



American Society of Biomechanics Newsletter

Vol. 3

April, 1990

No.1

From The President - Roger M. Enoka -

Who Are We?

The American society of biomechanics was founded on October 18, 1977 in Iowa City for the purpose of stimulating and fostering research, discussion, and the exchange of ideas among Society members working in the various areas of biomechanics. The key features of this mission have been to bring together researchers from diverse disciplines and to provide them with the opportunity to interact. The principal means of achieving this goal has been to organize an annual meeting. At these meetings, a major emphasis in program design and presentation has been not to have an orthopedist present data for other orthopedists or a sport biomechanist to talk to others with similar interests, but rather the goal has been to have an individual present data that would be of interest to biomechanists in other disciplines. For this reason, we applaud diversity at our annual meetings and encourage the participation of individuals who are not normally active in the Society. For many of us, the strength of the Society is the opportunity it provides to develop and maintain these interdisciplinary interactions.

The founders of the Society recognized this need and organized the bylaws to ensure diversity among the membership. Each member, and applicant for membership, is required to identify a discipline that represents their area of primary interest. Currently the options are: (1) biological sciences; (2) engineering and applied physics; (3) ergonomics and human factors; (4) exercise and sport sciences; and (5) health sciences. The Executive board, especially the Chair of the Membership Committee, strives hard to achieve a balance in the membership among the disciplines. Although the intent of this categorization is clear, its execution is vague. For example, consider a member whose faculty appointment is in a Department of Exercise and Sport Sciences, whose research is funded by the National Institutes of Health, and who addresses scientific questions that are biological in nature. In which discipline should this individual be categorized? Should it be biological sciences, exercise and sport sciences, or health sciences? In the

(see From The President on page 4)

Tutorials Added to ASB Annual Meeting

- See related story on this page
- See specific information and registration form on Page 8

Miami Set For 14th ASB Annual Meeting

Plans for the 14th ASB Annual Meeting, to be held in Miami from November 14-16, 1990, are shaping up and include several changes and additions initiated by the ASB Executive Board. Tarek M. Khalil of the University of Miami, meeting chairperson, has sent nearly 2000 notices to individuals, organizations, and journals around the world. Long range weather forecasters have predicted clear skies and temperatures in the 80's, ideal for science, golf, and sunbathing. The Hyatt Regency Hotel in Miami as the site for the meeting this year is a break from the usual University setting. As usual, the meeting will include multidisciplinary scientific studies of basic, applied, and clinical biomechanics with contributions from biologists, engineers, health scientists, ergonomists, and exercise scientists.

Program chairperson Ed Chao has a team of reviewers ready to begin the assessment of abstracts due on April 15th. Aiding him in the selection process will be Kit Vaughn, Chris Chandran, Rick Hinrichs, Schrawan Kumar, and Andy Biewener. Accepted papers will be notified by June 1st. Also being finalized at this time is the selection of the three keynote speakers.

(see 1990 ASB... on page 4)

ASB 1990 Election Candidates

The individuals listed below have been nominated by the ASB Nominating Committee for the elected offices of President-Elect and Program Chair-Elect for 1990-91. Ballots will be distributed by Secretary-Treasurer Melissa Hoy later this spring.

President-Elect, 1990-91

Thomas D. Brown is Professor of Orthopaedic Surgery and Biomedical Engineering at the University of Iowa, where he has co-directed the Orthopaedic Biomechanics Laboratory since 1983. He received his Ph.D. in mechanical engineering-bioengineering from Carnegie-Mellon University in 1976, and held a faculty appointment in orthopaedic surgery at the University of Pittsburg from 1976 through 1983. Dr. Brown's research contributions in the areas of orthopaedic biomechanics and biofluid dynamics have included over 60 full-length papers and over 110 presentations at scientific meetings. His current work concentrates in the area of articular joint pathomechanics, and involves finite element modeling of necrotic femoral head collapse, experimental studies of contact stress aber-

(see Election Candidates on page 6)

**ASB 1989-1990
Officers and Committees**

President

Roger Enoka
Dept. of Exerc. and Sport Sci.
Gittings Building
University of Arizona
Tucson, AZ 85721
502-621-4702

President-Elect

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916-453-2958

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Malcolm H. Pope
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Secretary/Treasurer

Melissa G. Hoy
Rehab. Res. and Devel. Center. (153)
Veterans Admin. Med. Center
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415-493-5000-x4479

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Edmond Y. Chao
Biomechanics Laboratory
Mayo Clinic
Rochester, MN 55901
507-284-2262

Program Chair-Elect

Christopher "Kit" L. Vaughan
Motion Analysis Laboratory
Kluge Children's Rehab. Center
2270 Ivy Road
Charlottesville, VA 22901
804-924-2364

