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Activities of the Automated Data Processing Group

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16. Abstract

The Dolores Archaeological Program Automated Data Processing group is responsible for creating and maintaining computer files containing both inventory and analytical data. Currently, 117,902 records are stored in 12 different files. This report describes the development and status of the data processing effort. The use of SYSTEM 2000 as a data-base management system is detailed. Input, storage, retrieval, and manipulation of data are discussed, as are security measures and data-base organization. The use of specific software packages (SPSS and SYMAP) and utility programs is explained. Recommendations are included for improving the operations of the Automated Data Processing group.

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ABSTRACT

The Dolores Archaeological Program Automated Data Processing group is responsible for creating and maintaining computer files containing both inventory and analytical data. Currently, 117,902 records are stored in 12 different files. This report describes the development and status of the data processing effort. The use of SYSTEM 2000 as a data-base management system is detailed. Input, storage, retrieval, and manipulation of data are discussed, as are security measures and data-base organization. The use of specific software packages (SPSS and SYMAP) and utility programs is explained. Recommendations are included for improving the operations of the Automated Data Processing group.

SYSTEM ORGANIZATION

Early Software Development

In the spring of 1978, the Government was faced with the difficult task of selecting a software package for inventory management. A number of software program packages available to museums were investigated for compatibility with the Bureau of Reclamation CYBER and for their ability to meet the requirements of an inventory system. Although GRIPHOS, SELGEM, and AIMS/PANDORA were considered, a software package called REX, available through the Government, was chosen. The REX data-management system was thought to offer efficient storage of very large amounts of data with easy retrieval and, most importantly, very simple training and operation. REX appeared to be well suited for a museum-based data-retrieval system.

The Contractor (University of Colorado) was required to use REX in order to consolidate software resources and to enhance communications at the laboratory. Several analytical REX data bases were created by Woodward-Clyde Consultants (W.C.C.); however, the lack of adequate documentation and support, the lack of file linkage capability, and the need for greater statistical capability, led the Contractor to consider alternate data-processing strategies.

By the beginning of the summer of 1979, both the Government and the Contractor agreed, although for different reasons, that the REX data-management system was insufficient to meet the requirements of the Dolores Archaeological Program. REX was discontinued; in the interim, both the Government and the Contractor utilized a combination of conventional programs and other software packages.

SYSTEM 2000

By the fall of 1979, the Government and the Contractor agreed to test a large hierarchical data-management system, SYSTEM 2000, for the basic structure for the Automated Data Processing (ADP) program. SYSTEM 2000 can interface with programming languages (FORTRAN and COBOL), link data bases, and perform interactive or batch retrievals; it also has a report-writing feature, and can create subsets of information that other software packages, such as SYMAP (Syna-graphic mapping) and SPSS (Stastical Package for the Social Sciences), can use. However, while updates, file linkage, and retrievals can be facilitated by SYSTEM 2000, these operations can often be performed more efficiently by other programs tailored to the specific task. Hence SYSTEM 2000 should be used only when it is the most cost-effective system in retrieval situations.

Retrievals and File Manipulation

Because SYSTEM 2000 is extremely effective for interactive queries and nonstatistical arithmetic operations, it can be used in these kinds of situations. However, other software packages and custom programs may be employed when their capabilities are more suited to the task. SPSS, for example, is far superior for statistical analysis while SYMAP offers a graphics capability unavailable in SYSTEM 2000.

When queries require linkage of several kinds of information, there is the option of using SYSTEM 2000 or a program specifically designed for the task. Although linkage provided by SYSTEM 2000 generally requires more input/output time, it has an advantage over specifically tailored linkage programs because it can handle a wide variety of linkages. However, linkages are only possible through COBOL or FORTRAN programs and the entire process is expensive.

Storage, Updates, and Security

The ADP design of SYSTEM 2000 will provide file security and ease of updating, as well as significantly reducing storage costs, by using SYSTEM 2000 in conjunction with the additional file maintenance techniques. Instead of storing data in SYSTEM 2000 data bases, SYSTEM 2000 will serve as an adjunct to maintaining data on disk files and magnetic tape.

Each SYSTEM 2000 data base will remain empty of data until a need arises to load the data into the data base. Only data which are needed during a query session are loaded into the program. After the data base has been loaded, retrievals are generally possible the following day. When a retrieval is completed, the data base is purged. CYBER retains a copy of the empty data base and the data file or files. When another retrieval is necessary, the process is repeated.

Data files are protected by up to three generations of magnetic-tape copies, with newer generations containing more recent updates. A weekly physical report lists the number of additions, deletions, and changes in a data file. Duplicate information and potential errors are removed each week, further insuring that the data are as error-free as possible (see section on Utilities). This is paramount due to the instability of SYSTEM 2000 data bases that results from disk crashes.

Data-Base Organization

While a number of data bases are in various stages of completion, only one, Receiving, is functional. The Receiving data base was the first SYSTEM 2000 data base designed; although operational, it needs design restructuring to increase processing efficiency and decrease storage costs. Two analytical data bases, Material Culture and Photography

(Figure 5.1), are completed and have been approved by the Bureau of Reclamation as test data bases. However, work on these three data bases has been suspended pending completion of 1979 field-season report deadlines.

Several additional data bases have been tentatively designed for Regional Settlement (including surveyed sites), Contextual Field Data (including excavated and bladed proveniences), and Environmental Studies. Each of these data bases, with the exception of Environmental Studies, can interface on at least one criterion variable, usually "Site." Umbrella structures were created for each data base to provide as much internal association as possible, thereby reducing the potential need for multiple data-base linkage. Material Culture, for example, embodies data concerning ceramics, flaked lithic tools, flaked lithic debitage, nonflaked lithic tools, fauna, etc., within a single data base. If desired, articulation of Material Culture with Contextual Field Data will enable a researcher to command an immense amount of information.

While the design structure of SYSTEM 2000 is, in theory, relatively simple, the actual execution has a number of pitfalls. The researcher must understand how data are structured, including ascending/descending/sibling relationships among component groups, in order to use a SYSTEM 2000 data base correctly. With SYSTEM 2000, the possiblity exists of creating undesirable output without knowing it, if the internal structure of data bases is not understood. Finally, loading data into SYSTEM 2000 data bases is a time-consuming and expensive process.

SPSS

In late August 1979, when it became clear that the conversion from

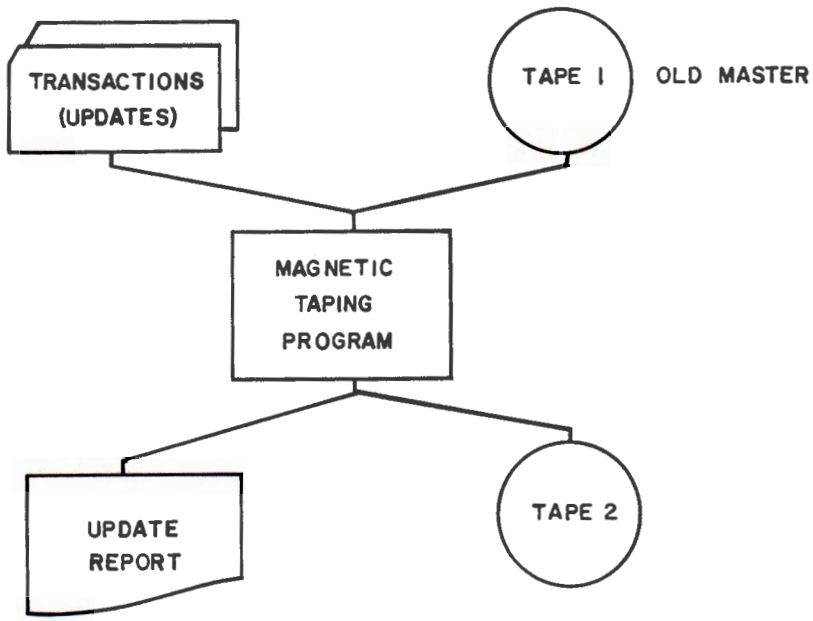

Figure 5.1 Photography data base.

REX to SYSTEM 2000 would take several months, 14 SPSS programs were developed to provide statistical capability and an interim programming system. SPSS, although intended to satisfy only some of the ADP requirements, has emerged as the backbone of the D.A.P. computer operation. In several instances SPSS programs have been used to perform operations which might have been better performed by a data-management system or a conventional program which could not be developed because of lack of time.

SPSS is an integrative system of computer programs, which provides a unified, simple, and flexible procedure for data transformation and file manipulation. The researcher is offered a large number of routines which describe data statistically, such as frequency distributions, correlation analysis, factor analysis, and discriminate analysis. Each program works from a single data file and cannot communicate with other data files. SPSS reads data sequentually from either disk or magnetic-tape files. Each program can be modified with relative ease to include a number of statistical or clerical routines.

The five programs created for ceramic and lithic task specialists commonly utilize SPSS FREQUENCIES, BREAKDOWN, and CROSSTABS routines to describe the distributions of artifacts. Temporary field provenience and photography programs were created with the expectation that their use would discontinue after the development of SYSTEM 2000. These programs produce descriptive information in a tabular format via the WRITE CASES or LIST CASES statements. An auxiliary program is appended to these programs and produces column headings for each physical page of information. The latter program, LIST CASES, is described later in this section in more

detail. Two smaller programs for Historical Artifacts and Intensive Flake Analysis were created in April 1980 and have not yet been tested.

All of the data for 1978 and 1979 field reports were produced via SPSS. These reports are summarized in the next section. Beginning 1 April 1980, SPSS Version 8.0 will be available on the CYBER, adding a report-writing facility which will significantly improve the flexibility of SPSS. SPSS is still not available in an interactive mode; however, a number of program techniques partially simulate this capability. Appendix A illustrates each SPSS program.

SYMAP

SYMAP is a graphic package plotting ration-level point data in one of several alternate modes. Maps produced by SYMAP are often valuable for discovery of structure and relationships in data as well as for high quality data representation. Since SYMAP produces maps on a line-printer or hard copy terminal, its use is relatively inexpensive to use.

Of the four major kinds of maps which can be produced, contour and trend-surface maps are probably most useful for archaeological application. Conformant maps display data by zones, assigning each data value an entire zone. A proximal map displays data by assigning to the study area the value associated with the data point nearest that location. A contour map displays data by connecting points of like value. A trend surface map displays data by fitting a continuous surface which can be described mathematically by a polynomial equation. A residual map displays the difference between a contour map and a trend surface map for the same data (Dougenik and Sheehan [1]).

SYMAP was purchased in December 1979 by W.C.C. and given to the Bureau of Reclamation CYBER software library in exchange for upgrading and maintaining the software and hardware support. To date SYMAP has not been used, except in testing.

Plans to acquire an outdated, but usable, Hewlett-Packard 9864-A Digitizer and accompanying memory block from the Bureau of Reclamation in Durango were made by T. Kohler in November 1979. The Bureau of Reclamation has additionally developed software on the system to calculate area, volume, and other functions potentially useful to the D.A.P. One drawback to obtaining the digitizer is the equipment is obsolete and will no longer be serviced by Hewlett-Packard.

Utility Programs

Utility programs, such as sorting, error checking, and magnetic taping, perform a variety of data-processing routines. Clearly, these utility programs are the foundation on which a functioning and efficient data-processing system depends. Utility programs are usually single purpose and are rarely used for tasks other than their intended function; these programs are listed below.

Magnetic Taping Routine

The present taping system is a simple procedure which copies disk files to tape, retaining the same file and data characteristics. Eventually a taping routine will be designed and implemented that will allow indirect editing of data and create three backups of a single disk file. Three generations of tapes will be used for each data set (e.g., Ceramics, Flaked Lithic Debitage, and Photography): once a week, each data file with the most recent updates will be copied to tape; this

process will be repeated for three weeks, with each successive generation of tape containing the most-recent information. Tape 1 will contain the least current information--two weeks old; Tape 2 will contain one-week-old information; and Tape 3, the third generation tape, will contain the most recent information. At the end of this sequence, Tape 1 will be re-used; the most recent version will be copied onto it, and it will become Tape 3. The existing Tape 3, which it will replace, will be reclassified as Tape 2, and the existing Tape 2 will become Tape 1. In the event a disk file is destroyed or severely damaged, a tape containing at least the previous week's data (including updates) can be recovered with a minimum of hardship.

Error Checking

Data-checking routines have been written which examine unacceptable values in each data set against known values for each variable. The program tests for alphabetic characters in numeric fields (and vice versa), for shifted columns of data, for illegal blanks, and for duplicate lines. The routines are in FORTRAN and COBOL and still require additional modification.

Sort/Merge

Two interactive sorting programs, Sorter and Sorter/Merger, allow the user to define which data files and which criteria variables (up to 10) will be used for sorting. These routines sort data sequentially in descending order. In the Sorter program the operator sorts only one data file, while in the Sorter/Merger program, two files are merged before sorting. Although the primary purpose for sequential ordering is clerical, programs such as SPSS can make use of the sorted records, rather than relying on their own internal routines to accomplish the same task.

Pagination

A Pagination program uses SPSS output via the WRITE CASES statement to produce a more readable report. The added format creates column headings for each physical page.

Miscellaneous Routines

Several small procedure and submit programs listed below complete the utility programs:

1. Dispose - Output is printed on a high-speed line printer in Durango.

2. Xerox - Output is printed on a xerox printer on standard-size (8 1/2 by 11 in) paper in Denver.

3. Drivers - Driver files implement the actual processing of a program.

INPUT/OUTPUT

File Maintenance

The role and importance of file maintenance must be kept in perspective when discussing programming systems such as SPSS or SYSTEM 2000. Insuring accuracy and completeness of data files is exhausting, tedious, and mechanical. Literally hundreds of hours are spent verifying and correcting a data file before output can be processed with confidence. The importance of file maintenance cannot be underestimated; retrievals processed on an unmaintained or incomplete file reflect the axiom, "garbage in, garbage out." At least 30 percent of an average work week is devoted to data entry, verification, error corrections, and the development of programs to identify and eliminate mistakes.

Although not sophisticated in technique, insuring completeness of and confidence in a data file involves a dynamic transformation. The process begins when an analyst completes a coding form. The coding forms are keypunched onto disks or magnetic-tape files. Data in each category (e.g., Ceramics, Flaked Lithic Debitage, and Photography) are organized on the file for access by a program or software package. An error-checking routine examines the file for obvious errors; if none are found, the file is copied onto magnetic tape. If errors exist, an operator must correct them mistake by mistake.

