

With the exponential growth of the Internet, especially the World Wide Web with its graphical interface and hypertext linking possibilities, there is potentially a wealth of electronic information freely available on a global scale. However, just as a library is only as good as its catalogue, the value of the Internet depends to a large extent on the tools developed to search it. The use of search engines like Altavista or Infoseek to find Internet resources on a specific subject often leads to disappointing results. A problem frequently encountered with this type of search engine is the large amount of resources retrieved, many of which prove less than useful or totally irrelevant. The inaccuracy of the results is mainly attributable to the fact that machine-based indexing and searching lacks context-specific features and does not distinguish, for example, between Turkey, the country, and turkey, the bird. Compounding the problem is the Internet's easy accessibility. Anybody can publish almost anything on the Web, which is why Web resources vary widely in nature, extent and quality. Unlike most traditional information media, no one has to approve the content before it is made public. The Internet user has to sift through a mass of material to find information of high quality as a result. There is in fact an urgent need for more sophisticated search tools, which take into account issues such as the relevance and quality of Internet resources.

Library and documentation professionals have realized that they can play an important role in developing such tools by selecting and evaluating Internet resources in particular disciplines or subject areas. Online as well as print guides have been published which deal with selection criteria and the evaluation of Internet resources in terms of content, form and process. Criteria used to evaluate print materials, such as purpose, scope, authority, accuracy, and coverage, can usually be applied to the Internet domain, although as Alastair Smith<sup>2</sup> has rightly noted, "evaluation criteria may be more critical in the 'vanity publishing' environment of the Internet". Some aspects of traditional evaluation criteria need to be adapted to Web resources. Authority is of particular concern. It is often difficult to determine authorship of Web resources and even when an author or source can be identified, their credentials are not always easy to establish. Other problems in evaluating the content of Web resources include the frequent lack of a statement of purpose and an indication of the audience at which the resource is directed, insufficient information on currency (no publication date or indication of whether the content of the source is up-to-date), and a general lack of metainformation. Specific characteristics of the Internet environment make it necessary to develop new evaluation criteria. These concern in particular aspects of form (ease of navigation, provision of user support, use of recognized standards and appropriate technologies, design) and process/system (integrity of the information, stability of the site, maintenance). An Internet-specific concern in evaluating content is the distinction between sites that provide mainly links to other resources, and sites that provide original information. In other words, there are different levels of resources, although both types may be found at the same site.

The deficiencies of automatic search engines, together with a concern for the quality of Internet resources, has led to the development of subject indexes or directories, basically guides which help the Internet surfer to find resources based on what they are all about. Several such subject directories or guides of African Studies or Africa-related Internet resources have appeared on the Internet over the last few years. The four discussed here are considered the most valuable for Africanist scholars in general, particularly as starting points for searching the Internet<sup>3</sup>.

One of the most extensive and most often referred to is the *African Studies WWW* of the African Studies Center at the University of Pennsylvania<sup>4</sup>. This site was set up in 1994 and is maintained by

Ali B. Ali-Dinar, outreach coordinator at Penn's African Studies Center. The main page contains 11 sections, including a section on African Studies at Penn and a section on the US African Studies Association. The page also offers a search facility and a link to recently posted African Studies related information (What's New). Unfortunately not all section titles are self-explanatory, nor is the organization in subsections always transparent. A description of the top-level sections can only be found indirectly, by first activating the search tool and then clicking on African Studies WWW: Table of Contents. The main menu Bulletin Board section contains a wide range of electronic resources, organized in subsections, including Current Events, Documents, Educational Resources, and Electronic Technology. These are further subdivided into sections containing the actual resources. The subsection Documents, for example, is further subdivided into Articles, Papers & Abstracts; Bibliography; Books On-Line; Governmental & Political Documents; Proceedings & Book Reviews; and Publications & Publishers. Newsletters On-Line, however, are not grouped under Documents but under Current Events. For the purpose of comparison, the Country-Specific and Africa Web Links sections of the main page are especially relevant. The section Africa Web Links is an annotated list of online resources arranged alphabetically in 29 subject categories. Considering the large number of resources listed in this section and its expected growth, the What's New subsection included here would seem particularly useful. However, at the time of writing (April 1998), the latest What's New dated from September 1997, and this is definitely not up-to-date. For example, an online magazine listed as 'new' here had been discontinued in March 1998 after 13 months of publication. The Country-Specific section first gives a few general links, in particular to African embassies in the US, national holidays, and a general map of Africa, and then lists specific country resources in alphabetical order by country. The aim of Penn's country pages is 'to provide detailed information for each African country'. Each country page starts with factual resources, including a country map, and links to CIA World Factbook data and US State Department travel advisories. This is followed by a selection of annotated links to other online resources, including a link to the relevant country page of *Index on Africa*, a subject index from Norway (discussed below). Linking to other subject directories has the advantage that resources listed there do not have to be repeated at the original Website. However, the reliability of the linked Website needs to be checked regularly. Unfortunately, quite a few links to resources listed by *Index on Africa* were obsolete or broken when research for this article was carried out.

