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THE TYPES AND FREQUENCIES OF ARITHMETICAL ERRORS
MADE BY BOOKKEEPING STUDENTS IN OTTAWA
AND CRAIG COUNTIES, OKLAHOMA

A Thesis Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the Degree
of Master of Science

By
Ethel Hoard Alexander

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KANSAS STATE TEACHERS COLLEGE

Pittsburg, Kansas

July, 1943

WITHDRAWN

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ABSTRACT

The purpose of this study is to determine the types and frequency of arithmetical errors made by bookkeeping students in order to determine whether problems in which certain errors occur need special emphasis and problems in which errors are less frequent would necessitate remedial instruction.

Three tests were made covering practically a year's work in bookkeeping. These tests were administered to the bookkeeping students in seven different schools in Ottawa and Craig Counties in Oklahoma.

The results from these tests showed there were 39 different types of errors made. These were grouped according to the following main divisions: addition 6 types, subtraction 5, multiplication 3, division 3, decimals 3, trade discount 3, interest 3, common fractions 2, recording numbers 7, and miscellaneous 4.

The largest number of errors was made in addition, the second largest was in recording numbers, and the third was in subtraction. Errors were less frequent in the other types listed.

The writer concludes that bookkeeping problems involving addition, and subtraction demand more attention than others. Accuracy and neatness in recording numbers are also important and deserve considerable attention.

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CHAPTER I

INTRODUCTION

Origin and Purpose of the Problem

The writer had been teaching bookkeeping for several years in a small high school in Oklahoma. She found that the pupils frequently made many errors in the bookkeeping classes which seemed not to be a failure to understand bookkeeping principles but were on the other hand errors made in the fundamentals of arithmetic and their application. Because of the faulty arithmetical calculations the progress in the bookkeeping course was much retarded. The writer became interested in knowing whether this condition were true in other secondary schools. Other bookkeeping teachers seemed to be finding the same arithmetical problems arising in their bookkeeping classes. These errors retarded the progress in the course and often caused pupils to lose interest in the work. It was the writer's desire to determine, if possible, the type and frequency of errors commonly made by bookkeeping students that prompted her to undertake the problem at hand.

If arithmetical errors made by students in bookkeeping classes were of a type and frequency common to many students, bookkeeping teachers might well take class time to stress or emphasize a study of the principles of arithmetic involved.

If, on the other hand, the arithmetical errors were infrequent or not common to most of the students, it would be more feasible to arrange for remedial study outside of class for those students needing this help. In this way a great deal of time could be saved in the bookkeeping class, and the students' waning interest would be restored as the work progressed more smoothly.

Limitations

The results of the writer's investigation are subjected to certain limitations. The nature of the study necessitated the use of tests which required actual arithmetical computations, since there are no standardized tests available which test bookkeeping principles and at the same time show the arithmetical operations involved.

A bookkeeping text is adopted for use in the high schools of Oklahoma, but, since the use of the adopted text is optional with the instructor, not all schools are using the same textbook. The principles of bookkeeping are not presented in the same manner in the different textbooks, therefore, it seemed desirable to make the problems conform to one text and to give the tests only to students using that text or to those who were using it as a supplementary book. This lessened the number of schools participating in the testing program.

Very few boys on the junior-senior level were enrolled in the bookkeeping classes due to their urgent need for other subjects during the war crisis. Consequently, the number of boys represented in this study is comparatively small.

The Method

Three tests were made covering practically a year's work in bookkeeping. The first involved the bookkeeping principles which are presented in the first part of the text in a simple form. The second stressed new principles taken up in the text and also included the principles of the first test in a more complex form. The third test involved the principles of the latter part of the text as well as a review of the principles of the two preceding tests.

CHAPTER II

CONSTRUCTION OF TESTS

The absence of a standardized test in bookkeeping which would also show the arithmetical operations involved in handling bookkeeping principles was probably the greatest obstacle encountered in making this study. There are many bookkeeping or arithmetical tests available from publishers, but all are designed to cover some phase or division of bookkeeping exclusively or of arithmetic exclusively. Consequently, the first step was to construct satisfactory tests of arithmetical computation. In this instance, the problem was to find the types and frequencies of arithmetical errors made by students in bookkeeping classes as the course is now taught. The method of constructing the test is described in this chapter.

The textbooks of bookkeeping and arithmetic in Porter Library, Kansas State Teachers College, Pittsburg, Kansas, were examined to secure the names and addresses of publishers of bookkeeping and arithmetical tests. Letters were sent to these publishers, and seven sent tests which were used in connection with their own text or which would cover a general course in bookkeeping or arithmetic. None of these tests covered the application of arithmetic and the principles of bookkeeping and were not further used in this study. Since none of these

tests covered the fundamentals of arithmetic and their application in bookkeeping, it became necessary to make a test that would contain the arithmetical operations as they would be applied in a bookkeeping course.

Selection of Topics Included in the Test

Letters were sent to the bookkeeping teachers in Ottawa and Craig Counties of Oklahoma, inquiring as to the number of students enrolled in their bookkeeping classes and the text they were using. The text most widely used was analyzed to determine its content. The textbook selected contained thirty-four chapters, and in almost every instance a principle or topic introduced in one chapter would be continued or repeated in following chapters. An analysis of the contents of these chapters showed that they were organized into the following eleven parts:

- Part I -- A few Beginning Principles and Terms
- Part II -- The Bookkeeping Cycle in its Simplest Form
- Part III -- Application of Preceding Principles to
Personal and Club Records
- Part IV -- Timesaving and Laborsaving Procedures
- Part V -- The Work at the Close of the Fiscal Period
- Part VI -- Valuation of Asset Accounts
- Part VII -- Income and Expense Accounts
- Part VIII -- Accounting for Cash

Part IX -- Credits and Collections

Part X -- Types of Proprietorship

Part XI -- Useful Applications of Principles Studied

Basis for Selecting Problems

The term "problem" is here taken to mean one or more statements or transactions involving bookkeeping. Each problem selected for the test was one which would represent some principle of bookkeeping and at the same time show the fundamentals of arithmetic involved. The following representative statements from the preface of the textbook which is used in this testing program to show the aims and underlying principles of the subject taught.

A knowledge of bookkeeping is useful to every man and woman engaged in business either as an employer or as an employee.... This course develops the fundamental principles of business methods, budgets, bookkeeping and interpretation and makes specific applications of them to several social organizations.

The personal bookkeeping presented in this course is, therefore, of great value to all citizens.

