term, 3rd class³ (sophomore) year, and 1st term, 2nd class (junior) year.³

(2) Class standings in conduct and in courses -- Class standings in Marine Engineering, History, Foreign Language, and Physical Training for the 3rd class academic year (1948-49) were included in the study, along with class standings in a Leadership course and in Conduct for the 2nd class academic year (1949-50). An additional variable included for analysis was over-all class standing for the four years at the Naval Academy, representing a weighted composite of academic grades, conduct, and aptitude-for-service ratings.

(3) Ability test scores -- Four of the ability tests in the Navy Officer Classification Battery, administered early in 1951, were included in the analysis: the Verbal, Mechanical, Mathematics, and Relative Movement Tests.

d. Rater characteristics and biographical data (Small sample)

For a smaller sub-sample of midshipmen, two additional types of measures were available from the previous study and were included in the present investigation. The first of these consisted of four characteristics of the manner in which a midshipman assigned ratings to his associates: (1) the mean rating he assigned to others, (2) the standard deviation of these ratings, (3) the degree of agreement (correlation) between his particular ratings of his associates and the composite rating of these same individuals, and (4) the extent to which the rater attempted to differentiate among the four sub-categories of aptitude-for-service. The last mentioned measure was obtained by averaging, over all men rated, the difference between the highest and lowest rating on four different variables assigned to each man by the rater.

³The freshman, sophomore, junior, and senior years at the Naval Academy are referred to as the 4th, 3rd, 2nd, and 1st class years, respectively.

Several biographical or background characteristics of interest were also included among the variables studied in the small sample. These were: (1) age; (2) type of pre-Academy education, i.e., regular high school, preparatory school, or college training on the one hand, versus schooling in special pre-Annapolis preparatory schools, NROTC, V-12, or other Naval training programs; (3) number of months pre-Academy military service; (4) number of hospital or sick-quarters admissions; (5) number of elective extra-curricular positions held and (6) number of sports awards received during the first three years at the Naval Academy; (7) type of appointment to the Academy, i.e., Congressional appointment, in which case the element of competitive examinations is relatively not very great, versus purely competitive appointment; and (8) father's occupation, whether civilian or member of the Armed Forces.

3. Analysis of results

The analysis of the data in the present study was aimed principally at determining the relationships between (a) the various indices of undergraduate performance, as well as the biographical data, and (b) the three post-graduation measures of shipboard officer performance. The results are presented in the sections which follow, with separate discussions of the large sample and the smaller sub-sample appearing in that order.

a. Large sample

The correlations obtained between the various undergraduate performance measures and the three post-graduation fitness report ratings are presented in Table 1.⁴ It will be noted at once that the three post-graduation measures reflect very similar aspects of officer performance, since they are quite highly correlated with one another (r 's = .75, .79, .81).

In general the fitness report ratings showed consistently positive, though not particularly high correlations with undergraduate aptitude-for-service ratings, the values ranging from .14 to .33. Further examination of

⁴The complete table of intercorrelations is contained in the Appendix, Table A.

Table 1

Product-moment Correlations between Post-graduation Performance Measures
(Fitness Report Ratings), Undergraduate Performance Measures,
and Ability Test Scores
(N = 324.* Decimals omitted.)