When data for a site seem error-free, output is available only after several processing runs have indicated that indeed no errors exist. It is the process of detecting and eliminating errors which is so time consuming to ADP operations (Figure 5.2).

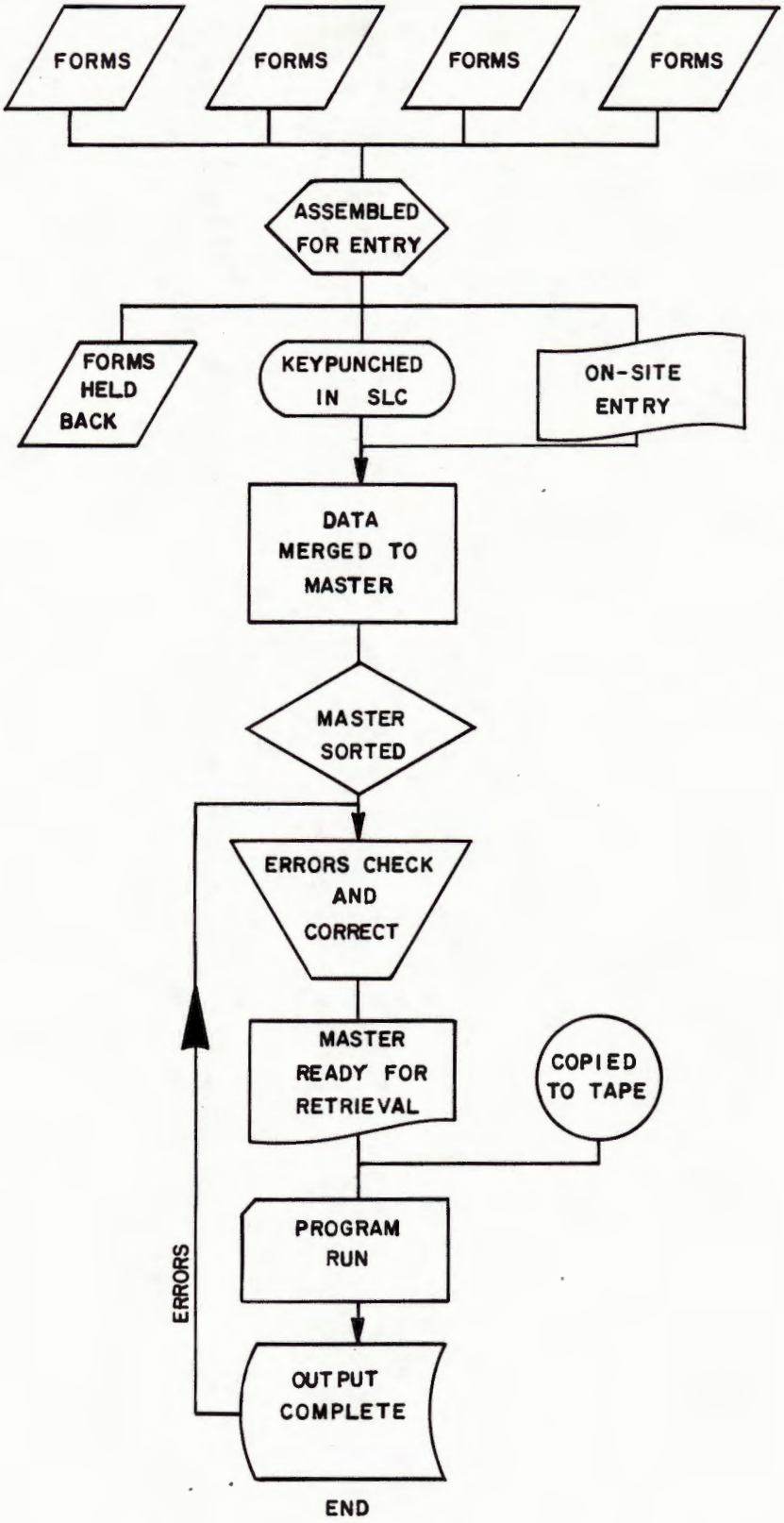

Figure 5.2 Data file modification.

Data Entry

Field and laboratory data are input at both the Dolores Laboratory and the Bureau of Reclamation-ADP facility in Salt Lake City. Inventory information is entered at the Dolores Laboratory as coding forms are received from the field. With several exceptions, analytical and contextual field forms are mailed to the Salt Lake City facility for input.

Initially data were entered by ceramic and lithic personnel trained for on-line input on the Hazeltine CRT terminal. However, by May 1979, on-line entry was discontinued in favor of off-line recording equipment. An Alanthus S-555 Floppy Disk unit and a Texas Instruments 700 Bubble Memory terminal were acquired to alleviate the recurring problems of down time and poor telecommunications at the laboratory.

However, this arrangement had a number of shortcomings: the Alanthus Floppy Disk unit proved unreliable and was abandoned; the Texas Instruments terminal's editing capabilty was primitive and time-consuming, and operator error rate and keystroke rate were unacceptable. Coding forms accumulated very rapidly, and by the end of August 1979, after eight months of on-site input, only about 10,000 records of data had been entered.

Analytical Data

It was agreed that D.A.P. would utilize the Bureau of Reclamation facility in Salt Lake City, during slack time, to input analytical data (inventory data were unaffected by this arrangement). Coding forms for Photography, Faunal Analysis, Lithic Analysis, Ceramic Analysis, and Field Provenience are collected bi-monthly, xeroxed for security, and mailed to the Salt Lake City facility. Turn-around time for completion averages

approximately five to eight weeks. This turn-around is faster than local input and overall accuracy has significantly improved.

By utilizing the Salt Lake City facility, all forms turned over to ADP to date have been input; any delays in making data available are the result of the lengthy verification process. In all, almost 7,000,000 characters, or 117,902 lines of data, have been input (Table 5.1).

Field data (excluding Field Provenience) have not been input. Coding forms for Architecture, Features, Activity Areas, and Surfaces, for example, have been withheld from entry pending completion of the Field Provenience forms, from which all contextual field data are derived. Additionally, because these forms contain information which would have to be input and stored as blanks and zeroes, it has been proven more cost-effective to design a data-entry program which records only information for which data exists.

Forms from Environmental Studies have not been received by ADP, with the exception of Structural Analysis and *Pinus edulis* Analysis. Summary information for 1978 and 1979 survey sites was entered in November 1979.

Inventory Data

Inventory data provides immediate access to all processed field materials. Hence, all Receiving data are entered via an intermediate program which performs the following: (1) increases keystroke speed by reducing the number of characters which must be input; (2) converts alphabetic characters to numeric digits for decreased storage representations and costs; (3) enters data only where information exists; (4) eliminates repetitive entry; (5) automatically inserts leading zeroes; and (6) examines data for errors.

Table 5.1 Data File Size by Type as of 1 April 1980

FILE TYPE	FILE NAME	DATA TYPE	NUMBER OF CHARACTERS	NUMBER OF RECORDS (LINES)
Ceramics	CERAM10	Analysis	1,386,240	21,003
Flaked Lithic Tools	FLT10	Analysis	1,171,840	14,675
Flaked Lithic Debitage	FLAKE10	Analysis	1,003,520	17,008
Field Provenience	PROV10	Inventory	908,160	12,973
Receiving	SORTRC	Inventory	908,160	30,100
Photography	PHOTO10	Inventory	604,800	9,304
Nonflaked Lithic Tools	NFLT10	Analysis	554,240	6,974
Fauna	FAUNA10	Analysis	187,520	3,121
Nonflaked Debitage	NFLD10	Analysis	45,440	1,198
Structural Analysis	LISA10	Analysis	24,960	891
Survey	SURV10	Inventory	12,800	317
Pinus edulis Analysis	PINUS10	Analysis	11,520	338
		TOTAL	6,819,200	117,902

The Receiving program is actually several routines combined into a single program. The input routine serves as a buffer between the actual data entered and the final transformation of data (additional leading characters, altered alphabetic fields, etc.). Data are first entered from the Inventory Sheets onto a temporary disk file. Next an error-checking routine evaluates the temporary file for operator mistakes and examines the data for errors. If no mistakes are identified, the temporary file is transformed (with the additional characters, etc.) into an update data file. If mistakes are detected, the Receiving program does not merge the erroneous data with the master file; instead, the offending data are listed and an operator must correct the errors before the temporary file is finally merged with the master file.

Verification

Under optimal conditions analytical and inventory data are input with a minimum of keypunch errors. Each analytical-data record entered at the Salt Lake City facility, for example, is keypunched twice for electronic scanning comparison of the two records. If a mistake is detected, the operator makes any necessary corrections.

Errors also occur, although rarely, as the result of telecommunication difficulties. Disk crashes and archiving problems, although rare, have eliminated entire files. Erroneous data resulting from machine-related malfunctions occur randomly and cannot be prevented; data files, however, are secured on tape to circumvent these kinds of problems. Changes, deletions, additions, and oversights comprise the largest single source of error on coding forms. These revisions and modifications are a necessary part of the laboratory process, and errors resulting from this process cannot be avoided.

The occurrence of error is thus unavoidable; it is extremely time-consuming and painstaking to identify and correct these errors. Several error-checking routines inspect data files for errors by comparing known values against unacceptable values. These routines are helpful in identifying wild values, but erroneous values which fall within expected value ranges are not discovered in this process. The ultimate check, is actual use of the data. Output from retrievals often reveals previously undetected errors.

When an error is discovered, an operator must correct the data record, usually line by line. This process is tedious, and the potential for creating still more mistakes exists. In the rare instances when a specific error occurs repeatedly and consistently throughout a data file, a program can be designed to make these corrections. It is important to consider that the time required to create and implement such a program often exceeds the time required to make the corrections manually.

Data files such as Ceramic and Flaked Lithic Debitage are verified and edited site-by-site. To date, no data file has completely undergone this process.

Output

Analytical Data. Five primary categories of output were generated for the 1979 field reports utilizing SPSS programs: (1) general site distributions; (2) problem-area distributions within sites (called Standard Output); (3) photographic catalog information; (4) field-provenience error checking; and (5) special requests, which include all analysis in the other four categories.

Site-wide and area-specific reports for ceramic and lithic data were created to provide task specialists and field personnel with intra-site

and inter-site artifactual distributions and comparisons. Contextual information articulating surfaces, natural features, and cultural entities is manually interfaced with artifactual data to provide associational data. FREQUENCIES and BREAKDOWN routines were used to assemble the minimum data requirements for field reports. No advanced statistics were generated for these runs.

The production of General Site, Standard Output, and Special Request reports was a coordinated effort involving task specialists, crew chiefs, ADP staff, and a liaison person (C. Robinson) who represented all of the above interests. Data requests were channeled through the liaison to weed out unwarranted requests and to insure credibility in the final output. The completed output was examined for programming and data accuracy; if no errors were discovered, reports were distributed to the appropriate person(s).

Additionally, these reports identified errors previously undetected by verification procedures. Because ceramic data are particularly susceptible to errors occurring in analysis (some variables being interdependent), BREAKDOWN routines were processed a number of times for error-detection. Ceramic data were considered usable only after they had cleared this process.

Approximately 250 Standard Output and General Site reports were produced for the 1979 field reports. Two copies of each report were printed, catalogued, and checked out to appropriate crew chiefs and task specialists (Table 5.2). At least one copy of each report will remain in the D.A.P. archive.

Special requests include requests for information beyond the scope of General Site and Standard Output. These include probability sampling,

Table 5.2 A.D.P. 1979 Output, by File Type for January and February 1980

TYPE OF ANALYSIS	GENERAL SITE	STANDARD OUTPUT	SPECIAL REQUESTS	ROW TOTALS
Ceramic	30	19	9	58
Flaked Lithic	74	66	35	175
Tools	39	32	23	94
Debitage	35	34	12	81
Nonflaked lithic	34	30	20	84
Tools	34	30	17	81
Debitage	0	0	3	3
Environmental	0	0	11	11
Fauna	0	0	3	3
Structural	0	0	4	4
Pinus edulis	0	0	4	4
Survey	0	0	3	3
Photography*	5	25	5	35
Column Totals:	143	140	83	366

*Output for Photography by General Site/Standard Output is different from that of Ceramic and Lithic.

reruns of previous reports (with corrected data), and all other data categories not included in the above, such as Faunal Analysis, Survey, Structural Analysis, etc. Photographic catalogs were created for each excavated site, historical site, and surveyed site and for environmental studies via a sorting routine interfaced with an SPSS program. This program sorts images in a selected sequence and then produces output listings in a report format, complete with column headings and pagination.

Field-provenience data by site are listed in tabular form to aid the laboratory supervisor in detecting errors and in making continuous modifications in the data. Verification of provenience data is vital to all contextual information in the D.A.P.

Inventory. Data retrieval for inventory information is produced by one of three programs, each with different capabilities. The primary inventory program was written in FORTRAN and produces a laboratory-flow sheet, listing recovered materials and specimens by requested provenience information. This program is interactive and is utilized in daily laboratory operations, generally during the field season.

An SPSS program works from the same data and provides a statistical capability not yet designed into the laboratory-flow program.

Finally, a SYSTEM 2000 data base designed to handle both receiving data (artifacts coming into the lab) and permanent storage data (artifacts stored in permanent storage) offers interactive access to basic inventory information (however the data base contains only receiving data at this time). Presently, this program serves as an experimental data base which must be modified at an unspecified future date.

RECOMMENDATIONS

The ADP program began haphazardly two years ago with a single software package application (REX) and grew to a data-management system employing a variety of processing techniques and programs. While software packages such as SPSS and SYMAP have expanded the statistical and graphics capabilities of the ADP program, additional work is still needed in operational management, especially to insure an efficient, well-organized, and responsive ADP program. Further development and modification of existing utilities routines (error-checking programs, duplicate-lines checking programs, taping routines, etc.) is of paramount importance in creating an effective data-management system.

