



CONTENTS

INSIDE HFES2
TECHNICAL GROUPS2

IEA.....3
NEWS4
PEOPLE5

Science Forum on Patient Safety

By Wendy Rogers, Policy & Planning Committee Chair

On October 15, 2004, HFES will sponsor a Science Forum in Washington, D.C., on the topic of patient safety. The purpose of this forum is to facilitate the communication of HFES member activities to agencies such as the National Institutes of Health, National Science Foundation, Food and Drug Administration, Department of Defense, and Agency for Healthcare Research and Quality.

Assistance with the organization and coordination of this Science Forum is a service provided to us as a member of the Federation of Behavioral, Psychological, and Cognitive Sciences. HFES is funding the forum, and the Federation provides the staff to organize the event. (See the Federation Web site for examples of past forums: <http://www.thefederationonline.org/>.)

The HFES Policy and Planning Committee (PPC) has been working with the Federation staff to define the agenda for the forum and to identify the relevant agencies to be invited. The PPC selected the topic of patient safety based on guidance from the HFES Executive Council and the Technical Advisory Group. We then surveyed the chairs of all the technical groups for their recommendations for speakers at the forum.

The HFES Science Forum will address important aspects of patient safety. The morning session will be dedicated to overviews of human factors/ergonomics (HF/E) research on patient safety issues that arise in different contexts of care (home, transportation, and clinical environments). The goal will be to illustrate current HF/E issues and solutions that can improve patient safety. The audience will include representatives from a variety of public- and private-sector agencies. The afternoon session will be devoted to an interchange of ideas among HF/E specialists, patient care specialists, and agency representatives to identify funding and collaboration opportunities.

There is a tremendous amount of high-quality HF/E work on the topic of patient safety. The HFES Science Forum will provide an opportunity to present illustrative examples to key agencies. The ultimate goal is to increase the recognition of this work and to highlight its potential to improve the quality of patient care.

If you are interested in attending the forum, please contact HFES Executive Director Lynn Strother (lynn@hfes.org). ☒

HFES Comments on OSHA's Retail Grocery Store Guidelines

By Gerald P. Krueger

On May 28, 2004, the Occupational Safety and Health Administration (OSHA) issued "Guidelines for Retail Grocery Stores: Ergonomics for the Prevention of Musculoskeletal Disorders" (OSHA 3192-05N 2004); <http://www.osha.gov/ergonomics/guidelines/retailgrocery/index.html>. This article reports on the Human Factors and Ergonomics Society's input on an earlier draft of that document.

During the latter stages of President Bill Clinton's administration, OSHA ushered in a new set of ergonomics protection standards. However, soon after President George W. Bush took office, he signed legislation overturning those standards. Later, OSHA announced that its new approach would put a four-pronged program into place that would (1) develop industry-specific and task-specific "guidelines" to reduce and prevent workplace ergonomic injuries, (2) charter a national advisory committee to identify gaps in research on the application of ergonomics and ergonomics principles in the workplace, (3) bring enforcement actions against offenders by conducting inspections for ergonomic hazards and issue citations under the General Duty Clause, and (4) offer ergonomics outreach and assistance to businesses, particularly small ones, and help them proactively address ergonomics issues in the workplace. For an OSHA overview, see <http://www.osha.gov/SLTC/ergonomics/index.html>.

On March 13, 2003, OSHA issued its first set of new ergonomics guidelines, configured for the nursing home industry. These can be found at http://www.osha.gov/ergonomics/guidelines/nursinghome/final_nh_guidelines.html. About that time, OSHA also asked for public comments in response to a set of draft guidelines for retail grocery stores. To meet OSHA's submission deadline, the HFES Executive Council approved a plan first proposed by Hal W. Hendrick to involve our Standards Committee. In turn, the Standards Committee (chaired by Claire C. Gordon) called for nominees from the Industrial Ergonomics, Consumer Products, and Medical Systems and Rehabilitation Technical Groups to form a team to prepare the Society's response.

