

## ROGER PRESTON HART

Department of History & Geography  
Texas Southern University  
3100 Cleburne Street  
Houston, TX 77004

email: [rhart@rhart.org](mailto:rhart@rhart.org)  
web: <http://rhart.org/>  
phone: (713) 313-7735

### APPOINTMENTS

TEXAS SOUTHERN UNIVERSITY Director, Confucius Institute (2012–); Associate Professor (2012–) and Interim Chair (2015–2016), Department of History & Geography.

SEOUL NATIONAL UNIVERSITY Visiting Professor, Templeton “Science and Religion in East Asia” Project, Science Culture Research Center, College of Natural Sciences (2011–2012).

UNIVERSITY OF TEXAS AT AUSTIN Assistant Professor, Department of History (2001–2011).

UNIVERSITY OF CHICAGO Visiting Assistant Professor, Department of History, Fishbein Center for the History of Science, and in the Committee on Conceptual and Historical Studies of Science (2000–2001).

INSTITUTE FOR ADVANCED STUDY, PRINCETON National Endowment for the Humanities Fellow and Member of the School of Historical Studies (1999–2000).

STANFORD UNIVERSITY Andrew W. Mellon Postdoctoral Fellow, Program in History and Philosophy of Science, and Visiting Assistant Professor, Department of History (1997–1999).

UNIVERSITY OF CALIFORNIA, BERKELEY Postdoctoral Fellow, Center for Chinese Studies (Spring 1997).

HARVARD UNIVERSITY Postdoctoral Fellow, Fairbank Center for East Asian Research (Fall 1996).

### EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES Ph.D., Chinese History and History of Science, Department of History.

UNIVERSITY OF CALIFORNIA, LOS ANGELES M.A., Chinese Literature, Department of East Asian Languages and Cultures.

STANFORD UNIVERSITY M.S., Mathematics.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY B.S., Mathematics.

### PUBLICATIONS

#### *Authored Books*

1. *The Chinese Roots of Linear Algebra*. Baltimore: Johns Hopkins University Press, 2010. xiii + 286 pp.
2. *Imagined Civilizations: China, the West, and Their First Encounter*. Baltimore: Johns Hopkins University Press, 2013. x + 374 pp.

3. *Tracing Practices: Global Circulations of Mathematics Before the Scientific Revolution*. In progress.
4. *The Spectre of Civilizations*. In progress.

*Articles and Book Chapters*

5. “Tracing Practices Purloined by the ‘Three Pillars,’” *The Korean Journal for the History of Science* 34, no. 2 (2012): 287–358.
6. “Universals of Yesteryear: Hegel’s Modernity in an Age of Globalization,” in *Global History: Interactions between the Universal and the Local*, edited by A. G. Hopkins (London: Palgrave MacMillan, 2006), 66–97.
7. “The Great Explanandum,” essay review of *The Measure of Reality: Quantification and Western Society, 1250–1600*, by Alfred W. Crosby, *American Historical Review* 105, no. 2 (April 2000): 486–493.
8. “Translating Worlds: Incommensurability and Problems of Existence in Seventeenth-Century China,” *Positions: East Asia Cultures Critique* 7, no. 1 (spring 1999): 95–128.
- 8a. “Translating the Untranslatable: From Copula to Incommensurable Worlds,” in *Tokens of Exchange: The Problem of Translation in Global Circulations*, edited by Lydia H. Liu (Durham, NC: Duke University Press, 2000, to be reprinted in 2011), 45–73. Revised version of “Translating Worlds: Incommensurability and Problems of Existence in Seventeenth-Century China.” Reprinted in *Han yi Ying lilun duben* 汉译英理论读本 [Theoretical Reader on Translating Chinese into English], ed. Yu Shiyi 余石屹 (Beijing: Science Publications [Kexue chubanshe 科学出版社], 2008).
9. “On the Problem of Chinese Science,” in *The Science Studies Reader*, edited by Mario Biagioli (New York: Routledge, 1999), 189–201.
- 9a. “Beyond Science and Civilization: A Post-Needham Critique,” *East Asian Science, Technology, and Medicine* 16 (1999): 88–114. Revised version of “On the Problem of Chinese Science.” Translated into Chinese by Wan Yiji 万一己 as “Chaoyue kexue yu wenming: yige hou Li Yuese de piping” 超越科学与文明：一个后李约瑟的批评，in *Zhongguo kexue yu kexue geming* 中国科学与科学革命 [Chinese Science and the Scientific Revolution], ed. Liu Dun 刘钝 and Wang Yangzong 王扬宗 (Shenyang: Liaoning jiaoyu chubanshe 辽宁教育出版社, 2002), 599–624.
10. “The Flight from Reason: *Higher Superstition* and the Refutation of Science Studies,” in *Science Wars*, edited by Andrew Ross (Durham, NC: Duke University Press, 1996), 259–92.

