The Yale University

Computer-Based Accounting System

Linda L. Marean

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Project Manager
Administrative Data Systems
Yale University
New Haven, Connecticut

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PREFACE

This book describes the accounting system adopted by Yale University on July 1, 1965 to provide a logically organized 'data base' from which information could be extracted by computer for fiscal control and analysis. This new accounting system was designed mainly according to logical principles that would enable the desired analyses to be conducted. After the basic principles of logic had been developed, the system was then adapted to accommodate the rules and conventions of proper accounting.

The computer is a fundamental component of this accounting system, which was specifically designed to utilize the computer's logical capabilities, and which could not operate without a computer. The main discussion in this book, however, is concerned with only the logical rules for using the computer, not the technical intricacies of computer programming.

The new accounting system was designed in response to Yale's increasing need for comprehensive and easily accessible fiscal information. Although the chart of accounts established by Yale in 1954 had been appropriate for Yale's size and demands at that time, the increase in both size and complexity of the University's overall operations during the next ten years had placed this accounting structure under considerable strain. The strain became particularly apparent in 1964 when Yale's Administrative Officers, seeking to use a computer to provide additional fiscal control and information, found that the old accounting system was largely inadequate to meet their new requirements. Although proper accounting was provided, the existing system did not contain rules by which a computer could be accurately programmed either to isolate selected items or to aggregate related items. These two facilities are clearly prerequisite to the analysis of the University's operations.

Because the old accounting system could not satisfy their new requirements, the Administrative Officers of the University requested that a new chart of accounts be designed, implemented, and made operational by mid-1965.

Fundamental to the design of the system was the mandate that it be: understandable and usable by people unfamiliar with accounting or bookkeeping techniques; capable of performing all necessary functions demanded by accepted accounting practice; able to provide analysis of data by computers; and finally, adequate and adaptable for both present and foreseeable Yale needs.

Preliminary studies of Yale's needs made clear that such a new system would not be comparable with the old one. The required changes would be so numerous and marked that the two systems would have to be fundamentally different and essentially noncomparable, especially in the area of income and expense. Therefore, in

order to avoid recasting old accounts into the new structure, conversion to the new system would have to occur at the beginning of a fiscal year. Accordingly, the new accounting system was instituted on July 1, 1965.

Such a change of accounting systems in any organization is a major event, whose far-reaching impact and long-lasting problems were magnified by the size and complexity of Yale University. So many people have become involved in this project that I cannot acknowledge my gratitude to everyone who helped this system in its development, implementation, and continued operation. Assistance has come from every member of the Yale community who has patiently learned to use the new system. Certain people, however, played a special role in making possible this system and this book.

The entire staff of Administrative Data Systems at Yale contributed immeasurably. I am particularly grateful to Mr. Carl F. Roessler, Director of Computation, for his constant support and guidance; to Mr. Bernard J. Hayden, Project Manager, and Mr. Robert A. Wasilewski, Assistant Project Manager, for their extraordinary contributions in time, skill and knowledge; to Mr. Justin J. Appi, Manager of Operations, and his entire staff, for carefully and conscientiously processing the large volume of data; and to Mrs. Mary Alice Cameron and Mrs. Virginia L. Thompson for typing multiple versions of this manuscript.

The staff of the Treasurer's Office has continued to contribute in ways too numerous to mention. I am especially grateful to Mr. William J. Feeney, Assistant Comptroller, for his unfailing efforts in helping the system begin and keep running.

This project would never have been initiated without the help of the Administrative Officers of Yale University—particularly Mr. Charles H. Taylor, Jr., Provost, and Mr. John E. Ecklund, Treasurer—who graciously conveyed their concern and support to everyone who participated.

Although many friends and colleagues gave me moral support and encouragement in preparing this book, I want particularly to thank Dr. Alvan R. Feinstein for patiently editing and suggesting improvements in the manuscript.

I. CONCEPTUAL DEVELOPMENT OF THE NEW YALE ACCOUNTING SYSTEM

A. CONSIDERATIONS OF DESIGN

The major reason for creating a new accounting system was the desire for better methods in fiscal control and for better information in fiscal analysis. The key to achieving this goal was the conceptual development of a new scheme for the *account number.* The desired control and analysis of data requires the ability both to take things apart into their constituent elements and to combine them into meaningful groupings. This ability to segregate specified items and to aggregate related items requires a logical structuring of account numbers as the basis for 'retrieval' of any accounts required to answer analytic questions. This structuring of account numbers must be incorporated into the design of the system.

In addition to these analytic capabilities, the initial design of the system must also, of course, provide for proper accounting. The requirements of proper accounting, however, place fewer demands on the structuring of account numbers than do the requirements of control and analysis.

Accounting transactions identify the University's fiscal activities that occur during a particular period. The accumulation of these transactions then provides a statement of the resulting financial status. There are two general categories of accounts—income and expense accounts, and asset and liability accounts. Each fiscal period's operations are reflected in income and expense accounts; the current financial status is reflected in asset and liability accounts. The financial statements, a periodically published record of performance, are intended to describe meaningfully the University's operating activities and to portray fairly and consistently the University's financial status.

To facilitate proper accounting, therefore, an account numbering scheme should be able to record income and expense transactions in meaningful descriptive groupings, and to reflect assets and liabilities in a fair and consistent manner. An account numbering scheme with analytic capabilities should include this attribute, but additional attributes are also required.

For Yale's purposes, any account numbering scheme with analytic capabilities must reflect the *organizational, financial* and *functional* structure of the University. *Organizational* structure refers to the administrative hierarchy through which the University directs its operations. *Financial* structure refers to the various sources from which the University derives its monetary support. *Functional* structure refers to the monetary activities that occur as the University operates. Because the interrelation of these structural elements is so complex, each element must be specified by a separately defined

component. These components, each specifying one element of the University's structure, can then be combined to specify one *Account Number.* Because all structural elements are included in the Account Number, diverse analyses are possible; because these elements are defined separately, complex and varied interrelations can be specified.

Our object, therefore, was to study the complex elements of Yale's structure and to reflect these elements as components of the Account Number. Only by *accurately* reflecting Yale's structure could the requested ability to segregate and aggregate be attained.

The result of the study was the formulation of a University Account Number composed of four parts–Budgetary Unit, School, Source of Funds and Type Code. Each of these constituent parts, and the reason for its inclusion in the Account Number, are discussed in the sections that follow.

B. COMPONENTS OF THE YALE ACCOUNT NUMBER

1. *Organizational Structure: Budgetary Unit*

In Yale's organizational structure, activities are clearly grouped into departments. Not only are the various academic disciplines separated into departments with chairmen for each, but the administration is also divided into departments, each having a separate function, budget and director. Although most of these departments are easily recognizable, a criterion must be established for any questionable entities. It was decided that no distinction would be made between organizational groupings unless budget allocations are made and accounted for separately. Hence, any entity having a separate budget could be regarded as a 'department', and the component of the Account Number identifying this departmental organization is designated as the *Budgetary Unit.*

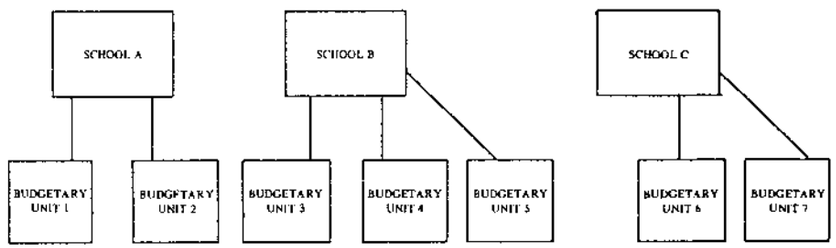
By definition, a Budgetary Unit can represent either a building, an academic department, an administrative department, an operating department or any separately budgeted and reported activity, such as commencement exercises or a sport.

2. *Organizational Structure: School*

Yale is not simply an association of departments; it is an association of schools, and each Budgetary Unit operates within a school. This type of association is most clearly discernible in academic units, where related disciplines are grouped together. In the Arts and the Professions, these groupings form traditional schools such as Medicine, Drama, Music, or Law. In the Humanities, Social Sciences, and Physical Sciences, a combination of the Graduate School and Yale College forms the Faculty of Arts and Sciences. Although not as obvious as in academic units, this type of grouping is nonetheless present in the administrative units. Operating services

for example, are traditionally grouped into 'Divisions' containing multiple departments. The Division of Heating and Lighting Service comprises all the power plants and an administrative office; University Dining Halls comprises the various graduate and undergraduate dining halls as well as an administrative office. The diagram below indicates this organizational structure:

FIGURE 1



Although not always a wholly appropriate description, the traditional designation of 'School' was retained to refer to this higher echelon of organization, and the *School* is the second constituent of the Account Number. With these two components in the Account Number–Budgetary Unit and School–the organizational structure of the University can be accurately reflected. Furthermore, because the Budgetary Unit and School are not specified as a single element with a combined meaning, but are instead two separate components –one for Budgetary Unit and one for School–the scheme allows flexible adaptation as the University's organization changes or grows.

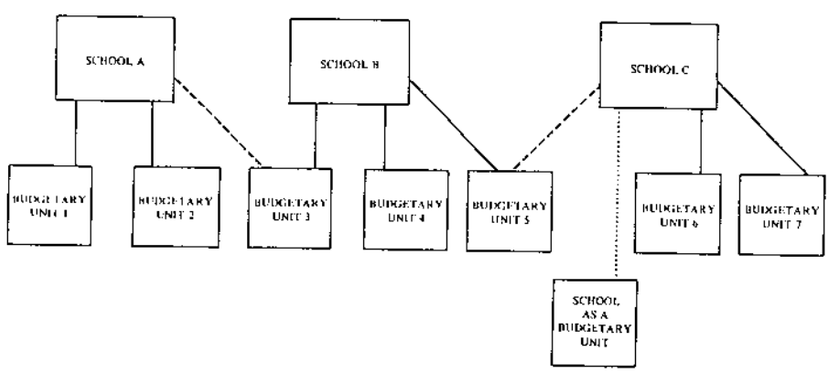
Two additional situations can also be handled because the Budgetary Unit and School are separate components, rather than one. The first is that a Budgetary Unit may function as part of more than one School. For example, Physics, as an instructional department, is part of the Faculty of Arts and Sciences, but its departmental library is part of the University Library; Timothy Dwight College, as a dormitory, is part of Yale College, but its Dining Hall is part of the University Dining Halls. This type of common membership (represented by the dashed line in Figure 2) is specified by using a different School number with the same Budgetary Unit number, thus preserving the capacity for analytic retrieval of everything associated with a particular Budgetary Unit.

For example, if the Budgetary Unit number for Physics were **3680** and the School number for Faculty of Arts and Sciences were **31**, Physics as an instructional department would be designated by

3680–31; if the School number for the University Library were 50, the Physics Library would be designated by 3680–50 Note that the Budgetary Unit number, 3680, remains the same to designate Physics, and only the School number changes to reflect the change in School affiliation.

The second situation is that a School can function as an entire entity without being subdivided into Budgetary Units. For instance, when a School grants a scholarship or receives tuition income, it is operating without subdivision into departments. This lack of subdivision could be denoted by simply omitting the Budgetary Unit element of the Account Number. For example, if School number 41 were the Medical School, the Medical School without subdivision could be designated by just -41. Such an Account Number, however, would vary in length depending on the presence or absence of the Budgetary Unit element. Furthermore, an intentional or accidental omission of the Budgetary Unit could not be distinguished. A better way of handling this situation, therefore, is to assign to each School a Budgetary Unit number as well as a School number. In the previous example, if Budgetary Unit number 6230 were also assigned to the Medical School, then 6230–41 would designate the Medical School without any subdivisions. Although redundant, this construction is preferable to a 'variable length' Account Number. The dotted line in Figure 2 represents this arrangement.

FIGURE 2



3. *Financial Structure: Source of Funds*

After the organizational structure has been specified, the next step is to incorporate the financial structure into the account numbering scheme.

Yale, like any private institution, derives its financial support from a variety of sources. Income is provided by: tuition charges; investment of donated endowment and other funds; grants from governmental and other sources; gifts from individuals, foundations or corporations; and receipts from athletic events, publishing and other miscellaneous activities. Although this diversity of income is not peculiar to university accounting, universities must often be able–more so than corporations–to account separately for the money received from individual contributors.