Variables			1	2	3
Post-graduation Performance Measures (fitness report ratings)					
Performance of Duty		1			
Desirability		2	75		
Over-all estimate		3	81	79	
Undergraduate Performance Measures					
Aptitude-for-service ratings					
1st term 2/c year Jan. 1950	Midshipmen Composite	4	30	28	32
	Officer Composite	5	24	22	28
2nd term 3/c year May 1949	Midshipmen Composite	6	31	29	32
	Officer Composite	7	31	29	33
1/c (senior) Cruise 1950	Midshipmen Composite	8	20	23	25
	Officer Composite	9	17	20	26
2/c (junior) Cruise 1949	Midshipmen Composite	10	20	18	22
	Officer Composite	11	14	14	19
3/c (soph.) Cruise 1948	Midshipmen Composite	12	29	25	33
	Officer Composite	13	14	16	16
Class Standings					
3/c year 1948-49	Marine Engineering	14	17	11	18
	History	15	08	06	15
	Foreign Language	16	03	03	06
	Physical Training	17	16	12	18
2/c year 1949-50	Leadership Course	18	05	01	15
	Conduct	19	10	11	15
Over-all standing for four years (Weighted composite of grades, aptitude ratings, and conduct)		20	22	17	26
Officer Classification Battery Test Scores					
Verbal Reasoning		21	01	-04	-01
Mechanical Comprehension		22	08	03	06
Mathematics		23	-00	04	04
Relative Movement		24	-01	03	02

*For variables 21-24, N = 308.

For an N of 300, correlations $> .15$ and $.11$ are significant at the 1% and 5% levels respectively. See Appendix, Table A, for complete table of intercorrelations, means, and sigmas.

the table reveals that, for the most part, undergraduate ratings by midshipmen were more highly correlated with the post-graduation performance measures than were ratings made by officers. This trend was particularly noticeable in the case of undergraduate cruise ratings. For undergraduate ratings made during the academic year, however, the superiority of the midshipmen ratings is evident only in the 2nd class year ratings, and not in the ratings for the 3rd class year. The generally higher correlations found for midshipmen ratings are probably due at least in part, to the greater reliability of these ratings, which reflect the opinions of a larger number of judges than do the officer composite ratings. At the same time, if the midshipmen ratings happen to represent somewhat more valid estimates of leadership potential, this factor might also contribute to the higher fitness report correlations obtained for these ratings.

A comparison of the aptitude-for-service ratings based upon the summer cruises with those made during the academic year indicates that the latter tended to yield somewhat higher correlations with the post-graduation fitness report measures. This was true for both officer and midshipmen ratings. Since the post-graduation fitness report measures were selected so as to represent shipboard performance, one might have expected the undergraduate cruise ratings to be better predictors of this performance than the academic year ratings. Hence, the obtained superiority of the academic ratings over the cruise ratings represents a finding of considerable interest.

So far as midshipmen ratings are concerned, the above finding may be accounted for in part by the fact that (a) the cruise ratings were based on fewer judges than the ratings made during the academic year, and (b) the cruise ratings (for 1948 and 1950) included judgments made by NROTC midshipmen from civilian colleges. These two factors may have had the effect of reducing the reliability (in the sense of inter-judge agreement) of the cruise ratings when compared with the ratings for the academic periods. At the same time, they probably contributed to the previously reported finding (1) that the cruise ratings were less stable from one marking period to another than were the academic year ratings.

In the case of both midshipmen and officer ratings the lower fitness report correlations yielded by ratings made on the summer cruises might be partly due to the fact that these estimates were based on a considerably shorter period of observation.

There is a further factor which might be mentioned in attempting to account for the higher fitness report correlations obtained for ratings based on the academic periods. It seems reasonable to assume that the post-graduation shipboard job assignments probably have more in common with the kinds of tasks a midshipman is assigned to do on the summer cruises than with those he faces during the academic year. Nevertheless, it may be that the routine activities of the academic periods at the Naval Academy involve certain subtle features (such as particular sorts of interpersonal demands, etc.) which tend to bring out more of the qualities of behavior or attitude predictive of later shipboard officer performance than is the case with the summer cruise activities.

Another point of interest in Table 1 is the finding that the 1948 midshipmen cruise ratings showed correlations with the post-graduation measures that were somewhat higher than the corresponding ratings for the two more recent cruises, and that were approximately as large as the correlations obtained for the academic year ratings. Since the 1948 cruise ratings consisted principally of ratings made by upperclassmen, while the midshipmen ratings for the other two cruises were made primarily by fellow classmates, these findings might be partly explained in terms of the hypothesis that ratings by upperclassmen constitute somewhat better estimates of leadership potential than do ratings by classmates.

