

## **DIVISION X, XII / COMMISSION 40, 41 / WORKING GROUP RADIO ASTRONOMY**

<b>CHAIR</b>	<b>Kenneth Kellermann</b>
<b>VICE-CHAIR</b>	<b>Wayne Orchiston</b>
<b>BOARD</b>	<b>Rod Davies</b>
	<b>Leonid Gurvits</b>
	<b>Masato Ishiguro</b>
	<b>James Lequeux</b>
	<b>Govind Swarup</b>
	<b>Jasper Wall</b>
	<b>Richard Wielebinski</b>
	<b>Hugo van Woerden</b>

### **TRIENNIAL REPORT 2006-2009**

#### **1. Introduction**

The IAU Working Group on Historical Radio Astronomy (WGHRA) was formed at the 2003 General Assembly of the IAU as a Joint Working Group of Commissions 40 (Radio Astronomy) and 41 (History of Astronomy), in order to: a) assemble a master list of surviving historically-significant radio telescopes and associated instrumentation found worldwide; b) document the technical specifications and scientific achievements of these instruments; c) maintain an on-going bibliography of publications on the history of radio astronomy; and d) monitor other developments relating to the history of radio astronomy (including the deaths of pioneering radio astronomers).

The WGHRA is now an Inter Division (DX and DXII) Working Group.

#### **2. WG Web site**

The IAU WGHRA maintains a web site at <http://rahist.nrao.edu/> which includes past WG reports, brief biographical notes on Grote Reber Gold Medalists for Innovative Contributions to Radio Astronomy, brief memorial articles on recently deceased radio astronomers, and links to various sources of material on the history of radio astronomy.

#### **3. Preservation**

The WG noted with satisfaction that the reported deterioration of the Bell Labs horn reflector used by Penzias and Wilson to detect the CMB has been addressed by Lucent Technologies, and that the horn has been refurbished.

In the Netherlands, the 25-meter Dwingeloo dish, inaugurated in 1956, and used for major research programs up to 1998, has been repaired and modernized by CAMRAS, a foundation run by radio amateurs, since 2006. The Dutch Ministry of Education, Culture

and Science has granted a major subsidy for the full restoration of the telescope, to be started in 2012. The telescope will be made available for education and research projects by high-school students. The 60th anniversary of the first 21 cm mapping of the Milky Way with the 7.5 meter dish at Kootwijk was celebrated at the original site on 11 May 2011.

In 2003, the National Radio Astronomy Observatory initiated the first Archives devoted exclusively to radio astronomy. The NRAO Archives seeks out, collects, organizes, and preserves institutional records, personal papers, audio-visual materials, and oral histories of enduring value documenting NRAO's development, institutional history, instrument construction, and ongoing activities, including its participation in multi-institutional collaborations. As the national facility for radio astronomy, the Archives also includes an increasing collection of materials on the history and development of radio astronomy and the work of individual astronomers especially in the United States. See <http://www.nrao.edu/archives/>.

In addition to the institutional records of NRAO, the NRAO Archives includes Web resources on early radio astronomy courses and on Nan Dieter Conklin and Harold "Doc" Ewen, as well as personal papers of Ronald Bracewell, John Findlay, David Heeschen, John Kraus, Grote Reber, Richard Thompson, and James Ulvestad. Acquisitions since 2009 include small collections of papers from Marshall Cohen, Mark Gordon, David Hogg, Kenneth Kellermann, and Paul Vanden Bout. Major acquisitions in 2011, on which processing has just begun, are the papers of the late Donald Backer and papers received from Bernard Burke.

During 2010 and 2011, Woodruff Sullivan III donated research materials gathered over 30 years in writing his book, *Cosmic Noise: A History of Early Radio Astronomy* Sullivan (2009) including 255 interviews with radio astronomers audio-taped between 1971 and 1988. The book covers the period up to 1953, and a significant portion of his interviews and his other materials illuminates post-1953 radio astronomy history. The 2011 Pollock Award from Dudley Observatory funded the digitization of the taped interviews and the preparation of detailed finding aids for the Sullivan collection. See <http://www.nrao.edu/archives/Sullivan/sullivan.shtml/>.