1990 Meeting Chair

Tarek M. Khalil
Dept. of Industrial Engineering
University of Miami
P.O. Box 248294
Coral Gables, FL 33124
305-284-2344

Nominating Committee

Malcolm H. Pope, Chair
Jean Landa Pytel
Pennsylvania State Univ.
814-863-0754
Richard A. Brand
University of Iowa
319-335-7531

Awards Committee

Malcolm H. Pope, Chair
R. Bruce Martin
Univ. of Calif, Davis
916-752-3333
Don B. Chaffin
Univ. of Michigan
313-763-2245

Education Committee

Mary Rodgers, Chair
Dept. of Rehab. Med. and
Restorative Care
School of Medicine
Wright State University
3171 Research Boulevard
Dayton, OH 45420
513-259-1326
Mark D. Grabiner
Cleveland Clinic Foundation
216-444-7276
Harcharan S. Ranu
New York College of
Osteopathic Medicine
516-626-6926

**Notes From the ASB Executive
Board Meeting**

- February 1989 -

- Melissa Hoy presented the Executive Board with a Treasurer's Report for the Fall Quarter. The sheets balance and the Society has nearly \$40,000 at this time with a number of expenses for the year yet to come.
- It was clarified that the ASB Travel Fellowship award is open only to ASB members.
- Tom Brown reported on the success in obtaining Sustaining Members and expressed concern that the applicants might grow to a number considered to be too many. The Executive Board established a maximum for Sustaining Memberships of 10.
- The viability of the Biological Sciences member category, typically one of the groups with the lowest representation in ASB, was discussed. Read the comments from President Roger Enoka elsewhere in this newsletter for further comments on ASB membership categories.
- The newsletter will be published twice a year, approximately a month following the Annual Meeting and the Midyear Executive Board Meeting.
- The Board discussed ASB sponsorship of non-ASB meetings, considered were: what is the value to ASB; should foreign meetings be sponsored; what administrative structures are necessary; should sponsorship be based on "automatic" guidelines or ad hoc decisions? President-elect George Rab is drafting some guidelines and they will be discussed at the next Board meeting. The Board did approve sponsorship of the International Symposium on 3-D Analysis of Human Movement organized by Paul Allard and to be held in Montréal in July, 1991.
- Roger Enoka will attend the planning meetings involved with the First World Congress on Biomechanics to represent ASB in future World Congresses. A World Congress Steering Committee meeting will be held during the First World Congress in La Jolla in late August to determine the format for the Steering Committee and to discuss 2nd and 3rd World Congresses.
- Retention of ASB members is a continuing problem. Suggestions were made to obtain information on the demographics of membership loss, to follow up lack of response by members with letters from the Membership Committee Chairperson or possibly the President, and to discuss methods of encouraging student members to upgrade to regular member status following graduation. The latter process might have to involve altering requirements for membership to state that graduated student members need only show evidence of continued involvement in the biomechanics field (as apposed to formal publications) in order to upgrade to regular membership.

Missing in Action ???

The members listed below have one thing in common. Can you figure out what it is before looking at the answer on page 6 of the Newsletter?

Chi-Yuang Yu
The University of Michigan
Center for Ergonomics
1205 Beal Avenue
Ann Arbor, MI 48109
Ergon/Hum Fact

Felix E. Zajac
Stanford University
Mechanical Engineering Dept.
Design Division
Stanford, CA 94305-4021
Engr/Appl Phys, R
415-723-9464, 415-493-7558
Intermuscular coordination

Ronald F. Zernicke
Univ. of Calif., Los Angeles
Department of Kinesiology
2854 Slichter Hall
Los Angeles, CA 90024-1568
Exer/Sport Sci, R
213-825-5376, 213-670-2971
Musculoskeletal dynamics

George I. Zahalak
Washington University
Dept. of Mechanical Engr'
St. Louis, MO 63130
Engr/Appl Phys, R
314-889-6053
Muscle/Cellular mechs.

Corinna M. Zee
Humana Adv. Surgical Inst.
Humana Medical City, Dallas
777 Forest Lane
Dallas, TX 75230
Engr/Appl Phys, R

Carl Zetterberg
Sahlgren Hospital
Dept. of Orthopaedic Surgery
S-413 45 Goteborg, Sweden
Health Sciences, R
04631601000
Ergonomics/FX biomechanics

(see No Longer... on page 6)

Here's Your Chance!

