

safety and emotional welfare of journalists,” the only article of this nature in this literature survey. Tumber outlines some very precarious situations covered by journalists and ask why journalists submit to physical danger. Although there is no collective bibliography in the volume, each essay is followed by notes and references. This should be in all media collections.

## 2. CBQ REVIEW ESSAY: *Telecommunication and Development in Africa: Recent Resources*

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by Cheryl J. Mason-Middleton (*Ohio State University*)

Africa is the second largest continent, with 12 percent of the world's population, a massive labor force, and vast natural resources. Unfortunately, Africa also has the highest world levels of poverty, massive unemployment, large regions of political and economic instability, and antiquated and poorly maintained infrastructure. Among the requirements for Africa's development is the integration and modernization of its information and communications technologies (ICT) infrastructure. According to Noam (see CBQ 35:45), in 1994 the United States had 65 main telephone lines per 100 persons, while in Africa there were but 1.5 per 100. Almost 40 percent of all telephone lines were concentrated in South Africa. Africa's 600 million people shared fewer telephone lines than Manhattan, south of 59th Street (p. 3).

Defining the nature of a causal relationship between the availability of ICTs and development is problematic at best. Chetty (see 35:36) states, "There is still insufficient evidence to define the nature of the causal relationship, and it is indeed true that ICT can be a cause, a consequence and a manifestation of economic growth" (p.1). Still the benefits of an enhanced ICT infrastructure are evident in the free exchange of ideas essential for the development of any nation. Florence Chioma Nwachuku of the University of Lagos, in Uche (35:59) suggests that "Democracy implies the idea of popular power, popular sovereignty, that people make or participate in making the decisions that affect them most closely and importantly. Since this concept, democracy, has become the central political principal, or ideal, it is exigent for Africa's fledgling democracies and other African nations en route to its actualization, to embrace certain conditions that have been identified as relevant for the democratic process. Two such conditions that have been identified are freedom of speech and of the press" (p.289).

In this current age of globalization, such freedom of information is dependent upon ICTs for timeliness, if for no other reason. The establishment of participatory forms of governance, and the alleviation of the massive social problems that continue to plague Africa's people, require the vitalization of Africa's infrastructure including modernized and well maintained ICTs.

The current field of ICTs in Africa is developing rapidly with unique strategies evolving to overcome Africa's deficiencies in teledensity and the aging, often still colonial period-based infrastructure. Cellular technology had been embraced by 28 million subscribers continent-wide by 2001, up from just one million four years earlier. Land lines rose from 15 million to only 22 million over the same period, according to Rose (35:54) who proposes distance learning as an open door to higher educational opportunities as well as a possible means to fill the growing need for skilled pro-

professionals to aid Africa's development and provide higher education to those unable to travel to the university. Further, ICT initiatives for governance are being advanced as tools for enhanced urban management. Odendaal (35: 47), presents a comparative study of the relationship between ICTs and governance in two such initiatives, one in Australia and the other in South Africa. New technologies are seen as providing means to achieve developmental possibilities, where aging and antiquated infrastructure is not adequate to the task. Updating and rebuilding land based infrastructure presents formidable difficulties that may continue to remain in neglect.

Caveats and concerns have been raised regarding the involvement of non-African states, particularly from the West, in building infrastructure. McMullen and Warren, in *TELEDENSITY* (35:42) suggest that over-dependence upon Western intervention could result in a "viagra" solution that would leave the infrastructure in place with no one available that would know how to maintain or use it, especially in Africa's least developed countries. An African self-sufficient approach with foreign alliances is presented for the realization of sustainable development of telecommunications infrastructure in Africa's least developed nations.

Resources for current information may be found through one of the several organizations devoted to ICT development. Of particular note is the United Nations AFRICAN INFORMATION SOCIETY INITIATIVE (AIS) (35:30) and PARTNERSHIP FOR ICTS IN AFRICA (35:50). These resources provide up-to-date information on the development of ICTs in Africa and the relationship of ICT and sustainable development in Africa's developing nations. Strictly African resources for information can be found through the AFRICAN UNION (35:31), and for day-to-day news events ALLAFRICA.COM (35:33) provides local, national, regional, and continent wide news coverage.

This spring Egypt hosts the International Telecommunication Union's Telecom Africa 2004 in Cairo (<http://www.itu.int/AFRICA2004/>). As before this exhibition will provide a forum that will focus upon the latest telecommunication developments and growth and will provide a platform for telecommunication leaders to share their ideas on future trends and discuss appropriate strategies for the developing nations of Africa as well as the industrialized world. Previous ITU Telecom events for Africa have taken place every four years since 1986. The last (2001) event brought together 236 exhibitors, and attracted more than 15,000 participants. The ITU remains a primary source of information and resources for sustainable ICT development in Africa and globally.