Before additional progamming responsibilities are undertaken, the backlog of utilities programs must be completed. Considerable time should be set aside for utilities development and subsequent "debugging" to insure a "bombproof" system. Development of a more business-oriented data-processing scheme is needed to maintain large amounts of data on both disks and tape files, and is more important than continued development of statistical and retrieval procedures on potentially inaccurate data. Finally, full-scale development of SYSTEM 2000 should be postponed indefinitely and existing capabilities should be used until the operations aspect of ADP is fully functional. Once it is functional, day-to-day maintenance procedures should alleviate problems which often delay data requests.

A more complete management recommendation is forthcoming (5 May 1980). This will include the suggestion that a microcomputer be purchased for on-project data processing and management.

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APPENDIX A

SPSS PROGRAMS

S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 -/- JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

```
RUN NAME        FLAKED LITHIC TOOLS
FILE NAME       SPFLT
VARIABLE LIST   VAR1A,VAR1 TO VAR39
INPUT FORMAT    FIXED(A1,F2.0,A2,F5.0,F6.0,2F2.0,
                F4.0,3F3.0,4F2.0,F6.0,8F1.0,F2.0,
                15F1.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR1A	A 1	1	1- 1
VAR1	F 2. 0	1	2- 3
VAR2	A 2	1	4- 5
VAR3	F 5. 0	1	6- 10
VAR4	F 6. 0	1	11- 16
VAR5	F 2. 0	1	17- 18
VAR6	F 2. 0	1	19- 20
VAR7	F 4. 0	1	21- 24
VAR8	F 3. 0	1	25- 27
VAR9	F 3. 0	1	28- 30
VAR10	F 3. 0	1	31- 33
VAR11	F 2. 0	1	34- 35
VAR12	F 2. 0	1	36- 37
VAR13	F 2. 0	1	38- 39
VAR14	F 2. 0	1	40- 41
VAR15	F 6. 0	1	42- 47
VAR16	F 1. 0	1	48- 48
VAR17	F 1. 0	1	49- 49
VAR18	F 1. 0	1	50- 50
VAR19	F 1. 0	1	51- 51
VAR20	F 1. 0	1	52- 52
VAR21	F 1. 0	1	53- 53
VAR22	F 1. 0	1	54- 54
VAR23	F 1. 0	1	55- 55
VAR24	F 2. 0	1	56- 57
VAR25	F 1. 0	1	58- 58
VAR26	F 1. 0	1	59- 59
VAR27	F 1. 0	1	60- 60
VAR28	F 1. 0	1	61- 61
VAR29	F 1. 0	1	62- 62

```
ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE  FORMAT  RECORD    COLUMNS

VAR30     F 1. 0     1     63-  63
VAR31     F 1. 0     1     64-  64
VAR32     F 1. 0     1     65-  65
VAR33     F 1. 0     1     66-  66
VAR34     F 1. 0     1     67-  67
VAR35     F 1. 0     1     68-  68
VAR36     F 1. 0     1     69-  69
VAR37     F 1. 0     1     70-  70
VAR38     F 1. 0     1     71-  71
VAR39     F 1. 0     1     72-  72

THE INPUT FORMAT PROVIDES FOR  40 VARIABLES.   40 WILL BE READ
IT PROVIDES FOR  1 RECORDS (•CARDS•) PER CASE.  A MAXIMUM OF   72 •COLUMNS• ARE USED ON A RECORD.

N OF CASES      UNKNOWN
MISSING VALUES ALL(BLANK)
COMPUTE         VAR12A = VAR12
COMPUTE         VAR16A = VAR16
COMPUTE         VAR20A = VAR20
COMPUTE         VAR21A = VAR21
COMPUTE         VAR22A = VAR22
COMPUTE         VAR22B = VAR22
COMPUTE         VAR23A = VAR23
COMPUTE         VAR24A = VAR24
COMPUTE         VAR24B = VAR24
COMPUTE         PL = VAR10
COMPUTE         FS = VAR4
COMPUTE         CATALOG = VAR9
COMPUTE         SITE = VAR3
COMPUTE         TOOL = VAR24
ASSIGN MISSING ALL(BLANK)
VAR LABELS      VAR1A TYPE FLAG/ VAR1 STATE/ VAR2 COUNTY/
                VAR3 SITE NUMBER/ VAR4 FS NUMBER/
                VAR5 MATERIAL I.D./
                VAR6 SPECIAL SPECIMEN•TYPE/
                VAR7 SPECIAL SPECIMEN NUMBER/
                VAR8 INDETERMINATE ITEMS/
                VAR9 CATALOG ITEM NUMBER/
                VAR10 POINT LOCATION/
                VAR11 TEMPORAL DESIGNATION/
                VAR12 MATERIAL CLASS/ VAR12A GRAIN SIZE/ VAR13 COLOR/
                VAR14 SPECIFIC RESOURCE I.D./
                VAR15 WEIGHT <IN GRAMS>/
                VAR16 CONDITION/ VAR16A CONDITION ?1/
                VAR17 THERMAL ALTERATIONS/
                VAR18 CULTURAL ADHESIONS/
                VAR19 FACIAL DESIGNATION/
                VAR20 THINNING STAGE, DORSAL FACE/
                VAR20A THINNING STAGE, DORSAL FACE ?1/
                VAR21 THINNING STAGE, VENTRAL FACE/
                VAR21A THINNING STAGE, VENTRAL FACE ?1/
                VAR22 EU SHAPING STAGE/
```

```
                    VAR22A EU DIRECTION/ VAR22B EU EDGE PLACEMENT/
                    VAR23 CORE FORM/
                    VAR23A CORE SPECIALIZATION/
                    VAR24 TOOL MORPHO-USE FORM/
                    VAR24A TOOL MORPHO-USE FORM 21/
                    VAR24B TOOL MORPHO-USE FORM 22/
                    VAR25 CONDITION MODIFICATION A/
                    VAR26 CONDITION MODIFICATION B/
                    VAR27 CONDITION MODIFICATION C/
                    VAR28 CONDITION MODIFICATION D/
                    VAR29 CONDITION MODIFICATION E/
                    VAR30 CONDITION MODIFICATION F/
                    VAR31 CONDITION MODIFICATION G/
                    VAR32 CONDITION MODIFICATION H/
                    VAR33 CONDITION MODIFICATION I/
                    VAR34 CONDITION MODIFICATION J/
                    VAR35 ILLUSTRATION STATUS A/
                    VAR36 ILLUSTRATION STATUS B/
                    VAR37 ILLUSTRATION STATUS C/
                    VAR38 ILLUSTRATION STATUS D/
                    VAR39 ILLUSTRATION STATUS E/
VALUE LABELS        VAR5 (00)NOT APPLICABLE (03)FLAKED LITHICS
                    (04)NON-FLAKED LITHICS/
                    VAR12 (00)INDETERMINATE (01)IGNEOUS-NFS
                    (02)SEDIMENTARY-NFS
                    (03)METAMORPHIC-NFS (04)GRANITIC-COARSE
                    (05)GRANITIC-FINE (06)SANDSTONE-COARSE
                    (07)SANDSTONE-FINE (08)QUARTZITE-COARSE
                    (09)BASALT-COARSE (10)SHALE-NOT BAKED
                    (11)SHALE-BAKED (12)SILTSTONE (13)CLAYSTONE
                    (14)FELSITE (15)ANDESITE (16)RHYOLITE
                    (17)METARHYOLITE (18)SLATE (19)QUARTZITE-MEDIUM
                    (20)BASALT-FINE (21)QUARTZ (22)QUARTZITE-FINE
                    (23)OPALITE (24)SILTITE (25)ARGILLITE
                    (26)AGATE (27)CHALCEDONY (28)CHERT-CLASTIC
                    (29)CHERT-FOLLILIFEROUS (30)CHERT-OOLITIC
                    (31)CHERT-BANDED (32)CHERT-NFS (33)CHERT-CHALCEDONY
                    (34)SILICIFIED WOOD (35)VITROPHYRE
                    (36)OBSIDIAN (37)DIORITE/
                    VAR13 (00)INDETERMINATE (01)CLEAR (02)CLEAR _ YEL
                    (03)CLEAR _ YEL-RED (04)CLEAR _ RED
                    (05)CLEAR _ RED-BL (06)CLEAR _ BL
                    (07)D1 (08)D2 (09)D3
                    (10)WH (11)WH _ R-Y-B
                    (12)WH _ RED (13)D4 (14)D5 (15)D6
                    (20)CREAM (21)D7 (22)D8 (23)D9
                    (26)LIGHT VARG (27)LIGHT VARG _ PUR
                    (28)VARG_ORANGE-RED
                    (29)D10
                    (30)YE (31)LIGHT YELL (32)LIGHT YELL GR
                    (33)D11 (34)D12 (35)YE BR
                    (36)DARK YELL BR (37)D14 (38)D15 (39)D16
                    (40)BR (41)DARK BR (42)LIGHT BR
                    (43)PALE BR (44)GREYISH BR (45)D17
                    (46)D18 (47)D19
                    (50)ORANGE (51)LIGHT ORANGE (52)D20 (53)D21 (54)D22
                    (60)RED (61)LIGHT RED-PINK (62)GREYISH RED
                    (63)BRISH RED (64)DARK RED (65)PUR
```

(66)LIGHT PUR (67)D23 (68)D24 (69)D25
(70)BL (71)D26 (72)D27 (73)D28 (74)D29
(75)BL GR (76)GREYISH BL GR
(77)D30 (78)D31 (79)D32
(80)GR (81)LIGHT GR (82)DARK GR
(83)LIGHT GREY GR (84)DARK GREY GR
(85)OLIVE (86)GREYISH OLIVE (87)D33 (88)D34
(89)DARK BL-GR (90)D35
(91)LIGHT GREY (92)SMOKEY GREY (93)DARK GREY
(94)LIGHT GREY GR (95)GLEY-GREY GR
(96)DARK GREY GR BL
(97)LIGHT GREY GR BL
(98)GREY GR BL (99)BLUE/
VAR14 (00)INDETERMINATE (01)SAN ANDRES CHERT
(02)BRSH BASIN CHERT (03)FEDERNAL CHERT
(04)JEMEZ OBSIDIAN (05)PALM WOOD (06)TECOLOTE CHERT
(07)WASHGTN PASS CHERT (08)GOVT MTN CHERT
(09)MORSN GR QRTZ (10)BRS- BASIN CLYSTN
(11)MANCOS SILTSTONE (12)CEDAR MESA JASPER
(13)BC TAN (14)DAKOTA WHT QRTZ
(15)BC WHT QRTZ-COARSE/
VAR16 (0)UNIDENT FRAG
(1)MEDIAL SECTION-1
(2)MEDIAL SECTION-2
(3)TERMINAL SECTION-3
(4)TERMINAL SECTION-4
(5)TERMINAL SECTION-5
(6)MEDIAL-TERMINAL-6
(7)MEDIAL-DISTAL-7
(8)MEDIAL-PROXIMAL
(9)TCOL OR CORE/
VAR17 (0)INDETERMINATE (1)BURNED (2)NOT BURNED
(3)ANNEALED/
VAR18 (0)INDETERMINATE (1)NO ADHESIONS
(2)PIGMENTS ONLY
(3)ORGANIC
(4)RESIN (5)FIBROUS SUBST
(6)PIGMENT WITH ORGANIC MATERIAL/
VAR19 (0)INDETERMINATE
(1)ARBITRARY
(2) LAB DESIGNATION
(3)VENTRAL FACE/
VAR20 (0)INDETERMINATE (1)UNMODIFIED CORE
(2)UNTHN FLK-CORTEX
(3)UNTHN FLK-NO CORTEX
(4)EDGED-CORTEX
(5)EDGED-NO CORTEX
(6)PRIMARY-BLANK
(7)SECONDARY-PREFORM
(8)SHPD-NOT STYLIZED
(9)STYLIZED-SHAPED/
VAR21 (0)INDETERMINATE (1)UNMODIFIED CORE
(2)UNTHN FLK-CORTEX
(3)UNTHN FLK-NO CORTEX
(4)EDGED-CORTEX
(5)EDGED-NO CORTEX
(6)PRIMARY-BLANK
(7)SECONDARY-PREFORM

(8)SHPD-NOT STYLIZED
(9)STYLIZED-SHAPED/
VAR22 (0)INDETERMINATE (1)NO RETOUCH
(2)UNIFACIAL-2
(3)UNIFACIAL-3
(4)UNI-BIFACIAL -4
(5)UNI-BIFACIAL-5
(6)BIFACIAL-6
(7)BIFACIAL-7/
VAR23 (0)NOT APPLICABLE (1)FRAGMENT-CORE
(2)BIPOLAR CORE (3)SLICED CORE
(4)MULT PLATFORM-4
(5)MULT PLATFORM-5
(6)MULT PLATFORM-6
(7)MULT PLATFORM-7
(8)PREP PLATFORM-8
(9)PREP PLATFORM-9/
VAR24 (00)NOT APPLICABLE (01)FRAGMENT-TOOL
(02)USED-UNWRK FLK
(03)UNUSED CORE (04)USED CORE
(05)UNIFACE-SCRAPPER
(06)BIFACE-CHOPPER
(07)DENTICULATE (08)BEAK-RETOUCH FLK
(09)CONCAVE FLK-NOTCH (10)UNIFACE-SIDE WRK
(11)UNIFACE-END WRK (12)UNIFACE-SIDE-END
(13)UNIFACE-13 (14)UNIFACE-14
(15)UNIFACE-15 (16)BIFACE-NO HAFT
(17)BIFACE-HAFTED (18)CRESCENT
(19)DRILL-SIDE NOTCH (20)DRILL-EXP BASE
(21)DRILL-OTHER (22)BURIN-NOT WRK
(23)BURIN-UNIFACIAL (24)BURIN-BIFACIAL
(25)GRAVER-WRK (26)GRAVER-UNIFACE
(27)GRAVER-27
(28)GRAVER-BIFACE (29)PROJ PT-29
(30)PROJ PT-30 (31)PROJ PT-31
(32)PROJ PT-32 (33)PROJ PT-33
(34)PROJ PT-34 (35)PROJ PT-35
(36)PROJ PT-36 (37)PROJ PT-37
(38)PROJ PT-38 (39)PROJ PT-39
(40)PROJ PT-40 (41)PROJ PT-41/
VAR25 (0)INDETERMINATE (1)NO MODIFICATION
(2)CHIPPED-ID/
VAR26 (0)INDETERMINATE (1)NO MODIFICATION
(2)ACCID BREAKAGE/
VAR27 (0)INDETERMINATE (1)NO MODIFICATION
(2)CARBONATES REMOVED/
VAR28 (0)INDETERMINATE (1)NO MODIFICATION
(2)ORGANICS REMOVED/
VAR29 (0)INDETERMINATE (1)NO MODIFICATION
(2)THERMOLUMIN/
VAR30 (0)INDETERMINATE (1)NO MODIFICATION
(2)HYDRATION /
VAR31 (0)INDETERMINATE (1)NO MODIFICATION
(2)SILASTIC MOLD/
VAR32 (0)INDETERMINATE (1)NO MODIFICATION
(2)THIN-SECTION/
VAR33 (0)INDETERMINATE (1)NO MODIFICATION
(2)TRACE MAT-DESTROYED/