An examination of the relationships between the other variables contained in Table 1 and post-graduation fitness report ratings indicates that small positive correlations were found for class standings in Marine Engineering (r 's from .11 to .18), Physical Training (.12 to .18) and Conduct (.10 to .15). Over-all standing for the four years at the Naval Academy, based upon a weighted composite of grades, aptitude-for-service ratings and conduct, yielded correlations of .22, .17, and .26 with the

three criteria of officer performance during the first year after graduation. No relationship was found between post-graduation performance ratings and the four ability test scores included in the analysis. One further trend in Table 1 should be pointed out. For virtually all the measures of undergraduate performance contained in the table, highest correlations were obtained when the "over-all estimate" fitness report rating was used as the measure of officer performance. This may be due in part to the relatively greater dispersion of scores yielded by the "over-all estimate" ratings.

It would seem desirable at this point to compare the general findings summarized in the preceding sections with the results reported for several similar investigations dealing with U. S. Military Academy graduates. A follow-up study of 222 graduates of the class of 1944 (4) yielded the following correlations with Army officer efficiency ratings made during the six-month period following the officer's first year after graduation: aptitude-for-service ratings, .39; physical efficiency, .21; and conduct, .18. For a sub-group of 97 graduates assigned to the Infantry these correlations were .51, .24, and .36 respectively, all of which were considerably higher than the corresponding correlations obtained for sub-groups assigned to the Technical Services or to the Air Corps. Academic grades for the 1st class (senior) year correlated from .18 to .27 with Infantry officer efficiency ratings. All of the foregoing correlations are somewhat higher than the corresponding correlations found in the present study of Naval Academy graduates.

A subsequent follow-up study of the Military Academy classes of 1944, 1945, and 1946 (5) involved a determination of the relationships between various undergraduate performance measures and officer efficiency ratings made during a 21 month period beginning three, two, and one years after graduation, respectively, of the 1944, 1945, and 1946 classes. In the class of 1946, the correlations between post-graduation performance ratings and aptitude for service, conduct, and physical education were .51, .21, and .12 for officers assigned to the Combat Arms; the corresponding correlations were .50, .21, and .09 for officers assigned to the Technical Services. Academic grades showed correlations ranging from .04 to .20 in

the Combat Arms group, with the corresponding correlations being somewhat higher for the Technical Services group. All of these correlations tended to be lower for the 1944 and 1945 classes.

The results of the two studies just described agree generally with the findings of the present investigation with respect to the relative superiority of aptitude-for-service ratings over all other measures of undergraduate success as predictors of post-graduation officer performance. Although the relative magnitudes of the correlations reported in the West Point studies are quite similar to those found here, for the most part, the absolute values of the correlations between officer performance and undergraduate aptitude-for-service ratings, as well as conduct, are considerably higher in the Army studies. Whether this is due to differences between the two services in the nature of the officer performance ratings, in the undergraduate aptitude-for-service and conduct measures, or in the nature of the transition from student to commissioned officer, is a question that cannot be answered at the present time. One factor which might contribute to the higher correlations between undergraduate and officer performance obtained in the West Point studies is the possibly greater homogeneity of the Army officer groups, particularly the Infantry groups, with respect to the type of job performance being evaluated.

It is interesting to note further that in comparison with the correlations of .22, .17, and .26 obtained in the present study between over-all four year standing at the Naval Academy and the three officer fitness report ratings, the correlations reported between composite four year standing at West Point and officer efficiency report ratings were .26 for the class of 1944, and .15 for the class of 1946 (Infantry and Combat Arms groups). In the two West Point groups the correlations for the four year composites were considerably lower than the correlations for the aptitude-for-service component, while in the present study the composite correlations were much closer to the magnitude of the aptitude-for-service correlations. These comparative findings are attributable largely to the fact that in obtaining the Naval Academy composite considerably more weight was given to aptitude-for-service than was the case in the West Point groups.

