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Social History and Computer: The Construction Yard of the Cathedral of Orvieto between the 14th and the 15th Century

*Lucio Riccetti**

1. The scope of this study is that of tracing the day by day of the cathedral construction yard and of daily life in the city of Orvieto over a period that ranges from 1321 to 1450. The point of departure was determined by the fact that the documents of the Archives of the Opera del Duomo prior to 1321 have been lost. The closing date, 1450, was chosen so as to include all the material that belongs to the Middle Ages.

No continuous historical study of the economic efforts which involved the city and the inhabitants who materially constructed the cathedral has ever been attempted and as a result the social history of the Duomo of Orvieto has so far never been published.

The basis of this new study is the cataloguing of all the documents (relative to the years in question) preserved in the Archives of the Opera del Duomo of Orvieto so that they may reveal in each and every detail how the project was financed and realized (Append. 1). In the line with the most up-to-date concepts, the cathedral construction yard is seen in relationship to the city which generated it, analyzing, in other words, the economic conditions which made such a binding investment possible and the political, social and cultural forces which were involved in the installation of the great construction yard in the 1290s. An attempt is also made to provide an answer to other questions regarding the organization of the work, the production, the locating and transportation of the necessary materials.

2. The structure of the historical documentation has made it possible to use the computer without resorting to complicated conceptual elaborations - at least as far as history (and not computer) is concerned - which would have deprived the documents of their authenticity. Moreover, in view of the enormous mass of documents to be analyzed, traditional methods were out of question, at least for anyone who was not interested in spending a lifetime involved, to the point of obsession, on a single research topic.

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Originally, the idea of applying the computer to the historical documents in the archives of the Opera del Duomo was limited, with an eye only on research, which involved an initial approach to the history of the construction yard of the cathedral of Orvieto in the years of the Black Death. The intellectual contribution of an international team of scholars and the technical-economical backing of the Italsiel S.p.A. made it possible to overcome, both, the economic and technical limitations and amplify the final results in which the study on the cathedral is only one of a number of possible applications.

The computerized project which ensued offers these possibilities: the creation of a data bank as the indispensable basis for any operation of ordinary maintenance or exceptional restoration undertaken on the Duomo of Orvieto and for the realization of a study of the history of the Duomo from 1321 to 1450.

The data bank, which will be the basis for as complete a picture as possible of the history of the construction, is created by logging the first 21 volumes of the Camerarii for a total of 17,000 pages, as well the first 10 volumes of the Riformanze for a total of 6,075 pages, the first 3 volumes of the Contratti e Memorie for a total of 616 pages, and the first 2 volumes of the Testamenti-Donazioni-Istrumentari for a total of 822 pages. The Catastri or land rasters relative to the years 1363 and 1447 (in the State Archives of Orvieto) were added to this already considerable documentation in line with the most up-to-date historiographical tendencies and will make it possible to identify the workers who daily took their turns in the building of the cathedral more precisely.

The resulting data bank obviously will do more than simply serve as a support for the group of scholars currently at work on the study centred on the duomo, but is meant to serve as an indispensable instrument for didactic as well as technical scopes. Once, the study of the history of the cathedral construction yard in the years 1321-1450 has been concluded, the data bank remains as an infallible point of reference for those who are charged with the preservation and maintenance of the cathedral; when interrogated it can supply information on each individual element regarding the materials used, their provenance, the processing methods, how long it took to make the element in question, up to a knowledge of the so-called 'historical' techniques of restoration.

As far as the actual study now in progress is concerned, it should be noted that the specific characteristics of the elaboration system make it possible to deal with types of data which cannot always conform to a transcription in line with rigorous structures, such as the acquisition of data in a free text; they consent to the administration of incomplete information and they permit varied and complex research, guiding the scholar or the party concerned, if needed, through successive stages to gain access to the information he is interested in.

