# The Portal of the 19th Century Croatian Historic Newspapers and Journals

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**Abstract:**

*The National and University Library in Zagreb developed a digital library system and a cooperative portal of digitised Croatian historic newspapers and journals (http://dnc.nsk.hr) from its own collection and from collections of other Croatian heritage institutions. The system enables metadata creation, ingestion and publishing of digital reproductions, browsing and searching of newspaper and journal issues, simple and advanced searches of full text journal articles. The added values are: enhanced availability of printed national heritage, creation of a cooperative database of all Croatian historic newspapers and journals, development of standardised and harmonised procedures for digitisation as well as coordination and rationalisation of digitisation efforts. The cooperation and coordination at the national level is made possible by cooperative input of data and images from all participating institutions (libraries, museums and archives) including serial collections' description, information on participating institutions and their digitisation projects, bibliographic information, holdings data of original print serials, microfilms and digital reproductions, information on titles that are being digitised or planned for digitisation in heritage institutions in Croatia, etc. The Portal is the central point for search and access to digitised historic newspapers and journals and is a part of the national project of digitisation of archival, library and museum collections Croatian Cultural Heritage, financed by the Ministry of Culture of the Republic of Croatia.*

**Introduction and Background:**

The oldest Croatian newspapers and journals are materials of unique cultural and historic significance. These published records of a period testify about historical, social, cultural and

everyday events and customs. The oldest preserved Croatian newspaper[1] dates back to 1789, when *Kroatischer Korrespondent* was published, and the oldest and the first Croatian learned journal *Arkiv za povjestnicu jugoslavensku* was published in 1851.

Given the fact that newspapers and journals were among the most important and powerful media of the preceding centuries, their importance for research and study is unrivalled. However, access to these materials in libraries is limited since they need to be specially protected. Printing and the press, as well as the paper of the previous centuries left us with old newspapers and journals in an extremely fragile condition and they deteriorate even more with frequent usage.

To protect valuable originals of the oldest Croatian newspapers and journals from its collection and to enable open access to users, the National and University Library in Zagreb (later in this text called 'the Library'), that is in possession of the most complete fully catalogued collection of Croatian newspapers published in the 19th century[2], started digitising these already in 2001, in line with its mission '*to collect, catalogue, store, protect and ensure access to its collection'*.[3] Other Croatian libraries and heritage institutions started digitising their collections as well, but results of these individual digitisation projects were not always publicly available or searchable. Furthermore, there is no union catalogue of serials in Croatia that would contain basic metadata and information on holdings, or on their completeness and condition, and thus serve as a basis for selection of titles to be digitised and an overall coordination of digitisation of newspapers and journals.



Fig.1: *Portal of Croatian Historic Newspapers*

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[1] Actually the oldest Croatian newspaper was *Ephemerides Zagrabienses* published in Latin in 1771. Unfortunately no copies were preserved.

[2] This collection lacks only some titles published in the littoral part of Croatia.

[3] Statut Nacionalne i sveučilišne knjižnice u Zagrebu (*The Statute of the National and University Library in Zagreb*). Available at: http://www.nsk.hr/statut-knjiznice/.

The creation of the Portal of the 19th century Croatian Historic Newspapers and Journals (later in this text called 'the Portal') is the outcome of the analysis of this situation. Further impetus was gained from the *Conclusions of the Round Table: The State of Newspaper Collections in Croatian Libraries at the 35th Assembly of the Croatian Library Association* (Plitvice, September 2006) that pointed out the urgent need for the protection of the 19th century newspapers.[4] The basic goals of the Portal creation were to devise an integrated solution for the prevention of further deterioration of cultural heritage and to enable long-term preservation and open access to valuable old collections in the Library and other heritage institutions by means of a cooperative system for data input and management. The name: the Portal of the 19th Century Croatian Historic Newspapers and Journals stands both for the underlying system and the outer layer, the visible interface of the system.



Fig. 2: *Portal of Croatian Historic Journals*

The efforts to create the Portal were shaped by the world's trends, best practices, and solutions in the field of digitisation and preservation of cultural heritage in other countries.[5]

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[4] Zaključci Okruglog stola Stanje novinskog fonda u hrvatskim knjižnicama. (*Conclusions of the Round Table: The State of Newspaper Collections in Croatian Libraries*). Available at:
http://www.hkdrustvo.hr/hr/strucna_tijela/26/uvod/.