Results very similar to those obtained in the present study have been reported in an investigation of the relationships between buddy ratings obtained during Air Force officer candidate training and measures of officer effectiveness following graduation, the reported correlation being .26 (2).

b. Small sample: rater characteristics

In Table 2 are presented the correlations obtained between post-graduation fitness report ratings and four characteristics of the manner in which each midshipman had assigned ratings to his associates at the Naval Academy (see page 5). The only significant relationships found here were the small negative correlations ($-.20$) between two of the fitness report measures and the standard deviation of the ratings assigned by the rater. Thus, there appears to be a slight tendency for the individual who differentiated more widely among his associates in assigning them leadership ratings at the Academy to receive low officer fitness report ratings during the first year after graduation. A similar, although less marked correlational trend (r 's from $-.07$ to $-.09$) had been observed previously (1) when the individuals were still undergraduates.

In the earlier study just mentioned (1), a finding of considerable interest had been the significant relationship (correlations in the low $.20$'s) between the rater's agreement with composite opinion in rating his associates, and the rater's own leadership standing as judged by his fellow midshipmen and his superior officers. In the present follow-up study, however, this rater characteristic (variable 6 in Table 2) showed only a negligible, although still positive, relationship to post-graduation measures of officer performance.

c. Small sample: biographical and background variables

Table 3 contains the correlations obtained between one measure of post-graduation officer performance ("performance of duty"), and eight biographical or background variables. The only significant relationship found here was the correlation of $.28$ between the fitness report rating and age, indicating a slight tendency for the somewhat older officers to be

Table 2

Product-moment Correlations between Post-graduation Performance Measures
(Fitness Report Ratings) and Undergraduate Rater Characteristics
(N = 98. Decimals omitted.)

Variables	No.	Fitness Report Ratings			Undergraduate Rater Characteristics			
		1	2	3	4	5	6	7
Post-graduation performance measures (fitness report ratings)								
Performance of duty	1							
Desirability	2	78						
Over-all estimate	3	83	82					
Undergraduate rater characteristics								
Mean rating assigned by rater	4	01	03	-07				
Sigma of ratings assigned by rater	5	-13	-20	-20	-13			
Rater's agreement with composite*	6	09	05	05	-04	01		
Rater's differentiation among four sub-categories	7	01	-04	01	-15	34	-04	
Mean		3.65	3.46	3.94	3.21	.20	.68	.16
σ		.22	.58	.87	.05	.07	.32	.08

* z transformation of correlation between rater's judgments and composite opinion.

For an N of 100, correlations $\geq .25$ and $.19$ are significant at the 1% and 5% levels respectively.

Table 3

Product-moment Correlations between Post-graduation
Fitness Report Ratings (Performance of Duty)
and Various Biographical Data
(N = 98. Decimals omitted)

Biographical variables	Post-graduation fitness report ratings Performance of duty
1. Age (in 1/2 years)	28
2. Type of pre-Academy education (regular* vs. special training)	-05
3. Pre-Academy military service (number of months)	16
4. Hospital admissions (number of hospital or sick-quarters admissions, 1947-1950)	-09
5. Extra-curricular activities (number of elective positions held 1947-1950)	-05
6. Sports awards (number of athletic numerals or letters awarded, 1947-1950)	04
7. Type of appointment to Academy (congressional* vs. purely competitive)	09
8. Father's occupation (civilian* vs. member of Armed Forces)	11

* Positive direction of scoring dichotomous variables.