*Articles Written in Chinese and Published in China*

11. “Ji he yuan ben, shenwei dapao, he ‘yanima’: cong kexue zhishi de shehuixue de jiaodu tantao shiqi shiji Xixue zhi yinru Zhongguo” 《幾何原本》，神威大砲，和『亞尼瑪』：從科學知識的社會學的角度探討十七世紀西學之引入中國 [Euclid, Cannons and Anima: An Analysis of the Introduction of Western Learning into Seventeenth-Century China from the Perspective of the Sociology of Scientific Knowledge], in *Ke shi xin chuan* 科史薪傳，

edited by Liu Dun 劉鈍, Han Qi 韓琦, et al. (Shenyang: Liaoning jiaoyu chubanshe, 1997), 84-96.

12. “Dui xiandaixing de shuangchong fouding queren: Habeimasi de chaoyan shili lilun de zixiang maodun” 對現代性的雙重否定確認：哈貝馬斯的超驗勢力理論的自相矛盾（上） [Modernity by Contradiction: Habermas’ Paradoxical Theory of Transcendental Power, Part 1], *Xueren* 學人 [The scholars] 6 (1994): 425-43.
- 12a. “Dui xiandaixing de shuangchong fouding queren: Habeimasi de chaoyan shili lilun de zixiang maodun” 對現代性的雙重否定確認：哈貝馬斯的超驗勢力理論的自相矛盾（下） [Modernity by Contradiction: Habermas’ Paradoxical Theory of Transcendental Power, Part 2], *Xueren* 學人 [The scholars] 8 (1995): 385-402.

#### *Articles in Preparation*

13. “The Diffusion of Linear Algebra across Medieval Eurasia” (13 typeset pages).
14. “Reconstructing Mathematical Practices from Fibonacci’s *Liber Abaci*: ‘On the Buying of Horses’” (15 typeset pages).
15. “The Demise of Traditional Linear Algebra in China: Mei Wending’s Criticisms of *Fangcheng* Practices” (52 typeset pages).
16. “How Structuralism Became a Science: Lessons from Saussure’s *Course in General Linguistics*” (20 pages, double-spaced MS).
17. “What Was an Episteme? A Genealogical Critique of Foucault’s Archaeology” (24 pages, double-spaced MS).
18. “Modernity by Contradiction: Habermas’s Paradoxical ‘Communicative Reason’ in Action” (30 pages, double-spaced MS). Revised version of publications 12 and 12a, “Dui xiandaixing de shuangchong fouding queren,” parts 1 and 2, in English.

#### FELLOWSHIPS, GRANTS, AND AWARDS

Dean’s Award for Scholarship, College of Liberal Arts and Behavioral Sciences, Texas Southern University, May 5, 2015.

Templeton Religion Trust “Science and Religion in East Asia” Project Visiting Fellow, Science Culture Research Center, Seoul National University, Sept. 2011–Aug. 2012.

American Council of Learned Societies, ACLS/SSRC/NEH International and Area Studies Fellow, Sept. 2004–Aug. 2005.

University of Texas Faculty Research Assignment, Sept. 2004–Aug. 2005.

University of Texas Humanities Institute Fellow, Fall 2003.

University of Texas Summer Research Assignment, Summer 2003.

National Endowment for the Humanities Fellow, Institute for Advanced Studies, Princeton, Sept. 1999–Aug. 2000.

Andrew W. Mellon Postdoctoral Fellowship, Stanford University, Sept. 1997–Aug. 1999.

Postdoctoral Fellowship, Center for Chinese Studies, University of California, Berkeley, Spring 1997.

Postdoctoral Fellowship, Fairbank Center for East Asian Research, Harvard University, Fall 1996.