```
                    VAR34 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)TRACE MAT-NOT DESTROYED/
PRINT FORMATS       VAR1A,VAR2(A)
RECODE              VAR12A(01,04,05,06,07,08,09,37 = 501)(02,10,11,12,13,14,
                    15,16,17,18 = 502)(03,19,20,22,24,25,28 = 503)
                    (21,23,26,27,29,30,31,32,33,34,35,36 = 504)/
                    VAR16A(1,2 = 510)(4,7 = 511)(5,8 = 512)(3,6 = 513)
                    (9 = 5,4)/
                    VAR20A(2,4 = 520)(3,5,6,7,8,9 = 521)(1 = 522)/
                    VAR21A(2,4 = 520)(3,5,6,7,8,9 = 521)(1 = 522)/
                    VAR22A(2,3 = 530)(6,7 = 531)(4,5 = 532)(1 = 533)/
                    VAR22B (2,4,6 = 534)(3,5,7 = 535)(1 = 536)/
                    VAR23A(2,3,4 = 540)(5,6 = 541)(7,8,9 = 542)(1 = 543)/
                    VAR24A(02 = 550)(03,04 = 551)(05,10,11,12,13,14,15,
                    23,26,27 = 552)(06,16,17,19,20,21,24,28,
                    29 THRU 42 = 553)
                    (01,07,08,09,18,22,25 = 554)/
                    VAR24B (02 = 555)(03,04 = 556)(05,06 = 557)
                    (10,11,12 = 558)
                    (13,14,15 = 559)(16,17 = 560)(29 THRU 42 = 561)
                    (07,08,09,18 THRU 28 = 562)(01 = 563)/
VALUE LABELS        VAR12A (501)COARSE (502)FINELY GRANUALR (503)DETRITAL
                    (504)NON-GRANULAR/
                    VAR16A (510)MEDIAL SECTION (511)DISTAL SECTION
                    (512)PROXIMAL SECTION (513)BROKEN,INDT (514)COMPLETE/
                    VAR20A (520)FACES-CORTEX (521)FACES NO CORTEX(522)NOT APPLICABLE/
                    VAR21A (520)FACES-CORTEX (521)FACES NO CORTEX(522)NOT APPLICABLE/
                    VAR22A (530)UNIDIRECTIONAL (531)BIDIRECTIONAL (532)BOTH
                    (533)NEITHER/
                    VAR22B (534)SOME EDGES (535)ALL EDGES (536)NO EDGES/
                    VAR23A (540) UNSPECIALIZED (541)SPECIALIZED (542)STYLIZED
                    (543)INDETERMINATE/
                    VAR24A (550)UTILIZED FLAKES (551)CORES (552)UNIFACES
                    (553)BIFACES (554)OTHER/
                    VAR24B (555)UTILIZED FLAKES (556)CORES
                    (557)CHOPPERS-SCRAPERS (558)THICK SCRAPERS
                    (559)THIN SCRAPERS (560)BIFACES (561)PROJECTILE PTS
                    (562)SPECIALIZED (563)INDETERMINATE/
READ INPUT DATA

END OF FILE ON FILE FLT10
AFTER READING  14675 CASES FROM SUBFILE SPFLT
```

S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

```
RUN NAME        FLAKED LITHIC DEBITAGE
FILE NAME       SPFLAKE
VARIABLE LIST   VAR1A,VAR1 TO VAR17
INPUT FORMAT    FIXED(A1,F2.0,A2,F5.0,F6.0,2F2.0,F4.0,
                3F3.0,F2.0,F1.0,4F5.0,F3.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR1A	A 1	1	1- 1
VAR1	F 2. 0	1	2- 3
VAR2	A 2	1	4- 5
VAR3	F 5. 0	1	6- 10
VAR4	F 6. 0	1	11- 16
VAR5	F 2. 0	1	17- 18
VAR6	F 2. 0	1	19- 20
VAR7	F 4. 0	1	21- 24
VAR8	F 3. 0	1	25- 27
VAR9	F 3. 0	1	28- 30
VAR10	F 3. 0	1	31- 33
VAR11	F 2. 0	1	34- 35
VAR12	F 1. 0	1	36- 36
VAR13	F 5. 0	1	37- 41
VAR14	F 5. 0	1	42- 46
VAR15	F 5. 0	1	47- 51
VAR16	F 5. 0	1	52- 56
VAR17	F 3. 0	1	57- 59

THE INPUT FORMAT PROVIDES FOR 18 VARIABLES. 18 WILL BE READ
IT PROVIDES FOR 1 RECORDS (•CARDS•) PER CASE. A MAXIMUM OF 59 •COLUMNS• ARE USED ON A RECORD.

```
MISSING VALUES ALL(BLANK)
COMPUTE        QUANTITY = VAR13
COMPUTE        RESULT1 = VAR12*VAR13
VAR LABELS     VAR1A TYPE FLAG/ VAR1 STATE/ VAR2 COUNTY/ VAR3 SITE NUMBER/
               VAR4 FS NUMBER/ VAR5 MATERIAL ID/
               VAR7 SPECIAL SPECIMEN NUMBER/
               VAR8 INDETERMINATE ITEMS/ VAR9 CATALOG ITEM NUMBER/
               VAR10 POINT LOCATION NUMBER/
               VAR11 TEMPORAL DESIGNATION/
               VAR12 MATERIAL CLASS/
               VAR13 QUANTITY OF ITEMS/ VAR14 WEIGHT/
               VAR15 WEATHERED ITEMS/ VAR16 STRIKING PLATFORM/
               VAR17 QUANTITY OF ITEMS-OBSIDIAN/
VALUE LABELS   VAR5 (00)INAPPLICABLE (03)FLAKED LITHICS
               (04)NON-FLAKED LITHICS/
```

```
                    VAR12 (0)UNIDENTIFIABLE (1)COARSE
                    (2)FINELY GRANULAR
                    (3)DETRITAL
                    (4)NON-GRANULAR/
N OF CASES          UNKNOWN
PRINT FORMAT        VAR1A,VAR2(A)
ASSIGN MISSING RESULT1 (BLANK)
READ INPUT DATA

END OF FILE ON FILE FLAKESC
AFTER READING   4018 CASES FROM SUBFILE SPFLAKE
```

S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

```
RUN NAME        NON FLAKED LITHIC DEBITAGE
FILE NAME       SPNFLD
VARIABLE LIST   VAR1A,VAR1 TO VAR12
INPUT FORMAT    FIXED (A1,F2.0,A2,F5.0,F6.0,2F2.0,F4.0,
                2F3.0,F2.0,F1.0,F3.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR1A	A 1	1	1- 1
VAR1	F 2. 0	1	2- 3
VAR2	A 2	1	4- 5
VAR3	F 5. 0	1	6- 10
VAR4	F 6. 0	1	11- 16
VAR5	F 2. 0	1	17- 18
VAR6	F 2. 0	1	19- 20
VAR7	F 4. 0	1	21- 24
VAR8	F 3. 0	1	25- 27
VAR9	F 3. 0	1	28- 30
VAR10	F 2. 0	1	31- 32
VAR11	F 1. 0	1	33- 33
VAR12	F 3. 0	1	34- 36

THE INPUT FORMAT PROVIDES FOR 13 VARIABLES. 13 WILL BE READ
IT PROVIDES FOR 1 RECORDS (*CARDS*) PER CASE. A MAXIMUM OF 36 *COLUMNS* ARE USED ON A RECORD.

```
VAR LABELS      VAR1A TYPE/ VAR1 STATE/ VAR2 COUNTY/ VAR3 SITE NUMBER/
                VAR4 FS NUMBER/ VAR5 MATERIAL ID/
                VAR6 SPECIAL SPECIMEN TYPE/
                VAR7 SPECIAL SPECIMEN NUMBER/
                VAR8 CATALOG ITEM NUMBER/ VAR9 POINT LOCATION/
                VAR10 TEMPORAL DESIGNATION/
                VAR11 GENERAL FORM ID/ VAR12 QUANITY OF ITEMS/
VALUE LABELS    VAR5 (00)INAPPLICABLE (03)FLAKED LITHICS
                (04)NON FLAKED LITHICS/
                VAR11 (0)OTHER MATERIALS (1)CURATED FOSSILS
                (2)PAINT MATERIALS (3)SHAPED-DEBITAGE
                (4)INCISED BLDG STN
                (5)SHAPED-SPEC USE/
N OF CASES      UNKNOWN
PRINT FORMAT    VAR1A,VAR2(A)
READ INPUT DATA
```

END OF FILE ON FILE NFLD10
AFTER READING 1198 CASES FROM SUBFILE SPNFLD

S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

```
RUN NAME        NON FLAKED LITHIC TOOLS ANALYSIS
FILE NAME       SENELT
VARIABLE LIST   VAR1A,VAR1 TO VAR44
INPUT FORMAT    FIXED(A1,F2.0,A2,F5.0,
                F5.0,2F2.0,F4.0,2F3.0,F2.0,F1.0,2F2.0,
                F5.0,14F1.0,F2.0,15F1.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR1A	A 1	1	1- 1
VAR1	F 2. 0	1	2- 3
VAR2	A 2	1	4- 5
VAR3	F 5. 0	1	6- 10
VAR4	F 6. 0	1	11- 16
VAR5	F 2. 0	1	17- 18
VAR6	F 2. 0	1	19- 20
VAR7	F 4. 0	1	21- 24
VAR8	F 3. 0	1	25- 27
VAR9	F 3. 0	1	28- 30
VAR10	F 2. 0	1	31- 32
VAR11	F 1. 0	1	33- 33
VAR12	F 2. 0	1	34- 35
VAR13	F 2. 0	1	36- 37
VAR14	F 5. 0	1	38- 42
VAR15	F 1. 0	1	43- 43
VAR16	F 1. 0	1	44- 44
VAR17	F 1. 0	1	45- 45
VAR18	F 1. 0	1	46- 46
VAR19	F 1. 0	1	47- 47
VAR20	F 1. 0	1	48- 48
VAR21	F 1. 0	1	49- 49
VAR22	F 1. 0	1	50- 50
VAR23	F 1. 0	1	51- 51
VAR24	F 1. 0	1	52- 52
VAR25	F 1. 0	1	53- 53
VAR26	F 1. 0	1	54- 54
VAR27	F 1. 0	1	55- 55
VAR28	F 1. 0	1	56- 56
VAR29	F 2. 0	1	57- 58

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR30	F 1. 0	1	59- 59
VAR31	F 1. 0	1	60- 60
VAR32	F 1. 0	1	61- 61
VAR33	F 1. 0	1	62- 62
VAR34	F 1. 0	1	63- 63
VAR35	F 1. 0	1	64- 64
VAR36	F 1. 0	1	65- 65
VAR37	F 1. 0	1	66- 66
VAR38	F 1. 0	1	67- 67
VAR39	F 1. 0	1	68- 68
VAR40	F 1. 0	1	69- 69
VAR41	F 1. 0	1	70- 70
VAR42	F 1. 0	1	71- 71
VAR43	F 1. 0	1	72- 72
VAR44	F 1. 0	1	73- 73