For an N of 100, correlations $\geq .25$ and $.19$ are significant at the 1% and 5% levels respectively. Since most of the above variables were either dichotomous or markedly skewed, the r's would need to be somewhat higher than $.25$ and $.19$ to reach the indicated significance levels.

rated more highly. The age range of the group studied as of October 1952 when the fitness report data were collected extended from twenty-two and one-half years to twenty-eight years. It is interesting to note that virtually no relationship had been found in the earlier study (1) between age and undergraduate ratings of aptitude-for-service at the Naval Academy. These comparative findings would seem to indicate, then, that certain behavioral characteristics associated with age tend to be reflected favorably in the fitness report ratings of recently graduated officers, but they are not reflected in ratings of aptitude-for-service at the Naval Academy.

The only other correlation in Table 3 which approaches significance is that found between the fitness report rating and amount of pre-Academy military service ($r = .16$). This correlation is too small to be considered indicative of a stable relationship, however, and it may be accounted for in part by the fact that it is correlated with age ($r = .71$). It should be mentioned that amount of military service was not found to be related to undergraduate ratings of aptitude-for-service at the Naval Academy. None of the other biographical or background factors appearing in Table 2 were significantly related to the fitness report rating.

4. Summary and conclusions

The present study was concerned with an investigation of the relationships between certain academic and non-academic measures of undergraduate performance at the United States Naval Academy, and subsequent officer fitness report ratings covering approximately the first year after graduation. For 324 graduates of the class of 1951, fitness report ratings based primarily on shipboard performance were found to yield consistently positive, but rather modest correlations with undergraduate aptitude-for-service ratings. These correlations were generally somewhat higher (.22 to .33) for aptitude-for-service ratings made during the academic year, than for ratings based on summer training cruises (.14 to .33). In general, undergraduate ratings by midshipmen were found to yield higher correlations

with post-graduation performance measures than did ratings by officers. The other undergraduate performance measures studied were found to bear a considerably lower relation to post-graduation ratings, with only grades in Marine Engineering, Physical Training, and Conduct showing some slight positive correlations (i.e., from .10 to .18). Of several biographical and background characteristics which were studied, only age showed a significant relationship (.28) to post-graduation officer performance measures.

The results just summarized indicate a definite positive relationship between a midshipman's standing on aptitude-for-service at the Naval Academy and his over-all fitness as an officer during the first year after graduation. Although this relationship is not a particularly strong one, it is of sufficient magnitude to warrant the conclusion that undergraduate aptitude-for-service ratings represent an evaluation of important correlates of future success as a Naval Officer.

Since the view is often expressed that peer ratings involve "popularity" or "pleasant surface personality" to a considerable degree, it should be mentioned briefly that one possible interpretation of the positive relationships found in the present study between undergraduate and post-graduation ratings might be that both sets of ratings tend to "pick up" similar favorable aspects of the individual's surface personality. The extent to which this might be the case and whether or not it constitutes a problem, would be a matter for further consideration and study.

It should be borne in mind that the present investigation dealt with officer performance for a relatively short period of time at the very beginning of the young commissioned officer's career. Before the long-range predictive value of aptitude-for-service ratings and of the other Academy performance measures can be determined, of course, additional research will need to be undertaken. Continued longitudinal studies would permit a more thorough evaluation than was possible in this preliminary research, of the relative importance of Academy aptitude-for-service ratings, academic courses, etc., in the prediction of later officer success in

various types of duty assignments.⁵ The results of such longitudinal studies could then be utilized in considering the appropriateness of the relative weights given to various undergraduate performance measures in obtaining the midshipman's final composite standing for the four year course of training at the Naval Academy.

⁵For example, additional evidence of the predictive value of West Point aptitude-for-service ratings in regard to combat effectiveness has recently been reported.(6).