General principles of accounting are developed throughout this course so that the student may understand the reason for each specific bookkeeping technique.¹

The different problems, exercises, and bookkeeping sets along with the business papers and business forms found in the bookkeeping text were analyzed as to their principles,

¹Paul A. Carlson, Alva L. Prickett, Hamden L. Forkner, Twentieth Century Bookkeeping and Accounting, 18th edition, Cincinnati: Southwestern Publishing Company (1940).

form, and content. These were checked carefully as the writer's aim was to select problems for the tests which would conform as nearly as possible to those found in the students' daily assignment.

Technique of Selection

The problems to be used in this survey are similar in type to the problems in the exercises in the textbook. Each problem was carefully read and classified according to the eleven groups listed on page 6. The problems were carefully checked to be sure that there were no duplications yet containing as many different bookkeeping principles as possible. The next step was to select more difficult problems for the classes as they advanced. The problems were arranged into three tests. It became apparent that the original number of problems would have to be reduced because there were too many to be given in three tests. Problems of similar nature were therefore eliminated. The problems were selected so that the first test would cover the principles of bookkeeping taught in the first half of the text. The second test covered Chapters 19 to 23 inclusive in the last half of the book, while the third test covered Chapters 24 to 28 inclusive. Each succeeding test was somewhat more complex. The tests arranged in this order made it possible for the schools participating in this survey to have

covered all of the principles of bookkeeping involved in the tests long before the close of the school term.

In making the test it was necessary to consider the length of high school class periods. These varied from forty-five to fifty minutes. As some time was necessary for giving instructions and getting ready for the test, it seemed wise to make the tests not more than forty minutes in length.

The problems of this study were presented to a class in Seminar in the Department of Commerce and Business Administration, Kansas State Teachers College, Pittsburg, Kansas. Each problem in each test was discussed and analyzed. If a problem was judged to be a poor one, it was eliminated, and if a problem was too long or not clearly stated, it was revised. These were then grouped into three tests having four problems each, so that the time required for each test would be within a regular class period. In this form the tests were administered to eight high school pupils who had studied bookkeeping the year before. This was done to test the length and difficulty of the problems. In solving the twelve problems in the three tests, these pupils made the following number of arithmetical errors: 5, 10, 11, 11, 13, 15, 17, and 19 respectively. Each of the eight pupils required only forty minutes or less for each of the three tests. Also, the errors made would indicate that the tests actually did test the students' knowledge of

fundamentals of arithmetic as well as the principles of book-keeping.

A copy of the tests which were sent to each of the schools are found in the Appendix.

CHAPTER III

PUPILS TESTED

The tests given in this study were administered to the bookkeeping pupils of seven high schools situated in Ottawa and Craig Counties in Oklahoma, after permission was secured from the principals and superintendents of these schools.

The numbers of pupils enrolled in bookkeeping in these schools were as follows:

School	Size of Class
A	21
B	17
C	19
D	44
E	31
F	22
G	<u>27</u>
Total	181

These tests were made to conform to the different phases and steps in bookkeeping. As soon as a class had completed the work to be covered by a particular test, that test was administered. Since the tests were given at three different times during the year not all the pupils in the different schools took all three tests. Some were absent while others had withdrawn from school.

All the students in the bookkeeping classes were either juniors or seniors as the course was open only to pupils of junior-senior level in the different schools.

The schools could all be classed as small high schools, the largest having an enrollment of not more than five hundred. Three of the schools were located in the mining districts, three in farming localities, and one in a larger town centrally located between the mining and farming localities. The classroom facilities and equipment in the different schools were practically the same. There was no foreign population in these schools and the pupils are all of the white race. The common racial, environmental, and educational background tended to place the pupils on the same plane for gaining knowledge in the bookkeeping classes of the different schools.

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Classification of Pupils Tested

Table I shows the schools' classification and numbers of the pupils who participated in the first test, Table II those who participated in the second test, and Table III those who took part in the third test.

The schools were designated as A, B, C, D, E, F, and G and the pupils were classified as junior boys, senior boys, junior girls, and senior girls.

The boys taking the tests were very much in the minority. Of the 160 students participating in the first test 12 were junior boys, 27 senior boys, 51 junior girls, and 70 senior girls. Of the 150 taking the second test 10 were junior boys, 25 senior boys, 47 junior girls, and 68 senior girls. The

TABLE I

DISTRIBUTION OF BOYS AND GIRLS PARTICIPATING
IN THE FIRST TEST

Name of School	Jr. Boys	Sr. Boys	Jr. Girls	Sr. Girls	Total Boys	Total Girls	Total Pupils
School A	1	2	7	7	3	14	17
School B	2	0	10	0	2	10	12
School C	2	1	5	11	3	16	19
School D	3	8	10	19	11	29	40
School E	0	1	13	15	1	28	29
School F	3	5	3	9	8	12	20
School G	<u>1</u>	<u>10</u>	<u>3</u>	<u>9</u>	<u>11</u>	<u>12</u>	<u>23</u>
Total 7	12	27	51	70	39	121	160

TABLE II

DISTRIBUTION OF BOYS AND GIRLS PARTICIPATING
IN THE SECOND TEST

Name of School	Jr. Boys	Sr. Boys	Jr. Girls	Sr. Girls	Total Boys	Total Girls	Total Pupils
School A	1	2	6	6	3	12	15
School B	2	0	9	0	2	9	11
School C	1	2	5	11	3	16	19
School D	3	8	9	21	11	30	41
School E	0	1	12	14	1	26	27
School F	3	3	3	8	6	11	17
School G	<u>0</u>	<u>2</u>	<u>3</u>	<u>8</u>	<u>2</u>	<u>11</u>	<u>20</u>
Total 7	10	25	47	68	35	115	150

TABLE III
DISTRIBUTION OF BOYS AND GIRLS PARTICIPATING
IN THE THIRD TEST

Name of School	Jr. Boys	Sr. Boys	Jr. Girls	Sr. Girls	Total Boys	Total Girls	Total Pupils
School A	1	1	5	7	2	12	14
School B	2	0	8	0	2	8	10
School C	2	1	5	9	3	14	17
School D	3	8	8	20	11	28	39
School E	0	1	13	15	1	28	29
School F	3	3	5	8	6	13	19
School G	<u>1</u>	<u>6</u>	<u>3</u>	<u>8</u>	<u>7</u>	<u>11</u>	<u>18</u>
Total 7	12	20	47	67	32	114	146

third test in this study shows that of the 146 participating, 12 were junior boys, 20 senior boys, 47 junior girls, and 67 senior girls.

More students took the first test with a less number participating in each succeeding test as the school term drew nearer to a close.

Administering the Tests

The tests were sent to the business teachers in the seven high schools with full instructions for administering the tests. Each instructor was asked to defer giving the test until the class had covered the material included in each test.