[5] Such as: Chronicling America: Historic American Newspapers. Available at:
http://chroniclingamerica.loc.gov/; Trove. Available at: http://trove.nla.gov.au/newspaper?q.

The Portal conforms to the recommendations and standards stipulated in the national project for the digitisation of archival, library and museum holdings *Croatian cultural heritage*.[6]

**Aims and Scope:**

The Portal was launched in 2010 when it was made available to the public on the web site of the National and University Library in Zagreb (http://dnc.nsk.hr). The basic aims can be summarised as follows:
- protection of original historic newspapers and journals
- increased availability and access to written heritage
- development of a digital library system for historic newspapers and journals
- cooperative input of metadata, digital images and contextual data
- establishment of the central access point for historic newspapers and journals
- standardisation, harmonisation, coordination and rationalisation of digitisation
- establishment of a metadata aggregator for historic newspapers and journals.

The Portal includes digitised newspapers and journals from the collections of the Library and other Croatian heritage institutions. It is divided in two parts, since newspapers and journals have different features and characteristics. (see Figures 1 and 2) The selection was made on the basis of the following criteria: physical condition of a publication, most frequently used titles and historical relevance. Selected were the oldest historic newspapers and a sample of journals that began publication in the 19th century up to the year 1942, as well as *Kroatischer Korrespondent* from 1789. The year 1942 was selected for reasons of copyright. According to the Croatian law the copyright for newspapers and journals that belong to the category of anonymous works is seventy years from the year when they were printed.[7]

**System and Portal Characteristics:**

The Library has been developing a digital library system designed specifically for serials, i.e. for historic newspapers and journals, based on the software Newsis from the year 2007.[8] Similarly to other national newspaper digitisation projects, the system has been conceived to serve as a common platform for publication, storage and search of content and gathering of holdings data.

*Data model*
The system was created on the data model of the MICHAEL project[9] because we believe that collection level description provides the possibility for better representation of institutions and their cultural heritage collections as well as of their digitisation projects, providing at the

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[6] *Croatian cultural heritage* (www.kultura.hr) is the national project for the digitisation of library, archival and museum resources and materials initiated by the Ministry of Culture of the Republic of Croatia and jointly coordinated by three core heritage institutions in Croatia: the National and University Library in Zagreb, the Croatian State Archives and the Museum Documentation Centre.

[7] Zakon o autorskom pravu i srodnim pravima (*Copyright and Related Rights Act*). Available at: http://narodne-novine.nn.hr/clanci/sluzbeni/306987.html.
[8] Newsis software is developed by Conscius, software development company, Library's partner in this project.
[9] MICHAEL project. Available at: http://www.michael-culture.org/en/about/project.

same time granular access for users who can move from collection via title and related title(s) to article(s).

The data model is based on linked descriptive metadata of *title* (of newspaper, journal), *collection of newspapers and journals*, *institution* holding the collection of newspapers and journals, *digitisation project* and *article metadata*.[10] Currently, only journal articles are processed separately. In addition to descriptive metadata, the contextual data about a publication are available as well, including a *brief description of each title*. They provide more information about the historical period when the publication was published and the topics covered in it. Contextual data can be important for the understanding of some political or other circumstances of the period when a publication was published that the modern user might not be familiar with.

In order to provide an insight into the completeness of collections and different formats of the oldest Croatian serials in Croatian institutions, the system enables input of holdings data pertaining to *originals, microfilms* and *digital images*. Administrative metadata indicating digitisation status for each title are included to enable better coordination of digitisation. Data on *digitisation status* include data about ways of access: *available on the Portal, available on the Web, available in digitising institution* and data about digitisation stage: *publication is being digitised, publication is planned for digitisation*. Metadata on *digitisation status* are collected to enable the follow up of digitisation of historic newspapers and journals, and in the long run will be used for the establishment of the future *Register of digital reproductions of newspapers and journals*. Data about digitised newspapers and journals published on the Web under *Available on the Web* section enable the users of the Portal to access publications that are not physically available on the Portal, but are available in other Croatian and international heritage institutions and organisation or services, for instance the Austrian National Library, the Serbian National Library, Google Books, etc.