The following essay review includes general information resources concerning the present state of affairs in African telecommunication. Its scope is intended to provide the means to survey the basics of the primary issues in African telecommunications. Materials were selected on the basis of timeliness, the majority of material being no older than five years (with a couple of exceptions), and point of view, presenting both African and non-African resources. Arrangement is by author (or title for the many resources lacking specific authorship).

35:30

**AFRICAN INFORMATION SOCIETY INITIATIVE (AIS)** [website] (<http://www.uneca.org/aisi/>). Reviewed 13 November 2003. Billing itself as "An action framework to build Africa's information and communication infrastructure," AISI is an arm of the United Nations, Economic Commission for Africa (ECA)

(<http://www.uneca.org/>). Claiming to be “not about technology,” AISI seeks to bridge the digital divide between Africa and the rest of the world by creating digital opportunities to be developed by Africans and their partners.

35:31

**AFRICAN UNION** [website] (<http://www.africa-union.org/>). Reviewed 13 November 2003. The African Union was founded to accelerate Africa's participation in the global arena, and to provide a forum for addressing Africa's many social, political and economic problems. The African Union's propose is to bring stability to the continent, and create a climate of social and economic development through a shared economy, and open diplomatic relations between African Nations and non-governmental organizations (NGOs).

35:32

**AFRICAN UNION DECISIONS AND DECLARATIONS, HEADS OF STATE AND GOVERNMENT SUMMITS ASSEMBLY 2003, MAPUTO MOZAMBIQUE 10–12 JULY 2003** [website] ([http://www.africa-union.org/Official\\_documents/Heads%20of%20State%20Summits/hog/12HoGAssembly2003.pdf](http://www.africa-union.org/Official_documents/Heads%20of%20State%20Summits/hog/12HoGAssembly2003.pdf)). Reviewed 13 November 2003. A codification of the decisions made by the Ordinary Assembly of Heads of State and Government of the African Union in 2003, this includes within its wider, general scope, declarations acknowledging efforts toward ICT development and calls for support of those efforts. This is an example of the issues related to development in Africa, and may present the reader with an idea of the scope of difficulties facing the continent.

35:33

**ALLAFRICA.COM** [website] (<http://allafrica.com/ict/>). Reviewed 13 November 2003. Current news reports in the African ICT sector, allAfrica.com is the largest worldwide distributor of African news reports, drawn from over one hundred African news agencies. This resource covers all topics of news interest and is updated frequently during the day.

35:34

“Understanding Telecom Sector Reforms in South Africa: A Political Economy Perspective,” by Melvin Ayogu and James Hodge, **JOURNAL OF CONTEMPORARY AFRICAN STUDIES**, 20: 275–93 (July 2002—no price available, ISSN 0258-9001, quarterly, bibliographical references) presents a political economy perspective on the privatization and regulatory reforms taking place in the telecommunications industry in South Africa, with particular interest in the factors responsible for the slow pace and seemingly confused nature of the rules in this area of reform.

35:35

**BELLANET** [website] (<http://home.bellanet.org/>). Reviewed 13 November 2003. Through the promotion of online communities, knowledge sharing, and open development, BELLANET seeks to facilitate collaboration within the International Community through the use of ICTs. BELLANET seeks to “support effective development practice by sharing its expertise in information and communication tech-

nologies.” BELLANET provides information related to workshop and convention events, and reports of current states of affairs.

35:36

**INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICTs) FOR AFRICA'S DEVELOPMENT, ICT AND HUMAN DEVELOPMENT: AN INDISPUTABLE LINK** [website, PDF format] compiled by Matthew Chetty (<http://www.touchtech.biz/nepad/files/documents/124.pdf>). Reviewed 13 November 2003. Compiled in 2003 to show the bleak picture of Africa's prospects for development as presented in the UNDP's Human Development Report of 2003, this paper notes that while ICTs are powerful tools for development, they are not a panacea for addressing the economic needs of developing nations. The author presents a comprehensive overview of the state of telecommunications in developing African nations and lists the major African Telecommunication initiatives. For a quick basic overview, this report summarizes key issues, and strategies.