The requirement of *separate accountability* is imposed on Yale whenever a donor restricts the use of the money. For example, the donor of an Endowment Fund may specify that its earned income be used only to pay the salary of a professor of Romance Languages. The terms of this restriction demand proof that the money was spent for the stated purpose, and for no other. Similarly, a government grant may be given to support the expenses associated with a particular research project. The reimbursement of these expenses requires proof that the amount accumulated as an *account receivable* from the government is the same as the legitimate expenses incurred for this particular project.

When a particular amount of money–whether endowment, grant, contract or gift–must be accounted for separately from other such amounts, the resulting technique is called *fund accounting.* (In this technique, and throughout the discussion here, the word *fund* refers to any sum of money identified and accounted for separately -not just the traditional *Endowment Fund.* The term *fund* encompasses grants, gifts, contracts, building and current funds, as well as Endowment Funds.) Any system of fund accounting must be able to account for each fund as though it were a separate corporate entity. Each fund can hold its own assets and liabilities, and can receive income and incur expenses.

Fund accounting becomes necessary because many funds are *restricted* in purpose. Funds that are unrestricted may be accumulated and spent without identifying the specific source, and this combined total of unrestricted funds may itself be regarded as one 'fund'. This combination is often referred to as 'general funds' or in the case of Yale, 'General Appropriation'.

Thus, the accounting system must be able to indicate that Budgetary Units within Schools of the University have specific sources of Funds, each with its own purpose and restrictions. Some Budgetary Units have only one source of Funds available (most often General Appropriation, allocated via budget requests), and other Units have many endowments, grants, gifts or other individual

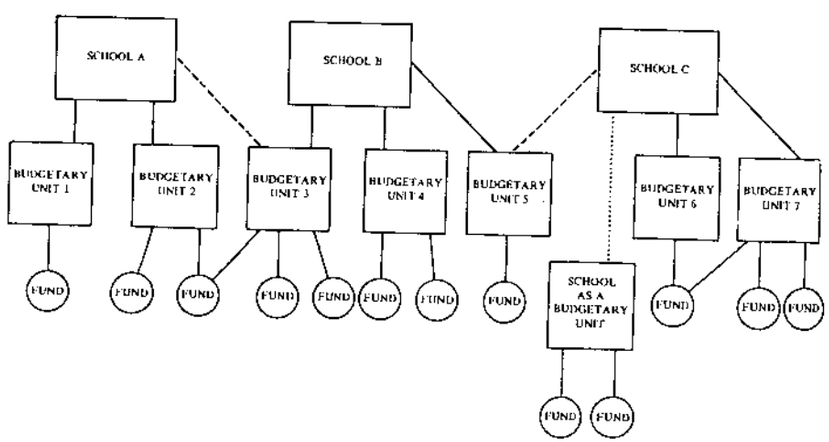
sources of money, in addition to allocated amounts of General Appropriation. Since many Budgetary Units may have access to one particular Source of Funds, a specific accounting number for each source enables all activity associated with that particular Source of Funds to be drawn together, regardless of the associated Budgetary Unit or School. To identify each individual Source of Funds, including General Appropriation, a *Source of Funds* component is included in the Account Number.

Although originally defined to specify a *source* of money from which expenditures are made, the Source of Funds can also be used to specify *any* related amounts of money, regardless of whether such amounts are intended to provide funds for expenditures. Thus, for example, a Source of Funds can specify: a single or a related group of Accounts Receivable or Accounts Payable; an accumulation of related Deferred Charges, such as construction costs of a building; or a Working Cash fund, which is cash transferred to a department but not yet accounted for.

In spite of these cases for which *Source of Funds* is not an appropriate description of the money being specified, the designation is used for this component of the Account Number. Since the majority of the users of the accounting system deal only with amounts of money which *are* truly a *source* of Funds, *Source of Funds* is more meaningful to them.

With this third component of the Account Number, the financial structure, as well as the organizational structure, is specified as Budgetary Unit, School, and Source of Funds, as shown in Figure 3.

FIGURE 3



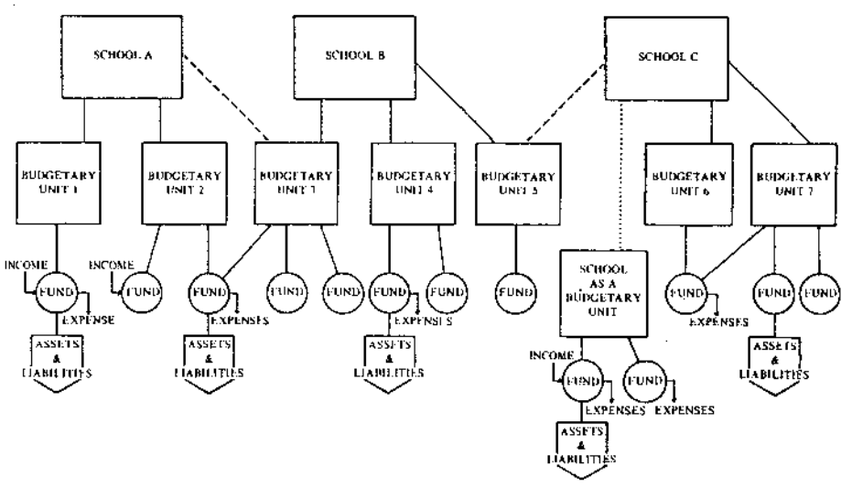
4. *Functional Structure: Type Code*

The idea of functional activity has been implied in the preceding discussion of the Source of Funds, but has not yet been reflected in the account numbering scheme. The last portion of the Account Number fulfills that role.

For accounting purposes, activity has two general classifications: assets and liabilities, or income and expense. These two sets of items differ in their concept of time and activity. Accounts of assets and liability have no temporal boundaries, and provide information about the financial *status* of the University; accounts of income and expenses are restricted to a fiscal year, and provide information about that year's financial *operations*. Both sets of accounts are published at the end of each fiscal year as the 'Balance Sheets' and the 'Operating Statement', respectively. The former presents a 'snapshot' picture of the University's status as of the end of the year; the latter presents a cumulative view of one year's operations.

The last portion of the Account Number must, therefore, be able to specify any desired category within each of these two classifications: asset or liability, and, income or expense. For this qualification, a *Type Code* is used to represent the specific varieties of function as income is received, expenses incurred, and assets or liabilities are acquired or removed. Such functional activity is illustrated in Figure 4.

FIGURE 4



C. ANALYTIC CAPACITY

The addition of the Type Code completes the four-part Yale Account Number. The organizational structure (Budgetary Units within Schools) as well as the functional financial structure (discrete funds and varying types of financial activity) have been specified. The final product, however, needs further review and refinement to determine how the particular internal arrangement of the numbers can improve the analytic capabilities of the system.

An Account Number containing arbitrarily assigned digits for Budgetary Unit, School, Source of Funds and Type Code permits many analytic questions to be easily answered. Everything associated with a particular Budgetary Unit, a particular School or a particular Source of Funds, as well as all occurrences of a particular type of activity, can be specified and retrieved, either separately or in combinations. For example, if a Type Code specifies all expense charges for faculty salaries, the account records can be examined to determine the total amount charged for faculty salaries. This amount can be found for the entire University, or for a particular School, and also for a specific Source of Funds, either within a specific School or for the entire University.

Although many important questions can be answered this way, a greater power and flexibility in the system would be desirable. For example, in addition to learning about faculty salaries only, we might want to know about all salaries; in addition to a particular Budgetary Unit, all Administrative Units; in addition to a specific School, all Professional Schools or all Operating Services; in addition to a specific Source of Funds, all sources of a similar nature. To achieve this additional analytic capacity, each part of the account number is kept unique, but rules are defined for its assignment. Although the complete details of these rules are presented in the appropriate appendixes, a brief example of each is given here. Budgetary Units are assigned within blocks of numbers to group together similar Units[1]; for example, all Medical School instructional departments have numbers from **8950** to **9440**. Related Schools are grouped by a common first digit[2]; for example, a '4' is used to begin the number for all Professional Schools (Medicine, Divinity, Law, etc.). Source of Funds are assigned within blocks to denote the specific kind of source[3]; for example, all Gifts for Current Use have numbers from **65000** to **74999**. Type Codes are assigned within numerical blocks to separate assets, liabilities, income and expense[4]; for example, all *income* types are from **3500** to **5299**. Furthermore, Type Codes are grouped into related categories, using a common first two digits with further sub-divisions denoted by the last two digits[5]; for example, all *dividend income* types begin with **35**. Thus, **3501** is 'dividends on common stocks' and **3502** is 'dividends on preferred stocks'.

These arrangements increase the analytic capabilities of the system, so that more generalized questions can be answered. What is the amount charged for faculty salaries (or all salaries) from Endowment Funds? What is the tuition income of the Professional Schools? These and many other combinations of questions can be answered, provided that the topic is somewhere included as an element of the account number.

[1]See Appendix I.
[2]See Appendix II.
[3]See Appendix III.
[4]See Appendix IV.

D. ACCOUNTING REQUIREMENTS

Despite the powerful analytic capabilities of this account numbering scheme, certain requirements of fund accounting are not yet fully satisfied. Separate records are allowed for each individual Source of Funds, but a complete and proper accounting maintenance of these records has not yet been provided.

Associated with each Source of Funds are certain specific asset or liability accounts that are determined by the nature of the source. For example, each grant has an 'Accounts Receivable'; each endowment has an 'Unexpended Income'. These specific accounts reflect the financial status of each Source of Funds, just as the total of asset and liability accounts reflects the financial status of the University. At any point in time such accounts should denote the outstanding amount associated with a specific Source of Funds.

The nature of the associated asset or liability account depends on when the University becomes the proprietor of the money. In certain cases, Yale already 'owns' the money when an expenditure occurs, whereas other monies are received only as reimbursement for previous expenses. In the case of Sources of Funds for which the monies are already owned by Yale, the associated asset or liability amount is an *Unexpended Balance;* that is, the remaining amount available to be expended for the stated purpose. Whenever such a fund receives new money or incurs expenses, the associated 'Unexpended Balance' must be properly adjusted—increased by new money or decreased by expenses. In the case of grants and contracts, for which the expenditures are reimbursed after they occur, the associated asset or liability amount is an *Account Receivable;* that is, the total amount currently owed to the University as reimbursement for costs incurred in fulfilling the purpose of the grant or contract. Whenever additional expenses are incurred the associated amount owed to Yale must be increased.

Managing both of these two different situations creates a dilemma because the Account Number incorporates a Type Code

[5]See Appendix V.

that specifies *either* the type of income and expense *or* the type of asset and liability. Since the Type Code does not specify both of these categories, how can an expense charged to a fund be recorded as a particular type of expense and simultaneously as either a reduction of the Unexpended Balance or an increase of the Amount Receivable? A solution must be found for this dilemma if a Type Code is to be used for classifying the income and expenses of funds.

To understand the method of solving this dilemma, an explanation of certain accounting procedures is required. Since a thorough knowledge of accounting requires many years of study, the explanation offered here is necessarily brief and is intended only to provide a minimum of background information to aid the reader with no previous training in accounting.

Normally, any accounting transaction consists of two parts–a debit and a credit–which are equal and offsetting. In the accounting conventions of this two-sided system, referred to as 'double-entry bookkeeping', the *debit* side of the ledger contains separate sections for 'expenses' and 'assets'; the *credit* side of the ledger contains separate sections for 'income' and 'liabilities'.

Although the words *debit* and *credit* are used to label the two sides of the ledger, any one of the four sections can be debited or credited by a particular transaction. An account on the debit side is increased by a debit entry and decreased by a credit entry; an account on the credit side is affected oppositely. Thus, a debit entry increases expenses but decreases income; a credit entry increases income but decreases expenses. Whenever a debit occurs in any one section, however, a credit must also occur either in that section or in one of the other three sections. Similarly, a credit in any section must be matched by a debit in that section or elsewhere. Thus the double-entry system, using debits and credits, ensures that an increase in expense (a debit entry), will correspond to either the use of an asset or an increase in a liability (both credit entries); an increase in income (a credit entry), will correspond to either the acquisition of an asset or a decrease in a liability (both debit entries).

To illustrate how this system works, consider a person buying something from a department store. To make this purchase, the person incurs an expense, which he can meet either by divesting himself of cash, which is an asset, or by acquiring a bill to be paid later, which is a liability. When he receives income at a later date, he can use it to increase his cash assets or to pay the bill, reducing his liability.