The described system enables the creation of metadata for *authors of articles* and *persons/institutions* responsible for the publication of a serial (i.e. editor, publisher, issuing body, printer), *place of publication* metadata that are linked to Croatian counties data, as well as the creation of different lists/indexes of *languages, countries, key words* and so on. *Technical metadata*, connected to each page or individual file respectively, are input into the system as well.

### *Cooperative Participation of Other Libraries*
An important functionality of a digital library system of newspapers and journals, and the Portal especially, is the possibility of cooperative work with other libraries and other institutions that have collections of serial publications and their own current or future digitisation projects. The cooperative functionality enables the gathering of metadata and of digital images of serials, thus establishing the Portal as the central access point for all users interested in this type of material. The cooperative work makes possible the establishment of a virtual ideal copy of a publication, different issues of which can be kept in different institutions while neither has all the issues.

Participating institutions (see Fig.3), institutions holding analogue or digital collections of newspapers and journals, can input metadata directly into the system thorough the partner

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[10] From the technical point of view the page (file) is the fundamental entity of the system, but the data model includes both, the description of issue and page.

module. The licences for the use of this module are adapted to different levels of authorisation that each institution has. The Portal functions as the *content repository* as well, since it can also store digital images delivered by the participating institutions.



Fig.3: *Basic information about participating institutions*

The realisation of established goals presented new challenges for the Library. The digital library system for historic newspapers and journals has become the hub of collaborative work, with the cooperative function dedicated to institutions that are users of the digital library. This is now the basis for the development of the aggregating function for metadata from different heritage institutions, but also for the exchange of experiences in the digitisation of newspapers and journals, finding common solutions in the field of metadata, creation of thematic collections, virtual exhibitions and the use of linguistic tools in different language corpora.[11]

*Content and Functionalities*
The Portal currently holds 230 bibliographic records of newspapers and a selection of 64 records of journals from the 18th and 19th centuries, as well as a small number of titles from the beginning of the 20th century.[12]

Digital images of 33 newspaper titles and 17 journal titles are available, a total of 9,000 newspaper issues and 3,400 journal issues. Newspapers were usually scanned from microfilm and journals from print originals. A digital images viewer enables turning the pages of individual issues and browsing through entire set of issues. (see Fig.4)

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[11] Textual corpus of 19th century Croatian historic newspapers and journals is characterised by multiple languages (Croatian, Latin, German, Italian, Serbian, Hungarian) and scripts (Latin, Cyrillic and Gothic), as well as changes of orthography.
[12] The bibliographic data were converted from the Library catalogue. Metadata on other journal titles published in the 19th century will also be added.
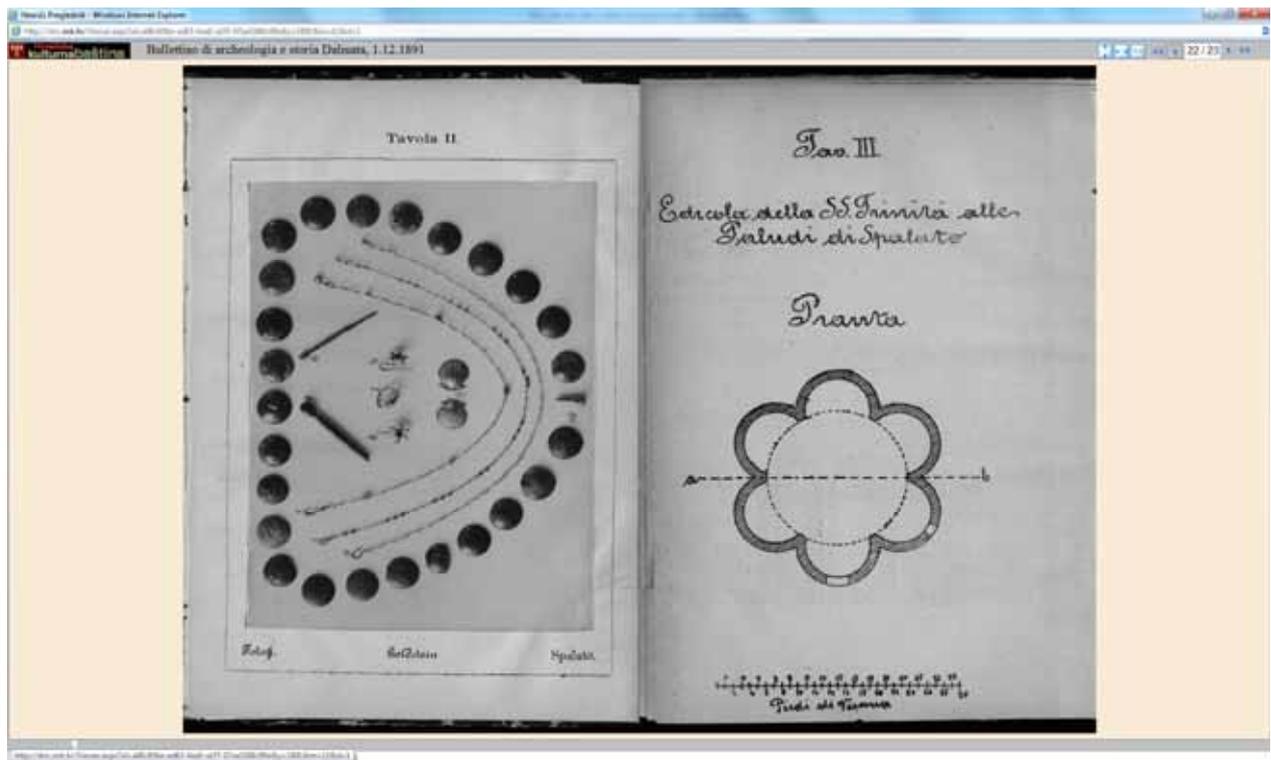
Fig.4: *Digital images viewer - pages from the journal Bulletino di archeologia e storia Dalmata*