35:37

**THE ISSUES OF PLURALIST MEDIA: THE PROCEEDINGS OF THE FIRST COLLOQUIUM OF THE AFRICA COMMUNICATION REGULATORY INSTITUTIONS** compiled by the Friedrich Ebert Foundation, Swiss Cooperation (Cotonou, Benin: Les Editions du flamboyant, 1996—price unavailable, OCLC 38109637, 162 pp., annexes) contains a collection of 17 papers given at the colloquium in April 1996. Topics of discussion cover media regulation and management in West African nations and the associated political and economic implications as of 1996. This provides interesting background information.

35:38

**ITU AFRICAN COUNTRY CASE STUDIES, 1998–2002** [website] by the International Telecommunication Union (<http://www.itu.int/osg/spu/casestudies/index.html#africa>). [website] Reviewed 13 November 2003. Case studies presented on this website concern regulatory independence and effectiveness, internet diffusion, trade in communication, and licensing policy in selected national venues. Each study focuses comprehensively upon the specific situation in each country as a representative example. The African countries represented are Botswana, Egypt, Ethiopia, Ghana, Lesotho, Mauritania, Morocco, Senegal, Uganda, and South Africa. These reports can provide a ready comparison of national approaches to telecommunication issues on a regional and global basis.

35:39

**INTERNATIONAL TELECOMMUNICATION UNION** [website] (<http://www.itu.int/>). Reviewed 11 December 2003. Based in Geneva Switzerland, the ITU serves to foster cooperation among international organizations, governments and the private sector. Its membership includes telecommunication policy-makers and regulators, network operators, equipment manufacturers, hardware and software developers, regional standards-making organizations and financing institutions. Founded about 135 years ago it's work has evolved from that of a tool that facilitated person-to-person communications to the foundation that promotes international trade and commerce to health, and education.

35:40

**THE CROSSED LINE: THE SOUTH AFRICAN TELECOMMUNICATIONS INDUSTRY IN TRANSITION** by David Kaplan (Johannesburg: Witwatersrand University Press, 1990—price unavailable, OCLC 23175565, 227 pp., appendix, glossary, bibliographical references) provides an interesting view of the state of telecommunications in South Africa at the fall of apartheid and gives a good historical grounding, as well as a sense of the analytical issues of the time.

35:41

**TELECOMMUNICATIONS AND DEVELOPMENT IN AFRICA** edited by B.A. Kiplagat and M. C. M. Werner (Amsterdam and Washington, D.C.: IOS Press, 1994—price unavailable, ISBN 9-05-199169-X, 302 pp.) provides a more global view of African telecommunications issues in economic, regulatory and technological terms (as of 1994). Areas of concern are regulation and development in a multi-governmental framework, economic considerations, user needs, interconnectivity and regional cooperation, and the suitability of advanced technologies in developing nations.

35:42

**TELEDENSITY TECHNOLOGICAL GROWTH STRATEGY FOR AFRICA'S LDC'S: 'VIAGRA' DEVELOPMENT STRATEGY OR SUSTAINABLE DEVELOPMENT STRATEGY? — THE AFRICAN TELECOMMUNICATIONS STAKEHOLDERS SPEAK** by Victor W. Mbarika, Patrick R. McMullen and John Warren, 34th Annual Hawaii International Conference on System Sciences of the Institute of Electrical and Electronics Engineers, Inc., 2001 [website, PDF format—\$19.00] (<http://csdl.computer.org/comp/proceedings/hicss/2001/0981/01/09811021abs.htm>) Reviewed 11 December 2003. The authors discuss the telecommunication infrastructure needs of Africa's least developed countries (LDCs), and contrasts dependence upon the West for the development of infrastructure as compared to more self-sufficient approaches.

35:43

**TELECOMMUNICATIONS POLICIES FOR SUB-SAHARAN AFRICA** by Mohammad A. Mustafa, Bruce Laidlaw, Mark Brand (Washington, D.C.: World Bank "World Bank Discussion Paper, No. 353," 1997—price unavailable, ISBN 0-8213-3851-X, 73 pp., bibliographical references) examines the state of telecommunications in Benin, Ghana, Mozambique, Tanzania, and Uganda in the light of strategic options related to attracting the commitment of capital and investment into their regions. The focus of this paper is to consider how reforms being proposed and implemented were likely to improve sector performance and expand information and telecommunication capacity.

