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The Early Modern Database

The seventeenth century saw an important shift in attention away from books to things. As Anthony Grafton points out, this shift was neither simple nor complete, but there was nonetheless in the formative years of the new science a new emphasis on the material world that displaced literature as the principal means of higher knowledge. It is here that we first begin to see a meaningful distinction between what Daniel V. Pitti terms "document-centric" and "data-centric" sources of information (475). In this paper I seek to locate one important point in this age of transition that set the conditions that made the modern database not only possible but necessary. That is, I wish to argue that the modern database had its origins in the intellectual foment of the seventeenth century that gave rise to the empirical science of the modern age. This shift is evident in the common forms of collection in this period. In the Renaissance-humanist tradition, the dominant form of collection was the commonplace book, a collection of independently meaningful textual strings that could be selected and combined to produce larger composites of meaning. The central form of collecting in the intellectual enterprise of the early modern period was the cabinet of rarities and curiosities, the precursors of modern museums. These forms of collection served very different ways of thinking about and understanding the world. Marjorie Swann notes, for example, that for Elizabethans, history was an accumulation of representative and exemplary persons and events, whereas for the seventeenth-century empiricists (who were not always perfectly distinct from humanists), history became the work of accumulating and interpreting material remains (108-9). Even for the humanist-minded Henry Peacham, the amassing of classical objects became an important sign of the mastery of humane knowledge (117-30). This interest in collecting material objects complemented Francis Bacon's "Great Instauration" of learning, which emphasized examination of things themselves (*res rerum*, rather than received authority) and the patient cataloguing and recording of natural phenomena and their properties. This tabulation of data for the first time looked beyond semantic unities to locate and aggregate the bits and bites of the material world. Significantly, Bacon considered a well-stocked cabinet of curiosities to be essential to this intellectual enterprise.
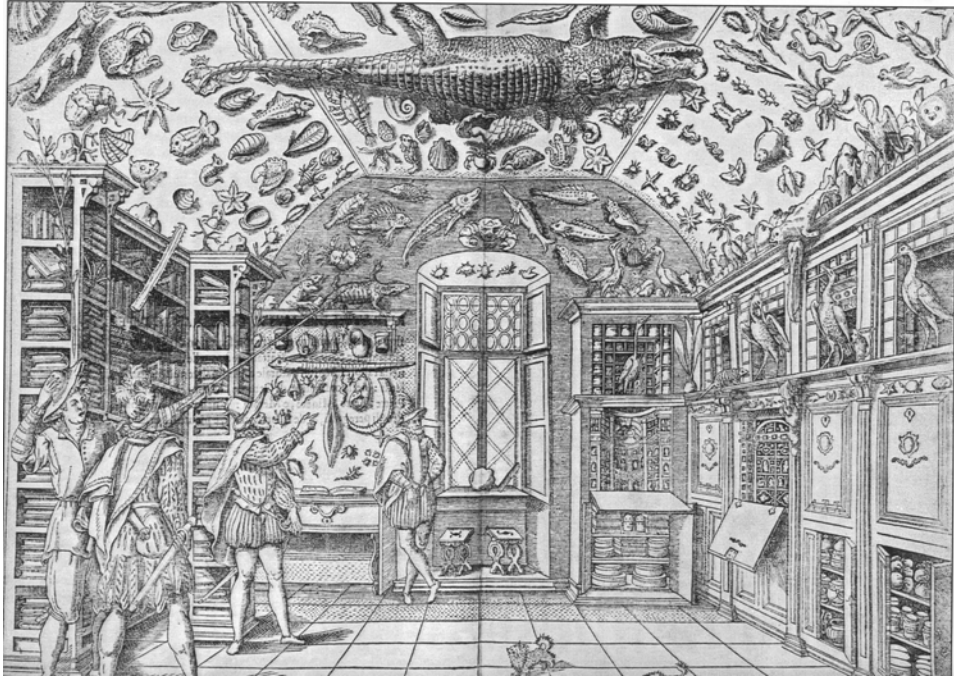
In the same way that the printed book was the medium of the so-called Gutenberg revolution, so the database (eventually) became the medium of the scientific revolution and the modern age. If the word processor, defined by its cut and paste function, is the inheritance of the humanist commonplace book, the database is the direct descendent of the early modern museum. The great encyclopaedic works of the 19th century brought into modern form the imperfect attempts of seventeenth collectors such as John Tradescant who named his collection of curiosities "The Ark," after that original encyclopaedic capsule. Similarly, the modern day attempt to build a DNA database of all living species on earth (The Barcode of Life Datasystems [BOLD]) has its origins in seventeenth-century collectors of *naturalia*, such as John Ray and Ulisse Aldrovandi. The modern database arose out of and responded to the needs of highly structured data, whether the structure was explicit or obscure. Accumulation of data in this manner began with early modern collections of rarities and curiosities, which were explicitly both ontological and taxonomical: as Jeanne Cannizzo puts it, "Museums, their collections, and the exhibits they put together from these objects, reveal the categories we created when we carve

up the universe in our attempts to make manageable our collective reality and exact some measure of control over collective experience" (20). This accumulation of material objects demanded new means of representing and managing information. According to Paula Findlen, the catalogue was an early modern invention, arising of necessity to manage this new interest in material objects. Unlike an inventory, which aims simply to list things, a catalogue both quantifies and interprets reality by "attaching analytical meaning to objects" (36). As the layout of these museums attests, the material they contained required a capacity not only to list, or even to catalogue, but to categorize, taxonomize, and analyze (fig. 1). This paper will trace through the shifting epistemes and practices of the early modern period the formation of the conditions that would give rise to the modern database and will situate this study of origins in the context of recent and current developments in the use of databases in the humanities.

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fig.1

Ferrante Imperato's museum at Naples (1599)