Access is also provided to 16 newspaper titles and 14 journal titles available on the Web and stored in the systems of other institutions and publishers. Some publications have not yet been completely digitised, and some of the already digitised publications are not yet available on the Web. Publications marked *available in the institution* have been scanned, but their files have not been processed for publication on the Web. Once the files are input and stored in the system, the content of the issue is available through simple and advanced search of full text and semi-structured search through *calendar* and *list of titles* on the Portal title page.

Although they both belong to the same type of publications – serials, newspapers and journals are differentiated by specific characteristics that influence the differences in the functionalities of different parts of the Portal. Information needs of the users of Croatian historic newspapers can be fulfilled by searching *full text of historic newspapers*, browsing the *alphabetical list of titles* and their metadata, by *search within individual title* or by *advanced search* (see Figure 5). Additionally, the users can view issues through *calendar* and browse titles by selecting *a county on the map of Croatia*. They can see which newspapers were published in which county and town in the 19th century, as well as which of those titles were digitised. The additional feature for the users of Croatian historic journals is browsing the content of each issue, and searching and downloading of journal *articles* in pdf format.

Fig.5: *Search page of the Portal*

**Users**

Visitors' overview data from Google Analytics for the period from 22nd January 2010 to 18th April 2012 show a total number of 56,170 visits with 37,523 unique visitors. For details see Fig.6. It is deemed that the rate of visits is due to a relatively small amount of material available on the Portal. Greater participation of other Croatian heritage institutions that digitise historic newspapers and journals will result in an increase of at least 50,000 issues and ensure full text search of a considerable corpus of local and regional newspapers and journals.

Regarding the geographic distribution of Portal users, the majority are from Croatia, followed by those from Bosnia and Herzegovina, Serbia, Germany, Italy, Slovenia, USA, Austria, Canada and Switzerland. The significant number of users from the neighbouring countries can be explained by the fact that their residents can understand the languages of the content on the Portal.

| *Visitors' Overview Data from Google Analytics for Jan. 22, 2010 – Apr. 18, 2012* |
| --- |
| *Visits: 56,170* |
| *Unique visitors: 37,523* |
| *Page views: 287,655* |
| *Pages/Visit: 5.12* |
| *Avg. visit duration: 00:03:56* |
| *Bounce rate: 35.93%* |
| *% new visits: 66.40%* |