The solution for these problems will be a sophisticated system of Information Retrieval currently being realized which, in addition to providing the possibility of direct inquiry on local terminals and elaboration to supply graphs or prospects useful for the study, will also be endowed with specific potentials, such as the simultaneous management of information transcribed in a structured and in a discursive way; the interrogation of documents, both, via the identification of the precise content in a field and via a search for the data in various fields and on various types of documents with the possibility of correlating the documents identified; lastly it will be able to provide answers to the inquiries on different levels of synthesis with the possibility of exploring, with ease, the contents of one or more than one specific field.

It is interesting even at this point to try and pinpoint what in appearance seem to be by-products of the study but which show themselves instead of great interest for a knowledge of what life was actually like in Orvieto between 1321 and 1450. I am referring in particular to the tables of the decodification of the units of measure and coins, of the provenance of the materials used in the construction, the types of transportation, the periods of work and the holidays.

3. Each individual series of archive documents that has been chosen for this study is fed into the data bank using a different catalog entry form since the specific characteristics of each document must be preserved. The most important aspect all the catalog entries have in common is without doubt the integral transcription of the original document in question; from a technical point of view, the presence of the transcription also permits a high degree of standardization of the document as regards all the questions involved in our study.

All the catalog entries moreover are equipped with an articulated structure with codes and records in free text: The latter are used for the names of places and people while the codification has been used for recurrent topics, such as the name of the camerarius (treasurer) of the Opera, always present in all the documentation, but whose term of office was six months, renewable, the professions and the qualifications, the consignments of material and the units of measure, the uses and places with all their cadastral subdivisions.

In transcribing the Camerarii, in particular, an outline was first provided which would furnish an accurate classification of the various items of information, leaving the form and the original meaning of the text intact. The individual unit of the operation (the clause) was chosen as the basic element for transcription, recorded in the original text, both, as income and as expenditure. Entry as expenditure is so subdivided into various sections such as the 'references to the original document': the date, the

code of the Camerarius, the type of operation and the standardized individual data of the subject of the operation and, when present, followed by the codes for the craft, the title, qualification, sex; the integral transcription of the clause in full text occupies the central part of the acquisition entry form, followed by the section with the 'standardized' information of the operation in question and the area provided for 'other subjects' so as to safeguard the information as regards teams of workers.

The same technique was adopted for the land registers (Catasti), keeping in mind the fact that a single clause can contain more than one parcel; this means that the catalog entry is more complex, since it must take into account the varied aspects an individual piece of property can assume and must therefore be repeated for each individual parcel owned by the subject.

The catalog entries of the land registers, as is also the case with the original volumes, are organized according to the topographical indications followed by the notary-drawer. The first item of information is therefore the reference to the 'catasto della citta o del contado' (register of the city or of the surroundings), furnishing information in other words as to the location of the site. Thereafter comes the name of the inhabitants of the particular area, with his trade and qualification. The catalog entry is subdivided into two large parts called »Sheet A« and »Sheet B«; the first regards the information relative to the clause (parcel) when the two coincide, while the second is used only when one or more pieces of property are described in the same clause.

The two land registers examined also differ considerably since they were drawn up about a hundred years apart. The land register of 1363, for instance, does not furnish either the measure nor the value of the land, both indicated in that of 1447. In the latter, the 'value' presents problems for it is always indicated twice: one value is given by the tax officials and one is given by the owner, and finally a single ascertained value for the entire property, the current 'tax'. The two estimates can be cumulative for various clauses and, therefore, the clauses have necessarily to be indicated.

Fundamental to a socio-economic analysis of the city is a knowledge of the provenance of the current property and the transformations it was subject to in the years subsequent to the registration in the land survey, which are provided by the 'precedent and successive land register annotations'.

Only then can the clause, up to then strictly standardized, be transcribed. The next step is the indication of the principal characteristics of the individual lot where the type, the quota owned if any, the size, the neighbouring land owners and the coowners if any are indicated with a standardized transcription of the names.

The other three series surveyed or the Riformanze, Contratti e Memorie, Testamenti-Donazioni-Istrumentari present greater difficulties for they cannot as easily be reduced to a complete schematization, for important parts of each document would thus be lost. In these cases, well aware of the relatively limited number of pages available, preference has been given to a full text acquisition which stresses in any case a series of fundamental items of information that are always present in each document and can be used in the consultation phase as a research key.