If you're the kind of person who has their own opinion and does not like to just follow the crowd, your chance is coming. The ASB Executive Board is continually looking for input concerning the format of the Annual Meeting. Would you rather see papers five minutes long and discussions 10 minutes? Do you think coffee breaks should be stretched to 2 hours, or that coffee should be eliminated entirely and only diet-coke be served? Would you like to see a vote taken to name the best-dressed session chair? At the 14th Annual Meeting you will be given a chance to exert your constitutional right through a survey of attendees, but you don't have to wait until then to make a contribution. Mary Rodgers, Education Committee Chair, is looking for suggestions for topics ASB members would like to see addressed in the survey. Drop her a line or dash off a letter if you have some suggestions (her address is listed elsewhere in the Newsletter, see if you can find it). *Your help in contributing to the questionnaires and completing them at the annual meeting will enable the ASB to better serve your needs.*

International Symposium on 3-D Analysis of Human Movement

In late July, 1991 an International Symposium on 3-D Analysis of Human Movement will be held in Montréal, Canada under the auspices of the American Society of Biomechanics. While organized independently of ASB, the Executive Board has supported for the first time a scientific activity involving some ASB members and independent of the Annual Meeting. The conference is specific to 3-D analyses of human movement, and will have six keynote speakers (T. Huang, T.P. Andriacchi, J.L. Lewis, F.E. Zajac, M. Whittle, and

(see International on page 6)

It's (Un)Official - - - - Biomechan...ist

Thanks to the thousands who responded to the request in the last newsletter for opinions concerning the label that should be attached to those working in the field of biomechanics. The result of the survey, certified by Fisher-Price (Price-Waterhouse was busy), showed that 91.66667% of responders preferred the label **Biomechanist**. Tied for a distant second place were **biomechanician** and **bioneuromechanopaedist** (the latter submitted by a Canadian voting block). Despite the results of this survey, it is likely that those unfamiliar with biomechanics will continue to refer to us as **biochemists**.

Some of the comments provided were of more interest than the outcome of this international poll. ASB President Roger Enoka neglected other presidential duties to thoroughly research the matter and concluded that the English language does not have any applicable rules. For those of you considering a run for ASB political office, **-ist** is the current choice of the ruling class. Roger pointed out that someone in physics is a **physicist** rather than a **physician** (what would you call someone specializing in medical physics?). For those in the process of submitting applications to NIH, the federal government officially recognized the position of **Biomechanist** in September 1989 after a 2-1/2 year effort by several individuals.

Among the other suggestions received were **biomechanical engineer**, **biomechanics researcher**, **biomaniac**, and **scientist**, biomechanics. Several individuals thought the **-ician** ending was too similar to **technician**. Webster's defines **-ician** as a suffix used to form nouns meaning a person engaged in, practicing, or specializing in (a specialized field). This seems appropriate until you equate it with the example they give, a **beautician**. Webster's lists **-ist** with the definition of a person skilled in or occupied with(one of the examples is **anarchist**??) The most common objection from the responders was to the label "biomechanic", thought to be too close to "automechanic" and implying someone who tightens bolts in the body, or as someone put it, a "larcenous lout".

Now that we've settled one issue, on to other important matters. One responder questioned whether we should say **biomechanics research** or **biomechanical research**? And is it **orthopedist** or **orthopaedist**? These topics will be the focus of the next important reader survey coming in December, 2001.

1990 ASB Annual Meeting (cont.)

(continued from front page)

Tutorials are the latest addition to the Annual Meeting. Mary Rodgers, Education Committee Chairperson, and her committee have set up two tutorials for the first day of the meeting. Those desiring to attend should fill out the form found elsewhere in the newsletter and send it to Mary. Because there are additional costs associated with the production of the tutorials, an additional fee is being charged, similar to procedures at many other meetings. Everyone is encouraged to attend. The Executive Board has made a determined effort to expand the scope of the Annual Meeting, and solid participation at the tutorials will encourage them to undertake further endeavors.

A questionnaire at the Vermont meeting has resulted in some enhancements to the Miami meeting. Those responding to the survey indicated that they liked 2 1/2 days for the conference, thought the posters should be up for the duration of the conference, liked longer breaks (30 minutes instead of 15), and thought the quality, organization, and professionalism demonstrated at the conference was high. On the down side, the survey indicated displeasure with malfunctioning AV equipment and thought that posters (with authors present) were not given enough time. As a result of this input, poster sessions will be completely separate from the oral presentations at the 1990 Annual Meeting. A designated time will be allotted for posters and refreshments, and for the author to be present with the poster.

Following the conference there will be post-conference tours to the Bahamas and Disney World available. Optional excursions will also be available to: Palm Beach, Bayside, luncheon cruise-Key Biscayne, Bal Harbour, and the Miami Seaquarium. Additionally, the Office of Conferences and Institutes can arrange for airline discounts for all conference participants.