HFES members Sheree L. Gibson (team leader), Steve A. Field,

continued on next page

OSHA's Retail Grocery Store Guidelines

(continued from page 1)

Jennie Psihogios Johnson, John R. Stevenson, and Gerald P. Krueger reviewed the OSHA draft retail grocery guidelines and prepared the HFES response. HFES submitted this response in the form of a lengthy list of general comments, technical suggestions, specific language improvements, and other editorial modifications to the wording of the 27-page OSHA draft document.

The bulk of the hard work in producing the very readable set of ergonomics guidelines was accomplished by OSHA personnel. However, it is gratifying to see that roughly 26 of 60 comments submitted by HFES were addressed and incorporated in some way into the language printed in OSHA's final published ergonomics guidelines for retail grocery stores.

Of the several important HFES suggestions implemented, perhaps the most noteworthy was acknowledgment of our continuing reiteration of the point that *ergonomics* is much bigger and broader than just the workplace issues related to preventing musculoskeletal disorders (MSD) that OSHA continually stresses. OSHA needed to recognize that broader ergonomics perspective rather than perpetuating its mislabeling of repetitive strain injuries and risks for MSDs as *ergonomic injuries*. The agency's selection of the much-improved main title of this second set of industry-specific guidelines – "Ergonomics for the Prevention of Musculoskeletal Disorders" – helps clarify misconceptions propagated by such earlier titles as "Ergonomics Protection Standards" and the use of terms like *ergonomic injuries*.

This revised titling has apparently been adopted by OSHA for other guidelines (e.g., a new revised draft of "Guidelines for Poultry Processing: Ergonomics for the Prevention of Musculoskeletal Disorders"). For more information about these guidelines, go to <http://www.osha.gov/SLTC/ergonomics/guidelines.html>.

Second, OSHA also adopted the HFES team's recommendation that the importance of workplace ergonomics training for all employees – including supervisors and managers – needs to be emphasized.

We are pleased that the efforts of HFES members to influence the content of these workplace guidelines have been recognized through implementation of many of our recommendations by OSHA.

Jerry Krueger is principal scientist and ergonomist at the Wexford Group International in Vienna, VA; gkrueger@thewexfordgroup.com.



INSIDE HFES

2004 Election Results

The following HFES members were elected to serve beginning in Fall 2004:

President-Elect

Marvin J. Dainoff, Miami University of Ohio, Oxford, OH

Secretary-Treasurer-Elect

Carol Stuart-Buttle, Stuart-Buttle Ergonomics, Philadelphia, PA

Executive Council Members-at-Large

Kathleen Mosier, San Francisco State University, San Francisco, CA

David L. Post, U.S. Air Force Research Laboratory, Wright-Patterson Air Force Base, OH

Members Affirm All Bylaws Changes

In August, Full Members of HFES voted on proposed Bylaws changes that had been unanimously approved by the HFES Executive Council. An approval vote by two-thirds of members voting was required for passage. Members were given the opportunity to approve, disapprove, or abstain on all of the proposed changes collectively, or to vote on each individual change.

All Bylaws were approved by the membership by a wide margin, with no measure receiving less than 93.5% affirmative votes. For a detailed summary of the vote tally, members may send an e-mail request to HFES Executive Director Lynn Strother at lynn@hfes.org. ☒

TECHNICAL GROUPS

Happy Anniversary, Archie

By Frank Durso

On Easter Sunday in 1929, a D-25 biplane approached Lambert Field in St. Louis. The pilot was there to participate in the barnstorming show. He wasn't surprised by the people wandering the field. Airports were a top entertainment venue in 1929; people visited airport fields often in those days, not to fly but to watch the pilots and their planes. The quick thought that this airport was actually owned by the city struck the pilot as odd. Or would Lambert be just the first of many municipal airports?

But now the pilot had to turn his thoughts to landing. Lambert had three runways, which intersected at a common point in their middles, like an asterisk. The configuration was fine when there was a prevailing wind, as planes landed into the wind. But there was not



Bulletin

Volume 47, Number 9 September 2004

The HFES Bulletin (ISSN 1527-3660) is published monthly by the Human Factors and Ergonomics Society, 1124 Montana Ave., Suite B, Santa Monica, CA 90403 USA, <http://hfes.org>. Address inquiries and address changes to HFES, P.O. Box 1369, Santa Monica, CA 90406-1369 USA, 310/394-1811, fax 310/394-2410, <http://hfes.org>.