Now consider the situation from the standpoint of the department store. When the customer makes a purchase, the department store receives income. To offset this income, the store acquires an asset, such as cash or an accounts receivable to be replaced later by cash; alternatively the store might remove a liability, such as a credit owed to the customer. To incur an expense for the purchase of new

merchandise, the store either uses its cash assets or acquires the liability of a bill to be paid later.

Thus, the initial transaction–buying an item from a department store–appears differently to the two parties involved; but for both parties, incurring expense implies either removing an asset or acquiring a liability; and receiving income implies either acquiring an asset or removing a liability.

A further implication of the double-entry system concerns entries that do not affect the operating income or expense. In such situations, the double-entry system ensures that the acquisition of an asset will correspond to the use of another asset or an increase in a liability. An analogous opposite set of events will occur when a liability is decreased. For instance, in our previous example, suppose that the person obtained a loan from a bank to pay for his purchase. He would acquire cash–an asset–and increase his debts payable–a liability. The bank would decrease its cash–an asset–and acquire an account receivable–another asset. When the loan is repaid, the opposite set of events occurs.

In Yale's accounts, the initial entry of transactions reflects these relationships. A debit that increases expense is normally offset by a credit that increases a liability, such as accounts payable, or that decreases an asset, such as cash. A credit that increases income is normally offset by a debit that increases assets, such as cash or accounts receivable. Operating income or expenses are not affected by such events as the payment of an outstanding account payable or an addition to the principal of an Endowment Fund. The accounts payable (a liability) is decreased and cash (an asset) is correspondingly decreased in the first instance (when the account is paid). In the second instance, cash, stocks, real estate or some other asset is received, and a liability–the fund principal, which represents the outstanding obligation to fulfill the stated purpose of the fund–is increased. (To clarify the inclusion of fund principals on the credit or liability side of the Balance Sheets in university accounts, this portion of the ledger is commonly called *Funds and Liabilities* rather than simply *Liabilities.*)

Although double-entry bookkeeping ensures the validity of the original transaction, there is a further complication. The asset and liability accounts reflect the financial *status* of the University. The changes that each period's operations bring to financial status must be reflected in the asset and liability accounts. Fulfilling this requirement necessitates an entry with *both* halves affecting assets or liabilities. As discussed earlier, when income is received or when expense is incurred, the initial two-sided entry contains one side of this required pair. Another two-sided entry containing the other half must be made, thus resulting altogether in a four-sided entry.

In straightforward corporate accounting, this second entry is usually made only at the close of an operating period, such as a

fiscal or a calendar year. At that time, the net result of the period's operations—surplus or deficit—affects the balance sheet by means of an entry determined after examination of the size and sign of the result. For example, if income exceeds expenses, a debit entry must reduce the income so that it equals expenses. When this debit entry is created, the double-entry system of debits and credits requires that a corresponding credit be made to either assets or liabilities; that is, assets must decrease or liabilities increase. Since actual assets were recorded as received, the entry must increase a liability, such as the principal of a contingency reserve fund. If expenses exceed income, in the example just cited, the opposite situation pertains. In this case, the necessary increase to income might be offset by a decrease in the principal of the same contingency reserve.

The type of periodic adjustment just described is exactly what is done for the unrestricted General Appropriation accounts in Yale's accounting system. Such an arbitrary decision cannot be made, however, in the case of income and expense entries affecting restricted Sources of Funds. For such sources, the *specific* asset or liability account associated with each source must be affected by the additional two-sided entry. This associated asset or liability account is precisely defined and specified by the nature of the Source of Funds involved in the original entry. Therefore, the decision about which asset or liability account to affect cannot be made arbitrarily after the total net result is known.

Thus, for restricted Sources of Funds, the additional entry necessary for accounting requirements is precisely known at the time of the original income or expense entry, and could be recorded simultaneously, without waiting until the end of the year. Such a 'four-sided' arrangement for all income and expense entries of restricted Sources of Funds would satisfy the accounting necessity for all such transactions to affect the Balance Sheet. Furthermore, this four-sided procedure would maintain the record of the current status of each Source of Funds, thus solving the main dilemma, described earlier, in fulfilling the demands of fund accounting.

Four-sided entries, therefore, would simultaneously solve the problem created by combining fund accounting with the coding of income and expenses by type, while fulfilling the requirements of accounting practice; but such entries would generate an excessively burdensome amount of work—a work load so enormous that complete and detailed fund accounting is seldom done by large institutions.

This burden is easily removed, however, by using a computer to perform the required tasks. Since the Yale Account Number specifies not only the particular Source of Funds involved, but also the nature of the source, the Account Number for the original income or expense entry defines the associated asset or liability account. After examining the Account Number of each income or

expense entry, the computer can be used to generate the additional two sides whenever a four-sided entry is required. Such machine-generated or *secondary* entries permit proper fund accounting while maintaining detailed classification of income and expense by Type Code.

Were it not for this necessity of secondary transactions to deal with the specific demands of fund accounting, the computer would simply be an elegant luxury in the accounting system; the computer could save time and improve accuracy in accomplishing data storage, retrieval, and analysis, but the machine would not be an inherent, integral constituent of the system itself. The complex demands of fund accounting are what make the computer not a luxury, but a necessity in the new accounting procedures. The way the computer is programmed to accomplish these and other operating procedures is discussed in the next chapter.

II. COMPUTER PROCESSING

A. GENERAL DISCUSSION

Although a computer is needed for the secondary transactions just described, its use as an 'elegant luxury' is also important. During each month in the operation of this accounting system, the computer gathers, edits, and stores on magnetic tape the approximately 50,000 entries submitted by the Accounting Department. At the end of the month, after generating approximately 25,000 secondary entries, the computer 'updates' the Account Records. The updating process consists of adding the current month's transactions to the accumulations made before this month, and storing the results on a new magnetic tape. Several reports are printed during this monthly processing. The reports include: a 'picture' of the ledgers and a trial balance, in both summary and detail, for the Accounting Department; individual statements for both department chairmen and administrators of particular Sources of Funds; lists of over-expended accounts; a list of expiring grants; and a list of grant accounts needing review. Although the 'elegant luxury' is the speed and accuracy with which the computer performs these tasks, this contribution is as vital to the entire accounting process as the computer's ability to generate secondary transactions.

Because the data processing techniques and computer programs used in this system are not inherently new, they are only of technical interest and will not be further explained here. Since the secondary transaction program, however, is a new approach that also produces entries appearing on the user's statements, this procedure is of general interest. Therefore, the techniques employed for secondary transactions will be discussed in detail, together with an interpretation of the resulting entries and their effect on year-end processing.

B. SECONDARY TRANSACTIONS

As discussed earlier, Yale has two distinctly different kinds of sources: those for which Yale is proprietor of the money before an expenditure occurs and those for which payment is made only as a reimbursement for expenditures. These two different types of sources require two different types of generated secondary entries, each of which will be discussed separately. The logical rules will be discussed here and a more detailed explanation of the specific Account Numbers used in each entry will be found in Appendix VI.

1. *Proprietary Funds*

The first group of sources—those for which Yale owns the money before an expenditure occurs—includes Endowment Funds;

Student Loan Funds; Building and Expendable Funds; Reserve Funds; Designated Balances; Special Purpose Balances; and Gifts for Current Use. A common feature of all these types of sources is that they have an *unexpended balance* as the specific liability account to be affected by income and expense entries. For example, Endowment Funds have an 'Unexpended Income' account; Student Loan Funds, Building and Other Temporary Funds, and Reserve Funds all have an 'Unexpended Principal' account. Money received by these funds must increase the unexpended balance; money expended must decrease it. Therefore, one side of the entry is defined; expenses incurred must decrease the unexpended balance with a debit, and income received must increase the unexpended balance with a credit. The other offsetting half of the entry is not apparent, however, until a particular feature of university accounting is noted.

For these types of sources, a university's statement of operating income reports only the income *used*, regardless of the year's actual *receipts*. That is, even if income is received, it is not reported as operating income until it is used. The *receipt* of income and the *reporting* of operating income do not necessarily occur in the same fiscal year. When income is received, the total portrayed on the income side of the ledger must be artificially reduced until the income is used; when an expense is incurred, the artificial reduction can be removed, allowing the income now *used* to show as operating income. To record this artificial reduction and its removal, the offset to the unexpended balance entry must be an *income used* or *unused* account.

To illustrate this situation, consider one particular fund that receives cash income of $30,000 each year. When received, the income is credited on the ledger and cash is debited. Simultaneously, another $30,000 entry must be made to increase (credit) the unexpended balance and decrease (debit) the income by the amount unused. The balance sheets would now show $30,000 of assets (cash) and $30,000 of liabilities (Unexpended Income); the operating statement would show $30,000 of income *received* and the same amount of income *unused*, leaving no operating income *used*. Now suppose a $20,000 cash purchase is made. At the time of this purchase, the expense is debited and cash is credited. Simultaneously another $20,000 entry must be made to decrease (debit) the unexpended balance and increase (credit) the income used. The balance sheets would now show $10,000 ($30,000 less $20,000) of both assets and liabilities; as shown in Figure 5, the operating statement would portray $30,000 of income received less $10,000 (the $30,000 received less the $20,000 used) of income unused, leaving $20,000 of operating income used for the $20,000 of operating expense.

Therefore, when receipt of income is credited on the ledgers, a credit to an unexpended balance and an offsetting debit to an ac-

FIGURE 5

OPERATING STATEMENT

Expense		Income		
Purchases	$20,000	Received		$30,000
		Less:		
		Receipts	$30,000	
		Used (minus)	20,000–	
		Unused Income		10,000
Total Expenses	$20,000	Net Income Used		$20,000

FIGURE 6

OPERATING STATEMENT

Expense		Income	
Salaries	$40,000	Received	$30,000
		Prior Year's Income Used	10,000
Total Expenses	$40,000	Net Income Used	$40,000

count reflecting 'income received but not used' are generated. When an expense is recorded on the ledgers as a debit, the credit offsetting the debit to the unexpended balance must be to an account reflecting 'income used'.

In actual practice, these 'two' accounts—one for income received but not used and one for income used—are one account whose meaning is inferred from the net amount in it at the end of the year. This account is debited when income is received and credited when income is used. Therefore, a net debit implies that more income was received than was used; that is, a net debit represents 'income received but not used, or not availed of'. A net credit implies that more income was used than was received. Since this money is assumed to have been received before being spent, a net credit represents 'income received in prior years but used this year'.

This situation can be further illustrated by recalling the fund in our previous example. At the end of the first year, the operating statement showed $30,000 income received and $10,000 income received but not used, leaving this $10,000 in the unexpended balance account. Now suppose, in the second year, that another $30,000 of income is received, but two salaries of $20,000 each are paid. As shown in Figure 6, the operating statement at the end of the year would show $30,000 income received. The addition of the $10,000 income received in prior years but used this year would give a total of $40,000 of operating income to offset the $40,000 of expense.

Although necessary to the proper maintenance of the University's books of account, the various accounts of used or unused income would only be confusing to most readers. For this reason, these accounts are portrayed on all accounting reports but omitted from monthly statements sent to department chairmen and administrators of Sources of Funds. However, an understanding of these accounts is important for anyone desiring to understand the accounting system and to use it for analytic purposes.

2. *Reimbursed Funds*

The first type of secondary entries just described necessitated an entry that can be explained only in terms of accounting requirements. This arises because Yale both owns and spends the funds. In the second group of Sources of Funds—those that are received only as reimbursement of expenditures—the secondary entries are more straightforward because Yale does not own but only spends the money. (A reader familiar with these reimbursements may disagree with the preceding statement since cash is frequently received before expenditures occur. This cash is only an advance, however, and any unused portion must be returned, just as an individual must return the unspent portion of a travel advance.) In this second group of

Sources of Funds are all grants and contracts from both government and non-government sources.

Because all money owed to Yale is an 'Account Receivable', all expenses from these funds must increase this account. Since this asset account is increased by a debit, the offsetting entry must be a credit. The reimbursement is operating income, offsetting the operating expense incurred. By common practice, these amounts are recorded as income even though the money may not yet have been actually received. Therefore, the required offset to the debit to Accounts Receivable is a credit to an 'income from grants and contracts' account.

To illustrate, consider a grant making a cash purchase for $20,000. The expense is debited for $20,000 and cash is credited. Simultaneously, an entry is generated to increase (debit) the Accounts Receivable and increase (credit) the income received as reimbursement on grants.