Though the exact format for the Annual Meeting has not been finalized, here is a brief rundown of the scheduled events:

November 14th:

Tutorials: 1-3pm Muscle Modeling - Dr. Felix Zajac
3-5pm Biomechanics Research: Funding Fundamentals
Dr. Steve Gordon and Dr. Al Schultz
Laboratory Tours: 2-5pm Sites to be determined
Reception - evening

November 15th:

Meeting Begins: Keynote lectures, slide and poster presentations
Luncheon - Hyatt Regency Hotel
Banquet - Conference Center or Center for Fine Arts

November 16th:

Meeting Continues: Keynote lectures, slide and poster presentations
Lunch with your friends
Departure and post-meeting excursions

Next Newsletter

Publication Date.....Dec. 1990

Deadline for Submission

Of MaterialsNov. 23, 1990

From The President (cont.)

(continued from front page)

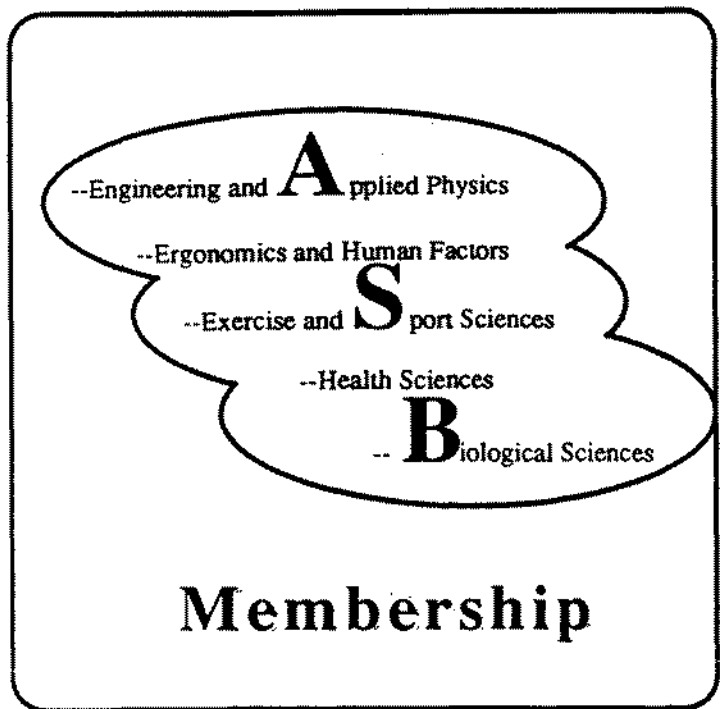
interests of parsimony, you might suggest that the individual simply identify one of these options as the principal discipline. For two reasons, however, this is not a trivial choice. First, it is becoming increasingly difficult to achieve a balance among the disciplines in the membership. In particular, it has become so difficult to attract new members in the area of biological sciences that we have wondered who these individuals are. In a sense, we are all biologists because we are active in the field of *biomechanics*. How is a member in the discipline of biological sciences different from the rest of us? This raises the possibility that perhaps we should define criteria for each category. However, this could become an administrative nightmare trying to familiarize the members and prospective members with the criteria for the various categories and trying to enforce the uniform application of the guidelines. Second, the composition of the Executive Board is based upon a broad representation from the different disciplines. If the categorization of members is so vague as to be meaningless, then we may lose the diversity that the founders wanted to instill in the Society.

There is no doubt that we are a diverse group, and we strive to achieve broad representation in our membership and among the members of the Executive board. Are the concerns expressed above sufficient reason to question our procedures for ensuring this diversity? Should we be concerned that we cannot attract a critical mass of members in the biological sciences category? It seems that we have two extreme options, with several intermediate possibilities. We could argue that the current system is working well and that there is no need to fix what is not broken. Alternatively, we could take the position that the categorization should be more rigorous and that we should have more definitive guidelines for identifying the appropriate existing categories. One intermediate option might be to redefine the categories to include both the discipline and an area of interest, e.g., exercise and sport sciences/motor control, engineering and applied physics/orthopedics, health sciences/microcirculation. I would be very interested to hear your thoughts on this issue and would greatly appreciate your viewpoint, either over the telephone or by mail.

The Newsletter Needs Your Contribution!

Members are encouraged to contribute to the newsletter. A note, a letter to the editor, a lead to an interesting story, information about a scientific meeting, an opinion, or a feature article - anything that might be of interest to others in the Society. There is particularly a need for contributions specific to the various subdivisions within ASB, including information about upcoming meetings. Send information scrawled in longhand or on disk via Macintosh or IBM Microsoft Word or text format. Anyone interested in contributing on a one-time or regular basis should send suggestions to:

Keith R. Williams
Newsletter Editor, ASB
Physical Education Department
University of California, Davis
Davis, CA 95616
(916) 752-3337



SUSTAINING MEMBERSHIP

ASB has a special category of membership aimed at encouraging affiliation by commercial organizations that market products which are used by the biomechanics research community, or companies that are otherwise engaged in activities that fall within the Society's general interest areas. This is the sustaining membership category. We are happy to acknowledge and thank the following companies for their support as Sustaining Members:

