



American Society of Biomechanics Newsletter

Vol. 1

September, 1988

No. 2

From Our President - Dom Chaffin -

It has been about 13 years since several of us met in Chicago to discuss the need for and form of a new biomechanics society. After drafting (and redrafting) the By-Laws for such an organization, we were ready to meet with our peers. The first meeting at the University of Iowa in October, 1977, was encouraging, with representatives from a variety of related fields participating. The By-Laws were adopted and F. Gaynor Evans became our first President. Two years later, at our 3rd Annual Meeting at Pennsylvania State University we had 42 scientific papers presented. It is worth noting that our Program Committee for this year, chaired by Mont Hubbard, has approved 107 papers for presentation. Needless to say, the primary goal of the organization, to promote a spirit of mutual understanding and cooperation among biomechanists from different fields, is being well served. I am confident that the meeting in Champaign will be extremely well run and enjoyable, thanks to the excellent organizational efforts of the Meeting Committee, chaired by Manssour Moeinzadeh.

This past year your Executive Board has implemented three awards to assist biomechanics researchers, the Traveling Fellowship Award, the Pre-doctoral Fellowship, and the Post-doctoral Fellowship. I'm particularly pleased with these actions, for they demonstrate a commitment by our Society to promote improvement in the science of biomechanics. Both your Education Committee, chaired by Jerry Pijanowski and Ron Zernicke, and your Nominating Committee, chaired by Peter Cavanagh, have been involved in establishing and implementing these awards.

Clearly our Membership Committee, chaired by Roger Enoka has been doing an excellent job of promoting the Society. Our membership continues to grow in numbers, and a category of Sustaining Member has been added to permit commercial organizations to support the Society. In addition, plans are being finalized to initiate two new membership categories, Honorary member and Emeritus member. These special designations are to acknowledge those who have made significant contributions to the field and to our Society.

Lastly, as I write this I am reminded of how important it is to us all to be able to communicate with each other within our complex, fast-paced field. Two people must be acknowledged in this sense, Bruce Martin, our Secretary-Treasurer, who keeps the Society so well organized, and Keith Williams, who volunteered to be Editor of our Newsletter. Both have demonstrated the leadership needed to assure continued vitality of our Society in the future.

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Chandran, Beynnon Chosen as 1988 Award Winners

Krishnan B. Chandran and Bruce Beynnon will be presented as the winners of the Borelli and Young Scientist Pre-Doctoral awards, respectively, at the Annual Meeting in September. Chandran, who is from the Biomedical Engineering Department at the University of Iowa, specializes in cardiovascular biomechanics and will be featured in a presentation at the Borelli Luncheon on Thursday, September 29th. Beynnon, a student in Orthopaedic Biomechanics at the University of Vermont, will receive the Young Scientist Pre-Doctoral Award in a special presentation on Friday. He will present a paper entitled "Characterization of anterior cruciate ligament strain pattern in-vivo" immediately following the presentation as the first speaker in the afternoon session on ligaments. At next year's meeting there will be an additional award in the category of Young Scientist Post-Doctoral. Congratulations to both winners!

Zimmer, Inc. Becomes the First ASB Sustaining Member

Roger Enoka, chairman of the membership committee, has reported that the society has its first Sustaining Member, ZIMMER, INC. The Sustaining Member category is new this year and attempts to broaden the membership in the American Society of Biomechanics to include individuals and organizations that have an interest in the advancement of biomechanics. Zimmer has indicated that Roy Crowninshield, V.P. Research, will be their representative. With Zimmer setting the example, it is hoped that the membership in this new category will grow. Regular ASB members can help by supplying the Executive Committee with the names of potential Sustaining Members.

The guidelines for Sustaining Members are as follows:

- a. Individuals and organizations that have an interest in the advancement of biomechanics may be invited, on an annual basis, by the President and with approval of the Executive Board, to become Sustaining Members.
- b. Sustaining Members shall not vote or become officers of the Society.
- c. The annual fee for a Sustaining Member is \$500.
- d. Individuals and organizations that become Sustaining Members shall be acknowledged in the program of the annual meeting of the Society.

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**American Society of Biomechanics
Executive Board 1987-88**

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Membership Committee Chair
University of Arizona
(602) 621-470

***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. **Anyone interested in making contributions 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

Did You Fly To UC Davis?

When you attended the 1987 ASB meeting at UC Davis, did you travel to or from the UC Davis airport? If so, please let Bruce Martin, ASB Secretary-Treasurer know. The University is trying to document use of the airport over the past year and would appreciate hearing from anyone who used it. The UC Davis airport should not be confused with its cousin, the Sacramento Metropolitan Airport, which was the arrival and departure point for most conference attendees and which recently had its first visit from the Concorde. The Concorde itself would span most of the length of the UC Davis runway. If you are in doubt as to which airport you used, contact Dr. Martin for help.