THE INPUT FORMAT PROVIDES FOR 45 VARIABLES. 45 WILL BE READ
IT PROVIDES FOR 1 RECORDS (•CARDS•) PER CASE. A MAXIMUM OF 73 •COLUMNS• ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
MISSING VALUES  ALL(BLANK)
COMPUTE         VAR12A = VAR12
COMPUTE         VAR12B = VAR12
COMPUTE         VAR29A = VAR29
COMPUTE         SITE = VAR3
COMPUTE         PL = VAR9
COMPUTE         FS = VAR4
COMPUTE         TOOL = VAR29
ASSIGN MISSING  ALL(BLANK)
VAR LABELS      VAR1A DATA TYPE/ VAR1 STATE/ VAR2 COUNTY/
                VAR3 SITE NO/ VAR4 FS NUMBER/
                VAR5 MATERIAL ID/
                VAR6 SPECIAL SPECIMEN TYPE/
                VAR7 SPECIAL SPECIMEN NUMBER/
                VAR8 CATALOG ITEM NUMBER/
                VAR9 POINT LOCATION/
                VAR10 TEMPORAL DESIGNATION/
                VAR11 ITEM COMPLETENESS/
                VAR12 MATERIAL CLASS/
                VAR12A GRAIN SIZE/
                VAR12B MATERIAL HARDNESS/
                VAR13 MATERIAL SPECIFIC ID/
                VAR14 ITEM WEIGHT <IN GRAMS>/
                VAR15 THERMAL ALTERATION/
                VAR16 CULTURAL ADHESION/
                VAR17 PRODUCTION TECHNIQUE A/
                VAR18 PRODUCTION TECHNIQUE B/
                VAR19 PRODUCTION TECHNIQUE C/
                VAR20 PRODUCTION TECHNIQUE D/
                VAR21 PRODUCTION TECHNIQUE E/
                VAR22 PRODUCTION STAGE/
                VAR23 USE DAMAGE A/
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```
                    VAR24 USE DAMAGE B/
                    VAR25 USE DAMAGE C/
                    VAR26 USE DAMAGE D/
                    VAR27 USE DAMAGE E/
                    VAR28 USE DAMAGE F/
                    VAR29 MORPHO-USE FORM/
                    VAR29A MORPHO-USE FORM 21/
                    VAR30 CONDITION MODIFICATION A/
                    VAR31 CONDITION MODIFICATION B/
                    VAR32 CONDITION MODIFICATION C/
                    VAR33 CONDITION MODIFICATION D/
                    VAR34 CONDITION MODIFICATION E/
                    VAR35 CONDITION MODIFICATION F/
                    VAR36 CONDITION MODIFICATION G/
                    VAR37 CONDITION MODIFICATION H/
                    VAR38 CONDITION MODIFICATION I/
                    VAR39 CONDITION MODIFICATION J/
                    VAR40 ILLUSTRATION STATUS A/
                    VAR41 ILLUSTRATION STATUS B/
                    VAR42 ILLUSTRATION STATUS C/
                    VAR43 ILLUSTRATION STATUS D/
                    VAR44 ILLUSTRATION STATUS E/
VALUE LABELS        VAR5 (00)NOT APPLICABLE (03)FLAKED LITHICS
                    (04)NON-FLAKED LITHICS/
                    VAR11 (00)INDETERMINATE (1)SMALL FRAGMENT
                    (2)FRAGMENT-PRODUCTION (3)COMPLETE/
                    VAR12 (00)INDETERMINATE (01)IGNEOUS-NFS
                    (02)SEDIMENTARY-NFS (03)METAMORPHIC-NFS
                    (04)CONCRETION (05)CHALK (06)TALC (07)LIMESTONE
                    (08)TRAVERTINE (09)PUMICE (10)UNDIF TUFF
                    (11)VOLCANIC BRECCIA (12)WELDED TUFF
                    (13)SILTSTONE (14)CLAYSTONE (15)SHALE-NOT BAKED
                    (16)BAKED SHALE (17)SCHIST (18)MARBLE (19)CALCITE
                    (20)SYENITE (21)QRTZ LATITE (22)QRTZ MONZONITE
                    (23)QRTZ MASSIVE (24)QRTZ CRYSTAL (25)GRANITE-COARSE
                    (26)GRANITE-FN (27)FELSITE (28)GNEISS
                    (29)AMPHIBOLITE (30)GREENSTONE (31)BRECCIA
                    (32)BASALT-COARSE (33)GABBRO (34)BASALT-FN
                    (35)CONGLOMERATE (36)SANDSTN-36
                    (37)SANDSTN-37
                    (38)SANDSTN-38
                    (39)SANDSTN-39
                    (40)SANDSTN-40
                    (41)SANDSTN-41
                    (42)SANDSTN-42
                    (43)SANDSTN-43
                    (44)SANDSTN-44
                    (45)QRTZITE-COARSE (46)RHYOLITE (47)DIORITE
                    (48)ANDESITE (49)QRTZITE-MED (50)SLATE
                    (51)METARHYOLITE (52)QRTZITE-FN
                    (53)SILTITE (54)ARGILLITE (55)TACYLITE (56)SELENITE
                    (57)LEPIDOLITE (58)AZURITE (59)MALACHITE
                    (60)JET (61)CHERT (62)CHALCEDONY (63)ONYX
                    (64)SERPENTINE (65)TURQUOISE (66)SILICIFIED WOOD
                    (67)VITROPHYRE (68)OBSIDIAN (69)D1/
                    VAR13 (00)INDETERMINATE (01)BRSH BASIN CLAYSTN
                    (02)MORSN G-R QRTZ (03)BRSH BASIN CHERT
                    (04)MANCOS SILTSTN (05)MANCOS SHALE
```

(06)BC TAN OOLITIC
(07)DAKOTA WHT-CHERT
(08)BC GRAY OOLITIC
(09)BC WHITE ORTZITE/
VAR15 (0)INDETERMINATE (1)BURNED (2)NOT BURNED
(3)ANNEALED/
VAR16 (0)INDETERMINATE (1)NO ADHESIONS (2)PIGMENTS ONLY
(3)OTHER ORGANIC (4)RESIN (5)FIBROUS ORGANIC
(6)PIGMENT -ORGANIC/
VAR17 (0)INDETERMINATE (1)NOT PRESENT
(2)FLAKING PRESENT/
VAR18 (0)INDETERMINATE (1)NOT PRESENT
(2)GRINDING PRESENT/
VAR19 (0)INDETERMINATE (1)NOT PRESENT
(02)PECKING PRESENT/
VAR20 (0)INDETERMINATE (1)NOT PRESENT
(02)DRILLING PRESENT/
VAR21 (0)INDETERMINATE (1)NOT PRESENT
(02)GRINDING-POLISHING PRESENT/
VAR22 (0)INDETERMINATE (1)ORIGINAL NODULE
(2)MINIMALLY SHAPED ITEM (3)WELL SHAPED ITEM
(4)STYLIZED/
VAR23 (0)INDETERMINATE (1)NOT PRESENT
(2)GRINDING-ABRASIONS PRESENT/
VAR24 (0)INDETERMINATE (1)NOT PRESENT
(2)STRIATIONS PRESENT/
VAR25 (0)INDETERMINATE (1)NOT PRESENT
(2)BATTERING PRESENT/
VAR26 (0)INDETERMINATE (1)NOT PRESENT
(2)POLISHING PRESENT/
VAR27 (0)INDETERMINATE (1)NOT PRESENT
(2)FLAKING PRESENT/
VAR28 (0)INDETERMINATE (1)NOT PRESENT
(2)PECKING PRESENT/
VAR29 (00)INDETERMINATE (01)ANVIL STN
(02)UNWRK HAMMERSTN (03)WORKED HAMMERSTN
(04)POLISHING STN (05)PLSH-PECKING STN
(06)LIGHTNING STN (07)PESTLE-7
(08)CHOPPER-POLISHER (09)SHAPED STN SLAB
(10)UNSHAPED MANO
(11) MANO-TRIANGULAR
(12) MANO-NOT TRIANG
(13)UNGRVD ABRADING STN (14)GRVD ABRADING STN
(15)LOOMBLOCK (16)NETHERSTN-NFS
(17)SLAB METATE-17
(18)SLAB METATE-18 (19)TROUGH METATE-19
(20)TROUGH METATE-20 (21)TROUGH METATE-21
(22)TROUGH METATE-22 (23)TROUGH METATE-23
(24)TROUGH METATE-24 (25)TROUGH METATE-25
(26)TROUGH METATE-26
(27)MORTAR-BOWL (28)PESTLE-28
(29)PALLET-29
(30)PALLET-30 (31)MAUL-NOT GRVD
(32)MAUL-NOTCHED (33)MAUL-GRVD
(34)AXE-NOT GRVD
(35)AXE-NOTCHED (36)AXE-GRVD (37)TCHAMAHIAS
(38)BUTTON (39)TOGGLE (40)BEAD (41)PENDANT BLANK
(42)PENDANT (43)NECKLACE SEG

```
                    (44)BRACELET (45)EFFIGY (46)PERFORATED DISK
                    (47)METATE-FRAG (48)TOOL-NOTCHED
                    (49)ORNAMENT-NOT (50)PIPE
                    VAR30 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)CHIPPED FOR WAT ID/
                    VAR31 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)ACCID BREAKAGE/
                    VAR32 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)CARBS REMOVED
                    VAR33 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)ORGANIC MATS REMOVED/
                    VAR34 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)THERMOLUMINESENCE /
                    VAR35 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)HYDRATION /
                    VAR36 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)SILASTIC MOLD /
                    VAR37 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)THIN-SECTION
                    VAR38 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)TRACE MINERAL-DESTROYED
                    VAR39 (0)INDETERMINATE (1)NO MODIFICATION
                    (2)TRACE MINERAL-NOT DESTROYED/
          RECODE    VAR12A 11,12,25,28,35 THRU 38,45,47 = 490)
                    (09,10,17,20,22,26,29,32,33,39 THRU 41, 48, 49 = 491)
                    (05,13 THRU 16,21,27,30,34,42,43,44,46,50 THRU 54 = 492)
                    (06,07,08,18,19,23,24,55 THRU 69 = 493)
                    (01 THRU 04,31 = 494)/
                    VAR12B(05,06,09,10,14,15,18,19,36,39,42,56,57,60
                    ,65,69 = 500)(07,08,11,12,13,16,17,38,41,44,50,55,
                    58,59,64 = 501)(01,20 THRU 30,32,33,34,35,37,40,43,
                    45 THRU 49,51 THRU 54,61 THRU 63,65 THRU 68 = 502)
                    (02,03,04,31 = 503)/
                    VAR29A (01,04 THRU 08 = 510)(02,03 = 511)(10,11,12 = 512)
                    (17,18 = 513)(19 THRU 26 = 514)(16,47 = 515)
                    (31 THRU 37,48 = 516)(09,13,14,15,27,28,29,30,38 THRU 46,
                    49,50 = 517)/
          VALUE LABELS  VAR12A (490)COARSE (491)MEDIUM (492)FINE (493)NON-GRANULAR
                    (494)INDETERMINATE/
                    VAR12B (500)SOFT (501)MEDIUM (502)HARD (503)INDETERMINATE/
                    VAR29A (510)UNHAFTED (511)HAMMERSTONES (512)MANOS
                    (513)SLAB METATES (514)TROUGH METATES (515)FRAG METATES
                    (516)HAFTED IMPLEMENTS (517)SPECIALIZED/
          PRINT FORMATS  VAR1A,VAR2(A)
          READ INPUT DATA
CASE    5219 IN SUBFILE SPNFLT   HAS ILLEGAL DATA.  BAD VARIABLES WERE SET TO BLANK.
CASE    6443 IN SUBFILE SPNFLT   HAS ILLEGAL DATA.  BAD VARIABLES WERE SET TO BLANK.

END OF FILE ON FILE NFLT10
AFTER READING   6974 CASES FROM SUBFILE SPNFLT
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EDIT
RUN NAME        PHOTOGRAPHIC CATALOG INDEX * 1970/1980
FILE NAME       SPPHOTO
VARIABLE LIST   DATE1,DATE2,CAMERA,FIELD,FILM,ROLL,NOEXPS,SPEED,
                DATE,EXPOS,EDGE,RECORDER,SITE,CODE1,TYPE1,NUMBER1,CODE2,
                TYPE2,NUMBER2,CODE3,TYPE3,NUMBER3,BAND,USE,QUALITY
INPUT FORMAT    FIXED (2F6.0,F2.0,F1.0,F2.0,A4,F2.0,F3.0,
                3F2.0,A4,1X,F4.0,A1,F2.0,F4.0,A1,F2.0,F4.0,A1,F2.0,
                F4.0,F1.0,A1,F1.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
DATE1	F 6. 0	1	1- 6
DATE2	F 6. 0	1	7- 12
CAMERA	F 2. 0	1	13- 14
FIELD	F 1. 0	1	15- 15
FILM	F 2. 0	1	16- 17
ROLL	A 4	1	18- 21
NOEXPS	F 2. 0	1	22- 23
SPEED	F 3. 0	1	24- 26
DATE	F 2. 0	1	27- 28
EXPOS	F 2. 0	1	29- 30
EDGE	F 2. 0	1	31- 32
RECORDER	A 4	1	33- 36
SITE	F 4. 0	1	38- 41
CODE1	A 1	1	42- 42
TYPE1	F 2. 0	1	43- 44
NUMBER1	F 4. 0	1	45- 48
CODE2	A 1	1	49- 49
TYPE2	F 2. 0	1	50- 51
NUMBER2	F 4. 0	1	52- 55
CODE3	A 1	1	56- 56
TYPE3	F 2. 0	1	57- 58
NUMBER3	F 4. 0	1	59- 62
BAND	F 1. 0	1	63- 63
USE	A 1	1	64- 64
QUALITY	F 1. 0	1	65- 65

THE INPUT FORMAT PROVIDES FOR 25 VARIABLES. 25 WILL BE READ
IT PROVIDES FOR 1 RECORDS (-CARDS-) PER CASE. A MAXIMUM OF 65 *COLUMNS* ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
PRINT FORMATS   CODE1,CODE2,CODE3,ROLL,USE
                RECORDER (A)
SELECT IF       (SITE EQ 2192)
```

```
WRITE CASES     (4X,F1.0,3X,F4.0,5X,A1,2X,F2.0,F4.0,5X,A1,2X,F2.0,F4.0,5X,
                A1,2X,F2.0,F4.0,5X,A1,4X,A4,F2.0,9X,F1.0,5X,F2.0,5X,
                F2.0,5X,F6.0) FIELD,SITE,CODE1,TYPE1,NUMBER1,CODE2,TYPE2,
                NUMBER2,CODE3,TYPE3,NUMBER3,USE,ROLL,EXPOS,QUALITY,EDGE,
                FILM,DATE1
READ INPUT DATA
FINISH

00043000 CM NEEDED FOR WRITE CASES


RUN COMPLETED

NUMBER OF CONTROL CARDS READ  20
NUMBER OF ERRORS DETECTED   0
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RUN NAME        FAUNAL ANALYSIS * EMSLIE 1980
FILE NAME       SPFAUNA
VARIABLE LIST   STATE,COUNTY,SITE,FS,MATID,CATNO,SPECTYP,SPECNO,PL,
                MODIFY,CLASS,ORDER,FAMILY,SPECIES,SIDE,ELEMENT,ITEMNO,
                CUTLOC,CUTKIND,CUTNO,BREAKAGE,MEASURE,COMMENT1,COMMENT2,
                COMMENT3,COMMENT4
INPUT FORMAT    FIXED(F2.0,A2,F5.0,F6.0,F2.0,F3.0,F2.0,F4.0,F3.0,
                2F1.0,3F2.0,F1.0,F3.0,F2.0,2F1.0,2F2.0,F3.0,4F2.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
STATE	F 2. 0	1	1- 2
COUNTY	A 2	1	3- 4
SITE	F 5. 0	1	5- 9
FS	F 6. 0	1	10- 15
MATID	F 2. 0	1	16- 17
CATNO	F 3. 0	1	18- 20
SPECTYP	F 2. 0	1	21- 22
SPECNO	F 4. 0	1	23- 26
PL	F 3. 0	1	27- 29
MODIFY	F 1. 0	1	30- 30
CLASS	F 1. 0	1	31- 31
ORDER	F 2. 0	1	32- 33
FAMILY	F 2. 0	1	34- 35
SPECIES	F 2. 0	1	36- 37
SIDE	F 1. 0	1	38- 38
ELEMENT	F 3. 0	1	39- 41
ITEMNO	F 2. 0	1	42- 43
CUTLOC	F 1. 0	1	44- 44
CUTKIND	F 1. 0	1	45- 45
CUTNO	F 2. 0	1	46- 47
BREAKAGE	F 2. 0	1	48- 49
MEASURE	F 3. 0	1	50- 52
COMMENT1	F 2. 0	1	53- 54
COMMENT2	F 2. 0	1	55- 56
COMMENT3	F 2. 0	1	57- 58
COMMENT4	F 2. 0	1	59- 60