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- Aircast
- Electro-Biology, Inc. (EBI)
- Human Kinetics Publishers
- Interpore Orthopaedics
- Protek
- Howmedica
- DonJoy
- Zimmer
- Orthofix Srl
- Motion Analysis Corporation
-

New Members In 1989 & 1990

—Regular members—

Russ Alberts	—
Armand J. Beaudoin Jr.	BS
Theodore Becker	EHF
J. David Blaha	BS
Thomas S. Buchanan	EAP
Bill Bue	Sust
Steven R. Bussolari	—
Patrick W. Cawley	Sust
Jill J. Conrad	HS
Joseph M. Czerniecki	HS
Genevieve A. Dumas	EAP
Karen Beekman Eden	ESS
E. Paul France	EAP
Elizabeth A. Friis	EAP
Michael T. Gross	ESS
Steven Gullet	—
Nancy Hamilton	ESS
Colleen Higgs	—
Kenton Kaufmann	EAP
Tarek Khalil	—
Jeffrey Laible	—
Susan M. Lang	—
David J. Miller	HS
Nathaniel R. Ordway	ESS
Victoria Panzer	—
Robert Phillips	—
Frank A. Pintar	EAP
Timothy Quinn	EAP

Melvin R. Ramey	EAP
Patrick Riley	EAP
W. Eugene Roberts	—
Suzanne Rodgers	—
Elbarna Sabri	HS
Sorin Siegler	EAP
Suzanne D. Smith	EAP
Rebecca E. Snow	ESS
Yoshiaki Takei	ESS
Robert T. Whalen	BS
Tachung Yih	—

—Student Members—

Kelly Jo Baker	EAP
Pamela Blankenship	—
Robert Boutin	—
Kuiwon Choi	EAP
James J. Collins	EAP
Jill Conrad	—
Christopher Edington	—
Denis Gagnon	—
Louise Gilchrist	HS
Robert W. Goulet	EAP
Scott Hacker	EAP
Joseph E. Hale	EAP
Richard E. Hughes	EHF
Stephen Jenkins	—

Karl Jepsen	—
Ian C. Jones	ESS
Corrie Mancinelli-Logue	BS
Doris McCubbrey	—
William Mihalko	—
Monica Milliron	EHF
Thomas R. Oxland	EAP
Cheryl Patten	—
Marc Pizzimenti	ESS
Timothy Quinn	—
Jae-Young Rho	—
Lisa Ann Schaller	EAP
David Sims, Jr.	—
William Skelly	ESS
Jean M. Theim	EAP
Jeffrey B. Wheeler	EAP
Donna Wheeler-Harding	EAP

EAP - Engineering and Applied Physics
 ESS - Exercise and Sport Sciences
 HS - Health Sciences
 EHF - Ergonomics and Human Factors
 BS - Biological Sciences
 Sust - Sustaining Members
 — - Not available

Election Candidates

(continued from front page)

rations around articular surface incongruities, and analysis of osteochondral response to impact loading.

Dr. Brown currently serves as Associate Editor of the Journal of Orthopaedic Research, Associate Editor of the ASME Journal of Biomedical Engineering, Consulting Editor for Research of the Journal of Bone and Joint Surgery, and as a member of the NIH Orthopaedic Study Section. He has been a member of ASB since 1982, and received the Society's first Giovanni Borelli Award in 1984 for research studies on the biomechanics of femoral head osteonecrosis. He served on the ASB Program Committee from 1985 through 1988, and was Program Chairperson for the 1987 meeting at Davis. For the last two years, he has been chairperson of the Membership Committee.

Thomas P. Andriacchi currently holds the position of Director, Section of Orthopedic Research, Department of Orthopedic Surgery, Rush-Presbyterian-St. Luke's Medical Center in Chicago. He also holds the Claude N. Lambert, M.D.-Helen S. Thomson endowed professorship in Orthopedic Research at Rush University. He is currently Secretary of the Orthopaedic Research society, a member of the Editorial Advisory Boards of the Journal of Orthopaedic Research, Journal of Biomechanics and Journal of Arthroplasty.

Dr. Andriacchi is past Secretary-Treasurer of the American Society of Biomechanics serving from 1983-1986. Dr. Andriacchi was a member of the Orthopaedics Musculoskeletal Study Section of National Institutes of Health between 1984 and 1988.

He received his Ph.D. in Mechanical Engineering from the University of Illinois at Chicago. He has pursued a research career in biomechanics with special interests in the biomechanics of lower extremity joints, locomotion and spine.