*Index on Africa: a comprehensive guide to the continent on the Net*<sup>5</sup> was created in early 1997 by the Norwegian Council for Africa, a non-profit NGO, as 'part of NCA's efforts to raise awareness about Africa and African affairs'. Starting with approximately 2000 links to resources all over the world, it claimed to be the most comprehensive and systematic index of its kind. The main part of the *Index* consists of country and subject pages. There is also a section News on Africa, a section Africa Update, information about the NCA, and a search option. A section New Links which was originally included had been dropped by April 1998. The country pages each begin with a number of general links including, not surprisingly, a link to UPenn's country pages. These are followed by a selection of other links, arranged under a variable number of subject headings. Although a relatively large number of outdated links was found for some countries (Mali for instance), links for other countries seem to be better maintained. Indeed, the same link was sometimes broken for one country and correctly updated for another. The *Index's* subject pages consist of 25 alphabetically arranged sections, uneven in magnitude, with a comparatively large section on women, subdivided into some 12 subsections. Two sections listed in the subject index no longer seem to exist, another section does not include any resources. The resources listed in some sections are provided with brief annotations while those in other sections are not. On the whole, the *Index's* country and subject pages create a rather unbalanced impression and do not seem to be kept up-to-date very well. A part of the *Index* which is much better maintained is the News section. This contains links to c. 50 news

sources in Africa (agencies, newspapers, periodicals, radio and tv) and c. 15 outside the continent. On the basis of these sources, a daily digest of African news is compiled (section Africa Update). This is precisely one of the areas where the Internet has obvious added value compared with traditional information media.

Two other directories of Internet resources related to Africa which are particularly valuable are *Africa South of the Sahara: selected Internet resources*<sup>6</sup>, prepared by Karen Fung for the Electronic Technology Group of the US African Studies Association and located at Stanford University, and *African Studies Internet Resources*<sup>7</sup>, compiled by Joseph Caruso, African Studies Librarian at Columbia University. *Africa South of the Sahara* has developed from a printed guide, first published in 1994, into a continuously updated and expanded electronic version which stands out through its clear design, user-friendliness, and informative annotations. The guide is organized in two main sections - Topics and Regions. The main page further offers background information, a search facility, and tips about accessing and evaluating Websites. The Regions page contains sections on Central, East, West, and Southern Africa, Horn of Africa, and Indian Ocean Islands. Links to general regional resources are followed by specific country resources. For each country, news sources are listed first. A useful feature of the section on South Africa, the country with the highest Internet connectivity of the continent, is the inclusion of links to a number of search engines which specifically search South African Websites. The Topics page consists of some 36 subject categories, some of which are further subdivided. Particularly impressive are the sections Journals/Newspapers, which includes a separate subsection on South African journals and a list of journals whose table of contents are online, and Current Events, which is subdivided into country and continent sections. The section Libraries/Archives contains subsections on Africa, Europe and North America, and the annotations here are especially valuable because they give not only a description of collections, but also details on how to connect to library catalogues. A distinct advantage of Fung's guide, as compared to the other guides examined here, is that the URL (electronic address) of each resource is given. Besides the exact location of the resource on the Internet, the URL also indicates whether the resource is Web-based or otherwise (gopher, FTP) and usually contains domain information of relevance in assessing authorship and accessibility. Together with the annotations this enables the user to gauge the potential usefulness of a resource before actually accessing it. An additional helpful feature is that each page contains the date when it was last modified.