THE INPUT FORMAT PROVIDES FOR 26 VARIABLES. 26 WILL BE READ
IT PROVIDES FOR 1 RECORDS (*CARDS*) PER CASE. A MAXIMUM OF 60 *COLUMNS* ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
MISSING VALUES  ALL(BLANK)
COMPUTE         TAXON=((CLASS*1000000)+(ORDER*10000)+(FAMILY*100)+SPECIES)
VAR LABELS      MATID MATERIAL ID/ CATNO CATALOG ITEM NUMBER/
```

SPECTYP SPECIAL SPECIMEN TYPE/ SPECNO SPECIAL SPECIMEN NO/
MODIFY MODIFICATION/ TAXON CLASS-ORDER-FAMILY-SPECIES/
ITEMNO ITEM NUMBER/ CUTLOC CUT MARKS LOCATION/
CUTKIND CUT MARKS KIND/ CUTNO NUMBER OF CUT MARKS/

VALUE LABELS MODIFY (0)UNWORKED BONE (1)WORKED BONE/
SIDE (0)INDETERMINATE (1)RIGHT (2)LEFT (3)NOT APPLICABLE/
ELEMENT (0)MS-INDT. (1)MS-BASISPHENOID (2)MS-PRESPHENOID
(3)MS-ALISPHENOID (4)MS-VOMER (5)MS-TEMPORAL
(6)MS-PREMAXILLA (7)MS-PALATINE (8)MS-NASAL (9)MS-PARIETAL
(10)MS-OCCIPITAL (11)MS-MAXILLA (12)MS-MALAR (13)MS-LACRIMAL
(14)MS-INTERPARIETAL (15)MS-FRONTAL (16)MS-JUGAL
(17)MS-AUDITORY BULLA (18)MS-SQUAMOSAL (19)MS-HYOID
(20)MS-INCISOR1 (21)MS-INCISOR2 (22)MS-INCISOR3
(23)MS-INCISOR4 (24)MS-CANINE1 (25)MS-PREMOLAR1 (26)MS-PREMOLAR2
(27)MS-PREMOLAR3 (28)MS-PREMOLAR4 (29)MS-MOLAR1 (30)MS-MOLAR2
(31)MS-MOLAR3 (32)MS-MOLAR4 (33)MS-MANDIBLE
(38)MS-COMPLETE (39)MS-TOOTH FRAG (40)AS-INDT.
(41)AS-PTERYGOID (42)AS-QUADRATE (43)AS-POSTFRONTAL PROC
(44)AS-SUPRAOCCIPITAL (45)AS-QUADRATOJUGAL (46)AS-ETHMOID
(47)AS-SQUAMOSAL (48)AS-OCCIPITAL CONDYLE (49)AS-BASIOCCIPITAL
(50)AS-EXOCCIPITAL (51)AS-BASITEMPORAL PL (53)AS-MANDIBLE
(54)AS-SKULL (55)RS-INDT. (56)RS-PROOTIC (57)RS-PREFONTAL
(58)RS-TRANSVERSUM (59)RS-ECTOPTERYGOID
(65)AMP-S INDT. (66)AMP-S PARASPHENOID (67)AMP-S FRONTO-PARIETAL
(68)AMP-S COLUMELLA (69)DUMMY (70)OS-INDT. (71)OS-HYOMANDIBULAR
(72)OS-PREOPERCULUM (73)OS-INTEROPERCULUM (74)OS-OPERCULUM
(75)OS-SUBOPERCULUM (76)OS-CLEITHRUM (77)OS-CERATOHYAL
(78)OS-BRANCHIOSTEGAL (79)OS-CIRCUMORBITAL (80)OS-GULAR PLATE
(81)OS-METAPTERYGOID (82)OS-DERMETHMOID (83)OS-POST TEMPORAL
(84)OS-ARTICULAR (85)OS-OTOLITH (86)SPHENOTIC (87)OS-EPIOTIC
(88)OS-PTEROTIC (89)OS-OPISTHOTIC (99)SKULL-INDT.
(100)VERT-INDT. (101)VERT-ATLAS (102)VERT-AXIS
(103)VERT-CERVICAL (104)VERT-THORACIC (105)VERT-LUMBAR
(106)VERT-VERT-SACRAL
(107)VERT-SACRUM (108)VERT-CAUDAL (109)VERT-CENTRUM
(110)VERT-TRANSVERSE PR (111)VERTSPINOUS PR (112)VERT-SYNSACRUM
(113)VERT-COCCYGEAL (114)VERT-PYGOSTYLE (115)VERT-ULTIMATE
(117)VERT-FUSED THORACIC (120)RIB-INDT. (121)RIB-CLAVICLE
(122)RIB-STERNAL (123)RIB-VERTEBRAL (124)RIB-PLEURAL
(125)RIB-NFS (130)STERNUM-INDT. (131)STERNUM CARINAL
(132)STERNUM-COSTAL (133)STERNUM-MANUBRIUM (134)STERNUM-LATERAL
(135)STERNUM-XIPHISTERNUM (136)STERNUM-NFS
(140)SCAPULA-INDT. (141)SCAPULA-GLENOID (142)SCAPULA-ACROMION
(143)SCAPULA-CAUDAL (144)SCAPULA-CRANIAL (145)SCAPULA-NFS
(146)FURCULUM (150)INNOMINATE-NFS (151)INNOMINATE-INDT.
(152)INNOMINATE-ILIUM (153)INNOMINATE-ISHIUM
(154)INNOMINATE-PUBIS (155)INNOMINATE-ACET.
(160)CORACOID (161)HUMERUS (162)RADIUS (163)ULNA
(164)CARPAL-INDT. (165)CARPAL-SCAPHOLUNAR (166)CARPAL-PISSIFORM
(167)CARPAL-CUNEIFORM (168)CARPAL-UNCIFORM (169)CARPAL-SCAPHOID
(170)CARPAL-LUNAR (171)CARPAL-TRAPEZOID (180)METACARPAL-INDT.
(181)METACARPAL1 (182)METACARPAL2 (183)METACARPAL3
(184)METACARPAL4 (185)METACARPAL5 (190)PHALANGE-INDT.
(191)PHALANGE1 (192)PHALANGE2 (193)PHALANGE3 (194)PHALANGE4
(195)PHALANGE-UNGUAL (196)PHALANGE-POLLEX (197)PHALANGE-HALLUX
(199)COMPLETE FOOT (210)FEMUR (211)TIBIA (212)TIBIO-FIBULA
(213)TIBIOTARSUS (214)FIBULA (215)PATELLA (216)TARSAL-INDT.
(217)TARSAL-CALCANEUM (218)TARSAL-ASTRAGALUS

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                    (219)TARSAL-CUNEIFORM (220)TARSAL-NAVICULAR
                    (221)TARSAL-NC (222)TARSAL-CUBOID (223)TARSAL-SCAPHOID
                    (230)METATARSAL-INDT. (231)METATARSAL1 (232)METATARSAL2
                    (233)METATARSAL3 (234)METATARSAL4 (235)METATARSAL5
                    (237)METAPODIA 2-5 (240)METAPODIA (241)CARPOMETACARPUS
                    (242)TARSOMETATARSUS (243)UROSTYLE (244)RADIO-ULNA
                    (245)CARAPACE (246)PLASTRON (247)SUPRACLAVICLE
                    (248)PTERYGIOPHORES (249)SCALE (25)EGGSHELL (251)FEATHER-INDT.
                    (252)FEATHER-PRIMARY (253)FEATHER-SECONDARY (254)FEATHER-BREAST
                    (255)FEATHER-TAIL (256)FEATHER-HEAD (257)FEATHER-COVERT
                    (258)FEATHER-QUILL (300)LONG BONE FRAG (301)UNINDT FRAG
                    (302)SKULL-OCCIPITAL FRAG (303)SKULL-INCISOR
                    (304 SKULL-MOLAR (305)SKULL-PREMOLAR/
                    CUTCC (0)NOT PRESENT (1)OBLIQUE (2)PERPENDICULAR
                    (3)PARALLEL (4)INDT./
                    BREAKAGE (0)NOT PRESENT (1)LONG BONE FRAG (2)INDT FRAG
                    (3)FRESH-PROXIMAL (4)FRESH-DISTAL (5)FRESH-BOTH ENDS
                    (6)SPIRAL FRAC ?6 (7)SPIRAL FRAC ?7 (8)SPIRAL FRAC ?8
                    (9)SNAP FRAC-PROXIMAL (10)SNAP FRAC-DISTAL (11)SNAP FRAC-BOTH
                    (12)SNAP FRAC ?12 (13)SNAP FRAC ?13 (14)SNAP FRAC ?14
                    (15)SNAP FRAC ?15 (16)SPRIAL FRAC ?16 (17)SPIRAL FRAC ?17
                    (18)BREAKAGE INDT. (44)PROXIMAL-SNAP (45)DISTAL-SNAP
                    (46)MEDIAL-SPIRAL (47)PROXIMAL-SPIRAL (48)MEDIAL-SNAP
                    (49)PROXIMAL EPIPHYSIS (50)DISTAL (51)ANTERIOR
                    (52)POSTERIOR (53)SPINOUS-SNAP (54)ANTERIOR FRAG
                    (55)POSTERIOR (56)DISTAL-SPIRAL (57)DISTAL-SNAP ?57
                    (58)ONE-HALF FRAG (59)ONE-HALF SPLIT
                    (60)DUMMY/
          PRINT FORMAT   COUNTY (A)
          READ INPUT DATA

END OF FILE ON FILE FAUNA10
AFTER READING   3121 CASES FROM SUBFILE SPFAUNA
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EDIT
RUN NAME        FIELD PROVENIENCE CHECK * 1980
FILE NAME       SPPROV
VARIABLE LIST   STATE,COUNTY,SITE,LOCALITY,FS,AREA,SUBAREA,SUTYPE,SUNUM,
                SUSUBD,SUHORIZ,SUVERT,SUGRID,SULEVL,SUSURF,SUFAP,SUFAT,
                FTYPE,FNUM,FSUBD,FHORIZ,FVERT,FGRID,FLEVL,FFAT,COLLECT
INPUT FORMAT    FIXED(F2.0,A2,F5.0,F3.0,F6.0,2F1.0,F2.0,F6.0,F1.0,F4.0,
                2F3.0,F1.0,4F2.0,F6.0,F1.0,F4.0,2F3.0,F1.0,2F2.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
STATE	F 2. 0	1	1- 2
COUNTY	A 2	1	3- 4
SITE	F 5. 0	1	5- 9
LOCALITY	F 3. 0	1	10- 12
FS	F 6. 0	1	13- 18
AREA	F 1. 0	1	19- 19
SUBAREA	F 1. 0	1	20- 20
SUTYPE	F 2. 0	1	21- 22
SUNUM	F 6. 0	1	23- 28
SUSUBD	F 1. 0	1	29- 29
SUHORIZ	F 4. 0	1	30- 33
SUVERT	F 3. 0	1	34- 36
SUGRID	F 3. 0	1	37- 39
SULEVL	F 1. 0	1	40- 40
SUSURF	F 2. 0	1	41- 42
SUFAP	F 2. 0	1	43- 44
SUFAT	F 2. 0	1	45- 46
FTYPE	F 2. 0	1	47- 48
FNUM	F 6. 0	1	49- 54
FSUBD	F 1. 0	1	55- 55
FHORIZ	F 4. 0	1	56- 59
FVERT	F 3. 0	1	60- 62
FGRID	F 3. 0	1	63- 65
FLEVL	F 1. 0	1	66- 66
FFAT	F 2. 0	1	67- 68
COLLECT	F 2. 0	1	69- 70

THE INPUT FORMAT PROVIDES FOR 26 VARIABLES. 26 WILL BE READ
IT PROVIDES FOR 1 RECORDS (*CARDS*) PER CASE. A MAXIMUM OF 70 *COLUMNS* ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
MISSING VALUES  ALL(BLANK)
VAR LABELS      SUTYPE  STUDY UNIT TYPE/SUNUM  STUDY UNIT NUMBER/
                SUSUBD  STUDY UNIT SUBDIVISION HIERARCHY/
```

```
                    SUHORIZ  STUDY UNIT HORIZONTAL/
                    SUVERT  STUDY UNIT VERTICAL SUGRID  STUDY UNIT GRID/
                    SULEVL  STUDY UNIT LEVEL/SUSURF  STUDY UNIT SURFACE/
                    SUFAP  STUDY UNIT FILL ASSEMBLAGE POSITION/
                    SUFAT  STUDY UNIT FILL ASSEMBLAGE TYPE/
                    FTYPE  FEATURE TYPE/FNUM  FEATURE NUMBER/
                    FSUBD  FEATURE SUBDIVISION HIERARCHY/
                    FHORIZ  FEATURE HORIZONTAL/FVERT  FEATURE VERTICAL/
                    FGRID  FEATURE GRID/FLEVL  FEATURE LEVEL/
                    FFAT  FEATURE FILL ASSEMBLAGE TYPE/
                    COLLECT  MODE OF COLLECTION
        PRINT FORMATS  COUNTY(A)
        SELECT IF      (SITE EQ 2242)
        FREQUENCIES    GENERAL = ALL

FREQUENCIES - INITIAL CM ALLOWS FOR  3307 VALUES, MAXIMUM CM ALLOWS FOR 10624 VALUES.



        WRITE CASES    (1X,F2.0,1X,A2,1X,F5.0,1X,F3.0,1X,F6.0,1X,F1.0,1X,F1.0,1X,
                       F2.0,1X,F6.0,1X,F1.0,1X,F4.0,1X,F3.0,1X,F3.0,1X,F1.0,1X,
                       F2.0,1X,F2.0,1X,F2.0,1X,F2.0,1X,F6.0,1X,F1.0,1X,F4.0,1X,
                       F3.0,1X,F3.0,1X,F1.0,1X,F2.0,1X,F2.0) STATE TO SUHORIZ,
                       SUGRID,SUVERT,SULEVL TO FHORIZ,FGRID,FVERT,FLEVL TO COLLECT
        READ INPUT DATA
        FINISH

C0043000 CM NEEDED FOR WRITE CASES



RUN COMPLETED

NUMBER OF CONTROL CARDS READ  33
NUMBER OF ERRORS DETECTED   0
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S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1   430/428  FEBRUARY 1979


          RUN NAME        STRUCTURAL ANALYSES OF DAP PLOTS
          FILE NAME       SPLISA
          VARIABLE LIST   VAR1 TO VAR8
          INPUT FORMAT    FIXED(F2.0,2F3.0,F4.0,F4.1,F4.1,F3.0,F5.0)


          ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

          VARIABLE  FORMAT  RECORD    COLUMNS

          VAR1       F 2. 0       1     1-   2
          VAR2       F 3. 0       1     3-   5
          VAR3       F 3. 0       1     6-   8
          VAR4       F 4. 0       1     9-  12
          VAR5       F 4. 1       1    13-  16
          VAR6       F 4. 1       1    17-  20
          VAR7       F 3. 0       1    21-  23
          VAR8       F 5. 0       1    24-  28

THE INPUT FORMAT PROVIDES FOR   8 VARIABLES.    8 WILL BE READ
IT PROVIDES FOR  1 RECORDS (*CARDS*) PER CASE.  A MAXIMUM OF   28 *COLUMNS* ARE USED ON A RECORD.

          COMPUTE         VARSA=VAR5
          VAR LABELS      VAR1 TRANSECT NUMBER/ VAR2 RELEVE NUMBER/
                          VAR3 PLOT NUMBER/ VAR4 TREE NUMBER/
                          VAR5 LOWER DIAMETER/ VAR6 UPPER DIAMETER/
                          VAR7 AGE/ VAR8 HEIGHT/
          N OF CASES      UNKNOWN
          RECODE          VARSA  LOWEST THRU 1.0 = 901)(1.1 THRU 5.0 = 902)
                          (5.1 THRU 10.0 = 903)(10.1 THRU 15.0 = 904)
                          (15.1 THRU 20.0 = 905)(20.1 THRU 25.0 = 906)
                          (25.1 THRU 30.0 = 907)(30.1 THRU 35.0 = 908)
                          (35.1 THRU 40.0 = 909)(40.1 THRU 45.0 = 910)
                          (45.1 THRU 50.0 = 911)(50.1 THRU 55.0 = 912)
                          (55.1 THRU 60.0 = 913)(60.1 THRU 65.0 = 914)
                          (65.1 THRU 70.0 = 915)(70.1 THRU 75.0 = 916)
                          (75.1 THRU 80.0 = 917)(80.1 THRU 85.0 = 918)
                          (85.1 THRU 90.0 = 919)(90.1 THRU 95.0 = 920)
                          (95.1 THRU 100.0 = 921)(100.1 THRU 105.0 = 922)
                          (105.1 THRU 110.0 = 923)
          VALUE LABELS    VARSA (901)LESS THAN 1.0 (902)1.1 THRU 5.0
                          (903)5.1 THRU 10.0 (904)10.1 THRU 15.0
                          (905)15.1 THRU 20.0 (906)20.1 THRU 25.0
                          (907)25.1 THRU 30.0 (908)30.1 THRU 35.0
                          (909)35.1 THRU 40.0 (910)40.1 THRU 45.0
                          (911)45.1 THRU 50.0 (912)50.1 THRU 55.0
                          (913)55.1 THRU 60.0 (914)60.1 THRU 65.0
                          (915)65.1 THRU 70.0 (916)70.1 THRU 75.0
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                    (917)75.1 THRU 80.0 (918)80.1 THRU 85.0
                    (919)85.1 THRU 90.0 (920)90.1 THRU 95.0
                    (921)95.1 THRU 100.0 (922)100.1 THRU 105.0
                    (923)105.1 THRU 110.0/
PRINT FORMATS       VAR5,VAR6(1)
COMMENT             VAR2 (RELEVE NUMBER) HAS BEEN REDUCED TO A THREE
                    CHARACTER FIELD.
```