The first part as usual contains a reference to the original, the year and place in which the document was drawn up. The second part is reserved for the registration of the 'standardized' names of the members of the Council of the Opera del Duomo with the same rules applied to all the names registered. The third part contains the integral transcription of the document, while the last part presents two particular aspects: the first, which registers what we have called the 'extract guide' or the extremely brief phrase written by the notary in the margin of the original, will in the data bank serve to facilitate speedy research. The second is the normalization or standardization of the names of the witnesses so as to identify them in the entire series of the catalogued entries.

The entry form of the Testamenti also has a first part with reference to the original with the date and place the testament was drawn up, the identifying characteristics of the testator, the sex, the social status, the profession, the place of residence and a more specific area for the heading of the document with the formulario.

The second part is dedicated to the testament in which note is taken of the form (nuncupative, solemn, ect.) the description of the bequests, both, those intended for the Opera and others, even though the latter are more rarely indicated.

The third part foresees legacies bound to specific conditions, the executors of the will, the witnesses present when the document was drawn up and finally the notary-drafter and the notary-scribe. In this case, too, particular attention is paid to the marginal annotations which indicate the use the Opera made of the bequest in relation to the construction of the cathedral and in which period of its history it alienated the property, transformed it, bartered it.

The marginal notations also contain references to the year in which the document was registered (assignatio) in the books of the Opera, which opens the way to particularly interesting research with reference to the time that passes between the drawing up of the testament and the registration, in other words, when it acquires juridical validity, thus, indicating between the lines the fact that the testator had died.

4. In conclusion I would like to stress what, as far as I am concerned, is the most interesting aspect of this work: that of having succeeded in setting up a system for the surveying, acquisition and correlation of data which, taken one by one, are nothing but an apparently insignificant list of names and numbers but which, when seen in relationship to each other, reciprocally interactive, allow us to follow the construction of the cathedral day by day.

Apparently rigid, the system is actually quite elastic and can be applied, with the same results as at Orvieto, to similar documents preserved in the archives of the other cathedrals in Italy and in Europe.

In fact, having a data bank in common, structured in the same way, would permit research and results so far undreamed of and not completely predictable, but surely destined to permit a more in-depth knowledge of an aspect of history which has conditioned us much more profoundly than tangible signs it has left on our cities.

References

In presenting the paper at the meeting, a series of slides was used which showed, much better than words, the computerized project on the duomo of Orvieto and the acquisition techniques used to create the data bank. Here, even if I must do without images, I will leave the text in its discursive form, outlining the various stages in the acquisition procedure, without footnotes but with the addition of a concise bibliography on the subject.

For further details on the study Dalla storia sociale alla metafora spirituale. L'intervento della tecnologia informatica nella storia della fabbrica del Duomo di Orvieto (1321-1450)/ From Social History to Spiritual Metaphor. The use of computer technology in the history of the fabbrica of the Duomo of Orvieto (1321-1450), which is currently in progress in Orvieto, reference should be made to the publication of the same name brought out in a privately printed edition by Italsiel S.p.A. in 1987.

For the Archives of the Opera del Duomo of Orvieto see PETRANGELI, V. »L'Archivio dell'Opera del Duomo di Orvieto«, in: Primo Congresso Storico Umbro, Bollettino di Storia Patria per l'Umbria, XXXVI, 1939; RICCETTI, L. »Dagli archivi cittadini ad un archivio per la città«, in: Id. (ed.). Un archivio per la città, Orvieto 1985, 21-30; RICCETTI, L. »L'Archivio dell'Opera del Duomo di Orvieto«, M. Rossi Caponeri - L. Riccetti (ed.). Gli Archivi di Orvieto, contribution to the study of the regional territory Chiese e conventi degli ordini mendicanti in Umbria nei secc. XIII-XIV. Inventario delle fonti archivistiche e catalogo delle informazioni documentarie, Fenuglia 1987, p. 199.