Copyright © 2004 by the Human Factors and Ergonomics Society. Printed in the USA. The HFES Bulletin is provided to members of the Society (\$10 of annual dues covers member subscriptions); nonmembers may subscribe for \$40/year. Periodicals postage paid at Santa Monica, CA, and additional mailing offices. USPS #018-206.

much wind today, the pilot noted. He also noticed that he wasn't the only one there for the show; another wanted to land. Should he go first? On which runway?

The Birth of ATC

Fortunately, on that spring day 75 years ago, not all the people on the ground were there to be entertained. One was Archie League, an ex-barnstormer himself who realized that landing at Lambert was often difficult for the unaided pilot. So there, at the end of the operational runway, stood the first air traffic controller, with wheelbarrow, umbrella, flags, stool, notepad, and lunch. In 1929, his job was not the most challenging, except for the errant landing that crushed one's seat and put lunch at risk (Bonwell, 1975). But six years later, Lambert would see 1236 takeoffs and landings within a three-hour period (Lester, 2001).

So putting an Archie in the loop was a useful idea. Of course, it wasn't a human factors specialist who suggested this particular human-in-the-loop solution. At the birth of any discipline, many of the human factors solutions are guessed and tried by those in the field. What if I went out there and waved a flag to let them know when to land? What if I hung my sock on a stick so pilots can tell which way the wind is blowing? And so it was for air traffic control (ATC).

The Birth of ATC Research

Scholarly investigations of ATC first occurred many years later. Not until 1949 did the phrase *air traffic control* appear in archival scientific literature, when the Royal Aeronautical Society's meeting on air safety was reviewed in *Nature* (Roberts, 1949). In 1951, Paul Fitts wrote *Human Engineering for an Effective Air-Navigation and Traffic-Control System* for the National Research Council. The first dissertation concerning ATC would appear three years after that. In the 1950s and '60s, research continued to accumulate slowly, about one report per year in the open literature. Most of these dealt either with controller testing and evaluation or with technology. A notable exception was work that recognized the importance of cognition in ATC (e.g., Leplat & Bisseret, 1965), anticipating the cognitive focus of much of today's work. It was also during this time that the Federal Aviation Administration's (FAA) two research facilities were established – the Technical Center in Atlantic City (1958) and the Civil Aeromedical Institute (1959) in Oklahoma City.

In the last 20 years leading up to the anniversary of ATC, human factors work has accelerated and recently been given national attention (Wickens, Mavor, & McGee, 1997). A journal exclusively concerned with ATC, the *Air Traffic Control Quarterly*, appeared in 1993. Today, important work is being done not only at the FAA's facilities but also at private, educational, and other government facilities.

Tomorrow's ATC

Increased demands on the nation's airspace will raise a host of new human factors questions. Answers are already being formulated for some of the anticipated changes in procedures (e.g., free flight) and technology (e.g., conflict probe automation). Treating ATC as a dynamic, cognitive human-technical system is evoking research on predicting mental workload, replacing trusted technology with modern devices, improving information displays,

and selecting the right people. Work is under way on switching control responsibility between the automation and the controller, and on the consequences of taking the controller out of the loop.

More dramatically, in the future environment where separation responsibility will at times rest with the pilots of appropriately equipped aircraft and at other times with controllers on the ground, human factors specialists must answer questions like, "How does this responsibility get passed?" "Will controllers be ready to re-accept control after merely monitoring a flight?" These are serious questions that will require approaches as innovative as taking that first step onto a runway with a wheelbarrow and some flags. This time, however, the complexity of ATC requires that a human factors specialist carry the flags.

References

- Bonwell, C. C. (1975). *Technology and the terminal: St. Louis's Lambert Field, 1925–1974*. Ph.D. dissertation, Kansas State University.
- Leiser, K. (2001). Lambert field has come a long way since one man with two flags kept watch. *St. Louis Post Dispatch*.
- Roberts, H. (1949). Air safety. *Nature*, 163, 612–613.
- Fitts, P. M. (1951). *Human engineering for an effective air-navigation and traffic-control system*. Oxford, England: National Research Council.
- Matheny, B. J. (1954). *Vectoring aircraft by radar: The effect of load and speed differences on controllers' performance in simulated air traffic situation*. Ph.D. dissertation, University of Illinois.
- Leplat, J., & Bisseret, A. (1965). Analysis of treatments of information for air traffic controllers. *Bulletin d'Études et Recherches Psychologiques*, 14, 51–67.
- Wickens, C. D., Mavor, A. S., & McGee, J. P. (1997). *Flight to the future: Human factors in air traffic control*. Washington, DC: National Academy Press.