35:44

**EXPORTING COMMUNICATION TECHNOLOGY TO DEVELOPING COUNTRIES: SOCIOCULTURAL, ECONOMIC, AND EDUCATIONAL FACTORS** by Komben Emmanuel Ngwainmbi (Lanham, MD: University Press of America, 1999—\$33.50, ISBN 0-76-181418-3, 240 pp., bibliographical references and indexes) presents a "tutorial package for companies, governments, new-comers

into the world of communications technologies and their role in assisting African countries toward the realization of their development objectives.” Included are analyses of communication technologies, a history of the activities of U.S. long distance companies in the African market along with regional African companies, a groundwork for non-African executives who seek to do business with Africans by giving an African cultural analysis, caveats against creating an atmosphere of neocolonialism, and examinations of telecommunications policies and African policy makers.

35:45

**TELECOMMUNICATIONS IN AFRICA** edited by Eli M. Noam (New York and Oxford: Oxford University Press, 1999—\$45.00, ISBN 0-19-510201-0, 306 pp., bibliographic references and index) provides reports on twelve African nations that exemplify the backgrounds, histories, and issues related to ICT infrastructure development. Topics include pre-colonial, colonial and post-colonial histories, present telecommunications conditions, economic trends, and expectations for the future.

35:46

**THE DIGITAL DIVIDE IN DEVELOPING COUNTRIES: TOWARDS AN INFORMATION SOCIETY IN AFRICA** by Gert Nulens, Nancy Hafkin, Leo Van Audenhove, and Bart Cammaerts (Brussels: VUB University Press, 2001—\$20.00, ISBN 90-5487-310-8, 342 pp., bibliographical references) is a collection of “papers given at the first African Development Forum and articles by international scholars who are studying the African information society.” The Digital Divide discusses issues, scenarios, and challenges facing the development of ICT infrastructure in Africa. Policies and strategies in an era of globalization and rapidly growing information based economy are addressed with an assessment of the role of the African Information Society Initiative of the ECA starting in 1996 and continuing into the twenty first century.

35:47

“Information and Communication Technology and Local Governance: Understanding the Difference Between Cities in Developed and Emerging Economies” by Nancy Odendaal, in **COMPUTERS, ENVIRONMENT AND URBAN SYSTEMS**, 27:585–608 (November—price unavailable, ISBN 0198-9715, 6/year, bibliographical references) seeks to create a “deeper understanding of the notion of the ‘digital divide’ as it pertains to the relationship between ICT and local governance. Compared are two cities. The “Smart City” of Brisbane Australia, and the “eThekwini” Metropolitan Council e-governance initiative in Durban, South Africa. These current trends are explored as a means of examining the interface between ICT and local governance.

35:48

**THE GHANA REFORM CASE IN AFRICAN TECHNOLOGY AND TELECOMMUNICATIONS POLICY** by Michael Nana Osei-Mensah (Lewiston, NY: Edwin Mellen Press “Studies in African Economic and Social Development, Vol. 13,” 1999—\$99.95, ISBN 0-7734-7896-5, 342 pp., appendices.) is a general study of the challenge of building telecommunications infrastructure in the nation of Ghana. The author opens with a comparative overview of developed

nations in the global arena, and how their experience relates to developing nations, then gives an analysis of Ghana as a nation, and its telecommunications challenges. The appendices make-up the largest portion of the book, but provide substantial amounts of information. The author provides a fine analysis of the specifics relating to the needs of a single developing nation.

35:49

**NEW PARTNERSHIP FOR AFRICA'S DEVELOPMENT (NEPAD)** [website] (<http://www.touchtech.biz/nepad/>). Reviewed 13 November 2003. The NEPAD is an agreement by African leaders to work toward the eradication of poverty, and to lay the groundwork for sustainable growth and development. The NEPAD agreement arises from a mandate given to the five initiating heads of state (Algeria, Egypt, Nigeria, Senegal, South Africa) by the Organization of African Unity (OAU) (now the African Union) to develop an integrated socio-economic development framework for Africa. NEPAD is designed to address issues such as the escalating poverty levels, underdevelopment, and the continued marginalization of Africa.

35:50

**PARTNERSHIP FOR ICTS IN AFRICA** [website] (<http://www.uneca.org/aisi/picta/>). Reviewed 10 December 2003. PICTA presents itself as "an informal group of donors and executing agencies committed to improving information exchange and collaboration around ICT activities in Africa." Under the Auspices of the Development Information Services Division, Economic Commission for Africa (ECA), PICTA serves as a portal to information and activities related to ICTs and ICT development in Africa. Included is information about various projects, and a schedule of conferences related to current African ICT development.