### CONFERENCES, WORKSHOPS, AND PANELS ORGANIZED

Conference organizer, “Global Connections with China in the Twenty-First Century,” Texas Southern University Confucius Institute Opening Conference, Friday, April 12, 2013.

Panel co-organizer, “Performance, Practice, and Contest in Early Chinese Texts,” Southwest Conference on Asian Studies, October 16–17, 2009.

Conference co-organizer, “Disunity of Chinese Science,” University of Chicago, May 10–12, 2002. Sponsored by the Fishbein Center for the History of Science and the Franke Institute for the Humanities.

Conference co-organizer, “Rethinking Science and Civilization: The Ideologies, Disciplines and Rhetorics of World History,” Stanford University, May 21–23, 1999. Sponsored by the Stanford Division of the Humanities.

Workshop co-organizer, “Critical Studies: Writing Science,” faculty/graduate student workshop and lecture series, Stanford Humanities Center, 1998–99.

Conference co-organizer, “Materializing Cultures: Science, Technology, and Medicine in Global Contexts,” Stanford Humanities Center, May 1–3, 1998.

Conference organizer, “Intersecting Areas and Disciplines: Cultural Studies of Chinese Science, Technology and Medicine,” Center for Chinese Studies, UC Berkeley, February 27–28, 1998.

Panel organizer, “Re-Siting the Missionaries in China: Critical Analyses of Translation, Imperialism, and Historical Memory,” Annual Meeting of the Association for Asian Studies, March 25–28, 1998.

Panel organizer, “New Directions in the Cultural Studies of Chinese Science and Medicine,” Annual Meeting of the History of Science Society, November 8, 1997.

Seminar co-organizer, “Empires and Cultures,” faculty/graduate student seminar, Stanford Humanities Center, 1997–98.

### LECTURES

“The Spectre of Civilizations,” presented at the following forums:

School of Language and Communication Studies, Beijing Jiaotong University, June 15, 2015.  
Scientiae: Disciplines of Knowing in the Early Modern World, University of Toronto, May 28, 2015.

“New Directions in the Cultural and Intellectual History of China,” New York University, May 1–3, 2015.

“How to Do Things with Translation,” School of Language and Communication Studies, Beijing Jiaotong University, June 16, 2015.

- “Academic Writing from the Perspective of an Academic Writer,” School of Language and Communication Studies, Beijing Jiaotong University, June 11, 2015.
- “Tracing Practices: The Global Circulation of Mathematics Before the Scientific Revolution,” presented at the Second Templeton International Conference “Science and Religion in East Asia,” Seoul National University, December 12–14, 2013.
- “Tracing Practices: The Diffusion of Linear Algebra Across Medieval Eurasia,” presented at the 24th International Congress of History of Science, Technology And Medicine, Manchester, England, July 21–28, 2013.
- “What Can History Tell Us about Chinese Science in the Global 21<sup>st</sup> Century?” Symposium on “Science and Technology in Contemporary China: Advancement and Challenges in the Era of Globalization,” Rutgers University, March 28, 2013.
- Keynote address, “Historicizing Incommensurability,” presented at “Incommensurability 50: Conference on the 50<sup>th</sup> Anniversary of the Presentation of Incommensurability by Kuhn and Feyerabend,” June 1–3, 2012, National Taiwan University.
- “Tracing Mathematical Practices: Evidence from Mei Wending’s ‘On Fangcheng’ (Fangcheng lun 方程論, 1674),” Science and Religion in East Asia Seminars, Seoul National University, March 22, 2012.
- “Tracing Practices: An Alternative Approach to World History of Science,” presented at “Science and Christianity in the Encounter of Confucian East Asia with West: 1600–1800,” Templeton “Science and Religion in East Asia” Project, Science Culture Research Center, Seoul National University, December 15–17, 2011.
- “Imagined Civilizations: China, the West, and Their First Encounter,” presented at the following forums:
- COLABS Fall 2012 Colloquium Series, Texas Southern University, September 18, 2012.
  - “ReWired: Asian/TechnoScience/Area Studies,” University of California Humanities Research Institute Seminar in Experimental Critical Theory, at the Center for Chinese Studies, University of Hawai’i, Manoa, August 1–10, 2011.
- “The Chinese Roots of Linear Algebra,” presented at the following forums:
- East Asian Studies Program, Princeton University, March 24, 2011.
  - East Asian Studies, Rutgers University, March 23, 2011.
  - Joint Meeting of the American Mathematical Society and Mathematical Association of America, New Orleans, January 5–9, 2011.
  - Annual Meeting of the History of Science Society, Montréal, Quebec, November 4–7, 2010.
- “*Fangcheng* in Translation: Practice, Patronage, and Plagiarism,” presented at “China in Europe, Europe in China,” University of Zürich, June 14–15, 2010.
- “Mapping Spaces in Early China,” Annual Meeting of the American Historical Association, January 2010.