*Africa South of the Sahara* obviously does not contain resources specifically on North Africa, and links to resources on some sub-Saharan African countries (Guinea, Niger) have yet to be established. Internet resources for these countries may be found at UPenn and also at Joe Caruso's *African Studies Internet Resources*, a directory which has been designed with scholars and researchers in mind. In this guide resources are organized by region and country, by organization (conferences, international organizations, scholarly associations, US organizations) and by topic in such a way as to 'encourage an awareness of authorship, type of information, and subject'. There are separate categories for libraries and bibliographic resources, African Studies programmes and research centres, and electronic journals and newspapers. Links to other Africa-related resource collections are included, and the site hosts the *International Directory of African Studies Scholars*, also maintained by Caruso. Country pages typically start with a number of general resources, including UPenn's country page and the relevant CIA World Factbook country page, followed by other resources, grouped in various subject categories. They include many of the sites also listed by Fung, although the latter's country pages are more comprehensive. The section Resources by Topic consists of 12 subject categories, ranging from African Language Resources to The Internet in Africa and Teaching Resources on Africa. Strong points of this site are the fact that most of the

resources are annotated, each page gives the date when it was last revised, and there is a search tool which makes finding specific resources easy.

Comparison of the four African Studies Internet directories discussed here shows that, although there is, not unexpectedly, a certain overlap in the resources listed, there are differences as well. Each guide has a number of areas in which its coverage is more extensive than others. While all four guides cover a wide range of resources, *Africa South of the Sahara* and *Index on Africa* are basically directories of links to Internet resources, whereas *African Studies WWW* also contains a large number of the actual resources themselves (electronic documents). *African Studies Internet Resources*, while mainly a directory of links to resources, includes a number of electronic documents as well. What is remarkable is the diversity in the type of electronic resources covered, in fact a reflection of the diversity of material published on the Internet in general. Some types of Internet resources pertaining to Africa are particularly useful. These include: 1) collections of factual data, such as country facts and statistics; information about institutions, organizations and associations; directories; 2) news resources, including newspapers and news agencies, with information on current events; 3) announcements of upcoming events (conferences), new publications, tables of contents of recent periodical issues; 4) resources aimed at the exchange of information and the promotion of discussion (email discussion lists, see for example the discussion logs of the H-Africa list<sup>8</sup> for some interesting cases of scholarly discussion and exchange of information between academics and other professionals); 5) library catalogues (although many library OPACs are not yet Web-based and additional software may be needed to access them); 6) primary sources, including electronic journals, conference papers, electronic versions of conventions and agreements and other out-of-copyright material. For most books and other 'commercial' publications, however, we still need 'real' libraries, at least for the time being.

Most of the Internet resources listed in the guides discussed above are available free of charge, although registration is required in some cases to gain access to a Website. Where subscription rates are charged, this is usually indicated, together with information about free trial searches. Until recently, most electronic resources on the Internet have been freely accessible, although there is a growing tendency to limit access to new resources to paying subscribers. In addition, some information producers have started to charge for access to resources which initially were available free. A number of information producers provide a combination of free and paid services. These include publishers who put the table of contents of periodicals on the Internet for free public access but make the full text of articles available only to subscribers of the print version. Publishers may also offer free trial searches in (parts of) their databases, which are otherwise accessible only after payment of subscription. Even with non-commercial electronic journals which do not have a print equivalent, and are therefore faced with lower production costs, one cannot help wondering how long they will be able to continue their service gratis.