35:51

**PICTA BULLETIN: PARTNERSHIP FOR ICTs IN AFRICA, UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA** [website] (<http://www.uneca.org/aisi/picta/PICTAbulletin/>). Reviewed 10 December 2003. Bulletin issues in PDF format. Issued monthly, the PICTA BULLETIN provides general news and information concerning ICT related activities across the African continent, and gives a significant view of the current state of African ICT development.

35:52

**PROJECT FOR INFORMATION ACCESS AND CONNECTIVITY** [website] (<http://www.piac.org/>). Reviewed 10 December 2003. PAIC was established in 1997 and mandated to enhance communications and the ability to work with colleagues and like-minded organizations in Africa and overseas, improve access to information, and improve the dissemination of African information. Among their projects are a "Database of African Theses and Dissertations" and "Wired for Information: Putting the Internet to Good Use in Africa."

35:53

**TELECOMMUNICATIONS DEVELOPMENT: THE CASE OF AFRICA** by L. Kwabena Riverson (Lanham, MD: University Press of America, 1993—\$47.50,

ISBN 0-81-919315-1, 302 pp., bibliographical references and index) is an analysis of Africa's approach for the optimal use of telecommunication resources toward economic development (as of 1993). The author seeks to provide the reader with information intended to avoid the poor integration that continues to undercut the effectiveness of African telecommunication.

35:54

"Mobile Phones: Changing Africa's Landscape" by Rob Rose, in **NEW AFRICAN**, 408:34-36 (June 2002—price unavailable, ISSN 0142-9345, 12/year) is a quick overview of the growing popularity of mobile telecommunications technology, the reasons behind it, and recent events which have occurred as a part of the growing African cellular phenomenon.

35:55

**NATIONAL INFORMATION AND COMMUNICATION INFRASTRUCTURE (NICI) COUNTRY PROFILES** by Marcos Sahlu (Addis Ababa: United Nations, Economic Commission for Africa, Africa Development Forum, 1999—price unavailable, E/ECA/ADF/99/1, 351 pp., bibliographical references; also available at <http://www.uneca.org/>) is intended to identify the current level of development in information and communication technologies in Africa. This report is focused upon the necessary awareness of planners and ICT producers. It is directed toward creating more integrated ICT development, and analyses and statistical trends for each of the fifty-three African nations.

35:56

**TELECOMMUNICATIONS POLICY: SPECIAL ISSUE—AFRICA**, 27:1-2 (February-March 2003—\$276 [personal]/\$1,077 [institutions] per year, ISSN 0308-5961, 11/year) is the premier world scholarly journal on policy aspects of telecommunications. This special issue—really a monograph in itself—brings forward significant information and analysis of basic issues related to African ICT infrastructure and development. Nine articles are included (expanded abstracts and links to more information on each paper can be found at the website:<http://www.sciencedirect.com/science/journal/03085961>):

**"Self-destructive Competition in Cellular: Regulatory Options to Harness the Benefits of Liberalisation,"** by Muriuki Mureithi (pp. 11-19), reviews the evolution of cellular over the last 10 years and explores the implications of unregulated competition on continued growth.

**"Telecentres as a Way of Achieving Universal Service—the Case of Ghana,"** by Morton Falch and Amos Anyimadu (pp. 21-39), discusses ways of creating universal access through the use of telecommunication based information centers. Featured is a field study of how tele-centres in Ghana have contributed to universal access.

**"Telecommunications in Developing Countries: Reflections from the South African Experience,"** by Gertrude Makhaya and Simon Roberts (pp. 41-59), reviews the debates on privatization and international experience with a particular emphasis on issues of economic development and regulation. The South African experience is then viewed in terms of different

indicators of performance, the regulatory record and the progress on service extension.

**“Internet Subscription in Africa: Policy For a Dual Digital Divide,”** by Trevor R. Roycroft and Siriwan Anantho (pp. 61–74), explores influences on subscription to the internet in Africa, and factors related to low internet access in Africa.

**“The Need For a Systems Thinking Approach to The Planning of Rural Telecommunications Infrastructure,”** by T. N. Andrew and D. Petkov (pp. 75–93), explores the dynamics of rural demands upon telecommunications infrastructure, citing that the issues are not always technological, but involve across various social and cultural aspects of the rural society.

**“Telecommunications Reform in Southern Africa: The Role of The Southern African Development Community,”** by P. K. McCormick (pp. 95–108), examines the role of the Southern African Development Community (SADC) and the associations and commissions it has created to develop the telecommunications sector and facilitate reform.