The earliest synthesis of the extant documents and milestones in the historiography of the cathedral are the works of DELLA VALLE, G. Storia del Duomo di Orvieto, Roma 1791; LUZI, L. Il Duomo di Orvieto, Firenze 1866; FUMI, L. Il Duomo di Orvieto e i suoi restauri, Roma 1891. Other studies of fundamental importance are BONELLI, R. Il Duomo di Orvieto e l'architettura del Duecento Trecento, Città di Castello 1952 (2nd ed. revised, 1972) and CARLI, E. Il Duomo di Orvieto, Roma 1965. For those interested reference should be made to L. RICCETTI, Bibliografia, in: Id. (ed.). Il Duomo di Orvieto, Roma-Bari 1988, 173-284.

For the project to computerize the archives of the Opera del Duomo see RICCETTI, L. »Un primo tentativo di ricerca computerizzata nei registri di Entrata/Uscita dell'Archivio dell'Opera del Duomo di Orvieto«, lecture (in press) given on Jan. 23, 1986, for the Archivio di Stato, Division of Orvieto, on the occasion of the manifestations Un archivio per la città; RICCETTI, L. »Il computer nel duomo di Orvieto. Prime note in corso d'opera«, in: Informatica e regolamentazioni giuridiche, IV Congresso Internazionale della Corte Suprema di Cassazione. Centro Elettronico di Documentazione (16-21 May 1988) pre-print.

For the initial results see RICCETTI, L. »Prezzi, salari, orari di lavoro nella fabbrica del Duomo di Orvieto (1347-1349), thesis, Università di Firenze, 1984-85, rei. prof. G. Cherubini; RICCETTI, L. »Il cantiere edile negli anni della Peste Nera«, Id. (ed.). Il Duomo di Orvieto, Roma-Bari 1988, 139-216.

An analysis of the documents of the construction yards of other European cathedrals leads one to think that this type of cataloguing and data elaboration could be extended on a European basis, a direction in which the Association European Cathedrals seems to be moving. For an initial survey of the documents reference should be made to: Annali della fabbrica del Duomo di Milano dalle origini fino al presente, Milano 1877-1885; ERSKINE, M.A. The accounts of the Fabric of Exeter Cathedral 1279-1353, 2 vols, Torquay 1981; NESSI, S. La basilica di S. Francesco in Assisi e la sua documentazione storica, Assisi 1982; MURRAY, S. Building Troyes Cathedral. The Late Gothic Campaigns, Indiana Univ. Press 1987; POGGI, G. Il Duomo di Firenze. Documenti sulla decorazione della chiesa e del campanile tratti dall'Archivio dell'Opera, posthumous edited by M. Haines, 2 vols., Firenze 1988.

For basic works on method and the use of electronic processing with regards to historical documentation see, among others: DAUMARD, A.-FURET, F. »Metodi della storia sociale. Gli archivi notarili e la meccanografia« Braudel, F.(ed.). Problemi di metodo storico, Roma-Bari 1973, 117-139 (ed. or. Annales E.S.C., XIV, 1959, 676-693); COUTURIER, M. »Verso una nuova metodologia meccanografica. La preparazione dei dati«, in: Braudel, F. (ed.). Problemi cit., 430-443 (ed. or. Annales E.S.C., XXI,

1966, 769-778); FOSSIER, L.- VAUCHEZ, A.- VIOLANTE, C. (éd.). III formatique et histoire médiévale, Roma 1977; HERLIHY, D.KLAPISCH, C. Les Toscans et leurs familles, Paris 1978; Informatica e storia urbana. Il catasto di Carpi del 1472 analizzato con il computer, Storia della città, 30, 1985; Informatica e archivi, Roma 1986; CARPENTIER, E. Orvieto a la fin du XIII siècle. Ville et campagne dans le cadastre de 1292, Paris 1986; DENLEY, P.- HOPKIN, D. (ed.). History and Computing, Manchester 1987.

Appendix 1

The graph indicates the unpublished documents in the Archives of the Opera del Duomo of Orvieto in relationship to the documents published by FUMI, L. Il Duomo di Orvieto e i suoi restauri, Roma 1891. The choice of the sample years, limited to those currently inserted in the data bank, was based on a consideration of the preponderance of documents in Fumi's edition.