Program Chair-Elect, 1990-91

Clinton T. Rubin, Associate Professor of Orthopaedics at the State University of New York, received his Ph.D. in anatomy at the University of Bristol in 1983. In 1984, he began a stint as Assistant Professor of Anatomy and Cell Biology at Tufts University School of Medicine, moving to New York in 1987 as Director of the Musculo-Skeletal Research Lab at SUNY-Stony Brook. The lab's research interests focus on the study of Wolff's Law and the cellular mechanisms responsible for functional adaptation in bone. These goals are addressed through a multidisciplinary approach ranging from the biochemistry/biophysics of the bone cell membrane to the measurement of strain in vivo during normal functional activity. Dr. Rubin's research has been recognized through receipt of the American Academy of Orthopaedic Surgeons Kappa Delta Award, The European Society of Biomechanics Award for Excellence in Research, and the National Science Foundation Presidential Young Investigator Award.

Joan E. Reichtold is currently Director of the Orthopaedic Biomechanics Laboratory at Hennepin County Medical Center and Metropolitan-Mount Sinai Medical Center in Minneapolis, a position she has held for the past six years. In addition, she has appointments at the University of Minnesota as Assistant Professor

in the Department of Orthopaedic surgery, and Associate Professor of the graduate faculty of the Biomedical Engineering Program. She earned her Ph.D. in Mechanical Engineering from the University of Minnesota, with a study of intramedullary implant design. She has worked in the field of biomechanics for over ten years, beginning at the Mayo Clinic, and including an AO fellowship with the Mueller Institute in Bern Switzerland. She currently serves on the regional Red Cross' Medical Advisory Committee for Tissue Transplant. She has over twenty refereed publications, and an equal number of abstracts at meetings of the American Society of Biomechanics, Orthopaedic Research Society, European Society of Biomechanics, and American Society of Mechanical Engineers, and has served as moderator at these meetings. She also has served as a reviewer for the Journal of Biomechanics and the Journal of Biomechanical Engineering.

No Longer Missing in Action

(continued from page 3)

After months of being missing in action from the ASB Membership directory, the members listed on Page 3 of the newsletter have been found. Be sure to clip the list and put it in its proper place in your directory. A mystery still surrounds how they were omitted in the first place, and rumors abound that a recall election is being considered for R. Bruce Martin, past Secretary-Treasurer of the Society for alphabetic-prejudice in a public organization. Hats off to current Secretary-Treasurer Melissa Hoy for recognizing the deficiencies in the membership list and acting quickly to correct the problem before any legal action was taken by those involved. It is unclear how the matter first came to her attention, but her co-worker Felix Zajac is likely to somehow have been involved. Felix denies that future employment opportunities for Melissa were in jeopardy unless proper restitution was made. The ASB Executive Board has scheduled a special meeting in Honolulu later this month to discuss the issues with those involved. The most likely outcome of this meeting is that the next Membership Directory will be printed in reverse alphabetic order. Members with a surname beginning with the letter 'A' should be prepared to find out what it is like to be at the back of the pack.

International 3-D Symposium (cont.)

(continued from page 3)

one TBA). One unusual feature of this meeting is that each of the 48 oral presentations will be paired with a discussor. Fifty additional poster presentations will be included. Principal themes of the symposium are: data capture, definition of joint motion, mechanical models, neuro-mechanical models, 3-D representations and applications and interpretations. Abstracts are due October 1, 1990, and for information write to the organizing committee at the address listed in the Events section of this newsletter.

Coming Events (cont.)

(continued from page 7)

December 9-14, 1991

ISB XIII Congress, University of Perth - Western Australia organization: Dr. Graeme Wood.

Jobs! Jobs! Jobs!

University of California, Davis

Assistant/Associate Professor in Biomechanics with the ability to contribute to development in the area of neuromuscular function. **Responsibilities:** Extend current offerings in the area of biomechanics and neuromuscular function, including development of independent research program, development of additional UG and G courses in biomechanics, and advising of students. **Qualifications:** Earned doctorate in biomechanics or bioengineering, or in neurophysiology with an appropriate background in biomechanics. **Application:** Send a cover letter describing interests and qualifications, a vita, copies of relevant research publications, and the name, phone number, and address of three individuals who will submit letters of recommendation to E. Dean Ryan, Chair, Department of Physical Education, University of California, Davis, CA 95616. Deadline: April 15, 1990.