The students were requested not to write their names on

their papers so that the test would not count against them in any way in their class grade. There was no identifying mark on any student's paper, there was no competition between pupils, teachers or schools. This was done in order to make the test absolutely impersonal and unbiased. Under these circumstances, the teachers and pupils would cooperate more cheerfully, also the pupils would be more at ease in taking the test. The only classification marked on the paper was that of sex and grade. The students were asked to show all of their work in solving any of the problems. The instructors were requested to send the ungraded papers to the writer as soon as a test was given. This was not a testing program of the individual pupils, but it was the writer's desire to determine the errors made by the students in bookkeeping classes.

The instructions for taking the test were read aloud to the pupils before they began work on the problems. No assistance was given any pupil on any part of a test.

CHAPTER IV

ERRORS MADE IN THE FOUR FUNDAMENTALS OF ARITHMETIC

It is the purpose of this chapter to enumerate the types and frequencies of arithmetical errors found on the tests which were administered. The errors found can be divided into two types. One type of error involved principles which were purely arithmetical. The other type of errors might be classified as the "borderline type", i. e., errors involving principles of both arithmetic and bookkeeping. In one sense some of the errors might be classified as mistakes either in arithmetic or in bookkeeping. Errors discussed in this chapter include only those made in the four fundamentals of arithmetic; addition, subtraction, multiplication, and division.

Errors in Addition

Table IV indicates that the students tested made six types of errors in addition. Their results were wrong because of: (1) wrong addition, (2) failure to add, (3) addition when figures should not have been added, (4) subtraction instead of addition, (5) numbers combined with the wrong figures, and (6) addition of wrong numbers.

A number of students' additions were incorrect because they failed to add the carrying figure to the next column. In other cases, they failed to keep columns straight, thus mixing

TABLE IV
ERRORS IN ADDITION

Types of Errors	Jr.Boys		Sr.Boys		Jr.Girls		Sr.Girls		Total
	EM*	AVG.**	EM	AVG.	EM	AVG.	EM	AVG.	EM
Wrong Addition	6	.176	17	.236	51	.352	52	.253	126
Failure to add	15	.441	30	.417	81	.559	67	.327	193
Addition when numbers should not have been added	8	.235	10	.139	32	.221	9	.044	59
Subtraction instead of addition	5	.147	9	.125	9	.062	27	.132	50
Numbers combined with wrong figures	1	.029	3	.042	3	.021	4	.019	11
Addition of wrong numbers	<u>0</u>	.000	<u>1</u>	.014	<u>2</u>	.014	<u>1</u>	.005	<u>4</u>
Total	35		70		178		160		443

*EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

figures of one column with figures of another column. Some of the errors were also caused by poor penmanship in writing the figures.

Students often failed to add a problem at all, e. g., they sometimes failed to total a trial balance, a sales journal, a purchase journal, or they failed to add in finding the balance of an account.

Unlike items which should not have been combined were added together in one account, e. g., interest expense was found to be combined with the amount of notes payable.

Numbers were subtracted when they should have been added, e. g., the merchandise on hand at the beginning of a given period was subtracted from the amount of purchases made during that period when the two amounts should have been added to find the amount of merchandise available for sale.

Numbers added were sometimes combined with the wrong figures. One of the test problems concerned the formation of a partnership in which the two partners started with unequal capital accounts. The partner with the smaller amount of capital was to invest enough additional cash in the partnership to make his capital investment equal that of the other partner. Instead of making the two capital accounts equal, several students added an amount necessary to make the total assets equal.

The wrong numbers were combined, e. g., in finding the distribution of net income, the students should have added the net profit and the proprietor's allowance for salary to show the amount the proprietor would receive; instead, however, the proprietor's share of the net profit was added to his original capital.

Average Number of Errors in Addition

Table IV shows the number of errors made in each classification by junior and senior boys and junior and senior girls. It also shows the average number of errors made by each grade

of students. Reference to Tables I, II, and III in Chapter III shows the number of students of each grade who participated in each of the 3 tests. In the first test 12 junior boys participated, in the second test 10 were present, while in the third 12 again took the test. In calculating the average number of errors for the junior boys who made errors in wrong addition the total of the boys in the three tests is shown to be 34.

Table IV shows that a total was taken of the same type of errors in addition made by the junior boys on each of the three tests. The total number of each particular type of error made by the junior boys on the three tests was divided by the total number of junior boys participating in the three tests. The 34 junior boys made 6 errors caused by wrong addition. Thus, dividing 6 by 34 gave the average number of errors per test for the junior boys or .176.

According to Tables I, II, and III in Chapter III, 27 senior boys took the first test, 25 senior boys participating in the second test, and 20 senior boys took the third test, making a total of 72 test papers on which errors could be made. The 72 senior boys made 17 errors caused by wrong addition. Dividing the 17 by 72 gave .236 the average number of errors per test made by senior boys. It is significant to note that the senior boys made more errors than did the junior boys. The number of boys being so small raised the question just how reliable this difference.

The same procedure was used in finding the average number of errors made by the junior girls and the senior girls. This was found to be .352 and .253 respectively. The table shows that the junior girls made more errors in addition than the senior girls, while the junior boys made fewer errors than the senior boys. On the other hand, the boys in both grades made a fewer number of errors in addition than did the girls.

The table shows that a greater number of mistakes were made in failure to add than in wrong addition. This is probably due to the fact that in adding a trial balance for instance, the student knowing that both sides should be equal failed to add when he noted they were unequal. The junior girls made the largest number of errors and the senior girls made the fewest number of errors, yet the total for the junior and senior girls was more than the total for the junior and senior boys. In the other four types of errors there were relatively fewer mistakes made by both boys and girls.

Errors in Subtraction

Table V shows that the students made five types of errors in subtraction. Their results were incorrect because of: (1) wrong subtraction, (2) failure to subtract, (3) subtraction of numbers which should not have been subtracted, (4) addition instead of subtraction, and (5) subtraction of wrong numbers.

TABLE V
ERRORS IN SUBTRACTION

Type of Errors	Jr.Boys EM*	Avg.**	Sr.Boys EM	Avg.	Jr.Girls EM	Avg.	Sr.Girls EM	Avg.	Total EM
Wrong Subtraction	4	.118	15	.208	15	.103	28	.136	62
Failure to Subtract	12	.353	19	.264	82	.566	76	.371	189
Subtraction of numbers which should not have been sub- tracted	6	.176	17	.236	51	.352	52	.254	126
Addition instead of subtraction	2	.059	1	.014	7	.048	22	.107	32
Subtraction of wrong numbers	0	.000	1	.014	1	.007	2	.001	4
Total	24		53		156		180		413

*EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

Some of the subtractions were incorrect because of the failure to borrow a number from the next column when the digit in the subtrahend was larger than the one in the minuend. In other cases students failed to keep columns straight, thus mixing the figures of one column with those of another column. Also, some of the numbers were copied incorrectly, or the figures were so poorly written that errors were caused.