- “Translating Texts and Circulating Practices,” presented at “Go-betweens, Translations, and the Circulation of Knowledge,” Wellcome Trust Centre for the History of Medicine, University College London, November 13–14, 2009.
- “Patronage and Practice in the *Nine Chapters of Mathematical Arts*,” presented at the Southwest Conference on Asian Studies, October 16–17, 2009.
- “Reconstructing Early Development of Determinants in China: Evidence from the *Nine Chapters of Mathematical Methods* and Later Commentaries.” Versions presented at the following forums:
- History of Science Colloquium, Department of History, University of Texas at Austin, May 1, 2009.
  - Department of Physics Colloquium, Sam Houston State University, Huntsville, Texas, October 6, 2008.
  - Joint Meeting of the American Mathematical Society and Mathematical Association of America, San Antonio, Texas, January 14, 2006.
- “Forging Antiquities: ‘China’ and the ‘West’ in Seventeenth-Century China,” presented at “The Age of Antiquaries in Europe and China,” Bard Graduate Center, New York, March 25–27, 2004.
- “The Postmoderns’ Modernity,” presented at “Modernity: Contexts and Contests, Forms and Future,” University of Texas Humanities Institute, December 4, 2003.
- “Ancient Roots of Modern Science,” with Dick Teresi and Jamil Ragep, NPR’s “Science Friday,” December 20, 2002, 2–3 p.m.
- “Disunity of Language, Science, and Culture,” Science in Human Culture Seminar, Northwestern University, November 22, 2002.
- “Quantifying Ritual: Political Cosmology, Courtly Music, and Precision Mathematics in Seventeenth-Century China.” Versions presented at the following forums:
- Disunity of Chinese Science, University of Chicago, May 10–12, 2002.
  - Program in History and Philosophy of Science, University of Texas at Austin, April 11, 2002.
  - Seminars on Late Imperial Chinese Culture and Science, Institute for Advanced Study, Princeton, December 3, 1999.
  - Annual Meeting of the History of Science Society, October 23, 1998.
  - “Intersecting Areas and Disciplines: Cultural Studies of Chinese Science, Technology and Medicine,” UC Berkeley, February 27–28, 1998.
- “‘Western Learning’ in Seventeenth-Century China: A Microhistorical Approach to World History,” presented at the following forums:
- Annual Meeting of the American Historical Association, January 2002.
  - “Symposium on Chinese Science and Medicine,” Franke Institute for the Humanities, University of Chicago, May 8, 2001.
- “Xu Guangqi, Memorialist,” presented at the following forums:
- History of Science Colloquium, UCLA, April 15, 2002.