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APPENDIX TABLE A

Intercorrelations among Post-graduation Performance Measures (Fitness Report Ratings),
Undergraduate Performance Measures, and Ability Test Scores. Class of 1951, U. S. Naval Academy
(N = 324, except for variables 21-24, where N = 308. Decimals omitted.)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Post-graduation Performance Measures (fitness report ratings)																								
1 Performance of Duty		75	81	30	24	31	31	20	17	20	14	29	14	17	08	03	16	05	10	22	01	08	-00	-01
2 Desirability	75		79	28	22	29	29	23	20	18	14	25	16	11	06	03	12	01	11	17	-04	03	04	03
3 Over-all Estimate	81	79		32	28	32	33	25	26	22	19	33	16	18	15	06	18	15	15	26	-01	06	04	02
Undergraduate-Performance Measures																								
Aptitude-for-service Ratings																								
4 1st term	30	28	32	76	79	67		48	23	61	44	49	33	14	06	04	31	10	26	23	-06	05	03	07
5 Jr. year	24	22	28	76	65	62		33	18	54	38	42	29	07	00	03	26	06	28	15	-03	04	-02	-01
6 2nd term	31	29	32	79	65	69		43	21	53	32	51	30	17	13	13	26	14	17	26	-01	06	03	06
7 Soph. yr.	31	29	33	67	62	69		42	25	54	34	47	28	14	07	05	22	08	19	22	-00	04	03	07
8 Sr. (1/c)	20	23	25	48	33	43	42	50		44	24	37	20	17	03	10	21	09	05	26	03	11	11	14
9 Cruise	17	20	26	23	18	21	25	50		21	15	25	13	09	08	11	10	08	00	21	03	05	09	02
10 Jr. (2/c)	20	18	22	61	54	53	54	44	21		56	51	16	07	04	03	20	08	13	19	-08	01	01	04
11 Cruise	14	14	19	44	38	32	34	24	15	56		36	17	03	02	05	11	11	19	14	00	04	10	12
12 Soph. (3/c)	29	25	33	49	42	51	47	37	25	51	36	36		13	10	04	21	16	15	21	03	-01	03	02
13 Cruise	14	16	16	33	29	30	28	20	13	16	17	36		08	-04	01	08	04	18	08	-03	02	02	05
Class Standings																								
14 Marine Engineering	17	11	18	14	07	17	14	17	09	07	03	13	08		50	44	15	41	25	87	39	45	39	23
15 Soph.	08	06	15	06	00	13	07	03	08	04	02	10	-04		50	39	01	42	03	54	35	-10	24	12
16 yr. 1948-49	03	03	06	04	03	13	05	10	11	03	05	04	01		44	39	11	31	12	57	35	15	34	16
17 Foreign Language	16	12	18	31	26	26	22	21	10	20	11	21	08		15	01	11	08	-12	18	01	16	03	-03
18 Physical Training	05	01	15	10	06	14	08	09	08	08	11	16	04		41	42	31	08	05	45	44	20	26	15
19 Jr. year	10	11	15	26	28	17	19	05	00	13	19	15	18		25	03	12	-12	05	29	-05	08	04	14
20 Leadership Course	22	17	26	23	15	26	22	26	21	19	14	21	08		87	54	57	18	45	29	38	35	45	24
21 Conduct																								
Officer Classification Battery Test Scores																								
21 Verbal Reasoning	01	-04	-01	-06	-03	-01	-00	03	03	-08	00	03	-03		39	35	35	01	44	-05	38	36	38	17
22 Mechanical Comprehension	08	03	06	05	04	06	04	11	05	01	04	-01	02		45	-10	15	16	20	08	35	36	32	26
23 Mathematics	-00	04	04	03	-02	03	03	11	09	01	10	03	02		39	24	34	03	26	04	45	38	32	32
24 Relative Movement	-01	03	02	07	-01	06	07	14	02	04	12	02	05		23	12	16	-03	15	14	24	17	26	32
Mean	365	348	367	322	324	325	327	325	330	323	323	328	326		135	131	132	132	136	135	128	579	623	541
Sigma	.19	.53	.74	.14	.23	.13	.22	.14	.23	.10	.17	.14	.20		3.7	3.7	3.7	3.9	3.5	3.8	3.9	7.3	8.1	6.5