Students frequently failed to make any subtraction at all, e. g., they failed to subtract the amount of supplies on hand from the supplies purchased to find the supplies used.

The difference was found between two numbers representing unlike items, e. g., subtracting interest income from the

face value of an interest-bearing note receivable.

Numbers were added when they should have been subtracted, e. g., in finding net profit, operating expenses were added to gross profit when they should have been subtracted.

The fifth type of error noted was subtraction of the wrong numbers, e. g., subtracting an amount allowed for prompt payment of an account from the wrong account.

Average Number of Errors in Subtraction

The same method as shown by Table V was employed to find the errors made and the average number of errors per test for junior and senior boys and junior and senior girls.

It is noticeable that the senior boys made nearly twice as many errors in "wrong subtraction" as did the junior boys. Also the senior girls made more errors than the junior girls. The errors made by the junior boys and junior girls were fairly close. The greatest difference was between the senior boys and senior girls with averages of .208 and .136 respectively. Errors caused by students' failure to subtract were nearly three times as frequent as errors caused by wrong subtraction. Students frequently did not subtract an inventory such as supplies inventory from the total supplies account to find the supplies used. The least number of errors of this type was made by the senior boys while the largest was made by the junior girls. The girls made this type of error more often than the boys. The subtraction of numbers which should not

have been subtracted was another error frequently made by both sexes. Often when interest was paid on an interest-bearing note the students would subtract the amount of the interest from the face of the note. Not many mistakes were made by either the boys or the girls in the other two types of errors in subtraction.

Errors in Multiplication

In Table VI the students are seen to have made three types of errors in multiplication. Their results were incorrect because of: (1) wrong multiplication, (2) failure to multiply, and (3) division instead of multiplication.

Errors were often made when the multiplier was composed of more than one figure. As the problem was multiplied by each different figure in the multiplier, the results were not set to the left a proper number of places for addition. In other cases, figures were transposed when a number was copied. Other errors were caused by mistakes due to inaccuracy in multiplication.

Students frequently failed to perform necessary multiplications, e. g., the estimated loss on bad debts was not figured. The total of sales on credit should have been multiplied by the estimated rate of loss on accounts uncollectible.

TABLE VI
ERRORS IN MULTIPLICATION

Types of Errors	Jr. Boys		Sr. Boys		Jr. Girls		Sr. Girls		Total
	EM*	AVG.**	EM	AVG.	EM	AVG.	EM	AVG.	EM
Wrong multipli- cation	4	.118	3	.042	9	.062	16	.078	32
Failure to multiply	3	.088	6	.083	10	.069	15	.073	34
Division instead of multiplication	<u>0</u>	.000	<u>1</u>	.014	<u>2</u>	.014	<u>15</u>	.073	<u>18</u>
Total	7		10		21		46		84

*EM indicates Errors Made

**AVG. indicates Average Number of Errors per Test

A number sometimes was used as a divisor instead of a multiplier, e. g., in finding a certain per cent of a number, a number was divided by the rate per cent rather than multiplied by the given rate.

Average Number of Errors in Multiplication

The same principle was used in Table VI as in Table IV to find the errors made and the average number of errors per test for both boys and girls. It is noted that the junior boys made almost three times as many errors due to wrong multiplication as did the senior boys. The junior and senior girls were very close in the average number of errors. The junior boys' errors were several times as many as the junior girls.

On the other hand, the senior girls made nearly twice as many errors as the senior boys. The students often failed to multiply in a problem such as that of finding the estimated loss on bad debts. The average number of errors in all types of multiplication was small for both boys and girls as compared with the errors made in addition or subtraction.

Errors in Division

The students made three types of errors in division as shown in Table VII. Their results were incorrect because of: (1) wrong division, (2) division by wrong number, and (3) multiplication instead of division.

The results were often incorrect because the students used the same number twice in the dividend. In other cases an error was caused by inaccuracy in multiplication.

TABLE VII

ERRORS IN DIVISION

Types of Errors	Jr.Boys		Sr.Boys		Jr.Girls		Sr.Girls		Total
	EM	*AVG.	**EM	AVG.	EM	AVG.	EM	AVG.	EM
Wrong division	4	.118	2	.028	1	.007	7	.034	14
Divided by wrong number	4	.118	3	.042	9	.062	16	.078	32
Multiplication instead of division	0	.000	0	.000	1	.007	0	.000	1
Total	8		5		11		23		47

*EM indicates Errors Made

**AVG. indicates Average Number of Errors per Test

In a number of cases the correct number was used for the dividend but the wrong number was used for the divisor. For instance to find the interest on a note for a 6-months period, the interest was figured for one year and that amount was divided by 6.

In one case a student multiplied two numbers when they should have divided one by the other.

Average Number of Errors in Division

The procedure in Table VII for finding the errors made and the average number of errors per test for junior and senior boys and junior and senior girls is the same as in Table IV. The junior boys' errors in wrong division as compared with those of the senior boys were about three to one. The senior girls made more mistakes than the junior girls although both were small in number. The junior boys made more errors than the junior girls, while the senior girls made more errors than the senior boys. It is significant to note that more errors were made in dividing by the wrong number than in the wrong division itself. A junior girl made the single error in the other type of division. The average number of errors for all the different types in division were very small, probably due to the fact that there were few division problems in comparison to the problems in the other three fundamentals of arithmetic.

CHAPTER V

ERRORS OTHER THAN THOSE MADE IN THE FOUR FUNDAMENTALS OF ARITHMETIC

The types and frequencies of arithmetical errors found on the tests which involved the four fundamentals of arithmetic were analyzed in Chapter IV. It is the purpose of this chapter to explain other errors which were found on the tests. These errors involve the four fundamentals yet cannot be classified as any one of them.

Errors in Decimals

In Table VIII it is shown that the students made three types of errors in problems requiring the use of decimals. Their results were incorrect because of (1) a misplaced decimal point in multiplication, (2) wrong multiplication of decimals, and (3) wrong division of decimals.

The decimal point was often misplaced in the multiplication of decimals. In multiplying by a decimal fraction the students failed to point off the correct number of places in the answer.