The accounts representing the Account Receivable and the 'income from grants and contracts' appear on all accounting reports, but do not appear on individual statements to chairmen or administrators of Sources of Funds, for the same reasons as cited for omitting the 'income used or unused' accounts from such statements. The two types of secondary entries just described fulfill the requirements of both fund accounting and accounting practice. Additional entries are generated, however, to handle special situations and to perform two other burdensome tasks–calculation of allowed overhead and of fringe benefit recoveries.

3. *Other Entries*

a. Overhead

When a grant or contract is awarded, an allowance is usually provided for recovery of the University's overhead. The amount recovered is calculated as a percentage of all or selected types of expense. Examination and analysis of property, administrative and other selected expenses determines the allowable overhead. After review with the government, this amount is translated into a percentage of directly charged expenses for calculating the overhead for each grant or contract. This allowable percentage is entered onto the computer records for each applicable grant or contract expense account and is used by the secondary transaction program to calculate the appropriate amounts.

A problem arises, however, in determining the nature of the overhead entry. Because the actual expenses recovered through overhead occur in diverse accounts, the amount being calculated is income to Yale as reimbursement for indirect expenses. This same amount, however, is viewed as an expenditure by the grant administrator. Such a difference in viewpoint was seen in the previous exam-

ple of a purchase from a department store. The purchase was income to the store but an expense to the customer. Since this accounting system is intended primarily to maintain Yale's accounts, however, the entry must record the amount of overhead as a credit to income. Because this amount also represents money owed to Yale, the offset is a debit to an Accounts Receivable. Showing the amount to the grant holder as an expenditure is accomplished by displaying the credit *as if* it were a debit when the account is printed on his statement. Thus, Yale's accounting records properly contain an income credit, but the grant holder's *printed* statement shows an expense, which is proper from his viewpoint.

b. Fringe Benefits

Whenever salaries or wages are charged to grants, contracts or certain other funds, a corresponding charge for fringe benefits is also allowable. The amount of this charge is calculated as a percentage of the salary or wage charge. This percentage is also established after review with the government in a manner similar to that used for the overhead percentage.

In the case of fringe benefits, the initial charges are not in diverse accounts, as is true for the overhead, but are in a single Budgetary Unit-School-Source of Funds. Therefore, the generated entry is simply a credit to the original Budgetary Unit-School-Source of Funds and an equal debit to the Budgetary Unit-School-Source of Funds being charged for salaries or wages, both using a Type Code representing 'Fringe Benefit Charges'. The resulting expense charge to the specific fund then generates the appropriate secondary entries.

c. Gains and Losses on Investments

The secondary transaction program also handles the Realized Gains and Losses on Investments. The occurrence of such gains or losses is recorded in an income account for informational purposes. This amount, however, is not Operating Income. Unless it is specifically appropriated to income, the gains and losses must be transferred to the correct Endowment Fund principal account. The offset is to a 'transfer account' which is subsequently used to remove the corresponding gain and loss accounts from Operating Income at the end of the year before producing the Operating Statement.

The preceding description of secondary entries has dealt with only normal transactions; that is, with income being received or expenses incurred. Necessarily, however, any reversing or correcting entry will also generate the appropriate reversing or correcting secondary entries. For example, a salary charged to a grant would have generated Accounts Receivable, Reimbursement Income, Overhead and Fringe Benefit entries. If the salary charge were reversed for any

reason, all of the originally generated entries would be reversed as well.

This feature allows the user to be concerned only with the initial entries when correcting or transferring a previous entry. In order to realize the implications of procedural changes or to request analytic reports, however, the user must fully understand the secondary transactions. They are vital not only to the performance of complete and proper fund accounting but also to proper understanding of the information contained in the Account Records. For the reader desiring a more detailed knowledge, the specific Account Numbers involved and the exact rules used in the secondary transaction program have been presented in Appendix VI.

Another procedure in which the computer plays an important role is the preparation of the Balance Sheets and the Operating Statement. Because of the way the Account Number is constructed and used, logical rules can be devised for entries to assist in 'closing' and presenting the books. Closing a set of books consists of arranging them, in a pre-defined way, so that they are both suitable for presentation and comparable with previous years' records. All elements of operating income and expense must be properly recorded and must have properly affected the appropriate Balance Sheet accounts.

Although these closing procedures need not be understood in order to use the accounting reports on a day-to-day basis, such an understanding is needed to realize the implications of changes and the results of analysis. Therefore, the closing procedures and the preparation of financial statements will be discussed in the following section.

C. CLOSING TRANSACTIONS AND FINANCIAL STATEMENTS

1. *Closing Transactions*

When the fiscal year ends on June 30, several tasks are necessary to complete the process called 'closing the books'. First, the normal monthly processing for June must be done. As soon as these figures are available, year-end adjustments are determined and entered. These adjustments involve the revision or redistribution of amounts accumulated throughout the year. For example, the Alumni Fund conducts its business as a separate corporate entity; after June 30, when total receipts are known, the Alumni Fund gift to the University is made and is entered onto Yale's books.

After completion of all manual adjustments, the *pre-closing* entries are generated by a computer process. These pre-closing entries perform closing operations that are defined by the logic of the Account Number.

The first group of pre-closing entries deals with the types of Sources of Funds for which any associated income and expense are

not part of Yale's Operating Statements, although their associated assets and liabilities are included in Yale's Balance Sheets. This group of sources comprises: Agency Accounts, representing corporately separate but related organizations, such as the Alumni Fund, for which Yale acts as a financial agent; Deferred Charges, representing capital items which are to be recorded as expense in the future or written off against funds; and Unexpended Appropriations and Departmental Balances, representing items charged as expense in prior years although the actual expense had not yet occurred. In the pre-closing entries, the offset account used in the secondary transactions throughout the year is used to close to zero all income and expense accounts for these types of Sources of Funds. For example, if a particular Agency income account had accumulated a $5,000 credit during the year, the secondary transaction offset account would have accumulated a corresponding $5,000 debit. The generated pre-closing entry would debit the income account and credit the offset account for $5,000, thus closing both to zero.

Another group of pre-closing entries reduces the grant and contracts Account Receivable by applying Advances Received against them.

The third group of pre-closing entries handles unrestricted Gift and Endowment Fund Income Unexpended Balances. These unrestricted amounts are a portion of the income used to cover expenses charged to General Appropriation accounts. To reflect this usage properly, the pre-closing entries close the liability accounts to the appropriate income used or unused account.

When all these entries have been posted and the net result of the year's operations are known, only one other entry is necessary—the appropriation of the surplus or the covering of the deficit. After this entry is determined and made, the books are ready to be presented in the form of the financial statements.

2. *Financial Statements*

Preparation of financial statements—the Balance Sheets and the Operating Statement—requires only the combining of accounts into the desired categories. In an accounting system as large and complex as Yale's, items must be combined in order to present a concise and meaningful report to the public. At Yale, similar or related Type Codes are combined into each of the particular lines on both the Balance Sheets and the Operating Statement. The Operating Statement is presented both by School or a group of Schools, and both statements are presented for the University in total. This procedure, which would also be tedious and burdensome if done manually, can be delegated to the computer, because the desired combinations are built on the elements of the Account Number. By examining each Account Record with reference to the defined rules, the computer assigns each account to a particular line on the finan-

cial statements and produces a magnetic tape with the Account Numbers, the amounts, and the appropriate line assignment. This tape is then sorted into line number sequence and financial reports are written.

Although the computer processing described here completely maintains the accounting records, the records are not kept purely for accounting purposes. They also provide valuable data for both special analyses and regular cyclical reports. Many non-accounting data are maintained on the records to extend analytic capacity even further, to increase the utility of the accounting system, and to make reports more understandable. These additional data and their maintenance are discussed in the next chapter.

III. THE GENERAL LEDGER RECORDS

On a day-to-day basis most University personnel deal only with the entry of transactions and with the monthly statements that are the accounting system's starting and ending points. For these people, the preceding chapters should provide sufficient background information to understand the accounting data that they supply and receive. The personnel of the Treasurer's Office and any other administrators who desire analyses of data, however, are further concerned with the contents of the actual records. This chapter discusses the General Ledger file, and explains the meaning and usage of all codes or data. Although this information should be generally comprehensible to any interested reader, the details need not be mastered except by people who wish to make further use of the file. For such usage, the reader should learn the detailed structure of the records in the General Ledger file, and the meaning and implications of the data contained in these records.

The preceding chapters were devoted to the Account Numbers and their associated monetary amounts as the key data in the accounting system. Although the accounting system could function with only this information, additional data render the system both more intelligible and more useful. For example, although the verbal description of an Account Number could be determined by looking up the description of each of the constituent elements, printed reports are more meaningful to the reader when this verbal description is displayed. As another example, since the applicable overhead percentage is available in the data, the system can perform certain useful tasks which would otherwise be beyond its scope.

These additional data *must* be maintained with great care. Because the data are used in so many different ways, the severity of errors can easily be exaggerated. A simple error in typing or coding can appear as a glaring inconsistency; for example, if School 49 (School of Nursing) were mistakenly typed or coded instead of School 59 (Athletics, Physical Training and Recreation), the result could be an inconsistent Budgetary Unit-School combination, such as Football-School of Nursing. A different type of error, in logic rather than coding, may suggest mismanagement; for instance, if an unrestricted gift were mistakenly coded as restricted, the unexpended balance would not be used at year-end, thus directly affecting the surplus or deficit.

A. FILE STRUCTURE AND MAINTENANCE

The General Ledger file is a magnetic tape containing over 100,000 separate records. Until a printed listing is produced, the 'books' of

the University exist only on computer-readable tape. The records on this file are of three different classes, each containing different types of information. The arrangement of these records, as well as the data contained in each class of record, reflects the structure of the Account Number.

1. *File Structure*

Each Account Number (i.e., each combination of Budgetary Unit-School-Source of Funds-Type Code) has an *Account Record* on which are all accumulations of financial transactions as well as some descriptive data. Each combination of Budgetary Unit-School-Source of Funds has a *Source of Funds Descriptor Record* containing information descriptive of the Source of Funds. Each Budgetary Unit-School combination has a *Budgetary Unit Descriptor Record* which carries data to describe the Budgetary Unit-School. These three classes of records are arranged in their logical, as well as numerical, sequence. If one were to examine the records assembled for a Budgetary Unit-School, the first record encountered would be a Budgetary Unit Descriptor. As a subdivision, one would next find a set of records consisting of a Source of Funds Descriptor and all necessary subordinate Account Records. This set of records would be followed by a corresponding set of subsidiary records for each Source of Funds available to the Budgetary Unit-School. These sets of records would continue until all sources for this department were specified. Then this pattern would repeat, beginning with a Budgetary Unit Descriptor for the next Budgetary Unit-School. This arrangement is portrayed in Figure 7 with sample Account Number components.

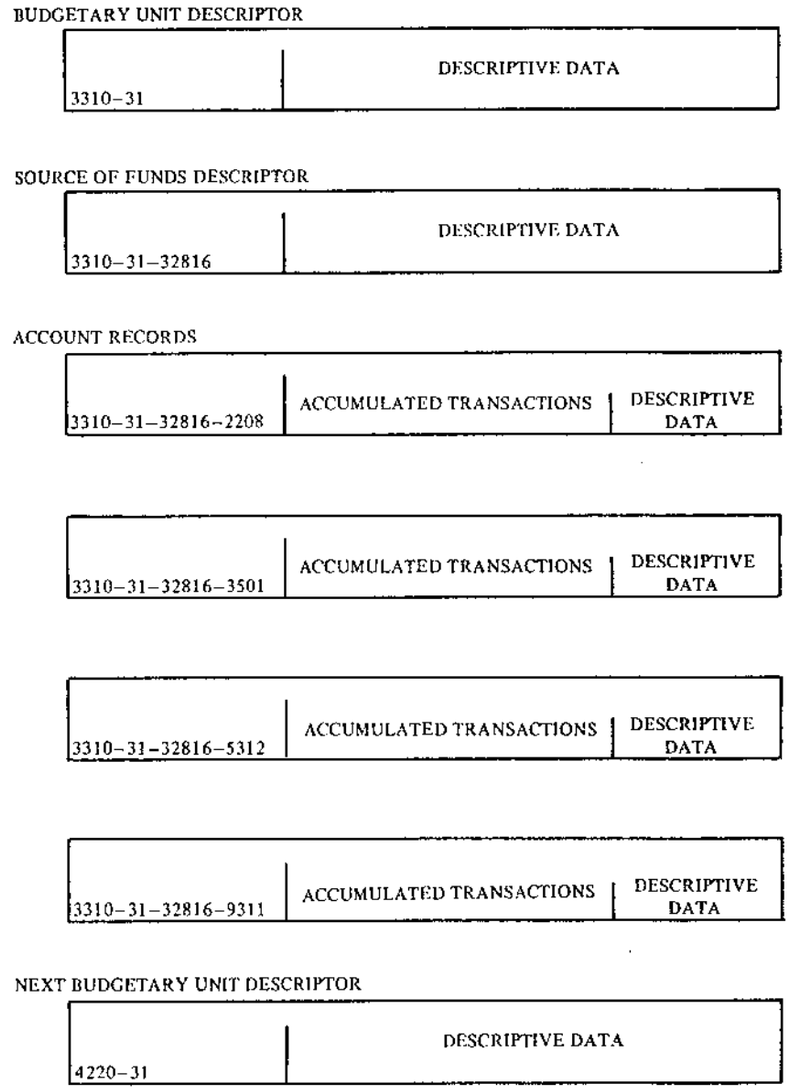
2. *Maintenance*

The data are maintained in one of two ways: financial transactions are accumulated via the 'update' process; and all other data are entered via the 'file maintenance' process.