Frank Durso is a professor of psychology at Texas Tech University, where he directs the Cognitive Ergonomics Lab. A member of the HFES Aerospace Systems Technical Group, he is senior editor of the second edition of Wiley's upcoming Handbook of Applied Cognition. He can be reached at frank.durso@ttu.edu.

IEA

HFES Members Honored by IEA

By Waldemar Karwowski, Past IEA President

The International Ergonomics Association has announced recipients of its 2004 annual awards. HFES Fellows **Stuart O. Parsons** and **Stover H. Snook** were elected as IEA Fellows, the organization's highest and most prestigious award. Other newly elected IEA Fellows are Pat Scott (Ergonomics Society of South Africa), M. J. Wang (Ergonomics Society of Taiwan), and John Wilson (Ergonomics Society, UK).

The IEA Fellow Awards will be officially presented at the opening ceremony of the IEA Triennial Congress in Maastricht, Netherlands, which takes place July 10–14, 2006 (<http://www.iea2006.org/>).

Another HFES member, **David M. DeJoy**, professor in the Department of Health Promotion and Behavior at the University of Georgia, was awarded the 2004 IEA/Liberty Mutual Prize in Occupational Safety and Ergonomics for his paper "Behavior

continued on next page

IEA

(continued from page 3)

Change Versus Culture Change: Divergent Approaches to Managing Workplace Safety.” The award will be presented to De Joy at the plenary session of the HFES 48th Annual Meeting in New Orleans on September 21.

For more information about the IEA Awards and the 2005 Call for Nominations, please visit <http://www.iea.cc/>.

IEA Seeking Nominations for Fellow Awards

By Michael S. Wogalter, HFES IEA Delegate Committee Chair

The International Ergonomics Association invites HFES members to nominate HFES Fellows and Honorary Fellows for the IEA Fellow Award. The IEA Fellowship was created to recognize extraordinary or sustained, superior accomplishments of an individual to the ergonomics profession or discipline at an international level.

To be considered by the IEA Awards Committee, candidates must meet two eligibility criteria: (a) international service (including such activities as service to IEA, an extensive publication record in international journals, international consulting, or service to the United Nations or similar organizations) and (b) membership in an IEA federated (e.g., HFES) or affiliated society for at least 10 years. HFES endorsement for this award further requires that the nominee be an HFES Fellow or HFES Honorary Fellow. Additional information about the award, nomination form, and list of past recipients can be found at the IEA Web site, <http://www.iea.cc/>.

Nominations are due *December 15, 2004*. Note that this deadline is earlier than that shown on the IEA Web site because nominations from HFES require prior endorsement from the Society before they are forwarded to the IEA. Please send an electronic copy of a completed nomination form, copy of the nominee's current CV, and any supporting material to me at wogalter@ncsu.edu. Questions may be directed to Executive Director Lynn Strother (lynn@hfes.org).

New IEA Technical Committee on Auditory Ergonomics

By Ellen C. Haas, Auditory Ergonomics Technical Committee Chair

The Auditory Ergonomics (AE) Technical Committee (TC) has been formed within the International Ergonomics Association. The purpose of this committee is to provide a forum for the international exchange of scientific and technical ergonomics information related to auditory issues, which include auditory warnings and displays, automatic speech recognition and voice input devices, speech synthesis, spatial auditory displays, sonification, noise, hearing protection, and any other area that involves audio input or output. The AE TC will promote professional and

public awareness of auditory ergonomics by serving as a network and by advocating the interchange of information among researchers, practitioners, educators, those involved in standards and regulations, and others with an interest in auditory ergonomics.