The results in the multiplication of decimals was sometimes incorrect because the students were confused when the multiplier was a fraction of a per cent. For example, in allowing one-half of one per cent annually for the depreciation

TABLE VIII
ERRORS IN DECIMALS

Types of Errors	Jr. Boys		Sr. Boys		Jr. Girls		Sr. Girls		Total
	EM	*AVE.	EM	*AVE.	EM	*AVE.	EM	*AVE.	EM
Misplaced decimal point in multiplication of decimals	5	.147	4	.056	9	.062	11	.053	29
Wrong multiplication of decimals	0	.000	4	.056	4	.028	3	.015	11
Wrong division of decimals	<u>0</u>	.000	<u>1</u>	.014	<u>0</u>	.000	<u>1</u>	.005	<u>2</u>
Total	5		9		13		15		42

* EM indicates Errors Made

** Avg. indicates Average Number of Errors per Test

of equipment, the equipment was multiplied by 2 per cent instead of one-half of one per cent.

A few students made errors in the division of decimals. In dividing decimal fractions they carried the division through the whole number only, omitting further division through the decimal in the dividend. $456.25 \div 3 = 152$ instead of 152.08

Average Number of Errors in Decimals

Table VIII is set up in the same manner as Table IV in Chapter IV to show the errors made and the average number of errors per test for the junior and senior boys and junior and senior girls. None of the students made many errors in decimals. There were more errors in the misplaced decimal point

in multiplication of decimals than in the other two types of errors combined. The junior boys lead the senior boys in the number of errors, while the junior girls and senior girls made nearly the same number of errors. The table shows the errors made by the junior boys and junior girls to be .147 and .062 per test respectively. The senior girls had a few less errors than the senior boys, although there was little difference. The total of the girls' errors for the two classes was less than for the boys. There were very few mistakes made in the other types of errors. It is noticeable that the junior boys made no errors in the last two types of errors and that the junior girls made errors of only one type.

Errors in Percentages

The students made six types of errors in percentage, which are classified into two groups -- errors in trade discount as indicated by Table IX, and errors in figuring interest as indicated by Table X. The three types of errors in trade discount were made because of: (1) error or failure to figure discount, (2) failure to figure discount on proper number, and (3) using wrong per cent in figuring discount.

In some cases errors were made or discounts were not figured, e. g., students confused returned purchases and transportation charges with trade discount and handled them as such in making a deduction from the original amount of the invoice.

TABLE IX
ERRORS IN TRADE DISCOUNT

Types of Errors	Jr.Boys EM*AVG.**		Sr.Boys EM AVG.		Jr.Girls EM AVG.		Sr.Girls EM AVG.		Total EM
Error or failure to figure discount	2	.059	4	.056	14	.096	38	.185	58
Failure to figure discount on proper number	0	.000	3	.042	7	.048	12	.058	22
Use of wrong per cent to figure discount	<u>0</u>	.000	<u>0</u>	.000	<u>3</u>	.021	<u>1</u>	.005	<u>4</u>
Total	2		7		24		51		84

* EM indicates Errors Made

** Avg. indicates Average Number of Errors per Test

Students frequently failed to figure discount on the proper number, that is, in figuring trade discount on a purchase invoice, they multiplied the amount of cash paid by the rate of discount instead of multiplying the amount of the invoice by the rate of discount.

The wrong per cent was used in figuring discount. In one problem the terms of a purchase invoice were a discount of 2 per cent if paid within 10 days. A 10 per cent discount was taken instead of a 2 per cent.

The three types of errors in figuring interest were made because of: (1) figuring interest period incorrectly, (2) failure to figure interest, and (3) using wrong per cent in finding interest.

TABLE X
ERRORS IN FIGURING INTEREST

Types of Errors	Jr.Boys		Sr.Boys		Jr.Girls		Sr.Girls		Total
	EM	*Avg.	EM	*Avg.	EM	*Avg.	EM	*Avg.	EM
Errors in figuring interest period	7	.206	8	.111	40	.276	68	.331	123
Failure to figure interest	3	.088	9	.125	38	.262	54	.263	104
Using wrong per cent in figuring interest	<u>0</u>	.000	<u>1</u>	.014	<u>2</u>	.014	<u>2</u>	.010	<u>5</u>
Total	10		18		80		124		232

* EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

Students frequently figured the interest period incorrectly. For example, in figuring interest on a promissory note the rate of interest would be figured on the principal correctly, but the wrong number of days would be used in computing the amount of interest due or collectible.

The students often failed to figure interest at all, although the note was an interest-bearing note.

The wrong per cent was sometimes used in finding interest, e. g., in figuring interest at 5 per cent on a 60-day note, they found the interest for 60 days at 6 per cent, but did not make the necessary deduction of one-sixth of that amount to obtain the interest at 5 per cent.

Average Number of Errors in Percentage

Errors in percentage were made through the calculation of trade discount and the computation of interest. The basis for finding the errors made and the average number of errors per test is the same as was used in Table IV in Chapter IV.

The error or failure to figure discount was the type in which the greatest number of errors was made. These are shown in Table IX, often the students either did not figure a discount or figured it wrong when a certain per cent was allowed for prompt payment of an open charge account. The boys made practically no mistakes in the different types of errors found in trade discount when compared with the number of errors made by the girls. The number of errors in trade discount was small in comparison to the errors made in the four fundamentals found in Chapter IV.

Table X shows the errors in figuring interest. The error in figuring the interest period was the type in which the greatest number of errors was made. The junior boys made .206 errors per test in comparison with the senior boys who made .111. The average numbers of errors made by the junior girls and senior girls were .276 and .331 respectively. The junior girls made only a few more errors than the junior boys, while the senior girls made three times as many errors as did the senior boys. It is noticeable that in figuring interest and

trade discount the girls made many times the errors of the boys. In the type of error due to failure to figure interest a large number of errors were made by the girls, their errors being four and one-half times those made by the boys.

Errors in Common Fractions

It is indicated in Table XI that two types of errors were made by the students in common fractions. The results were incorrect because of: (1) failure to use the proper fraction and (2) failure to carry fractions far enough.

Occasionally students failed to use the proper fraction. In dividing the net profit of a business among three partners, one-third of the net profit was given to each partner while, according to the partnership agreement, the net profit should have been divided in proportion to the amount each partner had invested.

In a few cases they did not carry a fraction far enough. If a division problem did not come out even, the fraction that remained was dropped. The fraction, however, should have been carried because another division was necessary for the completion of the problem.