Financial transactions come from operating departments, from the Treasurer's Office, or from other computer applications. Before updating, all the transactions for a month are: balanced to pre-determined totals of the money involved; stored on magnetic tape; edited to ensure that a record for the Account Number exists on the General Ledger file; and used to generate secondary transactions. When all these steps are completed, the Account Records are updated by the transactions. This computer process is the counter-part of the manual process of 'posting the books'.

Data for the file maintenance process is entered by Treasurer's Office personnel on a special form: the General Ledger Account Maintenance form. (See Appendix VII.) In this process, a new record may be added to the file, an existing record may be deleted, or the descriptive data on a record may be changed. To reflect the various classes of records, the form is divided into four parts: the first part is

FIGURE 7



used for entries relating to Budgetary Unit Descriptors; the second and third parts for Source of Funds Descriptors; and the fourth part for Account Records.

The sections that follow explain the meaning of the data entered via the file maintenance process as well as the details of the accumulations made by the update process.

B. BUDGETARY UNIT DESCRIPTORS (Part 1 of form in Appendix VII.)

The Budgetary Unit Descriptors contain the name of the Budgetary Unit, the name of the School, and the name and address to which the monthly statement should be sent. Also present in this record is a *statement class code.* This code controls whether or not a monthly statement is printed for a Budgetary Unit-School, and the code also indicates which accounts are to be selected for the statement if one is printed. Since a Budgetary Unit-School can represent entities other than an operating department, monthly statements are not always necessary. For example, each building is regarded as a separate Budgetary Unit-School, but no monthly statement is required, since the information is used only for analytic reports or by people having access to the complete records in the Accounting Department. The details of the various statement codes and their meaning are in Appendix VIII and some sample statements are in Appendix IX. The Budgetary Unit and School names must always be present for use on printed reports, but the statement recipient's name and address is required only when a monthly statement is to be prepared.

C. SOURCE OF FUNDS DESCRIPTORS

The two different types of sources discussed earlier—those for which Yale owns the funds before an expenditure occurs and those for which Yale is reimbursed after an expenditure occurs—require different information to be carried in the accounting records. For instance, grants and contracts have starting and ending dates, reference numbers and original awards—none of which are applicable to proprietary funds. Therefore, two separate types of records with different contents and formats are maintained for the two different types of sources. During computer processing, distinction between the two types of records is based on a code carried in both types of records. This code is set to cause interpretation of the record as a grant or contract whenever the second part of the Account Maintenance Form is used; the reverse occurs whenever the third part is used. (See sample form in Appendix VII.) Careful use of these two parts of the form is important because miscoding causes mishandling of data.

One item common to both types of records is the statement class, which determines what kind of monthly statement, if any, will be sent to the administrator of the fund. This statement class is the

same as that used in the Budgetary Unit Descriptors. (See Appendixes VIII and IX.) Since grants and contracts always use a statement class code of 3, this code is entered onto the record whenever the second part of the form is used. Erroneous statement class codes can therefore result from inappropriate use of the two parts.

Because all other data contained in Source of Funds Descriptors for grants and contracts is different from that in Descriptors for proprietary funds, the contents of each of these two types of records will be discussed separately.

1. *Grants and Contracts* (Part 2 of form in Appendix VII.)

Three categories of data are contained in a Source of Funds Descriptor for a grant or contract: data pertaining to the Principal Investigator; data specifying the particular grant or contract; and data describing the granting agency.

a. Principal Investigator

The name of the Principal Investigator, his Social Security number and the names of any co-investigators, as well as an address to which the monthly statement is sent, are carried on the record. The statement address may often be not that of the Principal Investigator but the address of a departmental business office where the statements are handled. The name should always be the Principal Investigator's, however, because this name is carried back into the Account Records as part of a short fund description. (See Section C, below.)

b. The Particular Grant or Contract

To identify the grant or contract, the reference number assigned by the granting agency is carried. If the grant is from the U.S. Public Health Service, their transaction number is also on the record. Many grants are technically not for a period longer than a year and each year of a continuing grant has a different reference number. Usually, however, the only difference in these reference numbers is in the last two digits of the number. In order to associate multiple years, these last two digits are entered in the last two positions of the grant reference number.

To specify the terms of the grant or contract, the starting and ending dates of the grant or contract, as well as the amount of the original award, are maintained. These data provide information necessary for correct and complete monthly statements as well as for analytic reports. For example, to determine the remaining balance of a grant, the expenses are subtracted from the original award. If the amount of the award is absent or erroneous, the remaining balance is wrong.

c. Granting Agency

Three codes describe the granting agency and the general pur-

pose of this particular grant—a *granting agency* code, an *agency sub-group* code, and an *agency source* code. (See Appendix X.) The *granting agency* code identifies the particular agency involved; for example, code **05** is the Atomic Energy Commission and **26** is the American Cancer Society. When the agency code is entered onto the record, a corresponding alphabetic abbreviation for the agency is also entered by the computer program. The *agency sub-group* code identifies the general purpose of this grant or contract; for example, code **1** specifies a Research Grant and code **4**, a Pre-Doctoral Training Grant. The *agency source* code, used only for Research Grants, describes the type of agency involved; for example, code **01** indicates 'Voluntary Health Agencies', and code **03** indicates 'Foundations'.

2. *Proprietary Funds* (Part 3 of the form in Appendix VII.)

Since the money belongs to Yale before expenditures occur, these funds require less information than Grants and Contracts. The amount available resides in an Account Record for the Unexpended Balance, no term dates apply, and no data are needed to describe the donor.

The data on the Source of Funds Descriptor for proprietary funds can also be divided into three categories: data specifying the statement recipient, data describing the particular Source of Funds, and data pertaining to restrictions on usage.

a. Statement Recipient

If the statement code causes a monthly statement to be printed, the recipient's name and address is on this record. Because statements for the Budgetary Unit-School show all data for each Source of Funds within the Budgetary Unit-School, a statement is unnecessary unless the Source of Funds is used by multiple Budgetary Unit-Schools or unless someone other than the Budgetary Unit Officer must receive information about this particular Source of Funds.

b. Description

Because the type of Source of Funds is specified by the blocking of the numbers, the name of the Source of Funds is the only description necessary. Both a complete and an abbreviated description of the Source of Funds are maintained on this record. The full description is used for identification on reports; the abbreviated description is carried back into the Account Records as part of the Account Number description. (See Section C below.)

c. Usage Restrictions

Two types of usage restrictions exist: restrictions of the purposes for which the Source of Funds may be expended; and restriction of the actual amount available to be spent.

For most types of Sources of Funds, the restrictions of purpose are already implied by the category of the source. For example, Student Loan funds must be used only to make loans to students. However, Gifts for Current Use and Endowment Funds may have many purposes. Therefore, a *purpose code* is carried to denote the general purpose for which the particular Source of Funds may be used. For example, purpose code **10** is 'unrestricted' and purpose code **30** is 'lectureship'. (See Appendix XI for a complete list of purpose codes.) Although often used for analytic reports, the purpose code is also employed in the generation of secondary transactions. The appropriate Unexpended Balance account for both Gifts and Endowment Funds depends on whether the Source of Funds is restricted or unrestricted, as indicated by the purpose code. (Purpose codes **10** or **11** are 'unrestricted', and all others are 'restricted'.) This role of purpose codes in the secondary transactions is another reason for accuracy when the codes are entered.

Usually a Source of Funds has available a fixed amount which is spent until fully depleted. Unless an additional donation is made, no annual replenishment occurs. In the case of Endowment Funds, the principal normally remains intact, and the annual income from investment of that principal is available for spending each year. But in some instances, the donor may specify that principal or realized capital gains from investments may also be spent if necessary. An *expendability* code is entered to reflect whether the amount available for expenditure is: income only; income and realized gains; or income, gains and principal. (See Appendix XII.)

Because the information is unnecessary, no Source of Funds Descriptors are established for General Appropriation accounts. Since no monthly statement other than the Budgetary Unit-School statement is written for General Appropriation, no statement code or statement recipient's name and address are required; no purpose or expendability codes apply; and the description is a constant which can be emitted by the computer programs when needed. Eliminating these Descriptors has the desirable effect of reducing the size of the file to be processed and maintained.

D. ACCOUNT RECORDS (Part 4 of the form in Appendix VII.)

The information on the Account Records also falls into three categories: accumulations of financial transactions; descriptions and codes carried back from the Source of Funds Descriptor; and additional conditions or descriptive data relating only to this specific account, rather than to the Source of Funds in general.

1. *Financial Accumulations*

The most important data on the Account Records are the

accumulations of the dollar amounts of financial transactions. These accumulations are affected by the monthly posting of transactions via the update process. Four accumulating fields are present: balance, year-to-date transactions, month-to-date transactions, and grant- or contract-to-date transactions. Balance in an asset or liability account represents the continuing amount held by the account, and is the primary accounting amount. Balance in an income or expense account represents the budget balance, and is an informational rather than an accounting amount. Year-to-date transactions is an accumulation of all transactions for the fiscal year; in income or expense accounts, which operate on a fiscal year basis, the year-to-date accumulation is the primary accounting amount. Month-to-date and grant- or contract-to-date transactions are accumulations of transactions for a month or for the term of a grant or contract, respectively. Grant- or contract-to-date transactions are accumulated only for grants and contracts for use in printing monthly statements and in analytic reports.

The update process adds each transaction to the year-to-date, month-to-date and, where appropriate, the grant- or contract-to-date accumulations. In an asset or liability account, the transaction is also added to the balance. In an income or expense account, the transaction is subtracted from the balance, thus reducing the remaining budget amount. The only exception to these rules is a budget transfer—a special transaction to alter the budget projection in an income or expense account—which is always added to the balance only.

2. *Descriptions and Codes from Source of Funds Descriptors*

From the Source of Funds Descriptor into all the Account Records associated with that Source of Funds, the computer carries back: the code distinguishing between grants or contracts and proprietary funds; the purpose and expendability codes where applicable; and the granting agency code, the agency sub-group code and agency source code where appropriate. An abbreviated fund description is also entered from the Source of Funds Descriptor. If the Source of Funds is a grant or contract, the description is the granting agency abbreviation and the first eight characters of the Principal Investigator's last name; otherwise, the description is the abbreviated version carried on the Descriptor. The Type Code description is also entered by the computer whenever a new Account Record is added to the file.

Since these data are entered from the Source of Funds Descriptor, the associated Account Records are changed whenever the Source of Funds Descriptor is changed. For General Appropriation accounts, which have no such Descriptors, the necessary data are generated by the program and entered on the Account Records.

3. *Additional Data*

To reflect non-recurring items on the annual budget, *budget drop-out amount* and *code* are carried on the Account Records. A *budget drop-out* amount is an amount which is approved for expenditure during one fiscal year but which must be 'dropped out' of the next year's allocation. The *drop-out* code specifies whether this amount represents *all, none,* or *part* of the annual budget allocated to this Account Number.