I will be organizing AE TC activities, events, and paper sessions to take place during upcoming IEA Triennial Congresses as well as during inter-Congress intervals. The next IEA Triennial Congress will be held in Maastricht, Netherlands, in 2006. If you are interested in joining the AE TC (membership is free), or to obtain more information, please contact me at Auditory Controls and Displays Laboratory HRED, U.S. Army Research Laboratory, Aberdeen Proving Ground, MD 21005-5001; 410/278-5825, fax 410/278-8828; ehaas@arl.army.mil. ☒

NEWS

Control Room Design Case Studies Wanted

HFES member John Wood is compiling a new ergonomics book on control rooms, to be published by Taylor & Francis/CRC Press. The core of the publication will focus on a select and limited number of outstanding examples of ergonomically designed control rooms. Each case study will be professionally illustrated to demonstrate key features, and high-quality photographs will present the implemented design. All contributions will be fully acknowledged.

The book will supersede existing texts produced by Taylor & Francis and is aimed at architects, engineers, designers, and ergonomists. It will be published in both the United States and the United Kingdom next year.

Please send brief descriptions of control room designs that can provide a beacon to future designers to John Wood. A full writeup of the design will *not* be required, just a good photograph and a summary of the background facts. Send all submissions to John Wood, CCD Design & Ergonomics Ltd., Golden Cross House, 8 Duncannon Street, London, WC2N 4JF, England; john.wood@ccd.org.uk.

New ASTM Subcommittee

Since the September 11 attacks on the World Trade Center, there has been an increased focus on egress in emergency situations occurring in multistory buildings as well as on the ability of emergency personnel to respond effectively and to access fires and other emergencies on higher floors.

Committee E06 on Performance of Buildings has established a new subcommittee, E06.77 on High-Rise Building External Evacuation Devices. The new subcommittee will contribute to the development and maintenance of standards for terminology, specifications, performance, practices, and test methods for external, high-rise building, multiple-occupant (10 or more) evacuation devices. The scope includes platform-based devices, slides/chutes, and controlled descent devices. It does not include rope or chain ladders, helicopters or helicopters with platforms, parachutes, balloons, or evacuation chairs.

The new subcommittee will work on a series of standards for equipment to be used in situations in which primary routes to a safe zone are not accessible, with special attention to individuals with physical conditions or mobility impairments. One unique feature that some of these devices possess is the ability to transport emergency responders vertically to the scene.

All interested parties are invited to participate in the activities of Subcommittee E06.77. For further technical information, contact Wayne C. Christensen, Christensen Consulting for Safety Excellence, Ltd., P.O. Box 303, Crystal Lake, IL 60039, 815/455-7328, wchrisSAFE@aol.com; or Jonathan (Yoni) Shimshoni, CEO, Escape Rescue Systems Ltd., Kadima, Israel, +972-9-8992219, yoni@escaperescue.com. ☒

PEOPLE

John M. Carroll was named a fellow of the Association for Computing Machinery (ACM). Carroll, the Edward M. Frymoyer Chair in Information Sciences and Technology at Pennsylvania State University, was honored for his work in human-computer interaction. He may be reached at Pennsylvania State University, Information Sciences and Technology, 307 H, 1st Bldg., University Park, PA 16802; 814/865-3528; jcarroll@ist.psu.edu.

Peter P. Mitchell recently joined the University of Miami School of Medicine and the Miami Center for Patient Safety. Mitchell will head the Healthcare Product Usability Laboratory and host Miami Fair: Human Factors Fairgrounds, a three-day conference in late January or February 2005 that showcases medical product safety advances and human factors research. Mitchell may be contacted at the Department of Anesthesiology, Jackson Memorial Hospital, 1611 N.W. 12th Ave., Rm. NW109, Miami, FL 33101; 305/585-8364, fax 305/585-8359; pmitchell@med.miami.edu.

Ronald G. Shapiro was elected president of the American Psychological Association's Division 21, Applied Experimental and Engineering Psychology, for August 2005–August 2006. Division 21 promotes research, development, application, and evaluation of psychological principles relating human behavior to the design and use of environments and systems within which people work and live. He may be contacted at 17 Brookway Rd., Providence, RI 02906; 401/272-4664; rshapiro@us.ibm.com.