Average Number of Errors in Common Fractions

Table XI also indicates the number of errors made in each classification by junior and senior boys and junior and senior

TABLE XI

ERRORS IN COMMON FRACTIONS

Types of Errors	Jr.Boys		Sr.Boys		Jr.Girls		Sr.Girls		Total
	EM	*AVG.	**EM	AVG.	EM	AVG.	EM	AVG.	EM
Failure to use proper fraction	0	.000	6	.833	8	.111	4	.019	18
Failure to carry fraction far enough	$\frac{0}{0}$.000	$\frac{0}{6}$.000	$\frac{2}{10}$.014	$\frac{2}{6}$.010	$\frac{4}{22}$
Total	0		6		10		6		22

*EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

girls. The procedure used in arriving at the figures found in the table was the same as that used in Table IV in Chapter IV. Only two types of errors were made in common fractions. The use of common fractions was small in comparison to other arithmetical principles involved in the tests, which accounts for the small number of errors made in the use of fractions. The junior boys made no errors, but the senior boys made many errors by failing to use the proper fraction. Both junior and senior girls made errors of both types.

The failure to use the proper fraction was the cause of the greatest number of mistakes. Many students were confused in working a problem concerned with the division of net profit in a partnership. In a given partnership there were three partners, each with a different amount invested in the business. The net profit from the business was to be divided

according to each investment. Instead of dividing the profit in this manner the students allowed each partner one-third of the net profit, which was according to the number of partners in the business, rather than according to the agreement.

Errors in Recording Numbers

The students made seven types of errors in recording numbers in Table XII. Their results were incorrect because of: (1) copying a number incorrectly, (2) failure to place number in proper position for addition, (3) copying wrong number, (4) failure to place number at all, (5) failure to place number in proper position for subtraction, (6) disregarding position in column, and (7) copying number twice.

Numbers were very often copied wrong. Errors of this nature were caused by one or more of the following: transposition of figures, misinterpretation of poorly written figures, copying the same figure twice, or omission of figures.

Many students failed to place a number in the proper position for addition. This was frequently caused by recording a number in the wrong column.

The wrong number was sometimes copied. This was done when a number was copied from the wrong account.

In some cases errors were caused by the omission of numbers. In listing a column of items for addition, the amount was omitted entirely.

TABLE XII
ERRORS IN RECORDING NUMBERS

Types of Errors	Jr.Boys		Sr.Boys		Jr.Girls		Sr.Girls		Total
	EM	AVG.	EM	AVG.	EM	AVG.	EM	AVG.	EM
Copying a number incorrectly	9	.264	17	.236	31	.214	59	.288	116
Failure to place number in proper position for addition	13	.382	15	.208	60	.414	84	.410	172
Copying wrong number	2	.059	14	.194	11	.076	18	.088	45
Omission of numbers	1	.029	4	.056	13	.089	17	.083	35
Failure to place number in proper position for subtraction	3	.088	4	.056	7	.048	13	.063	27
Disregarding column position	2	.059	2	.028	5	.034	4	.019	13
Copying number twice	<u>1</u>	.029	<u>1</u>	.014	<u>2</u>	.014	<u>4</u>	.019	<u>8</u>
Total	31		57		129		199		416

*EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

Numbers were sometimes not placed in the proper position for subtraction. In recording payments made by a customer on account, the students often recorded the credit in another customer's account.

Some errors were caused by entering amounts in a column incorrectly. The amount of cents was sometimes written in

the dollar columns, in which 15 cents would be recorded as \$15.

A few students recorded a number twice; for instance, in a single transaction a number was written twice for the same account.

Average Number of Errors in Recording Numbers

More errors were made by all who took the tests in their failure to place the numbers in proper position for addition than in any other type of error mentioned in Table XII. The average number of errors per test made in this manner ranged from .208 to .414. Errors made by copying numbers incorrectly were relatively high, being 116 as compared with 172, the errors made as mentioned above.

In the other five types of errors mentioned in the table, fewer errors were made. These become almost insignificant in frequency when compared to the other two types.

Miscellaneous Errors

It is shown by Table XIII that the students made four additional types of errors, which for practical purposes now are classified as miscellaneous errors. Their results were incorrect because of: (1) performing wrong operation, (2) failure to perform the mathematical operation, (3) incorrect calculation of problem, and (4) failure to perform entire mathematical operation.

TABLE XIII
MISCELLANEOUS ERRORS

Types of Errors	Jr. Boys EM*AVG.	Sr. Boys **EM AVG.	Jr. Girls EM AVG.	Sr. Girls EM AVG.	Total EM
Performed wrong operation	23 .676	43 .597	84 .597	73 .356	223
Failure to perform the mathematical operation	2 .059	5 .069	10 .062	5 .024	22
Wrong calculation of problem	1 .029	1 .014	2 .014	3 .015	7
Failure to perform entire mathematical	0 .000	0 .000	0 .000	3 .015	3
Total	$\frac{0}{26}$	$\frac{0}{49}$	$\frac{0}{96}$	$\frac{3}{84}$	$\frac{3}{255}$

*EM indicates Errors Made

**Avg. indicates Average Number of Errors per Test

Many students performed the wrong mathematical operation. They used the wrong method or procedure entirely in trying to solve a problem, for example, the problem would be incorrect because the same method was used to solve unlike problems or the failure to follow the consecutive steps necessary in solving a problem.

Some of the errors in performing mathematical operations were caused by combining two fundamentals in one operation, that is, in a subtraction problem students were found to add the cents columns and subtract the dollars columns.

$$(\$52.01 - \$24.26 = \$21.27 \text{ instead of } \$20.75)$$

A few students used the wrong approach in solving a problem. They were confused by the different mathematical or business terms. In figuring discount on sales some considered the time element as in figuring interest on a note.

Occasionally students failed to perform the entire mathematical operation. An incomplete problem was seemingly thought to be completely solved, for example, in finding the discount on a note they multiplied the days for the discount period by the rate and considered that the amount of collection expense. The problem should have been completed by multiplying that number by the face of the note and dividing by 360, the number of days in a year, to obtain the amount of the collection expense.

Average Number of Miscellaneous Errors

A large number of errors was caused by performing the wrong operation. It is noticeable that the average number of errors of this type is quite high for all students. They very often failed to follow the consecutive steps necessary in solving a problem, or some steps were left out causing an error.

In the other three types of errors the mistakes were not made frequently by either boys or girls. As a whole the junior and senior boys made more miscellaneous errors than the junior and senior girls.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In analyzing the data presented in the preceding chapters, it is obvious that the bookkeeping students made many more errors in problems involving some of the arithmetical principles than they did in problems involving others.

The results as shown by the tables indicate that the errors range in frequency from 443 (the number of errors found in addition) to 22 (the number of errors found in common fractions).

The errors were grouped into two divisions: errors made in the use of the four fundamentals of arithmetic, and errors other than those made in these four fundamentals.