University of Kentucky

Orthopaedic biomechanics research laboratory director. Tenure track academic position with joint appt. in College of Engineering and/or The Wenner-Gren Center for biomedical engineering. **Responsibilities:** As director be instrumental in determining laboratory goals, directions, and priorities. **Qualifications:** Ph.D. with appropriate qualifications. **Application:** Contact Herbert Kaufer, M.D., Professor and Chairman, Division of Orthopedic Surgery, University of Kentucky, E-101 Medical Center Plaza, Lexington, Ky 40536. Tel. 606-233-5533

University of Michigan

Assistant professor with research interests in the causes and control of movement. **Responsibilities:** Establish independent research program and teaching the undergraduate and graduate programs in area of expertise. **Qualifications:** Ph.D. or equivalent research degree, postdoctoral training or comparable experience is desirable. **Application:** Submit curriculum vitae, statement of research interests, and names of three individuals willing to supply references to: Charles Worringham, Ph.D., Search Committee Chairman, Department of Kinesiology, the University of Michigan, 401 Wastenaw Avenue, Ann Arbor, MI 48109-2214. Applications received by April 13, 1990 will be given full consideration.

Coming Events

May 22-25, 1990

37th American College of Sports Medicine Annual Meeting, Salt Lake City, Utah. (c/o American College of Sports Medicine National Center, P.O. Box 1440, Indianapolis, IN 46206-1440; 317-637-9200).

May 27-June 1, 1990

XXIV FIMS World Congress of Sports Medicine. Amsterdam, The Netherlands. (c/o Congress Secretariat, XXIVth FIMS World Congress on Sports Medicine, c/o RAI Organisatie Bureau Amsterdam bv, Europaplein 12, NL-1078 GZ Amsterdam, The Netherlands, Tel.: 31.20.5491212, ext. 1764. Telex: 13499 raico nl., Telefax: +31.20.464469).

July 8-11, 1990

7th Congress of the European Society of Biomechanics, Aarhus, Denmark. (c/o 7th Congress of ESB, Biomechanics Laboratory, Orthopaedic Hospital, Randersvej 1, 8200 Aarhus N, Denmark. Tel. +45 616 7500 ext. 4649).

July 23-27, 1990

4th Annual Sports Medicine 1990, San Diego, CA. A Practical Approach to Caring for Today's Athlete. (c/o Sports Medicine 1990, Office of Continuing Medical Education, M-017, UC San Diego School of Medicine, La Jolla, CA 92093-0617. Tel. (619) 534-3940.)

July 27-30, 1990

American Academy of Sport Physicians Annual Meeting, in conjunction with the Goodwill Games. Two day scientific session. (c/o Janie Zimmer, Academy Coordinator, 17113 Gledhill Street, Northridge, CA 91325)

August 4-8, 1990

Video Techniques for Motion Analysis. Penn State University. Introductory lectures on the fundamentals and principles of videography and 2D and 3D techniques for analyzing motion. (c/o Richard C. Nelson, Biomechanics Laboratory, Penn state University, University Park, PA 16802. Tel. (814) 865-3445 Fax: (814)865-2440)

August 12-16, 1990

8th International Congress of the International Society of Electrophysiological Kinesiology (ISEK), Baltimore, Maryland. (c/o ISEK 1190, Congress Secretariat, P.O. Box 986, Hunt Valley, MD 21030 USA).

August 26-28, 1990

The East-Coast Conference on Biomechanics, Old Westbury, Long Island. One page abstract by February 1, 1990. (c/o Professor H.S. Ranu, Dept. of Biomechanics, NYCOM, New York Institute of Technology, Old Westbury, New York 11568, Tel: 516-626-6926, Fax: 516-626-1306).

August 30-September 4, 1990

First World Congress of Biomechanics, La Jolla, CA. Abstracts due January 1, 1990. (c/o Dr. Geert W. Schmid-Schönbein, Secretary General, The First World Congress of Biomechanics, AMES - Bioengineering R-012, University of California, San Diego, La Jolla, CA 92093 USA, Tel: 619-534-4272, Fax: 619-534-5722).

September 7-11, 1990

The VIIth Symposium on Biomechanics and Medicine in Swimming. (c/o Dr. T. Reilly, Dr. A. Lees, Dr. T. Maclaren, Liverpool Polytechnic, Byronstreet, Liverpool, L3 3AF, Tel: 051 207-3581 Fax: 051 709-0172).

October 19, 1990

Annual West Coast Gait Conference, Centinela Hospital Medical Center. (c/o Betty Conroy, P.T., Centinela Hospital Medical Center, Biomechanics Laboratory, 555 East Hardy Street, Inglewood, CA 90301. (209)673-2086.

November 5-8, 1990

ECART, European Conference on the Advancement of Rehabilitation Technology. (c/o ECART, Congress Organization Services, Van Namen & Westerlaken, P.O. Box 1558, 6501 BN Nijmegen, The Netherlands)

December 6-8, 1990

Sixth International Conference on Biomedical Engineering, Singapore. (c/o Secretary, 6th Biomed Conference 1990, Dept. of Orthopaedic Surgery, National University Hospital, Lower Kent Road, Singapore (0511)).