**“Are Main Lines And Mobile Phones Substitutes or Complements? Evidence From Africa.”** by Jacqueline Hamilton (pp. 109–133), explores the relationship between mobile and main-line telephones. The author asks whether mobile technology complements main-line technology and creates a competitive environment forcing improved main-line service?

**“Governing Global Information And Communications Policy: Emergent Regime Formation And The Impact on Africa,”** by Derrick L. Coghurn (pp. 135–153), examines the question of how global governance and cooperation can occur in a world-system comprised of “sovereign and equal” national states, and in the absence of a global government to make and enforce rules. This article addresses the problem through a model of international regime theory.

**“African Information Revolution: A Balance Sheet.”** by Ernest J Wilson III and Kelvin Wong (pp. 155–177), provides a policy and institutional framework to describe and analyze the diffusion of ICT’s in Sub-Saharan Africa and the major factors that influence this diffusion.

35:57

**THE TELECOMMUNICATIONS HANDBOOK** edited by Kornel Terplan and Patricia Morreale (Boca Raton, FL: CRC Press, published in cooperation with IEEE Press, 2000—price unavailable, ISBN 0-8493-3137-4, various pp.) offers a general overview of telecommunications as an industry, including such issues as standardization and regulation, engineering and architecture, general technology, and media and multimedia. For the reader who has minimal background in telecommunications, this text should serve as a good reference point for basic understanding. Of particular note is chapter 1.2.4: “Regulation in Non-WTO Countries: Overview of Telecommunications Regulation in Africa,” by Raymond U. Akwule.

35:58

**HARNESSING DISTANCE LEARNING AND ICT FOR HIGHER EDUCATION IN SUB-SAHARAN AFRICA** by Graham Till (Burnham, UK: Burnham Business College, The Training Store Ltd., 2003—price unavailable, 58

pp., bibliographical references; appendix I & II) discusses the potentialities of ICT in distance learning for higher education as an asset toward development in Africa. The need for increased opportunities in higher learning as a means of providing Africa with much needed skilled professional personnel is demonstrated as fulfillable through the development of ICT based distance learning mechanisms.

35:59

**MASS COMMUNICATION DEMOCRACY AND CIVIL SOCIETY IN AFRICA: INTERNATIONAL PERSPECTIVES** edited by Luke Uka Uche (Lagos: Nigerian National Commission for UNESCO, 1999—price unavailable, ISBN 9-78-041683-8, 557 pp., bibliographical references and indexes) discusses conditions and necessities of mass communication in African environments. It focuses upon the social issues that are brought about through the availability (or lack thereof) of media and communications participation. At issue are democracy and development, civil liberties and human rights, governance, economics and globalization.

### 3. CODEBREAKING HISTORY REDUX

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*(Regular readers may remember that we have provided essay reviews on this topic earlier—see CBQ 30:3, 30:4, and 33:2. Scattered but related reviews have appeared under “history” in other issues in the interim.)*

35:60

**CODEBREAKERS: ARNE BEURLING AND THE SWEDISH CRYPTO PROGRAM DURING WORLD WAR II** by Bengt Beckman (Providence, RI: American Mathematical Association, 2002—\$40.00, ISBN 0-8218-2889-4, 259 pp., photos, diagrams, sources, index) opens a fascinating chapter in the wartime code-breaking story that is known to few—the central role of Sweden in the process. Neutral throughout the war, though surrounded by fighting or occupied nations, Sweden’s knowledge base about German intentions was hugely aided by the brilliant mathematician, Arne Beurling. In this professional biography of his wartime activities originally published in Swedish in 1996 (and translated here by Kjell-Ove Widman), we get a detailed study of the context and success of the Swedish efforts that are hardly mentioned in the standard sources. Beurling (1905-1986), a professor of mathematics at the University of Uppsala, was the central figure in this process that was probably little known at the time even at Britain’s Bletchley Park. After several chapters tracing the very early history of ciphers and cipher machines (where Sweden played an important role), the book details the work of Hagelin and others early in the 20th century and the arrival of World War II. Sweden’s real concern focused on Russia, and secondarily Germany, and it sought to break the codes of each (as well as those of Vichy France, the U.S., Britain, and Belgium). As the publisher might suggest, the Beurling approach to breaking some of the German codes was based on high-level mathematical thinking, plus some lucky breaks. The Radio Agency of the Swedish Defense Forces (FRA) was formed to intercept the coded material for Beurling and his colleagues to break. As with British and other efforts, the Swedish codebreaking process had its good and bad days, and this describes them all, generally in terms even a non-mathematician (such as your