The fundamentals of arithmetic are listed in order of frequencies of errors found:

Addition . . .	443
Subtraction. .	413
Multiplication	84
Division . . .	47

The listing of errors other than those in the four fundamentals is arranged in a like manner:

Recording Numbers . . .	416
Miscellaneous Errors . .	255
Percentage:	
Interest.	232
Trade Discount	84
Common Fractions	22

There was a total of 39 types of errors made in the above groups. It was only natural that there were more errors in some types than in others, since in the bookkeeping course some arithmetical principles are used many more times than others. In a survey of six bookkeeping textbooks, Potthoff found that 90 per cent of the arithmetical principles involved in bookkeeping problems were those in addition, subtraction, and multiplication. On the other hand, common fractions were involved only in multiplication and division and even then not as frequently as other fundamentals.¹

The writer found that the largest number of errors was made in addition, the second largest number was in recording numbers, and the third was in subtraction. Many other types of errors were made, but the frequencies of each type were much less than in those mentioned above. Of these problems those involving interest showed a high frequency of errors, also many errors of a miscellaneous nature were found.

In errors in addition, subtraction, and interest, the girls made the more mistakes. On the other hand, the boys made the more errors in division and decimals. The average number of errors made by junior boys and senior boys was practically the same in addition, subtraction, and interest.

¹E. F. Potthoff, "Arithmetical Abilities Required in High School Courses in Bookkeeping." (Unpublished Master's Thesis, University of Chicago, Chicago, Illinois, 1924), p. 63.

The senior boys made fewer errors in multiplication while the junior boys made less errors in decimals and common fractions. There was a greater variation in the number of errors made between the junior and senior girls than between the junior and senior boys. The average number of errors was less for the senior girls than for the junior girls in addition, decimals, common fractions, and recording numbers while the junior girls' errors were less in multiplication, decimals and interest. Both classes of girls made nearly an equal number of errors in subtraction.

Recommendations

The findings presented in this study would seem to warrant the following recommendations:

1. Addition should be stressed more in the course, and the students should be required to prove more of their own work. A common fault among bookkeeping students is that of leaving problems unfinished. When a trial balance does not balance, they should be required to check their own work consistently and make an attempt to find and correct their errors, rather than leave the work unfinished.
2. The students should be given some problems, the nature of which would require them to use their reasoning ability. Students frequently do not know whether to add or subtract in a problem and seem to lack the ability to determine the process of logical reasoning which they should follow. For

instance they often do not know whether to add or subtract expenses from gross income to determine the net profit.

3. Additional emphasis should be placed on accuracy in recording numbers. Carelessness in copying numbers, along with poor penmanship, goes hand in hand with other errors in arithmetic, especially in addition and subtraction.

4. There were comparatively few interest problems in the test, but the average number of errors in interest problems was very high. Special emphasis should be given to a study of interest.

5. Many errors were made in trade discount in comparison to the number of times it was involved in the problems. There should be more problems given in trade discount.

6. Some time should be devoted to stressing multiplication as we find it involved in bookkeeping situations. Most students can multiply but they fail to perform its operation when used in bookkeeping. More stress should be put on such problems as figuring the amount allowed for losses due to bad debts or the figuring of depreciation.

7. It is suggested that remedial instruction be given in problems in common fractions or in types of errors other than those previously discussed. It seems necessary that this be given in the bookkeeping class rather than to depend

upon the students to receive this help in business arithmetic classes. In so many instances students fail to see the connection between bookkeeping and business arithmetic and principles learned in the business arithmetic classes often do not carry over into the bookkeeping classes.

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APPENDIX

TEST NO. 1

J. T. Smith, Proprietor of the General Mercantile Store has the following accounts on his ledger on May 31, 1942

Cash	\$ 352.65	Customers or Accounts Receivable	
Notes Receivable	156.00	C. O. Williams	\$79.87
Merchandise Inventory	1,336.54	B. A. Thomas	64.36
Notes Payable	466.83		
J. T. Smith, Capital	1,426.59	Creditors or Accounts Payable	
Sales	1,457.84	J. O. Dennis	\$93.72
Purchases	1,423.38	Charles Mc Ginnis	54.78
Delivery Expense	86.96		

PROCEDURE: Take a trial balance of his accounts.

J. T. Smith
Trial Balance May 31, 1942

Cash				
Notes Receivable				
C. O. Williams				
B. A. Thomas				
Merchandise				
Notes Payable				
J. O. Dennis				
Charles Mc Ginnis				
J. T. Smith, Capital				
Sales				
Purchases				
Delivery Expenses				

INSTRUCTIONS: Show all necessary work in solving each problem on the back of each sheet.

A. M. Grayson, proprietor of the Sunny Bright Laundry, has the following assets and liabilities:

Cash	\$ 1,314.45
Accounts Receivable	2,149.86
Delivery Equipment	1,823.95
Machinery	23,379.86
Office Equipment	742.77
Accounts Payable	1,368.71
A. M. Grayson, Capital	28,042.18

INSTRUCTIONS: Prepare his balance sheet in report form.

The Sunny Bright Laundry
Balance Sheet, July 31, 1942

[illegible]

INSTRUCTIONS: Show all necessary work in solving each problem on the back of each sheet.

III. E. M. Evans, a wholesale hardware dealer, has the following accounts in his purchases journal.

Purchases Journal

Date	Account Credited	Address	Terms	Post Ref.	Amount
Oct. 7	Wilson Radio Co.	113 North Main, City	20days		329.85
8	Mason Bros.	Joplin, Mo.	10days		283.46
15	Wilson Radio Co.	113 North Main, City	20days		156.23
16	C. E. Jones	12 Gary Street, City	20days		173.25
17	Mason Bros.	Joplin, Mo.	10days		94.78

INSTRUCTIONS: (a) Total Mr. E. M. Evans Purchases Journal.
(b) Post the total of the purchases journal to appropriate accounts in the general ledger.
(c) Post each line of the purchases journal to the account of the creditor in the accounts payable ledger.

Accounts Payable

[illegible]

Purchases

[illegible]

Wilson Radio Company
113 North Main, City

Date	Explanation	Page	Debit	Credit	Balance

Mason Bros.
Joplin, Mo.