Fig.6: *Visitors' overview data from Google Analytics*

The Portal of Croatian Historic Newspapers is visited very frequently, probably due to the fact that newspapers represent a significant resource for cultural and historic research, especially in the field of social sciences and humanities, but they also contain content that is interesting and understandable to a wider circle of readers. The users of materials in heritage institutions often search for information about *people*, *places* and *events*, *objects and concepts*, and learn about the *relationships among them*. Since the media news is created on the basis of the *Five Ws* concept (who, what, where, when, why) the application of data models supporting the *Five Ws* concept and development of search tools should be envisaged.[13]

Users' interest for local content on the Portal of Croatian Historic Newspapers is visible from the queries and comments on different online forums and questions sent by e-mail to the editors of the Portal.[14] The interest of users for the study of local history, architecture and family history on the Portal of Croatian Historic Newspapers is in line with the increased interest in genealogical research in Croatian archives, as described by Stjepan Ćosić.[15] He stresses that similarly to European and American archives, genealogical researches have also become more popular in Croatian archives in the last thirty years. The majority of users of contemporary archives are amateur historians and genealogists. They draw their family trees, seeking to learn more about their ancestors and the roots of their lineage and family. Other search topics include: parish history, social and economic history of settlements, schools, cultural institutions and organisations. The Portal is thus also a very useful source for genealogical research, especially since Croatian archives and libraries still have to digitise considerable parts of their collections.

**Conclusion:**

The Portal of the 19th Century Croatian Historic Newspapers and Journals is the first, and so far the only specialised cooperative portal developed within the Croatian national programme of digitisation of archival, library and museum holdings. One of the advantages of a cooperative system is the adherence to the same standards and rules for digitisation and metadata creation. In the long run, this will result in savings and the rationalisation of digitisation and better preservation of Croatian historic newspapers and journals in Croatian heritage institutions.

Further development of the Portal envisages the participation of a greater number of institutions and the inclusion of a greater number of digitised titles. In the recent years, Croatian libraries have intensified cooperation with libraries from the neighbouring countries (Italy, Austria, Bosnia and Herzegovina) with the aim of exchanging digitised materials. Given the historical links of these countries through centuries and similar titles in the holdings of their heritage institutions, cooperation in the field of digitisation of historical newspapers and journals is a logical development. Initial contacts were already made with

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[13] Gill, Tony. Building semantic bridges between museums, libraries and archives : The CIDOC Conceptual Reference model. // First Monday. 9,5(2004). Available at:
http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1145/1065.

[14] Among the inquiries sent to the editors by e-mail, the most common are questions regarding the availability of a digital format of a certain newspaper title, and a search for more detailed information about a specific person or event.

[15] Ćosić, Stjepan. Hrvatska traži povrat 765 fondova i zbirki**.** // Hrvatsko slovo, 27. ožujka 2009. Available at: http://www.hic.hr/hrvatsko-slovo/hrv-slovo270309.html.

INFOBIRO Mediacenter Digital Archive in Bosnia and Herzegovina and ANNO (Austrian newspapers online) in Austria.

The National and University Library in Zagreb plans to submit metadata of Croatian historic newspapers and journals to Europeana during 2012 in order to establish the planned Portal's function as a metadata aggregator. All the Portal services, including the aggregator, are completely free of charge for Croatian heritage institutions, and it is thus expected that the institutions which have developed their own systems for the storing and publishing of newspapers, journals and articles will welcome this opportunity to send their data to Europeana. Consequently, this would result in a significant increase of Croatian material in the European digital library.[16]

Increased digitisation and publication of digitised Croatian historic newspapers and journals will provide a valuable research corpus that illustrates everyday life and local events, but also gives insight into the history of Croatia and its relationship with the neighbouring European countries. Further development of OCR tools will also improve the search quality. Sophisticated linguistic tools need to be developed in the future to overcome linguistic issues connected to language versatility of the material on the Portal and to enable the move towards the semantic web and the greater satisfaction of Portal users.

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All websites last visited on 27th April, 2012.

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[16] Europeana metadata model for serials is based on the description of the issue that has no established relations to other issues of the same title. The titles of the same serial *bibliographic family* have no established relations, which is very inconvenient for users. The improvement of this issue providing collection level description for newspapers and journals would enable a better insight into the environment from which a title comes into a common European digital collection.