Another type of data on the Account Record is the applicable overhead percent for grants, contracts and gifts, as mentioned in the discussion of the secondary transactions. Since the rules for allowing overhead may have exceptions within an account, a *review code* is carried to indicate whether or not this account should be reviewed whenever it is active. For example, the granting agency may state that a 20% overhead rate is applicable to equipment with a purchase price below $500, but no overhead is allowed on equipment over $500. If it were anticipated that most purchases would be below $500, 20% would be entered as the overhead rate, and the code would specify that review was desired. Whenever a transaction was posted to this account, overhead would be calculated at 20%, and the account would be shown on a special report of accounts to be reviewed. If necessary, an adjustment to overhead could then be determined and entered with the next month's transactions.

To reflect the restrictions most commonly imposed by granting agencies, a *restriction code* is carried. This code, detailed in Appendix XIII, allows for such restrictions as 'restricted to budget amount' or 'no charges allowed in this account'. Any account violating the restriction will also be shown on the same report as those coded for review. Although originally designed for grants and contracts, the restriction codes may be used for any account.

* * *

The non-accounting data carried on the General Ledger file are just as vital to the operation of the accounting system as the properly designed and properly used Account Number. These descriptive data control the printing and accuracy of monthly statements, permit identification of information on reports, and provide for analyses other than those encompassed by the Account Number.

Like all the other information in this system, these descriptive data must be carefully maintained. The attention given to the careful maintenance of *all* the data—the logical structure contained in the Account Number, the monetary amounts submitted as financial transactions, and the descriptive data entered via file maintenance—is a vital necessity for the accounting system to maintain its clarity and value at all levels of operation, ranging from ordinary bookkeeping of daily events to analytic planning for the future.

Appendix I
Budgetary Units

Budgetary Units are sometimes contemplated in analytic reporting, although not as often as Schools. The blocks of Budgetary Units are particularly useful as a guide in finding the number of a particular Unit or assigning a new number.

0000–0499	Special Purpose
0500–0799	Investment Properties–New Haven
0800–1249	Investment Properties–Outside New Haven
1250–1849	Development Properties
1850–3899	Educational & Administrative Properties
3900–5899	Dormitories & Residential Colleges
5900–6699	Athletics, Physical Training & Recreation
6700–7899	University Departments–General & Administrative
7900–8649	Instructional Departments–Faculty of Arts & Sciences
8650–8949	Other Departments–Faculty of Arts & Sciences
8950–9449	Medical School Departments
9450–9799	Other Schools and Departments
9800–9999	Other Departments & Special Functions

Appendix II
Schools

Each major School is represented by the first digit of the numbers. Since so few School numbers are assigned, all of the existing numbers within each major School are presented here.

0 *Not Yale University*
- 05 – Agency Accounts

2 *University Administrative Services*
- 20 – University General
- 25 – University Administration–President
- 26 – University Administration–Treasurer
- 27 – University Administration–Secretary
- 28 – University Administration–Development

3 *Faculty of Arts and Sciences*
- 31 – Faculty of Arts and Sciences
- 32 – Yale College
- 35 – Graduate School
- 38 – Institute of Social Sciences

4 *Professional Schools*
- 40 – Divinity School
- 41 – School of Medicine
- 42 – Law School
- 43 – School of Art and Architecture
- 45 – School of Drama
- 47 – School of Music
- 48 – School of Forestry
- 49 – School of Nursing

5 *Academic Services*
- 50 – University Library
- 52 – University Health Services
- 53 – University Academic Services
- 59 – Athletics, Physical Training and Recreation

6 *Operating Services*
- 60 – Division of Grounds Maintenance
- 61 – University Dining Halls
- 63 – Division of Engineering & New Construction
- 64 – Division of Physical Plant
- 65 – Division of Housekeeping Services
- 67 – Division of Heating & Lighting Service
- 68 – Operations Services

7 *Auxiliary Operations*
- 75 – Yale University Press

Appendix III
Sources of Funds

Many detailed sub-divisions of numbers within each type of source were originally defined. Since these sub-divisions are used for the initial assignment of new numbers but not for analytic purposes, they are indicated in the following list only where they are useful for analytic purposes. Blank lines have been left to indicate unassigned blocks of numbers.

GENERAL APPROPRIATION		00001
AGENCY TRANSFER CONTROL		00005
ENDOWMENT FUNDS		00100–29999
STUDENT LOAN FUNDS		30000–31999
NDEA	30000–30049	
Short Term	30050–30499	
Long Term	30500–31499	
Health Professions	31500–31999	
BUILDING & OTHER TEMPORARY FUNDS		32000–33999
RESERVE FUNDS		34000–34999
Replacements & Alterations	34000–34399	
Contingency	34400–34499	
Other	34500–34999	
GRANTS & CONTRACTS		40000–57999
Atomic Energy Commission	40000–40999	
Air Force	41000–41999	
Navy	42000–42999	
Army	43000–43499	
Health, Education & Welfare	43500–43999	
NASA	44000–44499	
Misc. U.S. Gov't.	44500–44999	
NSF	45000–47249	
USPHS	47250–54999	
Other Non-U.S. Gov't.	55000–57999	
ACCOUNTS RECEIVABLE		58000–58499
ADVANCES RECEIVABLE		58500–58999
NOTES RECEIVABLE		59500–59999
DEFERRED CHARGES		60000–62999
GIFTS FOR CURRENT USE		65000–74999
UNEXPENDED APPROPRIATIONS & DEPARTMENTAL BALANCES		75000–76814
DESIGNATED BALANCES		76815–77999
AGENCY DEPOSITS		80000–83999
ACCOUNTS PAYABLE		84000–84399
NOTES PAYABLE		84400–84499
EXPENSE RECOVERIES (Secondary Transactions)		85000–85050
WORKING CASH FUNDS		86000–86999
SPECIAL USE ACCOUNTS		87000–87999

Appendix IV
Type Codes – Ledger Section

The Type Codes are blocked to denote the ledger section to which they refer.

0000–1999	Assets
2000–3499	Liabilities
3500–5299	Income
5300–9999	Expense

Appendix V
Type Codes – Major Types

The major type is the first two digits of the four-digit Type Code. Certain numbers are not used, and are omitted from the listing here.

A.	Assets	00 – 19
	01	Cash
	02	Endowment Fund Investments
	03	Student Loan Fund Investments
	04	Building and Other Temporary Fund Investments
	05	Reserve Fund Investments
	06	Current Fund Investments
	09	Accounts Receivable
	10	Notes Receivable
	11	Income Receivable
	12	Inventories
	13	Prepaid Insurance
	14	Deferred Charges
B.	Liabilities	20 – 34
	20	Endowment Fund Principal
	21	Student Loan Fund Principal
	22	Building and Other Temporary Fund Principal
	23	Reserve Fund Principal
	24	Unexpended Endowment Fund Income
	25	Unexpended Gifts
	27	Unexpended Appropriations & Departmental Balances
	28	Agency Deposits
	29	Accounts Payable
	30	Bonds, Mortgages, Notes & Loans Payable
	31	Advance Payments Received
C.	Income	35 – 52
	35	Dividends on Stocks
	36	Interest
	37	Royalties
	38	Rentals
	39	Gains and Losses on Investments
	40	Income Transfer
	41	Term Bills and Fees
	42	Gifts
	43	Grants and Contracts Reimbursement
	45	Overhead
	46	Miscellaneous
	47	Athletic Revenues
	48	Yale University Press
	49	Income Appropriations
	50	Income Transfers

D. Expense 53 – 99

53	Salaries
54	Wages
56	Alterations at Departmental Request
58	Life and Other Income Agreements
59	Purchase and Care of Collections
60	Athletic and Other Public Events
61	Audio Visual
62	Auditing, Legal & Other Professional Fees
63	Autos and Trucks
65	Books and Bookbinding
68	Food and Food Services
69	Dues and Subscriptions
70	Employee Benefits
71	Entertainment
72	Equipment Purchases
73	Fellowships, Scholarships & Prizes
74	Insurance
75	Interest
77	Light, Heat and Water
78	Maintenance, Repairs and Construction
80	Office Copying Equipment
81	Office Supplies and Expenses
82	Outside Services Purchased
84	Publications
85	Public Services, Lectures & Concerts
86	Rentals
87	Retiring Allowances and Pensions
88	College Master's Activities
89	Student Service
90	Supplies
92	Telephone and Telegraph
93	Traveling
94	Sundry Expense
95	Yale University Press
96	Interdepartmental Transfers
98	Expense Recoveries

Appendix VI
Secondary Transactions

The rules for generation of secondary transactions are grouped here according to the type of Source of Funds as denoted by the blocking of the numbers. For each group of transactions, the rules are stated, a sample original entry is shown, and the resulting secondary entries are illustrated. Since a transaction follows the same path regardless of whether it is debit or credit, the sign for each of the generated entries is noted as either the 'same' or the 'reverse'. Unless otherwise noted, this sign is determined with respect to the original entry. The following symbols have been used in denoting Account Numbers:

BBBB	Budgetary Unit of the original entry
SS	School of the original entry
FFFFF	Source of Funds of the original entry
AAAAA	A Source of Funds in the range 85000 to 85050 assigned as a control by granting agency or by type of fund source.

I. Endowment Funds – Sources of Funds 00100–29999

A. *Income and Expense*

All income Type Codes from 35xx to 49xx (except 39xx, 40xx and 45xx) as well as all expense types will generate the following entries when associated with the above Sources of Funds.

Sample original entry: 8030–31–15638–5301

Generated entries:

1. BBBB–SS–FFFFF–2401 or 2402 same sign
   Unexpended Income
2. BBBB–SS–AAAAA or FFFFF–4001 or 4002 reverse sign
   Income Transfer

AAAAA is used for expenses

FFFFF is used for income

2401 or 2402 and 4001 or 4002 are determined by whether the fund is restricted or unrestricted as defined by the fund purpose code. If purpose code is 10 or 11 (Unrestricted), 2402 and 4002 are used; otherwise 2401 and 4001 are used.

B. *Gains and Losses*

1. Pooled Funds

   This entry is generated when Type Code 3901 is associated with Source of Funds 00001.

   Sample original entry: 6700–20–00001–3901

   Generated entries:

   1. BBBB–SS–00001–5007 reverse sign
      Gains and Loss Transfer
   2. BBBB–SS–29998–2001 same sign
      Pooled Gains Principal

2. Specially Invested Funds

   This entry is generated when Type Code 3902 is associated with the Sources of Funds above.

Sample original entry: 6700–20–16382–3902
Generated entries:
1. BBBB–SS–FFFFF–5007 reverse sign
   Gains and Loss Transfer
2. BBBB–SS–FFFFF–2001 same sign
   Fund Principal

II. Student Loan, Building and Other Temporary, and Reserve Funds – Source of Funds 30000–34999

All entries outlined above for Endowment Funds apply to Student Loan, Building and Other Temporary, and Reserve Fund Sources of Funds as well. The Type Codes would be altered as follows:

4001 or 4002 becomes 4005, 4006, or 4007 and
2401, 2402, or 2001 becomes 21xx, 22xx, or 23xx

where the exact Type Code used is determined by the Source of Funds block as follows:

30000–30049 uses 4005 and 2101	Student Loan Funds
30050–30499 uses 4005 and 2102	
30500–31499 uses 4005 and 2103	
31500–31999 uses 4005 and 2104	
32000–33999 uses 4006 and 2201	B & E Funds
34000–34399 uses 4007 and 2301	Reserve Funds
34400–34499 uses 4007 and 2302	
34500–34999 uses 4007 and 2303	

III. Grants and Contracts – Sources of Funds 40000–57999

A. *Expenses*

This entry is generated when any expense Type Code is associated with the Sources of Funds above.

Sample original entry: 9050–41–47932–5402
Generated entries:
1. 6700–20–FFFFF–09xx same sign
   Accounts Receivable
2. BBBB–SS–AAAAA–43xx reverse sign
   Grants and Contracts Reimbursement

B. *Overhead Calculated on Expenses*

Based on an overhead percent carried in each Account Record, the Overhead Income credit is calculated on expenditures as they occur.

Sample original entry: 9050–41–47392–5402
Calculated overhead income:
9050–41–47932–45xx with the reverse sign of the original entry
From the Overhead Income entry we generate the following:
1. 6700–20–FFFFF–09xx reverse sign with respect to overhead income entry
   Accounts Receivable

C. *Correction of Calculated Overhead Income*

A correction to Overhead Income is made by a transfer entry to the Overhead Income Account with an offset to Accounts Receivable.

The association of a 45xx type code with the Sources of Funds above will generate no entry.

D. *Fringe Benefit Recovery Calculation*

Fringe Benefit Recoveries are calculated by taking a percentage of all entries to 53xx and 54xx accounts (salaries and wages) with Sources of Funds above.