Each of the four guides discussed organizes and presents Internet resources in a different way and the same resources may be listed under either a subject section or a regional section, or under both. Comparison of the content also reveals variations in the way in which resources are listed and described. Consistency in cataloguing seems at times to be lacking. To give an example: the CIA World Factbook, frequently mentioned, also at African Studies Websites other than those discussed here, is variously cited as the CIA World Factbook, the United States CIA World Factbook, or simply as the World Factbook. This example may appear simple, but different bibliographical descriptions of the same resource make it difficult to identify and/or locate the resource in question, or even to recognize it as the same resource. Not all guides provide annotations for the resources they list. Yet the challenges produced by the increasing quantity of information on the Internet

mean that access to high quality metainformation will become increasingly important. In this connection, the development of quality controlled gateways to the Internet, such as SOSIG (Social Science Information Gateway) in Bristol<sup>9</sup>, is worthy of mention. SOSIG is an online catalogue of thousands of high quality Internet resources relevant to social science education and research. Each resource has been selected and described by a librarian or subject specialist. Catalogue records contain information (metadata) about the resource, including title, description (annotation), keywords, country (in which the computer hosting the resource is located), language and URL (electronic address, in this case also serving as a hyperlink to the actual resource). SOSIG collaborates with partners in DESIRE, the Development of a European Service for Information on Research and Education. Although the SOSIG gateway is compiled from a disciplinary perspective, and therefore does not contain specific area studies sections, SOSIG's policy of emphasizing high quality information and collaboration deserves attention in more specialist areas such as African Studies.

In view of the apparently inherent contradiction between the desire to select as many relevant Africa-related resources as possible from the ever growing mass of information on the Internet in a bid for comprehensive coverage, on the one hand, and the need to ensure the quality of the selection and description of Internet resources, on the other, it may well be worthwhile to explore possibilities of cooperation between the various Africanist researchers and librarians involved in the selection and description of Africa-related Internet resources. Another possible way to improve the accessibility of Africa-related Internet resources is through the publication of specific guides or directories, compiled by subject specialists, which may supplement the more general guides discussed here. Examples can already be found on the Internet, including Hans Zell's *Electronic African Bookworm*<sup>10</sup>, focusing on 'bookish' sites, and the *Incore Regional Internet Guides*<sup>11</sup>, which list unique, relevant and preferably substantive content relating to ethnicity and/or conflict in specific countries/regions.

Although content-related features are usually the most important criteria by which the quality of Internet resources is assessed, form and process should not be neglected. Valuable as a resource may be, if it contains many outdated links, takes a very long time to load, or if there are recurring difficulties in connecting to the host computer, public interest will soon diminish. Due to the fast-changing nature and continuous growth of the Internet, it would not be possible for any Internet subject directory to be comprehensive or completely up-to-date. In fact, the very nature of the Internet means that these guides begin to go out-of-date within days of their production. Reliable sources indicate the date that their Webpages were last revised. Their value must be secured by regular maintenance and updating. Of course, this means a lot of work, and one has to admire people like Ali Ali-Dinar, Karen Fung and Joe Caruso for their efforts in compiling and maintaining such valuable subject directories as tools for searching the Internet on Africa and African Studies-related subjects.

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1. The English of this article has been edited by Marlene van Doorn, who also made valuable suggestions for improvement of the text
2. Alistair G. Smith, 'Testing the surf: criteria for evaluating Internet information resources', *The Public-Access Computer Systems Review* **8**, no. 3 (1997);  
<http://info.lib.uh.edu/pr/v8/n3/smit8n3.html>
3. Another good guide is Peter Limb's *A-Z of African Studies on the Internet* (<http://www.lib.msu.edu/libb/a-z/az.html>), which is not discussed here because it is an alphabetical index rather than a subject directory
4. [http://www.sas.upenn.edu/African\\_Studies/AS.html](http://www.sas.upenn.edu/African_Studies/AS.html)
5. <http://www.afrika.no/>
6. <http://www-sul.stanford.edu/depts/ssrg/africa/guide.html>
7. <http://www.columbia.edu/cu/libraries/indiv/area/Africa/>
8. <http://www.h-net.msu.edu/~africa>
9. <http://sosig.esrc.bris.ac.uk/>
10. <http://www.hanszell.co.uk/>
11. <http://www.incore.ulst.ac.uk/>