Additional material on the history of radio astronomy can be found at:

<http://www.astro.washington.edu/users/woody/hra.html>

#### 4. Conferences

Celebrations of the 50th anniversary of NRAO, Bridle *et al.*(2008) and Parkes in 2011 (<http://www.atnf.csiro.au/research/conferences/Parkes50th/index.html>) and the 40th anniversary of Westerbork (<http://www.astron.nl/wsrt40/>) each contained historical reviews of the development of radio astronomy. In November 2009, Kellermann and Ekers organized a session on *Discoveries in Astronomy* at the American Philosophical Society with an emphasis on radio astronomy in papers by Ekers and Kellermann (2011), Schmidt (2011), Longair (2011) and by R.W. Wilson on the *Discovery of the CMB* (unpublished). All of the presentations can be viewed on-line at <http://www.amphilsoc.org/meetings/webcast/archive/y/2009/m/11>.

At the 2011 General Assembly of URSI Commission J, Kellermann reviewed the careers of recently deceased radio astronomers.

#### 5. Other Major Publications

Wielebinski and Wilson (2010) have reviewed the history of radio astronomy. Goss & McGee (2009) have published a biography of Ruby Payne-Scott which conveys her

personal challenges trying to do radio astronomy in post-war Australia. In 2012, a new edition of this book for a non science audience *Making Waves: The Story of Ruby Payne-Scott, Australian Pioneer Radio Astronomer* will be published by Goss as part of the Springer *Astronomers' Universe* popular astronomy series. Several papers reviewing the history of radio astronomy in France have been published by Orchiston *et al.* (2009), Lequeux *et al.* (2009), Pick *et al.* (2011), Encrenaz *et al.* (2011). Papers on the history the Stockert radio telescope by Wielebinski, R. (2010) and the Effelsberg radio telescope by Wielebinski *et al.* (2011) document the development of radio astronomy in Germany. Kellermann has edited a translation of the 1986 book in Russian on *A Brief History of the Development of Radio Astronomy in the USSR* due to be published by Springer in 2012.

Ken Kellermann

*Chair of Working Group on Historical Radio Astronomy*

## References

- Bridle, A. H., Condon, J. J., & Hunt, G. C. 2008, *Frontiers of Astrophysics: A Celebration of NRAO's 50th Anniversary*, Astronomical Society of the Pacific conference Series, Number 395.
- kers, R. D. & Kellermann, K. I. 2011, *Discoveries in Astronomy* Publications of the American Philosophical Society, 115, 2, 129-133
- Encrenaz, P., Gómez-González, Jesús, Lequeux, J., & Orchiston, W. 2011, *Highlighting the History of French Radio Astronomy 7: The Genesis of the Institute of Radioastronomy at Millimeter Wavelengths (IRAM)*, Journal of Astronomical History and Heritage 14 (2) 83-92.
- Goss, W. M. & McGee, R. X. 2009, *Under the Radar, The First Woman in Radio Astronomy*, Ruby Payne-Scott (Springer ASSL series)
- Lequeux, J., Steinberg, J.-L., & Orchiston, W. 2009 *Highlighting the History of French Radio Astronomy 5: The Nancaÿ Large Radio Telescope*, Journal of Astronomical History and Heritage 13(1) 29-42.
- Longair, Malcolm, 2011, *The Discovery of Pulsars and the Aftermath*, Publications of the American Philosophical Society, 115, 2, 147-157
- Orchiston, W., Steinberg, J.-L., Kundu, M., Arzac, J., & Blum, E. J. 2009, *Highlighting the History of French Radio Astronomy 4: Early Solar Research at the École Normale Supérieure, Marcoussis and Nancaÿ*, Journal of Astronomical History and Heritage 12(3), 175-188.
- Pick, M., Steinberg, J.-L., & Boischot, A. 2011, *Highlighting the History of French Radio Astronomy 6: The Multi-Element Grating Arrays at Nancaÿ*, Journal of Astronomical History and Heritage 14 (1) 57-77.
- Schmidt, M. 2011, *The Discovery of Quasars*, Publications of the American Philosophical Society, 115, 2, 142-146
- Sullivan, W. T. III, *Cosmic Noise: A History of Early Radio Astronomy* 2009, (Cambridge U. Press)
- Wielebinski, R. & Wilson, T. 2010, *The Development of Radio Astronomy*, in Heritage Sites of Astronomy and Archaeoastronomy, 213–220
- Wielebinski, R. 2010, *The Stockert Radio Telescope*, in: Heritage Sites of Astronomy and Archaeoastronomy, pp. 221–222
- Wielebinski, R., Junkes, N., & Grahl, B., 2011, *The Effelsberg 100-m Radio Telescope: Construction and Forty Years of Radio Astronomy*, in Journal of Astronomical History and Heritage, 14 (1) pp. 3-21