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THE COMPUTER IN NUMISMATICS

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The last few years have seen the emergence of a new type of numismatist in that they are utilizing computers to help in the compiling on numismatic information or sorting of data. From the late 1970's software was developed and advertised as such for coin collectors and dealers to assist them in their inventory of coins. This software was generally limited to a fixed template with named specific fields, and purchasers of this type of software had to have appropriate computers so that the software was compatible to that computer. The great difficulty that this type of software had was one of fixed fields, fixed headings and limited storage capacity. In the last couple of years new Personal Computers have emerged that have revolutionized the ability of collectors, who have no computer background to enjoy a new facet of their hobby by using software programmes that you make yourself. In addition because of the support of a hard disc, allows the collector, dealer or numismatist to enter enough information to store the equivalent information of 10,000 pages of documents or 40,000 coins in a way that you can retrieve, sort, list, and examine any of the information entered into the computer.

What I propose to do in this short paper is to examine how I went and met my needs in the cataloguing of my library books, my coins, my auction cataloguing work and in the process discovered the many facets of this type of equipment and how I could best use its programs to meet my specific needs.

I initially began by deciding that I wanted a computer that had a large storage or memory capacity so that I could add lots of data and not be limited to the capacity of a floppy disc (about 300,000 to 600,000 bytes of memory depending on the disc type). A floppy disc could list about 300 or so coins, books etc or write about 100 pages of script. This would meet the needs of most people but as already noted I wanted a much larger capacity of storage. This meant that I needed a hard disc and these are available in recent times, as an optional extra on many of the better PC (Per-

sonal Computer) systems and come in sizes ranging from 1M to 80M (where M means a million bytes of information). I also wanted a unit that had a very fast micro processor so that it could process information, find or whatever at the fastest possible speed. I wanted a printer that gave a letter quality, could print in a number of fonts and use a ribbon whereby getting a reasonable life before replacing the ribbon. I went to Computer exhibitions, talked to numismatic friends, and my computer staff at work and all suggested a brand called AMSTRAD.

Late in 1986 a new model was released on the market called the 1512 which had all the requirements I was seeking. In addition to the ability of taking a hard disc (I selected a 20M hard disc) it had a processor that was about the fastest in all pc's namely a chip 8086 that is a 16 bit computer that has 512k and this was upgraded to 640k (k is equal to 1000 bytes) of memory, this processor is related to the IBM processor 8088 a 256K RAM, but is faster. The Computer was IBM compatible and came provided with a new programme called Q and A that when demonstrated convinced me this was the unit I was looking for. I purchased a colour monitor and a EPSON LQ800 printer making a total package worth just over \$4000 all about a year ago.

The Q and A program could only fit into a computer that had a hard disc because it requires about 2M of memory to store all the necessary information contained on the six floppy discs that came with it. What does Q and A do that makes it a useful tool to the numismatist?

Well in brief Q and A is a programme and database that understands English, it is a file manager which allows one to create their own new files, to add, search and update data on every file. It is limited only to the size of the available disc space. It can prepare and generate reports both columnar or freeform up to 50 columns and 240 characters wide. It has with it an "Intelligent Assistant" as the natural language processor and as an assistant when given a command in simple English will act

by creating reports, add, delete data to any file. What it does is it lets you ask ordinary English sentences to request information from your database and then generate reports from that data. It has an understanding of a vocabulary of some hundreds of words and can act on those words. If you introduce a word it cannot understand then it asks you to teach it what that word means. In addition this database has the ability to work as a word-processor, loaded with many interesting features including an 85,000 word dictionary that you can add to at will with your own words, that check your spelling, tell you the words that you misspelled or doesn't understand, can correct if you wish or whatever. (To check the spelling of this document takes about 10 seconds). There are many other features but I want to show you what I have done in less than twelve months in developing various files, cataloguing and other things on this computer that has made the task of collecting more rewarding, enjoyable, and satisfying.