RUN COMPLETED

NUMBER OF CONTROL CARDS READ 37
NUMBER OF ERRORS DETECTED 0

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S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1   430/428  FEBRUARY 1979


          RUN NAME        CONE COUNTS FOR PINUS EDULIS
          FILE NAME       SPPINUS
          VARIABLE LIST   VAR1 TO VAR9
          INPUT FORMAT    FIXED(F2.0,F3.0,F4.1,F5.2,5F4.0)

         ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

         VARIABLE  FORMAT  RECORD    COLUMNS

         VAR1       F 2. 0       1      1-   2
         VAR2       F 3. 0       1      3-   5
         VAR3       F 4. 1       1      6-   9
         VAR4       F 5. 2       1     10-  14
         VAR5       F 4. 0       1     15-  18
         VAR6       F 4. 0       1     19-  22
         VAR7       F 4. 0       1     23-  26
         VAR8       F 4. 0       1     27-  30
         VAR9       F 4. 0       1     31-  34

THE INPUT FORMAT PROVIDES FOR   9 VARIABLES.    9 WILL BE READ
IT PROVIDES FOR  1 RECORDS (*CARDS*) PER CASE.  A MAXIMUM OF   34 *COLUMNS* ARE USED ON A RECORD.

          VAR LABELS      VAR1 TRANSECT NUMBER/ VAR2 TREE NUMBER/
                          VAR3 BASAL DIAMENTER/ VAR4 HEIGHT/
                          VAR5 YEAR 1/ VAR6 NUMBER OF MEGASTROBOLI 1/
                          VAR7 YEAR 2 / VAR8 NUMBER OF MEGASTROBOLI 2/
                          VAR9 MICROSTROBOLI/
          N OF CASES      UNKNOWN
          PRINT FORMAT    VAR3 (1),VAR4(2)
          READ INPUT DATA

END OF FILE ON FILE PINUS10
AFTER READING    286 CASES FROM SUBFILE SPPINUS
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S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1   430/428  FEBRUARY 1979


          RUN NAME        SURVEY DATA 1978 AND 1979
          FILE NAME       SURVEY1
          VARIABLE LIST   VAR1A,VAR1 TO VAR12
          INPUT FORMAT    FIXED(5X,A1,F4.0,F6.0,10F2.0)

          ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

          VARIABLE  FORMAT  RECORD    COLUMNS

          VAR1A        A 1       1      6-   6
          VAR1      F 4. 0       1      7-  10
          VAR2      F 6. 0       1     11-  16
          VAR3      F 2. 0       1     17-  18
          VAR4      F 2. 0       1     19-  20
          VAR5      F 2. 0       1     21-  22
          VAR6      F 2. 0       1     23-  24
          VAR7      F 2. 0       1     25-  26
          VAR8      F 2. 0       1     27-  28
          VAR9      F 2. 0       1     29-  30
          VAR10     F 2. 0       1     31-  32
          VAR11     F 2. 0       1     33-  34
          VAR12     F 2. 0       1     35-  36

THE INPUT FORMAT PROVIDES FOR  13 VARIABLES.   13 WILL BE READ
IT PROVIDES FOR  1 RECORDS (=CARDS=) PER CASE.  A MAXIMUM OF   36 =COLUMNS= ARE USED ON A RECORD.

          N OF CASES      UNKNOWN
          VAR LABELS      VAR1A FLAG/ VAR1 SITE NUMBER/ VAR2 SITE SIZE <SQ METERS>/
                          VAR3 SITE TYPE/ VAR4 TIME1/ VAR5 TIME2/ VAR6 TIME2/
                          VAR7 TIME4/ VAR8 FUNCTION1/ VAR9 FUNCTION2/
                          VAR10 FUNCTION3/ VAR11 FUNCTION4/ VAR12 LOCALITY/
          VALUE LABELS    VAR3 (01)PM (02)LS (03)L _ CS (04)RXS/
                          VAR4 (00)INDETERMINATE (01)PLANO (02)BIG BEND
                          (03)GREAT CUT (04)SAGEHEN (05)MCPHEE (06)SUNDIAL
                          (07)SHOSHONEAN/
                          VAR5 (00)INDETERMINATE (01)PLANO (02)BIG BEND
                          (03)GREAT CUT (04)SAGEHEN (05)MCPHEE (06)SUNDIAL
                          (07)SHOSHONEAN/
                          VAR6 (00)INDETERMINATE (01)PLANO (02)BIG BEND
                          (03)GREAT CUT (04)SAGEHEN (05)MCPHEE (06)SUNDIAL
                          (07)SHOSHONEAN/
                          VAR7 (00)INDETERMINATE (01)PLANO (02)BIG BEND
                          (03)GREAT CUT (04)SAGEHEN (05)MCPHEE (06)SUNDIAL
                          (07)SHOSHONEAN/
                          VAR8 (01)QUARRY (02)PROCUREMENT 03)PROCESSING
                          (04)MANUFACTURE (05)STORAGE (06)SHRINES (07)ROCKART
                          (08)MARKERS (09)FIELD HOUSE (10)TOWER (11)BASE CAMP
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                    (12)HAMLET (13)LARGE HAMLET (14)VILLAGE (15)HABITATION
                    (16)NON-HABITATION (17)PROC CAMP (18)WATER CONTROL/
                    VAR9  (01)QUARRY (02)PROCUREMENT (03)PROCESSING
                    (04)MANUFACTURE (05)STORAGE (06)SHRINES (07)ROCKART
                    (08)MARKERS (09)FIELD HOUSE (10)TOWER (11)BASE CAMP
                    (12)HAMLET (13)LARGE HAMLET (14)VILLAGE (15)HABITATION
                    (16)NON-HABITATION (17)PROC CAMP (18)WATER CONTROL/
                    VAR10 (01)QUARRY (02)PROCUREMENT (03)PROCESSING
                    (04)MANUFACTURE (05)STORAGE (06)SHRINES (07)ROCKART
                    (08)MARKERS (09)FIELD HOUSE (10)TOWER (11)BASE CAMP
                    (12)HAMLET (13)LARGE HAMLET (14)VILLAGE (15)HABITATION
                    (16)NON-HABITATION (17)PROC CAMP (18)WATER CONTROL/
                    VAR11  (01)QUARRY (02)PROCUREMENT (03)PROCESSING
                    (04)MANUFACTURE (05)STORAGE (06)SHRINES (07)ROCKART
                    (08)MARKERS (09)FIELD HOUSE (10)TOWER (11)BASE CAMP
                    (12)HAMLET (13)LARGE HAMLET (14)VILLAGE (15)HABITATION
                    (16)NON-HABITATION (17)PROC CAMP (18)WATER CONTROL/
                    VAR12  (00)INDETERMINATE (01)WILLOW DRAW (02)SALTER CAN
                    (03)HOPE POINT (04)YELLOWJACKET (05)WINDY RUIN
                    (06)GRASS MESA (07)TRIMBLE POINT (08)BEAVER POINT
                    (09)CLINES CREST (10)SAGEHEN (11)PERIMAN (12)HOUSE CR
                    (13)MAY CANYON (14)DOLORES (15)ESCALANTE
                    (16)RESERVOIR (17)CARYLE POINT/
          READ INPUT DATA