Sample original entry: 9050–41–47932–5402
Calculated fringe benefit recovery:
1. 9050–41–47932–7010 same sign
   Fringe Benefit Assessment
2. 6700–20–00001–7010 reverse sign
   Fringe Benefit Assessment

The first of these two entries then generates the entries appropriate for an expense transaction.

In all the above entries, 'xx' and AAAAA are determined by

40000–44999 use 0902, 4303, 4503 and 85013	U.S. Gov't other
45000–47249 use 0903, 4301, 4501 and 85011	N.S.F.
47250–54999 use 0904, 4302, 4502 and 85012	P.H.S.
55000–57999 use 0906, 4304, 4506 and 85014	Non-U.S. Gov't.

IV. Deferred Charges – Sources of Funds 60000–62999

The association of *any* income or expense Type Code with the Sources of Funds above will cause the following entries to be generated.

A. *Expenses*
Sample original entry: 8300–31–61835–5301
Generated entries:
1. BBBB–SS–AAAAA–9809 reverse sign
   Expense Recoveries
2. BBBB–SS–FFFFF–1401 same sign
   Deferred Charges

B. *Income*
Sample original entry: 8300–31–61835–3703
Generated entries:
1. BBBB–SS–FFFFF–5006 reverse sign
   Income Transfers
2. BBBB–SS–FFFFF–1401 same sign
   Deferred Charges

V. Gifts for Current Use – Sources of Funds 65000–74999

A. All income Type Codes from 35xx through 49xx (except 40xx and 45xx) as well as all expense types will generate the following entries when associated with the Sources of Funds above.

Sample original entry: 8030–31–66832–5301
Generated entries:
1. BBBB–SS–FFFFF–2501 or 2502 same sign
   Unexpended Gifts
2. BBBB–SS–AAAAA or FFFFF–5001 or 5002 reverse sign
   Income Transfer

AAAAA is used for expenses.
FFFFF is used for income.

B. *Overhead Calculation*

If there is an overhead percent in an expense account associated with the Sources of Funds above, overhead will be calculated and an entry generated as follows:

1. BBBB–SS–FFFFF–4504 reverse sign (with respect to expense)
   Overhead Income
2. BBBB–SS–FFFFF–2501 or 2502 same sign
   Unexpended Gift

2501 or 2502 and 5001 or 5002 is determined by whether the gift is restricted or unrestricted as defined by the purpose code. 2502 and 5002 are used if unrestricted (purpose code is 10 or 11); otherwise 2501 and 5001 are used.

VI. Unexpended Appropriation and Departmental Balances – Sources of Funds 75000–76814

The association of *any* income or expense Type Code with the Sources of Funds above will cause the following entries to be generated.

A. *Income*

Sample original entry: 8300–31–75325–4602
Generated entries:

1. BBBB–SS–FFFFF–5008 reverse sign
   Income Transfers
2. BBBB–SS–FFFFF–27xx same sign
   Unexpended Balances

'xx' is determined by the sub-block of Sources of Funds as follows:

75000–75999 2701
76000–76199 2702
76200–76699 2703
76700 2704
76701–76814 2705

B. *Expenses*

Sample original entry: 8300–31–75325–5301
Generated entries:

1. BBBB–SS–85018–9810 reverse sign
   Expense Recoveries
2. BBBB–SS–FFFFF–27xx same sign
   Unexpended Balance

'xx' is determined as noted above for income.

VII. Designated Balances – Sources of Funds 76815–77999

All income Type Codes (except 45xx and 49xx) as well as all expense types will generate the following entries when associated with the Sources of Funds above.

A. *Income and Expense*

Sample original entry: 8030–31–76910–4602
Generated entries:

1. BBBB–SS–FFFFF–4906 reverse sign
   Income Appropriations
2. BBBB–SS–FFFFF–2706 same sign
   Unexpended Balances

VIII. Agency Accounts – Sources of Funds 80000–83999

All income or expense Type Codes with the Sources of Funds above will cause the following entries to be generated.

A. *Expense*

Sample original entry: 0005–05–80505–5301
Generated entries:

1. 00005–05–FFFFF–2801 same sign
   Agency Deposits
2. 0005–05–00005–9808 reverse sign
   Agency Disbursement Offset

B. *Income*

Sample original entry: 0005–05–80505–4608
Generated entries:

1. 0005–05–FFFFF–2801 same sign
   Agency Deposits
2. 0005–05–00005–5090 reverse sign
   Agency Receipts Offset

IX. Special Use Accounts – Sources of Funds 87000–87999

All expense Type Codes and income Type Codes other than 45xx or 49xx will cause the following entry to be generated when associated with the Sources of Funds above.

A. *Income and Expense*

Sample original entry: 8300–31–87121–4602
Generated entries:

1. BBBB–SS–FFFFF–4908 reverse sign
   Income Appropriations
2. BBBB–SS–FFFFF–2708 same sign
   Unexpended Balances

Appendix VII
General Ledger Account Maintenance Form

General Ledger Account Maintenance

№ 10204

- [ ] 1. ADDITION
- [ ] 2. CHANGE
- [ ] 3. DELETION

OF DATA RELATING TO ....

- [ ] 1. Budgetary Unit/School
- [ ] 2. Budg. Unit/School—Grant or Contract
- [ ] 3. Budg. Unit/School—Fund or Agency
- [ ] 4. Specific Account(s)

ORIGINATOR .... DATE

ACCOUNTING DEPT. .... DATE

1. Budgetary Unit/School:

NUMBER ☐☐☐☐☐☐ Budgetary Unit Name ....

School Name 1

Statement Data: Recipient's Last Name .... Initials ☐☐

Yale Address .... Statement Class 2

2. Budgetary Unit/School—Grant or Contract:

NUMBER ☐☐☐☐☐☐☐☐☐☐☐ Principal Investigator's Last Name .... Initials ☐☐

Yale Address .... Soc. Sec. # .... Co-Investigators 1

Grant/Contract Reference Number .... ☐☐ ◄ If Last Two Digits of Reference Number Reflect Year of a Continuing Grant, Place Them in the Blocks

Period: From Mo. Day Yr. To Mo. Day Yr. Original Award $ ☐☐☐☐☐☐☐☐☐☐

Granting Agency Data: Agency Code ☐☐ Sub-Group ☐ Source ☐☐ U.S.P.H.S. Transaction No. 2

3. Budgetary Unit/School—Fund or Agency:

NUMBER ☐☐☐☐☐☐☐☐☐☐☐ Full Fund Name ....

Abbreviated Fund Name .... Purpose Code ☐☐ Expendability ☐ 1

Statement Data: Recipient's Last Name .... Initials ☐☐

Yale Address .... Statement Class 2

4. Specific Account(s)

ACCOUNT NUMBER		BUDGET DROP OUT		GRANT OR CONTRACT Overhead		
			AMOUNT		Per Cent	Restriction Code

T.O. 11

1. Accounting Dept. Copy
2. Originator Copy

Appendix VIII
Statement Class Codes

The statement class controls determination of whether or not a monthly statement is to be printed, and if so, what accounts are shown on it.

CODE	*MEANING*
1	Statement will show travel advances receivable, unexpended balance accounts, income accounts active in the current month, and all expense accounts with year-to-date amounts or an outstanding budget balance.
2	Statement will show travel advances receivable, unexpended balance accounts with amounts outstanding or activity this year, and all income or expense accounts with year-to-date amounts or an outstanding budget balance.
3	Statement will show overhead income account and all expense accounts with contract-to-date charges. (Used for all grants and contracts.)
4	No statement written.
5	Statement will show all accounts with year-to-date amounts or outstanding balances.
6	Statement will show all expense accounts with year-to-date activity.

Appendix IX
Sample Monthly Statements

Three different sample statements are contained in this appendix: a *Statement of Accounts*, a *Source Statement* for a Proprietary Fund, and a *Source Statement* for a Grant or Contract.

The Statement of Accounts shows the accounts associated with a Budgetary Unit-School. The manner of presentation for proprietary funds on these statements is analogous to their presentation on the Source Statements; grants and contracts are represented on the Statement of Accounts by a one-line summary that shows grant-to-date or contract-to-date expenditures and the remaining balance. Since these other sources are shown elsewhere or are self-explanatory, only General Appropriation accounts are used in the sample Statement of Accounts.

Both types of Source Statements show the accounts associated with a Source of Funds, regardless of the Budgetary Unit-School(s) in which the Source of Funds is used. Since statements for proprietary funds differ in format from those for grants and contracts, a sample of each type is included.

Because all three sample statements show only selected illustrative portions of the entire statement, the *total* lines may not reconcile to the details of the printed data. A minus sign (−) to the right of the dollar figures indicates a *credit* amount. The circled numbers on the sample statements refer to the numbers on the accompanying explanation.

Statement of Accounts

The sample Statement of Accounts includes four separate accounts, as indicated by the complete Account Numbers printed in the leftmost column. In addition, the sample shows the total for a Major Type Code as well as the total General Appropriation, which includes accounts not shown on this sample.

The paragraph numbers in the explanation below refer to the circled numbers on the right of the sample Statement of Accounts.

1. Balance Brought Forward

The two amounts printed on this line show the status of the account at the beginning of the month. The figure in the column headed 'Net Transactions' represents the total of all transactions from the beginning of the fiscal year through the end of the preceding month. The figure in the column headed 'Balance' represents the remaining budget allocation available at the beginning of the month.

Below this line, the transactions that occurred this month are printed individually. In an expense account, as illustrated here, or in an income account, transactions appear in both the 'Net Transactions' and the 'Balance' columns, and add algebraically to the total in each column. A debit transaction appears positive (with no sign) in the 'Net Transaction' column, and negative (with minus sign) in the 'Balance' column. A credit transaction has the opposite arrangement of signs.

2. Account Total

This line shows the status of the account at the end of the month in a manner analogous to line one for the beginning of the month. The figures in line two will appear as 'Balance Brought Forward' on the next month's statement.

3. Major Type Code Total

This line shows the status at the end of the month of all accounts for this Major Type Code. (In this illustration, the Major Type Code is 81, *Office Supplies and Expenses.*) All the Account Total lines for accounts in this Major Type are added together to derive this figure.

4. Total General Appropriation

This group of lines shows the year-to-date status as of the end of the month for all General Appropriation accounts. Each of the lines shown represents a Budget Control Block as defined by the Treasurer.

OFFICE OF FINANCIAL REPORTING
YALE UNIVERSITY
STATEMENT OF ACCOUNTS
UNIVERSITY ADMIN - TREASURER
AUGUST 31, 1968
PAGE 2
H C JOHNSTONE
OFFICE OF FINANCIAL REPORT
465 COLLEGE ST
GENERAL APPROPRIATION
50.00 BAL BROUGHT FORWARD
967.87 BAL BROUGHT FORWARD
500.00 BAL BROUGHT FORWARD
2,000.00 Y-T-D EQUIP PURCH

Source Statements

The content and format of Source Statements are similar to those just described for Statements of Accounts. For each Account Number, the displayed material shows the status at the beginning of the month, any transactions during the month, and the status at the end of the month. Totals of Major Type Codes and of the Source of Funds are also shown. Unlike the Statements of Accounts, however, transactions on the Source Statements use two columns: one for transactions this month and one for totals of the transactions of the period-to-date.

The main difference between a Statement of Accounts and a Source Statement is the treatment of the remaining balance. For the General Appropriation accounts, as illustrated on the Statement of Accounts, the allowable expenditures are limited by the allocated budget. On Source Statements, the allowable expenditures are limited, for proprietary funds, by the *Unexpended Balance*, and for grants and contracts, by the *Original Award* from the granting agency.

The arrangements of information are further explained in the accompanying illustrations of Source Statements. One illustration deals with proprietary funds, and the other, with grants and contracts. The paragraph numbers in the explanations refer to the circled numbers on the corresponding illustrative Source Statement.

Source Statements: Proprietary Funds

In this illustration, the Source of Funds number is 69910, the Frank Steven Memorial Fund. The only Budgetary Unit-School number included in the sample is 9040–41. If the Source of Funds were used in more than one Budgetary Unit-School, information comparable to all but the last line would be displayed for each Budgetary Unit-School. The last line is a total for the entire Source of Funds, regardless of the number of Budgetary Unit-Schools that use it, and therefore appears only once, at the end of the statement.