- “Matteo Ricci and After: Four Centuries of Cultural Interactions between China and the West,” City University of Hong Kong and Peking University, October 12–17, 2001.
- “Demystifying Translation: The Multiplicities of Language-Games,” presented at “Appropriations: Between Languages, Among Nations,” Stanford University, May 11–14, 2000.
- “The Jesuits as Missionaries of Science: Euclid’s Elements in Seventeenth-Century China.” Versions presented at the following forums:  
 “Colloquium: Culture and Science in Late Traditional China,” Institute for Advanced Study, Princeton, March 17–18, 2000.  
 Early Science Group, Department of the History of Science, Harvard University, October 2, 1995.
- “Jesuits, Textualism, and Science in China and Europe in the 17th and 18th Centuries: A Roundtable Discussion” (with Anthony Grafton, R. Po-chia Hsia, Willard Peterson, and Benjamin Elman), Institute for Advanced Study, Princeton, January 24, 2000.
- “The Problem of ‘Culture’ in Cultural Studies of Science.” Versions presented at the following forums:  
 “Rethinking Science and Civilization: The Ideologies, Disciplines and Rhetorics of World History,” Stanford University, May 21–23, 1999;  
 “Critical Studies: Writing Science,” Stanford University, April 7, 1999.
- “Wrighting the Great Divide: ‘Science’ as an Emblem of ‘The West,’” presented at “Reconstructing Science and the Humanities,” UCLA, April 25–26, 1998.
- “How to Do Things with Worlds: Incommensurability, Translation, and Problems of Existence in Seventeenth-Century China.” Versions presented at the following forums:  
 “History of Mathematics: Mathematics in the Americas and the Far East, 1800–1940,” Mathematisches Forschungsinstitut, Oberwolfach, Germany, October 18–22, 1998;  
 “Materializing Cultures: Science, Technology, and Medicine in Global Contexts,” Stanford Humanities Center, May 1–3, 1998;  
 Annual Meeting of the Association for Asian Studies, March 27, 1998;  
 “Maritime China: Culture, Commerce, and Society,” Annual Symposium, Center for Chinese Studies, UC Berkeley, March 13–14, 1998;  
 Research Workshop in Chinese Humanistic and Historical Studies, Center for Chinese Studies, UC Berkeley, September 19, 1997.
- “Local Knowledges, Local Contexts: Mathematics in the Yuan and Ming Dynasties,” presented at “The Song-Yuan-Ming Transition: A Turning Point in Chinese History?” at the UCLA Conference Center, Lake Arrowhead, CA, June 5–11, 1997.
- “On the Problem of Chinese Science: A Post-Needham Critique.” Versions presented at the following forums:  
 Chinese Historiography Studies Group, meeting-in-conjunction with the Annual Meeting of the Association for Asian Studies, March 25–28, 1998;

“Rambles and Brambles: Rhetoric and Epistemology,” panel at the Annual Meeting of the Society for the Social Studies of Science, October 3, 1997;  
Fairbank Center for East Asian Research, Harvard University, November 15, 1996.

“Proof, Propaganda, and Patronage: ‘Western Learning’ in Seventeenth-Century China.” Versions presented at the following forums:

Annual Meeting of the History of Science Society, November 8, 1997;

“The Jesuits: Culture, Learning, and the Arts, 1540–1773,” Boston College, May 28 to June 1, 1997;

Workshop on Chinese Science, Center for Chinese Studies, UCLA, May 24, 1997;

New Work in East Asian Humanities, Stanford University, April 24, 1997;

Annual Meeting of the Association for Asian Studies, March 14, 1997;

Mansfield Freeman Center for East Asian Studies, Wesleyan University, November 7, 1996;

Chinese Cultural Studies Workshop, Fairbank Center for East Asian Research, Harvard University, October 31, 1996;

Colloquia Program in Science, Technology, and Society, Massachusetts Institute of Technology, October 7, 1996.

“Mathematics as the ‘Lesser Application’ of Proof,” UC Berkeley Graduate Student Conference, April 29, 1995.

“Ji he yuan ben, shenwei dapao, he yanima” 《幾何原本》，神威大砲，和『亞尼瑪』 [Euclid’s Elements, Cannons and Anima], presented in Chinese at the Institute for the History of the Natural Sciences (*Zhongguo kexueyuan ziran kexueshi yanjiusuo* 中國科學院自然科學史研究所), Chinese Academy of Sciences, Beijing, China, August 4, 1994.

“Foucault: Archeology, Genealogy, and the Constitution of the Subject,” Chinese Academy of Social Sciences, February 22, 1994.

“The Gift of Mathematics: Western Reason in Chinese Science,” presented at the West Coast History of Science Society Conference in Morro Bay, May 1992.