April 16-20, 1991

International Congress and Exposition on Sports Medicine and Human Performance. Central theme is "The Science of Human Performance in Health, Disease and Injury", focusing on physiology, biochemistry, diagnostics, surgery, rehabilitation, nutrition, training and other components of Sports Medicine. (c/o Rochelle Bisnaire-Trask, Project Manager, 4285 Canada Way, North Burnaby, B.C. Canada V5G 1H2 Tel: (604) 433-5121 Fax: (604) 433-9549)

July 27-30, 1991

International symposium on 3-D Analysis of Human Movement. Abstract submission by October 1, 1990. (c/o Secretariat, International symposium on 3-D Motion, analysis of Human Movement, Laboratoire d'étude du mouvement, Centre de recherche pédiatrique, Hôpital Sainte-Justine, 3175 Côte Ste-Catherine, Montréal, PG, H3T 1C5, Canada. Tel. (514)345-4740 Fax: (514)345-4801)

(see Coming Events on page 6)

Tutorials at the 14th ASB Annual Meeting

Beginning with the 14th ASB Annual Meeting in Miami, the Executive Board is initiating tutorial sessions as a part of the regularly scheduled events. This is an attempt to expand the scope of the offerings at the Annual Meeting and provide members an opportunity to receive in-depth information on specific topics of general interest. It is necessary to pre-register for the tutorials using the form below.

Tutorial #1

Title: Muscle Modeling
Tutor: Dr. Felix Zajac
Time: 1-3 PM, Wednesday, November 14, 1990

Description: Understanding neural and biomechanical control of movement necessitates the use of muscle models, e.g., to estimate muscle forces developed during the execution of a motor task. This tutorial will review muscle and tendon properties, how the two structures are functionally, inextricably linked, the different models of muscle and tendon used in motor control and biomechanical research, and the trade-offs among the usage of the different models.

Tutorial #2

Title: Biomechanics Research: Funding Fundamentals
Tutor: Dr. Steve Gordon and Dr. Al Schultz
Time: 3-5 PM, Wednesday, November 14, 1990

Description: This tutorial is based on the experience of Dr. Gordon as Director of the Musculoskeletal Diseases Program of the National Institutes of Arthritis and Musculoskeletal Diseases, a unit of the National Institutes of Health (NIH), and Dr. Schultz as an author of many proposals and as a former member of the Orthopaedics and Musculoskeletal Diseases Study Section of NIH (the panel of scientists who evaluate many of the proposals submitted to NIH for biomechanics research). Included will be a review of procedures used at NIH to process submitted proposals, a description of some of the areas of biomechanical research currently receiving Federal funding and advice on how to increase your chances for success in seeking research funding.

Name _____ Phone (____) _____

Address _____

I WISH TO REGISTER FOR THE FOLLOWING TUTORIAL(S):

_____ "Muscle Modeling" - Dr. Felix Zajac

_____ "Biomechanics Research: Funding Fundamentals"
- Dr. Steve Gordon and Dr. Al Schultz

Please check your choice(s), enclose \$20.00 registration fee for each tutorial, and mail by October 1st, 1990 to:

M.Rodgers, Chair, ASB Education Committee
Department of Rehabilitation Medicine
Wright State University School of Medicine
3171 Research Blvd.
Dayton, Ohio 45420

ASB Travel Fellowship

APPLICATIONS DUE JUNE 30, 1990

Intent: To enable travel for the purpose of conducting research.

Guidelines:

1. All ASB members are eligible to apply, including student members.
2. Travel and lodging costs are covered, and budget requests may be up to \$1000. Matching funds (from host's or candidate's institution or grants) are desirable, but not required. The funding period is from November 1, 1990 through October 31, 1991.
3. The Education Committee will judge the applications and forward the name and the award amount to the executive board for approval. The ASB President will notify the recipient.
4. Applications for the Travel Fellowship must be received by the Chair of the Education committee by June 30, 1990. Send applications to:
Mary M. Rodgers
Dept. of Rehabilitation Medicine
Wright State University
3171 Research Blvd.
Dayton, OH 45420
(513) 259-1326
5. Notice of the award will be given by September 30, 1990, to allow at least 30 days before the earliest date of the proposed travel.
6. Applications must include:
 - * Current curriculum vita
 - * Candidate's cover letter
 - * Letter from host indicating support for travel
 - * Synopsis (2 pages maximum) describing purpose and significance of travel
 - * Detailed budget with justification (when appropriate, matching funds should be indicated.)
7. Fellows will be sent a check for the amount of the award from the ASB Secretary/Treasurer.
8. A short report (2 pages maximum) explaining the significant outcomes of the travel must be submitted to the Education Committee prior to October 31, 1991, or at the end of the fellowship.
9. At the annual meeting following the completion of the travel, Fellows will be expected to present a 5 minute presentation to all attenders at the meeting; the presentation should emphasize the significant outcomes of the travel.