Three kinds of accounts are illustrated in this sample statement: a liability account, an income account, and an expense account. The liability account uses Type Code 2501–'Unexpended Gifts and Grants–Restricted'. As discussed in the text, the balance in this account represents the amount available to be spent from the Source of Funds. The income account uses Type Code 4201–'Restricted Gifts' and the expense account uses Type Code 5301–'Salaries -Faculty'.

For the income and expense accounts, two kinds of totals are shown: totals of the Major Type Codes–42 and 53, respectively; and totals of income and expense for each Budgetary Unit-School. Since the arrangement of the data for income and expense accounts and for Major Type Code totals is analogous to that described for Statements of Account, only the presentation of the liability account will be further discussed here.

1. Unexpended Balance Account

The first three lines of data are all associated with the Unexpended Balance account. The first line gives the status at the beginning of the month and the next two are transactions. In this example, the two transactions are the secondary transactions generated from the income and expense entries, as discussed in the text.

The balance in this account represents the amount remaining to be spent from the Source of Funds. Because a liability account is increased by a credit transaction, a minus sign to the right of an amount indicates money coming into the account, if a *transaction* line; or a remaining balance to be spent, if a *total* line. Similarly, no sign to the right of an amount indicates either money being spent or an overdraft. Transactions add algebraically to *transactions year-to-date* as well as to *balance*. No total is shown for the Unexpended Balance account until the end of the data for the Budgetary Unit-School.

2. Budgetary Unit-School Total

At the end of the accounts for each Budgetary Unit-School within which the Source of Funds is used, total expenses and the remaining unexpended balance are shown.

3. Source of Funds Total

The total year-to-date expenses and the unexpended balance for the entire Source of Funds are printed. If the Source of Funds were used in more than one Budgetary Unit-School, this total would combine all of them. The minus sign, indicating a credit, implies that money remains to be spent. No sign, indicating a debit, would imply that the Source of Funds had been overspent.

FRANK STEVEN MEMORIAL FUND

GIFT

YALE UNIVERSITY

SOURCE STATEMENT

R J HAMILTON
497 LEPH

PAGE 1

AUGUST 31, 1968

[illegible]	DESCRIPTION	[illegible]	[illegible]	[illegible]	BALANCE	[illegible]	[illegible]	[illegible]
9040-41-69910-2501	UNEX GCGR-REST	BALANCE BROUGHT FORWARD		875.00	20,000.76-			
	NO EXPENSE-DETAIL BELOW		875.00		[illegible]	(1)	08-31-68	T60/02
	NO INCOME-DETAIL BELOW		24,935.00-		[illegible]		[illegible]	T60/02
9040-41-69910-4201	RESTR GIFTS	BALANCE BROUGHT FORWARD						
	MED SCH DEF [illegible]		24,935.00-				[illegible]	[illegible]
		TOTAL	24,935.00-	24,935.00-				
9040-41-69910-42**	TOTAL GIFTS		24,935.00-	24,935.00-				
9040-41-69910-****	TOTAL 9040-41 INCOME		24,935.00-	24,935.00-				
9040-41-69910-5301	SL-FACULTY	BALANCE BROUGHT FORWARD		875.00				
	SALARIES		875.00				08-31-68	T16-02
		TOTAL	875.00	1,750.00				
9040-41-69910-53**	TOTAL SALARIES		875.00	1,750.00				
9040-41-69910-****	TOTAL 9040-41 EXPENSES		875.00	1,750.00				
	TOTAL 9040-41 UNEXPENDED BAL				[illegible]	(2)		
****-**-69910-****	TOTAL F STEV MEM FD	YEAR-TO-DATE EXPENSES		1,750.00				
		UNEXPENDED BALANCE			[illegible]	(3)		

Source Statements: Grants and Contracts

In this example, the Source of Funds number is 49942, Public Health Service number 5–R01–CH–00068 06. The only Budgetary Unit-School number shown on the sample statement is 9040–41. If the Source of Funds were utilized by more than one Budgetary Unit-School, information comparable to all but the last three lines in the illustration would be displayed for each Budgetary Unit-School. The last set of three lines is a total for the entire Source of Funds, regardless of the number of Budgetary Unit-Schools that use it, and therefore appears only at the end of the statement.

This example includes the 'overhead' account (Type Code 4502), two salary accounts (Type Codes 5301 and 5303), the fringe benefit assessment account (Type Code 7010), and the travel account (Type Code 9301). The corresponding Major Type Code totals are also shown. The arrangement of data for these accounts is analogous to that discussed for Statements of Accounts. On Source Statements, however, two features differ: a 'Balance' is not shown for each account, with one exception which will be noted in paragraph 2 below; and the transactions are accumulated over the entire term of the grant or contract, rather than just a year.

The method of arriving at the remaining balance for a grant or contract differs from that for a proprietary fund. The lines on the sample statement that are involved in this calculation are discussed in paragraphs 1 and 3 below.

1. Original Award

Above the column headed 'Balance' is a figure labeled *Original Award.* This represents the total amount of the grant or contract. This amount less expenditures gives the balance remaining to be spent.

2. Restricted Account

A granting agency may limit the amount that may be spent for a certain category of expense. When this occurs, a restriction code is entered on the Account Record, as discussed in the text, and the limit of expenditures is entered as a budget balance. Whenever such a restriction code is present, the balance in the account is presented in a manner analogous to the presentation of budget amounts illustrated in the sample Statement of Accounts.

3. Source of Funds Total

The Source of Funds *total* comprises three lines: contract-to-date expenditures, remaining balance, and an indication of when the grant or contract expires.

Contract-to-date expenditures is the total of all the expenses incurred against the grant or contract since its inception. *Remaining balance* is the *Original Award* less the *Contract-to-date expenditures.* The termination date of the grant or contract is shown to indicate how much longer the remaining balance must last.

I S PAULMAN

12-01-67 TO 11-30-68

YALE UNIVERSITY

SOURCE STATEMENT

PHS 5-R01-CH-00068 06

I S PAULMAN
238 SHM

PAGE 1

PERIOD ENDED AUGUST 31, 1968

ORIGINAL AWARD 25,870.00 (1)

University Account Number	Description		Net Transactions This Month	Net Transactions Year to Date	Balance		Item Date	Reference Number
9040-41-49942-4502	DVHD - USPHS	BALANCE BROUGHT FORWARD		4,260.06				
	904041-49942-5303	MACHINE	105.50				08-31-68	T60/02
	904041-49942-5301	MACHINE	465.83				08-31-68	T60/02
		TOTAL	616.33	4,876.39				
9040-41-49942-45**	TOTAL OVERHEAD		616.33	4,876.39				
9040-41-49942-5301	SL*FACULTY	BALANCE BROUGHT FORWARD		7,498.33				
	SALARIES		1,083.33				08-31-68	T16-02
		TOTAL	1,083.33	8,581.66				
9040-41-49942-5303	SL*SUPPORT	BALANCE BROUGHT FORWARD		2,030.00				
	SALARIES		350.00				08-31-68	T26-02
		TOTAL	350.00	2,380.00				
9040-41-49942-53**	TOTAL SALARIES		1,433.33	10,961.66				
9040-41-49942-7010	FRINGE-ASSESS	BALANCE BROUGHT FORWARD		1,154.72				
	BASED ON SALEWAGE		172.83				08-31-68	T60/02
		TOTAL	172.83	1,327.55				
9040-41-49942-70**	TOTAL EMPLOYEE BENEFITS		172.83	1,327.55				
9040-41-49942-9301	TRAVEL	BALANCE BROUGHT FORWARD		864.07	935.93			
	ROSALIE COUSINS		32.59		32.59-	(2)	072668	045988159
		TOTAL	32.59	896.66	903.34			
9040-41-49942-93**	TOTAL TRAVEL EXPENSES		32.59	896.66	903.34			
9040-41-49942-****	TOTAL EXPENDITURES		2,340.77	20,454.59				
9040-41-49942-****	TOTAL 49942	CONTRACT-TO-DATE EXPENDITURES		20,454.59				
		REMAINING BALANCE			5,415.41	(3)		
		MUST LAST UNTIL		11-30-68				

Appendix X
Agency Codes

A. *Granting Agency Code* specifies the particular agency making the grant or contract. Additional codes through code 69 may be added.

AGENCY CODE	*AGENCY ABBREVIATION*	*AGENCY*
01	HC	Hospital Contracts
02	HEW	Health, Education and Welfare
03	USMC	Miscellaneous U.S. Government
04	NGMC	Miscellaneous Non-U.S. Government
05	AEC	Atomic Energy Commission
06	NASA	National Aeronautics and Space Administration
07	USN	U.S. Navy
08	AF	U.S. Air Force
09	ORD	U.S. Army Ordnance
10	MD	U.S. Army Medical Corps
11	AO	U.S. Army – Other
13	FF	Ford Foundation
14	CC	Carnegie Corporation
15	ACHS	American Chemical Society
16	LBI	Licensed Beverage Industries
17	SF	A. P. Sloan Foundation
18	RC	Research Corporation
19	RF	Rockefeller Foundation
20	AHA	American Heart Association
21	CCS	Connecticut Cancer Society
22	NHH	New Haven Heart Association
23	AFF	Anna Fuller Foundation
24	LIMR	Life Insurance Medical Research Fund
25	MD	Muscular Dystrophy
26	ACS	American Cancer Society
27	JCC	Jane Coffin Childs Memorial Fund
28	FFRP	Foundations Fund for Research in Psychiatry
29	NF	National Foundation
30	NSF	National Science Foundation
31	PHS	U.S. Public Health Service
32	CHA	Connecticut Heart Association
33	CMH	Connecticut Mental Health Association
34	NAMH	National Association for Mental Health

B. *Agency Sub-Group Code* specifies the general purpose of the grant or contract.

CODE	*MEANING*
1	Research Grants
2	Research – Institutional
3	Training Grants (Undergraduate Research)
4	Pre-Doctoral Training Grants
5	Fellowship Supply Grants
6	Other
7	Research Contracts
8	Training Contracts
9	Career Development Awards

C. *Agency Source Code* specifies the type of agency making a Research Grant.

CODE	*MEANING*
00	Principal Agency Only Source
01	Voluntary Health Agencies Grants for Research
02	Industry Grants for Research
03	Foundation Grants for Research
04	Local and State Government Grants for Research
05	Individual Grants for Research
06	Institution's Own Fund
07	Miscellaneous Grants for Research

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10	MD	U.S. Army Medical Corps
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15	ACHS	American Chemical Society
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04	Local and State Government Grants for Research
05	Individual Grants for Research
06	Institution's Own Fund
07	Miscellaneous Grants for Research

Appendix XI
Purpose Codes

This code denotes the general classification of any restriction on the purpose for which Gifts and Endowment Funds may be expended.

PURPOSE CODE	*MEANING*
* 10	Unrestricted
20	Professorship and Teaching
30	Lectureship
40	Fellowship
42	Scholarship
44	Scholarship – Beneficiary Pool
46	Prize
50	Research Endowment Funds
51	Publication
52	Volunteer Health Agency Gifts for Research
53	Industry Gifts for Research
54	Foundation Gifts for Research
55	Local and State Government Gifts for Research
56	Individual Gifts for Research
57	Miscellaneous Gifts for Research
60	Library
70	Maintenance
90	Other Specific Purposes

*Before July 1, 1966, Purpose Code 10 was 'Unrestricted as to Income' and Purpose Code 11 was 'Unrestricted as to Income and Principal'. With the addition of the Expendability Code, this distinction became unnecessary. Therefore, Purpose Code 11 was dropped and 10 is now used for all Unrestricted classifications.

Appendix XII
Expendability Codes

Expendability Code specifies whether Principal and Income, Realized Gains and Income, or Income Only can be spent from an Endowment Fund.

CODE	*MEANING*
1	Expendable (Principal and Income)
2	Limited with Realized Gains Expendable (Gains and Income)
3	Limited (Income Only)

Appendix XIII
Account Restriction Codes

The account restriction codes were originally intended for use with Grants and Contracts to reflect the restrictions most commonly imposed by granting agencies. They may be used, however, with any account. If transactions during a month cause the restriction code to be violated, the account will appear on a monthly list of accounts to be reviewed.

CODE	*MEANING*
10	No Restriction
20	Restricted to Budget Amount
30	Restricted to Budget Amount plus $250, even if the Budget Amount is zero
40	No transactions allowed in this major Type Code
50	No transactions allowed in this account
60	Transactions allowed *only* in this account