### COURSES TAUGHT

“The History of China through Film” (Texas Southern University, Spring 2014–). “Introduction to the History of China” (Texas Southern University, Summer 2013–). “Contemporary China” (Texas Southern University, Spring 2013–). “Imperial China” (Texas Southern University, Fall 2012; previously offered at the University of Texas). “Contemporary Critical Theory: Science, Language, and Culture” (Seoul National University, 2012; University of Texas, 2002; University of Chicago, 2001; Stanford, 1998). “Traditional China” (University of Texas, yearly, 2001–2011). “East Asia to 1800” (University of Texas, yearly, 2001–2011). “History of World Science to 1650” (University of Texas, yearly, 2004–2011). “History of Chinese Science, Technology, and Medicine” (University of Texas, 2006). “History of Chinese Medicine” (University of Texas, 2010, 2008, 2006). “Cultural History of Late Imperial China” (University of Texas, 2009, 2008, 2005, 2003, 2002). “Global Interconnections” (University of Texas, 2004, with G. Heng, D. Spellberg, C. Talbot, and R. Lariviere). “Imagined Unities: Nations, Civilizations, Modernities” (2003; University of Chicago, 2001). “Introduction to Sources in the History of East



Asian Science, Technology, and Medicine” (University of Chicago, 2001). “The Scientific Revolution: History and Counter-History” (University of Chicago, 2001; Stanford, 1998). “Chinese Medicine: Interdisciplinary Studies” (Stanford, 1999). “Cultural Sensibilities and Practices in Ming China” (Stanford, 1999, with T. Brook and R. Vinograd). “Understanding Being Chinese: The Whys and Hows of the Way” (Stanford, 1999, with T. Brook and H. Saussy). “Cultural History of Chinese Science, Technology and Medicine” (Stanford, 1998). First-year Chinese Language (Teaching Assistant, UCLA, 1989–1990). Real and Functional Analysis (Zhongshan University, Guangzhou, P.R.C., 1986–1987). English as a Second Language (China and Taiwan Programs, Volunteers in Asia, Stanford University, 1983–86). Calculus and Linear Algebra (Teaching Assistant, Stanford, 1981–82).

### ADVISING

Committee member, Ph.D., Linlin Wang (2008–2011).

Committee member, Ph.D. dissertation, Maria Lane, “Imaginative Geographies of Mars: The Science and Significance of the Red Planet, 1877-1910” (2006). Published as *Geographies of Mars: Seeing and Knowing the Red Planet* (University of Chicago Press, 2011). Dr. Lane is currently an associate professor in the Department of Geography, University of New Mexico.

Advisor, Plan II Honors Thesis Research Project, 2006, James Jackson, “The Atomic Bombing of Japan from the Chinese Perspective.”

Advisor, Plan II Honors Thesis Research Project, 2003, Ben Jacobs-Swearingen, “The Nature, the Times, and the Teachings: Syncretism and Li Zhi’s Search for Sageliness,” 135 pp.

### SERVICE

Director, Texas Southern University Confucius Institute, Fall 2012– .

Interim Chair, Department of History & Geography, Texas Southern University, 2015–2016.

Curriculum Committee, Department of History and Geography, Fall 2012– .

East Asian Faculty Committee, Department of Asian Studies, UT, 2001–2011.

Segre Prize Committee, Department of History, UT, 2003.

Graduate Program Committee, Department of History, UT, 2003–2004.

Budget Council, Department of History, UT, 2003–2004.

East Asian Search Committee, Department of History, UT, 2003–2004.

Salary Committee, Department of History, UT, 2004.

China Search Committee, Department of History, UT, 2005–2006.

Chair of China Endowment, Department of Asian Studies, UT, 2005–2007.

Library Liaison for East Asian Studies, Department of Asian Studies, UT, 2005–2006.

Executive Committee, Department of Asian Studies, UT, 2006–2007.

## LANGUAGES

Classical Chinese—excellent. Modern Chinese—excellent. Japanese—reading ability, good. French—reading ability, good.

## EXPERIENCE IN CHINA

Taught in China for four years, studied for one: enrolled in or audited twenty regular undergraduate courses in modern and classical literature, philosophy, and history at Chinese universities; completed readings in Chinese for these courses totaling hundreds of books; lived with Chinese teachers in Chinese dormitories. Conducted archival research for one additional year as a visiting scholar at Peking University. Most recently, I have served for four years as the Director of the Texas Southern University Confucius Institute, conducting business, administration, and negotiations—spoken and written—in Chinese, and traveling to China several times each year.

## COMPUTER PROGRAMMING

Scientific typesetting— $\text{\LaTeX}$ . Scientific computation—Mathematica. Bibliographic and relational databases—Koha, Filemaker, MySQL, 4D. Chinese—Cangjie 仓颉 input. Programming—Perl. UNIX and server administration. HTML and web design.