--Engineering and **A**ppplied Physics
--Ergonomics and Human Factors
--Exercise and **S**port Sciences
--Health Sciences
--**B**iological Sciences

Membership

Zimmer

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e. Sustaining Members shall not use the Society's name in any form of advertising.

Sustaining members will be acknowledged in every issue of the Society's newsletter, and are invited to send one representative to the Annual Meeting of the Society. The registration fee for the Meeting will be waived for their representative. Attendance at the Meeting by the representative will provide an opportunity for them to stay abreast of developments in the field of biomechanics and ensure that they are seen as an integral part of this development.

Members Make the News

Malcolm Pope, professor of orthopaedics and rehabilitation medicine and incoming ASB President has been named McClure Professor at the University of Vermont. The newly created McClure Professorship and McClure Center for Musculoskeletal Research were established with a \$1.5 million gift from philanthropists J. Warren and Lois McClure. The McClure Center for Musculoskeletal Research is the research division of UVM's Department of Orthopaedics and Rehabilitation.

Dr. Pope is co-director of the Vermont Rehabilitation Engineering Center, UVM's multidisciplinary center for low-back pain research and the only federally funded low-back pain center in the U.S. The center recently was awarded \$3.5 million for projects on exercise, seating and rehabilitation strategies by the National Institute of Disability and Rehabilitation Research.

Dr. Pope has achieved worldwide recognition and received many awards for his research in the causes of low-back diseases and for his work with knee ligaments. He received the Volvo Prize for Low Back Research and was elected president for the International Society for Study of the Lumbar Spine. He studied at Southall College, London, England, and has a master's degree in mechanical engineering from the University of Bridgeport and a doctorate in mechanical engineering from UVM.

Need a Job?

This location will be used to advertise any positions that might be of interest to ASB members. Forward a copy of the position announcement and it will be included in the next issue of the newsletter.

Columbia University

Associate Research Scientist/Scholar or Staff Associate. Position immediately available in the Orthopaedic Research Laboratory (ORL) at Columbia University. Minimum requirement is a Ph.D. in Biomechanics or Biomedical Engineering, or an M.S. with two years experience. Emphasis is placed on soft tissue biomechanics and orthopaedic research. Responsibilities include the following: manager for material testing section of ORL; supervision of experimental research for graduate students and resident research fellows; and independent or interdisciplinary collaborative project development. Highly competitive starting salary commensurate with experience. Please contact and send you curriculum vitae to: Van C. Mow, Ph.D. Director, Orthopaedic Research Laboratory, 630 West 168th St., Black Bldg., Rm. 1412. Columbia-Presbyterian Medical Center. New York, NY 10032. (212) 305-1515.

United States Sports Academy

Director of Biomechanics Laboratory. The United States Sports Academy is a special mission, private graduate school founded in 1972, with an enrollment of over 350 students studying in four areas: Sport Coaching, Sport Fitness Management, Sport Management, and Sports Medicine. This is a new position, and the person filling the job will be responsible for the development and administration of a new biomechanical laboratory designed for both institutional research and commercial operation. A doctoral degree in physical education or related field with a major emphasis in biomechanics and a minor emphasis in exercise physiology is required. Experience in running a biomechanics laboratory is preferred. The applicant should have the ability to teach and direct independent study at the graduate level and the ability to work under stress is essential. Scholarly productivity will be required. Salary is commensurate with qualifications and experience. Applications and nominations should include a letter of application, a resume, and three letters of reference directly related to the position for which the application or nomination is made. Send materials to: Vice President for Academic Affairs and Research, United States Sports Academy, One Academy Drive, Daphne, Alabama 36526.

Chaffin

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In summary, as I said when I became your President, ASB has successfully established itself as a viable scientific organization. It is now developing and implementing policies and procedures to assure its growth and effective service to its members. In doing so, I has provided me with the opportunity to meet with outstanding individuals in the field, and to share many memorable experiences. It has been a very satisfying experience, which I highly recommend.

? The Bohemian Society of ? Mechanics?

The American Society of Biomechanics has been shaken to its very roots by the recent flap over the misspelling of its name in the first edition of the revived newsletter.

Kieth Williams, Editor-Under-Duress of the paper, insisted the word was spelled correctly when it left his office. "Bomechanics is just too obvious a typo to have missed," he stated. "There's a conspiracy here. Something's rotten in Finland." To prove his point, Williams sat down at the computer and, after a short delay, produced a copy of the first newsletter which did indeed have the word spelled correctly. He went on to point out that Bruce Marvin, the Society's Secretary/Treasurer, was responsible for copying and making the newsletter.

When reached by phone, Marvin also claimed the word was spelled correctly when it passed through his hands. He blamed the copy shop. "Their machine must have missed a beat - a quick brown-out or something. Or 400 of them, all in synch. I'll tell you this, it's the last time I do business with someone with a name like Kinkio's."