LIBRARY CATALOGUING

I decided initially that I should start cataloguing my library of numismatic publications, this was no easy task as I have about 180 metres of books, catalogues, journals and dealers' lists about the house in some 40 bookcases.

I decided that I wanted to know the following information about the numismatic books.

1. Title of the book.
2. Author or Editor of the book.
3. As much detail as possible about the subject of the book.
4. What the book is worth on the Numismatic market.
5. Location of the book in the library (i.e. book case number and shelf number).
6. What the book cost originally.
7. From whom did I purchase the book and when.
8. The number of pages and plates.
9. The book number in my library.
10. The date when I made this entry for this book.
11. Any further Comments and this includes, publisher, edition, year of publication, recent listings for sale or by auction and any other relevant information.

And for the Coin Auction Catalogues I wanted to know the following information:

1. The name of the Auction Company.
2. Date of the Sale.
3. Location of the catalogue in the library.
4. Title of the Catalogue.
5. Content of the sale, Series, Countries, highlights, etc.
6. Sale Number.
7. Reference number assigned to it in the library.
8. Does it include estimates.
9. Does it include a price realized list.
10. The catalogues, current value from recent sales either by auction or dealer list or an appropriate estimate.
11. Date of Entry of catalogue into computer.
12. Number of lots, plates, pages and size of catalogue.
13. Any further comments and includes location of sale, who have been the vendors, or any other features associated with the sale.

To this date some 500 Auction catalogues have been listed and about 300 books, probably less than 5% of the entire collection. In doing this compilation I realized that computers are not human and need to be fed information in such a way that when I ask for a listing of books or catalogues in alphabetical sequence for say Auction Company or Book title I wanted them all to come out in the right order. I need to provide an additional means for it to list say all catalogues in a chronological sequence. Therefore I had to introduce a date code or catalogue number code into the title (see example) for Auction catalogues and if a series of books of a common type such as the SNG catalogues I had to make sure that a number was inserted into the title when the text changed to differentiate the subject matter of each of the volumes (see example). The examples also show that because of space I limited the printed information to 5 or 6 field titles in my compiled listing. I can if I wished on another page pick a field, like book number, list all books in numerical sequence, and then list another 5 or 6 fields. The combinations, the sort order, and the sequence across the page are all arranged through the preprogrammed Report Mode.

I however found because of going overseas a need to simplify my recording of catalogues,

lists and journals and I therefore developed the templates and the categories that I need for these categories. The list contains the following fields (see attached example).

1. Reference Number (a sequence number for ease of searching).
2. Class (A=Auction Catalogue, B=List, C=Journal, D=Exhibition Catalogue).
3. Auction House, Society or Dealer (their name and/or location).
4. Numbers (the issue numbers and/or date of issue or sale, if a sale (P) prices realized, or (PE) prices realized list).
5. Location (Bookcase and shelf number).
6. Value (Current retail value).
7. Date of entry (useful for printing entries after a specific date).
8. Subject (Keyword entry for sorting).

To date my complete library holdings of coins in this area has been completed and runs out at 67 pages of print taking only selected headings (Nos. 1, 3, 4, 5 and 8 above).

COIN CATALOGUING

On the 24 March 1987, I purchased a number of lots at Auction including a number of Ancient coins of a type suggesting many had a common origin as a hoard, in all about 150 coins. These I decided to catalogue and list as a permanent record of those purchases. This purchase and all subsequent purchases were entered into a template that I developed for this purpose that recorded the following information:

1. A sort Code capable of sorting into correct sequence all Ancient Greek, Roman and Byzantine coins in the accepted classical manner. (More on this below.)
2. Coin number.
3. Date of entry of information on this coin.
4. Full description of the coin, full details of legend (including missing parts in brackets), weight, references, mint of issue, and Rarity.
5. Condition of coin.
6. Current estimated value of the coin.
7. Cost of the coin.
8. Purchase code - Source, date of purchase and if at auction the lot number.
9. Comments on the piece including recent sales of similar items, Pedigrees, Comments from publications about the issue or similar pieces, ruler or place of issue, etc.