END OF FILE ON FILE SURV10
AFTER READING    317 CASES FROM SUBFILE SURVEY1
```

S P S S - - STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

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EDIT
RUN NAME        CERAMICS DATA ANALYSIS
FILE NAME       SPCERAM
VARIABLE LIST   FLAG,STATE,COUNTY,SITE,FS,VATID,CATNO,SPECTYP,SPECNO,PL,ARTFORM,
                FIRING,TEMPER,MANIPUL,COMPACT,COVER,PNTTYPE,PNTCOLR,CULTCAT,WARE,
                TYPE,FORM,LOTWT,LOTCNT,RIMCNT,MODCNT,SPHANDL
INPUT FORMAT    FIXED(A1,F2.0,A2,F5.0,F6.0,F2.0,F3.0,F2.0,2F4.0,2F1.0,F2.0,5F1.0,
                F2.0,F1.0,2F2.0,F6.0,3F4.0,A1)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
FLAG	A 1	1	1- 1
STATE	F 2. 0	1	2- 3
COUNTY	A 2	1	4- 5
SITE	F 5. 0	1	6- 10
FS	F 6. 0	1	11- 16
VATID	F 2. 0	1	17- 18
CATNO	F 3. 0	1	19- 21
SPECTYP	F 2. 0	1	22- 23
SPECNO	F 4. 0	1	24- 27
PL	F 4. 0	1	28- 31
ARTFORM	F 1. 0	1	32- 32
FIRING	F 1. 0	1	33- 33
TEMPER	F 2. 0	1	34- 35
MANIPUL	F 1. 0	1	36- 36
COMPACT	F 1. 0	1	37- 37
COVER	F 1. 0	1	38- 38
PNTTYPE	F 1. 0	1	39- 39
PNTCOLR	F 1. 0	1	40- 40
CULTCAT	F 2. 0	1	41- 42
WARE	F 1. 0	1	43- 43
TYPE	F 2. 0	1	44- 45
FORM	F 2. 0	1	46- 47
LOTWT	F 6. 0	1	48- 53
LOTCNT	F 4. 0	1	54- 57
RIMCNT	F 4. 0	1	58- 61
MODCNT	F 4. 0	1	62- 65
SPHANDL	A 1	1	66- 66

THE INPUT FORMAT PROVIDES FOR 27 VARIABLES. 27 WILL BE READ
IT PROVIDES FOR 1 RECORDS (*CARDS*) PER CASE. A MAXIMUM OF 66 *COLUMNS* ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
MISSING VALUES ALL(BLANK)
COMPUTE         TYPEA=1000*CULTCAT + 100*WARE + TYPE
```

```
ASSIGN MISSING TYPEA (BLANK)
PRINT FORMATS  FLAG,COUNTY,SPHANDL (A)
VAR LABELS     FS FS NUMBER/ MATID MATERIAL ID/
               CATNO CATALOG ITEM NUMBER/ SPECTYP SPECIAL SPECIMEN TYPE/
               SPECNO SPECIAL SPECIMEN NUMBER/ PL POINT LOCATION/
               ARTFORM ARTIFACT FORM/ FIRING ATMOSPHERE/
               MANIPUL SURFACE MANIPULATION/ COMPACT SURFACE COMPACTION/
               COVER SURFACE COVER/ PNTTYPE PAINT TYPE/ PNTCOLR PAINT COLOR/
               CULTCAT CULTURAL CATEGORY/ TYPEA TRADITIONAL TYPE/
               FORM GENERAL FORM/ LOTWT LOT WEIGHT <IN GRAMS>/
               LOTCNT LOT COUNT/ RIMCNT RIM SHERD COUNT/
               MODCNT MODIFIED ITEM COUNT/ SPHANDL SPECIAL HANDLING STATUS/
VALUE LABELS   SPECTYP (01)PECOS VESSEL-RC
               (99 ISOLATED FIND-IF/
               ARTFORM (1)WHOLE-PART VESSEL (2)VESSEL SHERDS
               (3)OTHER VESSEL/
               FIRING (0)INAPPLICABLE (1)INDETERMINATE (2)UNFIRED
               (3 REDUCED (4)OXIDIZED (5)REFIRED (6)VITRIFIED (7)OTHER/
               TEMPER (00)INAPPLICABLE (01)INDETERMINATE (02)NONE
               (03)ANDESITE-DIORITE (04)SHERD A-D
               (05)TRACHY-BASALT W-HEMATITE (06)SAND-QUARTZ
               (07)SAND-MULTILITHIC (08)MICA (09)SHERD-QRTZ SAND
               (10)QRTZ W-HEMATITE (11)TRACHY BASALT (12)SJ CRUSHED ROCK
               (13)SANDSTONE (14)SHERD AND SJ
               (15)CRSH SHERD SANDSTN (16)CONGLOM (17)MIXED
               (18)DAKOTA SANDSTN
               (19)QRTZ AND CONGLOMERATE (20)CRUSHED SANDSTN
               (21)SHERD (22)FINE SJ CRUSHED (23)DARK ANDESITE DIORITE
               (24)CRSH SANDSTN MATRIX (25)SHERD TRACHY BASALT
               (30)IGNEOUS CRUSHED (31)STAINED QUARTZ
               (32)COURSE QRTZ SAND (33)SHERD-QRTZ SAND
               (34)FINE QRTZ SAND/
               MANIPUL (0)INAPPLICABLE (1)INDETERMINATE (2)PLAIN
               (3)FILLETED (4)COILED (5)CORRUGATED (6)PINCHED
               (7)INCISED (8)PERFORATED (9)BASKET IMPRESSED/
               COMPACT (0)INAPPLICABLE (1)INDETERMINATE
               (2)UNPOLISHED-NONE (3)POLISHED (4)OTHER/
               COVER (0)INAPPLICABLE (1)INDETERMINATE (2)NONE
               (3)SLIPPED-WASHED (4)FUGITIVE RED (5)OTHER/
               PNTTYPE (0)INAPPLICABLE (1)INDETERMINATE (2)NONE
               (3)MIN PAINT W-BINDER (4)ORG PAINT ONLY
               (5)MIN PAINT (6)HETEROGEN PAINT
               (7)CLAY PAINT ONLY (8)OTHER/
               PNTCOLR (0)INAPPLICABLE (1)INDETERMINATE (2)NONE
               (3)BROWN TO BLACK (4)ORANGE TO RED (5)WHITE
               (6)COMBINATION-ALL (7)OTHER/
               CULTCAT (00)INAPPLICABLE (01)INDETERMINATE
               (02)DOLORES-SJ (03)CHACO-CIBOLA (04)CHUSKA
               (05)KAYENTA (06)LITTLE COLORADO (07)NAVAJO
               (08)PUEBLO-HISTORIC (09)SHOSHONE (10)NEVADA-VIRGIN
               (11)KAYENTA-VIRGIN (12)MESA VERDE-SAN JUAN/
               WARE (0)INAPPLICABLE (1)INDETERMINATE (2)GRAY
               (3)WHITE (4)RED-ORANGE (5)BROWN (9)OTHER/
               TYPEA (01201)INDT GRAY (01301)INDT WHITE (02201)INDT
               (02202)CHAPIN GRAY (02203)MOCCASIN GRAY (02204)MANCOS GRAY
               (02205)MUMMY LAKE GRAY (02206)MANCOS CORRG
               (02207)DOLORES CORRG (02208)MV CORRG
               (02209)EARLY PUEBLO GRAY (02210)LATE PUEBLO GRAY
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(02211)CORRG BODY SHERDS (02212)UNCLAS PLAIN GRAY
(02213)UNCLAS CORRG (02302)CHAPIN B-W
(02303)PIEDRA B-W (02304)CORTEZ B-W (02305)MANCOS B-W
(02306)MIELMO B-W (02307)M. B-W
(02308)EARLY PUEBLO WHITE (02309)LATE PUEBLO WHITE
(02310)UNCLAS WHITE (02401)MV INDT RED
(02402)ABAJO R-O (02403)BLUFF B-R
(02404)DEADMAN'S B-R (02405)EARLY PUEBLO RED
(02406)UNCLAS RED (02407)LATE PUEBLO RED
(03202)LINO GRAY (03203)NECKBANDED
(03204)NECKBANDED (03205)PIII CORRG (03207)PIII CORRG
(03208)EARLY PIII NECK CORRG (03209)EARLY PUEBLO GRAY
(03210)LATE PUEBLO GRAY (03211)CORRG BODY SHERD
(03212)UNCLAS GRAY (03302)LA PLATA B-W
(03303)WHITEMOUND B-W (03304)RED MESA B-W
(03305)ESCALADA B-W (03306)PIEDRA B-W
(03307)DALLOR B-W (03308)CHACO B-W
(03309)CHACO-MIELMO B-W (03310)EARLY PUEBLO WHITE
(03311)LATE PUEBLO WHITE (03312)UNCLAS WHITE
(03402)PIEDRA B-R (03403)AINGATE B-R
(03404)AINGATE POLY (03405)ST JOHN'S B-R
(03406)ST JOHN'S POLY (03407)UNCLAS RED
(04202)BENNET GRAY (04203)SHEEP SPRINGS GRAY
(04204)TOCITO GRAY (04205)GRAY HILLS BANDED
(04206)NEWCOMB CORRG (04207)CAPTN TOM CORRG
(04208)BLUE SHL CORRG (04209)HUNTER CORRG
(04210)EARLY PUEBLO GRAY (04211)LATE PUEBLO GRAY
(04212)CORRG BODY SHERDS (04213)UNCLAS GRAY
(04302)CROLET B-W (04303)MASCHITTI B-W
(04304)TAYLOR B-W (04305)BRIMHALL B-W
(04306)EARLY PUEBLO MIN (04307)LATE PUEBLO MIN
(04308)TUNICHA B-W (04309)NEWCOMB B-W
(04310)BURNHAM B-W (04311)CHUSKA B-W
(04312)MADLENA B-W (04313)NAVA B-W
(04314)CRUMBLED HOUSE (04315)EARLY PUEBLO CARB
(04316)LATE PUEBLO CARB (04317)UNCLAS WH
(04318)EARLY PUEBLO WHITE (04319)LATE PUEBLO WHITE
(04320)THEODORE B-W (04321)CROZIER B-W
(05202)LINO GRAY (05203)KANA-A GRAY
(05204)COCONINO GRAY (05205)TUSAYAN CORRG
(05206)WOENKOPI CORRG (05207)KIET SIEL GRAY
(05208)EARLY PUEBLO GRAY (05209)LATE PUEBLO GRAY
(05210)CORRG BODY SHERDS (05211)UNCLAS GRAY
(05302)LINO B-W (05303)KANA-A B-W
(05304)BLACK MESA B-W (05305)SOSI B-W
(05306)DOGOSZHI B-W (05307)FLAGSTAFF B-W
(05308)TUSAYAN B-W (05309)KAYENTA B-W
(05310)EARLY PUEBLO WHITE (05311)LATE PUEBLO WHITE
(05312)UNCLAS WHITE (05402)TSEGI ORANGE
(05403)TSEGI R-O (05404)TSEGI B-O
(05405)MEDICINE B-R (05407)TUSAYAN B-R
(05408)TUSAYAN POLY (05409)DOGOSZHI POLY
(05410)KAYENTA POLY (05411)KIET SIEL POLY
(05412)EARLY PUEBLO RED (05413)LATE PUEBLO RED
(05414)POLYCHROME BODY SHRDS (05415)UNCLAS RED
(05416)CITADEL POLY (05417)TALLAHOGAN RED
(12202)SJ-CHAPIN GRAY (12203)SJ-MOCCASIN GRAY
(12204)SJ-MANCOS GRAY (12205)SJ-MUMMY LAKE GRAY

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                    (12206)SJ-MANCOS CORRG (12207)SJ-DOLORES CORRG
                    (12208)SJ-WW CORRG
                    (12209)SJ-EARLY PUEBLO GRAY
                    (12210)SJ-LATE PUEBLO GRAY
                    (12211)SJ-CORR BODY SHERDS (12212)SJ-UNCLAS GRAY
                    (12213)SJ-UNCLAS CORRG (12302)SJ-CHAPIN B-W
                    (12303)SJ-PIEDRA B-W (12304)SJ-CORTEZ B-W
                    (12305)SJ-MANCOS B-W (12306)SJ-MCELMO B-W
                    (12307)SJ-WW B-W (12308)SJ-EARLY PUEBLO WHITE
                    (12309)SJ-LATE PUEBLO WHITE (12310)SJ-UNCLAS WHITE
                    (12402)SJ-ABAJO R-O (12403)SJ-BLUFF B-R
                    (12404)SJ-DEADMANS B-R
                    (12405)SJ-EARLY PUEBLO RED (12406)SJ-UNCLAS RED
                    (12407)SJ-LATE PUEBLO RED/
                    FORM (00)INAPPLICABLE (01)INDETERMINATE (02)BOWL
                    (03)JAR (04)OTHER VESSEL (05)INDETERMINATE-NOT VESSEL
                    (06)FIGURINE (07)EFFIGY (08)MINIATURE VESSEL (09)PIPE
                    (10)BALL (11)CONE (12)BEAD (13)PENDANT (14)GAMING PIECE
                    (15)SPINDLE WHORL (16)JAR HANDLE/
RENAME VARS         FLAG = VAR1A / SITE = VAR3 / FS = VAR4
READ INPUT DATA
FINISH
```

RUN COMPLETED

NUMBER OF CONTROL CARDS READ 149
NUMBER OF ERRORS DETECTED 0

VERSION 7.0 - - JUNE 27 1977

BRASS-NOS 1.1 430/428 FEBRUARY 1979

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EDIT
RUN NAME        DISTRIBUTIONS FOR RECEIVING
FILE NAME       LUDWIG
VARIABLE LIST   VAR1 TO VAR6
INPUT FORMAT    FIXED(5X,A4,F4.0,2F2.0,F2.0,F5.0)
```

ACCORDING TO YOUR INPUT FORMAT, VARIABLES ARE TO BE READ AS FOLLOWS

VARIABLE	FORMAT	RECORD	COLUMNS
VAR1	A 4	1	6- 9
VAR2	F 4. 0	1	10- 13
VAR3	F 3. 0	1	14- 16
VAR4	F 3. 0	1	17- 19
VAR5	F 2. 0	1	20- 21
VAR6	F 5. 0	1	22- 26

THE INPUT FORMAT PROVIDES FOR 6 VARIABLES. 6 WILL BE READ
IT PROVIDES FOR 1 RECORDS (*CARDS*) PER CASE. A MAXIMUM OF 26 *COLUMNS* ARE USED ON A RECORD.

```
N OF CASES      UNKNOWN
COMPUTE         VAR3A = VAR3
MISSING VALUES  ALL(BLANK)
VAR LABELS      VAR1 SITE/ VAR2 FS NUMBER/
                VAR3 TYPE-CATEGORY/ VAR4 NUMBER/ VAR5 BAGS/
                VAR3A RECODED MATERIALS/ VAR6 DATE/
VALUE LABELS    VAR3 (001)CERAMICS (002)HUMAN BONE (003)FLAKED LITHICS
                (004)NON-FK LITHICS (005)SHELL (006)VEGETAL
                (007)NON-HUMAN BONE (008)INORGANIC (009)ORGANIC
                (010)SYNTHETIC (012)GLASS (013)METAL
                (101)CERAMIC-PL (102)HUMAN BONE-PL
                (103)FLAKED LITHIC-PL (104)NFL-PL (105)SHELL-PL
                (106)VEGETAL-PL (107)NHB-PL (108)INORGANIC-PL
                (109)ORGANIC-PL
                (201)ARCHAEOMAG (202)RADIO-CARBON
                (203)DENDRO-CHRONOLOGY (204)MATERIAL SOURCE
                (205)POLLEN CORE (206)POLLEN SAMPLE (207)STRAT COLUMN
                (208)SEDIMENT (209)BULK SOIL (210)VEGETAL SAMPLE
                (211)FAUNAL COLLECTION (212)BOTANICAL SPEC
                (213)LATEX PEELS (214)PLASTER POSITIVE
                (215)MONOLITH (216)SOIL PEEL (217)ETHNO-BOTANY
                (218)FILM/
PRINT FORMATS   VAR1(A)
RECODE          VAR3A(101,001 = 501)(102,002 = 502)(103,003 = 503)
                (104,004 = 504)(105,005 = 505)(106,006 = 506)
                (107,007 = 507)(108,008 = 508)(109,009 = 509)
VALUE LABELS    VAR3A (501)CER (502)HB (503)FLK (504)NFLK (505)SHELL
```

```
                    (506)VEG (507)NH3 (508)ORG (509)INORG
*SELECT IF          (VAR3 EQ 5 OR 9 OR 8 OR 105 OR 108 OR 109)
BREAKDOWN           TABLES = VAR5 BY VAR1 BY .AR3/
READ INPUT DATA
FINISH
```

GIVEN 2 DIMENSIONS, INITIAL CM ALLOWS FOR 1322 CELLS, MAXIMUM CM ALLOWS FOR 4458 CELLS.

RUN COMPLETED

NUMBER OF CONTROL CARDS READ 37
NUMBER OF ERRORS DETECTED 0

REFERENCES CITED

[1] Dougenik, James A. and David E. Sheehan 1975. SYMAP. Union Bookbinding. Boston