Richard E. Stein, a systems design engineer at Guidant Corp., was awarded the 2004 Medical Design Excellence Gold Award in the category of radiological and electromechanical devices for the PARTNER Rhythm Assistant. The award, presented by *Medical Device & Diagnostic Industry* magazine, was announced as part of the magazine's seventh annual Medical Design Excellence Awards competition in its April issue. The PARTNER Rhythm Assistant is a handheld device that allows patients to control and activate atrial defibrillation. Stein may be contacted at Guidant Corp., MS E222, 4100 Hamline Ave. N., St. Paul, MN 55112; 651/582-5005, fax 651/582-7016; richard.stein@guidant.com.

Obituary

Jerome Lederer died on February 6, 2004, at the age of 101. Jerry's commitment to improving flight safety started in 1910 following a disaster at an air show on Long Island, New York, and he was actively pursuing wider aviation safety margins until three days before his death.

Jerry earned his B.S. in mechanical engineering in 1924 and his M.S. in 1925 from the Guggenheim School of Aeronautics at New York University. He was the first engineer specializing in aeronautics hired by the U.S. Mail Service. In 1927 Jerry performed a pre-flight safety inspection for his friend Charles Lindbergh before the historic departure to Paris. He instituted crash survival research in the U.S. Air Mail Service starting in 1928, and in the 1930s he pioneered shifts in what we now identify as corporate safety culture.

During World War II, Jerry served as director of the Civil Aeronautics Board and later as training director of the Airlines War Training Institute, where he also participated in the U.S. Strategic Bombing Survey. In 1947 he formed the Flight Safety Foundation and served as its director until retirement in 1967. Shortly after the *Apollo* fire, NASA called on him to head the Office of Manned Space Flight Safety and then to serve as director of safety for all NASA activities until 1972, when he again retired.

Jerry was elected a Fellow of the Human Factors Society in 1971. He was cofounder of The Ostriches Anonymous Association in 1990 and is credited with such axioms of aviation safety as, "You can improve aviation safety more by poking fun at the heads in the sand than you can by poking sticks at their mistakes."

Jerry was in international demand as a speaker, lecturer, educator, seminar leader, and workshop facilitator until his death. He is revered by those who worked closely with him for his ability to convince people to accept and embrace suggestions for improvement without feeling threatened by the suggestions.

The Flight Safety Foundation published a 100-page biography of Jerry Lederer in the September 2002 issue of the *Flight Safety Digest*. The biography and a separate obituary are available on the Flight Safety Foundation Web site (http://www.flightsafety.org/pubs/news_home.html).

Because of Jerry's efforts, the world is a better place over which to fly, and no doubt he is now looking for ways to improve the safety and effectiveness of angel wings.

—By Robert O. Besco and Stanley N. Roscoe ☒

Bulletin

Volume 47, Number 9 September 2004

Communications Director: Lois Smith
Student Views Editor: Melanie Diez
Assistant Editor: Jeremy Loudenback
Advertising: R. C. Bublitz & Associates,
800/485-5029; dick-rcb@juno.com

POSTMASTER:

Send address changes to the *HFES Bulletin*,
Human Factors and Ergonomics Society,
P.O. Box 1369, Santa Monica, CA 90406-1369 USA,
310/394-1811, fax 310/394-2410, <http://hfes.org>

General Information: info@hfes.org
Editorial/Advertising: lois@hfes.org
Placement Service: placement@hfes.org
Annual Meeting: lois@hfes.org

Opinions expressed in BULLETIN articles are those of the authors and should not be considered as expressions of official policy by the Human Factors and Ergonomics Society.



Human
Factors
and
Ergonomics
Society

P.O. Box 1369
Santa Monica, CA
90406-1369 USA

FLASH!

2005 Dues Renewals Coming Soon

In early November, you'll be receiving your dues statement for 2005. HFES is grateful for your membership and hopes you'll renew promptly. Save \$15 (postage surcharge) when you renew by *January 31, 2005*.

Remember that you may change your contact information anytime by logging in to the **Members-Only** section of *hfes.org*. Your default password is your member ID number, which may be found below on the mailing label of this issue.

PERIODICALS
POSTAGE PAID
AT
SANTA MONICA, CA
AND ADDITIONAL
OFFICES