Date	Explanation	Page	Debit	Credit	Balance

C. E. Jones
12 Gray Street, City

Date	Explanation	Page	Debit	Credit	Balance

IV. E. C. Smith, a wholesale fruit dealer, has the following accounts in his sales journal.

Sales Journal

Date	Account Debited	Address	Terms	Post Ref.	Amount
Oct. 3	S. M. Shaw	122 Long Street, City	15 days		187.91
4	J. D. Austin	Gary	10 days		56.43
5	S. M. Shaw	122 Long Street, City	15 days		39.57
10	J. C. Martin	Exter	20 days		174.36
11	J. D. Austin	Gary	10 days		168.79

INSTRUCTION: (a) Total Mr. E. C. Smith's Sales Journal.
(b) Post the total of the sales journal to the appropriate accounts in the general ledger.
(c) Post each line of the sales journal to the account of the customer in the accounts receivable ledger.

Accounts Receivable

[illegible]

Sales

[illegible]

S. M. Shaw
122 Long Street, City

[illegible]

J. D. Austin
Gary

Date	Explanation	Page	Debit	Credit	Balance

J. C. Martin
Exter

Date	Explanation	Page	Debit	Credit	Balance

TEST NO. 2

- I. C. L. Dixon wants to know what his net profit for the month of January 1942, from his following income and expense accounts.

Sales	\$1,457.80
Sales Returns	7.63
Merchandise Inventory of Jan. 1, 1942	1,321.76
Purchases	1,419.27
Purchases Returns	78.62
Rent Expense	50.00
Salary Expense	26.48
Merchandise Inventory of Jan. 31, 1942	1,735.91

INSTRUCTIONS: Prepare profit and loss statement.

C. L. Dixon

Profit and Loss Statement for Month Ended January 31, 1942

[illegible]

II. A. L. Goodman has the following accounts on his ledger September 30, 1942.

Account Titles	Trial Balance	
Cash	349.75	
Merchandise Inventory	1,246.83	
Supplies	52.39	
Prepaid Insurance	48.60	
A. L. Goodman, Capital		1,913.39
A. L. Goodman, Drawing	239.78	
Sales		1,567.92
Purchases	1,543.96	

On September 30, the end of the monthly fiscal period, the inventories were as follows:

Merchandise Inventory	\$1,295.46
Supplies Inventory	35.73
Prepaid Insurance	46.55

INSTRUCTIONS: (a) Total the trial balance.
(b) Record the adjusting entries in the general journal.
(c) Prove the accuracy of the journal by footing both money columns.

General Journal

[illegible]

III. A. P. Fraser; a dealer in building materials has on his books equipment \$1,750.00.
 His charge sales for the year were \$13,464.48.
 At the end of the fiscal year he estimates the annual rate of depreciation on equipment to be 5 per cent.
 The estimated loss on bad debts for the year to be $\frac{1}{2}$ per cent of the total charge sales.

INSTRUCTIONS: (a) Find the estimated depreciation for equipment.
 (b) Find the estimated loss for bad debts.
 (c) Record each of the adjustments in the general journal.

General Journal

IV. The following transactions were selected from those completed by John Simmons, a dealer in farm implements, during the fiscal year ended December 31 of the current year.

- Jan. 15. Received a check from W. C. Williams in full settlement of 30-day, 6% interest-bearing note due today. Face of note, \$600.
- Jan. 31. Received a check from E. C. Jones in payment of the interest only on his 5% interest-bearing note. Face of note, \$270. Interest for six months.
- Mar. 22. Issued a check to E. L. Stone in full payment of a 60-day 5% interest-bearing note due today. Face of note, \$800.

INSTRUCTIONS: Record each of the transactions in the appropriate journals.

Cash Receipts Journal

Date	Account Credited	Explanation	Post Ref.	General Ledger Cr.	Accounts Receivable Cr.	Net Cash Dr.

Cash Payments Journal

Date	Account Debited	Explanation	Post Ref.	General Ledger Dr.	Accounts payable Dr.	Net Cash Cr.

TEST NO. 3

I. The following transactions were selected from those completed by Melton Stevens, a dealer in steel equipment, during the months of March and April of the current year:

- March 5. Sold merchandise to Howard Pitt, Dayston, for \$375.70. Received from him a 60-day non-interest bearing note payable at our office.
- March 27. Sold merchandise to Carl Bell, for \$296.50. Terms: 2/10, n/30.
- April 4. Discounted at the First National Bank the note receivable signed by Howard Pitt. The discount rate was 6%. Received credit at the bank for the proceeds.
- April 5. Received a check from Carl Bell in payment of invoice of March 27. Less discount.

INSTRUCTIONS: Using appropriate journals, make the journal entries required to record each of the transactions.

Sales Journal

Date	Account Debited	Address	Terms	Amount

Cash Receipts Journal

[illegible]

General Journal

[illegible]

Thomas Bacon, Robert Nance, and Harold Brown were partners engaged in operating an insurance agency. The partners had invested in the business \$9,000, \$6,000, \$5,000 respectively.

According to the partnership agreement, each partner is to receive a salary of \$3,000 a year, and all profits remaining after the salaries have been paid are to be divided according to the original investments of each partner.

At the end of the current fiscal period on December 31 the profit and loss statement showed that the net income for the year had been \$11,000, before the payment of salaries.

INSTRUCTIONS: Prepare the portion of the profit and lose statement showing the distribution of the net income.

General Journal

[illegible]

T. J. Flint
Balance Sheet, January 1, 1942

R. E. Allen
Balance Sheet, January 1, 1942

INSTRUCTIONS: Record the opening entry for each partner as it would be recorded in a general journal.

[illegible]

IV. The following transactions were selected from those completed T. C. Stone, a dealer in awnings and shades, during April of the current year.

- April 7 Gave E. B. Evans, a check for \$602.60 in payment of his invoice dated March 29 less discount. The amount of the invoice was \$614.90; terms, 2/10, n/60.
- 8 Gave R. A. Benton, a check for \$290.18 in payment of his invoice dated March 31 less discount. The amount of the invoice was \$348.40 with terms of 2/10, n/30, but Mr. Stone had returned and received credit for merchandise valued at \$52.30.
- 29 Gave Ted Rowland a check for \$77.66 in payment of his invoice dated April 20 less discount. The amount of the invoice was \$87.45 with terms of 2/10, n/60, but Mr. Stone had received an allowance of \$8.20 because of inferior merchandise.
- 30 Gave J. D. Weeks a check for \$277.82 in payment of their invoice dated April 21. The amount of the invoice \$283.40, included prepaid transportation charges of \$4.60. The terms were 2/10, n/30.

INSTRUCTIONS: (a) Record the transactions in the cash payments journal.
 (b) Post the totals of the cash payments journal to the appropriate accounts in the general ledger.

Cash Payments Journal

Date	Accounts Debited	Explanation	Post Ref.	General Ledger Dr.	Accounts Payable Dr.	Disc. on Purch. Cr.	Net Cash Cr.

Cash

Discount on Purchases

Accounts Payable