10. Keyword sort of all relevant features about this coin.

I soon realized that relevant (pieces needed for my collection) entries of this information can be transferred to a larger file that would contain a complete catalogue of my collection. To date some 700 Greek coins of my collection have been entered and over 400 have been photographed making a photographed printed volume of my collection.

All this information allowed me to pick my data entries in the printed listing and to select an appropriate sort code.

A number of possibilities exist in sorting ancient coins either by alphabetical country, by ruler, by date or whatever, or by the Classical Methods based on the arrangement of listing Greek coins around the Mediterranean from Spain to Italy, etc. finishing in North Africa. A suitable basis for this to base a sort code on is Sear's books on Greek Coins.

Therefore a coin of Alexander III, a silver Tetradrachm from Cition mint would be assigned the following code . . . A6730CI1294. This means for this coin that A, (A=Sear's Greek Coins, B=Greek Imperial Coins, C=Roman Republican Coins, D=Roman Imperial Coins, E=Byzantine Coins) is a Greek Coin with a reference to Sear's Greek Coins.

The numbers 6730 refer to the Sear number for this basic type.

The letters CI refer to the mint Cition and 1294 the Muller number, (as Sear lists a number of varieties of this series I have taken the first of his entries and applied a secondary sort based on the mint of issue, then followed by the Muller number - if the coin is not in Muller I would take a number adding a sub letter at the end of it, where the number selected would be closest to the piece in question in Muller's listing).

Greek Imperial Coins follows the new method of description used by Sear as arranged in order of the Roman Emperor and allows for variations of reverse as sub numbers after the basic Sear number. Since Sear has no numbers greater than five figures all numbers must be read as four figures, consequently a coin from Pella in Macedon issued by Augustus Sear 31, would have a code number B0031. Another coin from Pella not in Sear but issued

by Augustus could be given the number B00315 or whatever you choose. It must be noted that in reading this type of entry the computer reads each letter or number as a column when comparing against other codes and if instructed would arrange them in the sort that is based on increasing alphabetical letter and number.

As I have already listed some hundreds of Roman Republican and Imperial Coins a comment on their sort order might be relevant.

Roman Republican are sorted by Crawford number and by coincidence by the letter C as the prefix. An example might be a Brutus denarius the famous Ides of March issue would be coded C5083 being Crawford No. 508/3.

Roman Imperial Coins are more difficult because of the great range of types and variety with only RIC (Roman Imperial Coins by Mattingly & Sydenham and others) being suitable as a base for a code. Therefore I have broken RIC into volumes and RIC numbers to designate the different codes. For example a Dupondius of Julia Mamaea RIC 678 has the following code D423678. This is determined as follows; D for Roman Imperial Coin, 4 for Volume 4 RIC, 2 for part 2 RIC, 3 for reference to third Imperial group as listed in contents (it should be noted that each group although might contain a group of members of the Imperial family have their own sequence

of numbers before they start the next series of numbers) and 678 as the RIC number.

Sort codes are relevant if you are making ad hoc entries and need to at a future time bring them together in a logical sequence. Sort codes can be devised in as many different areas as one collects.

In Conclusion it should and can be noted that the cataloguing of one's own collection I believe is the fulfillment of the purpose of acquisition and ownership of all numismatic items. Ultimately we all want to record our ownership for posterity but for most of us it comes in an Auction Sale Catalogue where many items lovingly cared for and prized might by reasons of economy be lumped together with other items and lose their identity and association for ever. The collections that have remained indelible on people's mind are those which saw publication in a text and illustrated form. Sir Hermann Weber (1823-1918) would today be little known to collectors and scholars except, that surviving is a complete record of his collection in a number of volumes called "Descriptive Catalogue of The Collection of Greek Coins formed by Sir Hermann Weber M.D. 1823-1918" and these volumes are to numismatists, collectors and others an important source of pedigree and identification of coins in this series, as well as a record of his collection.