Presidential candidate Dr. George Rob's brows have reportedly knitted so deeply over the incident that he is terrifying his patients in the pediatrics clinic. "I just don't see how such a bush-league thinker could happen," he was quoted as saying to one puzzled parent. "It just shows what can happen when you entrust something important to a jock from California and a hick from West Virginia."

His opponent, Roger Inoka, a jock from out back of the outback, bristled at Rob's impugning of his discipline. He claimed the incident was symptomatic of the American education system, that such a thing had never happened during Peter Cavanaw's administration, and that it would never happen again as long as people who pronounced their words correctly were elected to positions of leadership. "We're just very lucky that Malcolm Polp is taking office in a few weeks," he said. Inoka, current Membership Committee Chairman, also noted that he has received 148 applications for membership from Southern Californians who wanted to join the American Society of Bohemian Mechanics after reading the newsletter. Since this represents the largest single increase in membership in years he is considering a proposal for a change in the Society's name should he be elected.

It is perhaps significant ($p < .05$) that President-elect Polp was the only ASB member to report noticing the misspelled word. It has been rumored that this was the only copy with an error, but it certainly shows that the Executive Committee will be under close scrutiny in the coming year. Current President Don Chaffin took full responsibility for the incident, and said he certainly understood how it could happen. He did not elaborate.



1988 American Society of Biomechanics Meetings

International travelers have the opportunity to get a concentrated dose of both biomechanics and culture this September as they attend the combined meetings of the American Society of Biomechanics and the European Society of Biomechanics. Though the meetings take place on different continents, many consider them to be one long international meeting. The combined meeting begins in Bristol on September 11th with the ESB precourse, allows thirteen days for travel between conference sites, and concludes in Champaign on September 30th. Those who cannot convince their administrators that this really is one long international meeting may have to plan a short layover at their university to give a lecture or two. Scientists with their own private jets are rumored to be planning to jump back and forth between the ESB meeting and the Seoul Olympic Scientific Congress which runs simultaneously. Below is a summary of each of the meetings so that discerning scholars can select appropriate travel plans, or at least dream of doing so.

American Society of Biomechanics 12th Annual Meeting

Site: University of Illinois at Urbana-Champaign
Illini Union. September 28-30, 1988

Costs: Conference: \$90 members, \$115 non-members, \$45 students
Housing: \$25-30 per day, double occupancy

Conference Content:

Fourteen sessions (2 occurring simultaneously throughout the conference) with 64 presented papers and 42 poster presentations. Session topics include: Prosthesis Analysis & Design; Bone Structure; Muscle: Architecture, Training & Coordination; Joint Kinematics & Kinetics; Human Response to Stress; Kinematic Measurement; Muscle: Functional Roles; Gait; Mechanical Properties of Tissue; Muscle: Force Generation; Ligaments; Sport Mechanics I and II; Locomotion Energetics

Keynote Speakers:

John Currey - University of York "Stiffness versus Toughness: The Fundamental Optimization Problem for Bone"
Thomas McMahon - Harvard University "Mechanics of Locomotion"
Steven Vogel - Duke University "Flow and the Unstiffness of Nature"

Sustaining Member: Zimmer, Inc.

Sponsors: Acromed Corporation

Exhibitors: Lenox Hill Brace, Inc.; Motion Analysis; Peak Performance Technologies; SPINEX Medical Technology, Inc.

Other Conference Highlights: Welcoming reception; Banquet; Laboratory Tours: Supercomputer center; Bioacoustics Lab, Veterinary Medicine Gait Lab, Rehabilitation Engineering Center; Biomechanics Lab

1988 Seoul Olympic Scientific Congress

New Horizons of Human Movement: Issues and Implications for Development, Performance, and Health is the theme for the 1988 Seoul Olympic Scientific Congress to be held September 9-15 in Seoul, Korea. One feature of the program is interdisciplinary seminars covering a variety of areas related to human movement. A keynote speaker and three panelists will present information in each of ten sub-theme areas and an open discussion with the audience will follow. Individual scientific papers will also be presented in 12 disciplines including sport history, sport philosophy, sport sociology, sport administration, sport pedagogy, adapted physical education, measurement and evaluation in sports, sport psychology, sports physiology, sport biomechanics, sports medicine, and dance. The conference is rounded out by business meetings for various international and regional organizations and a variety of social and cultural programs.

6th Meeting of the European Society of Biomechanics

Site: University of Bristol, H.H. Wills Physics Laboratory
Bristol, England. September 12-15, 1988

Costs: Conference and Precourse - £160 members, £185 non-members, £55 students
Bed, breakfast and evening meals (5 days) - £160

Conference Content:

Twenty-four sessions (3 occurring simultaneously throughout the conference) with 107 presented papers and 50 poster presentations. Session topics include: Bone 1,2,3,4,5; Joints 1,2,3; Ligament & Skin; Gait 1,2,3; Cartilage; Implants 1,2,3,4; Ext. Fixation; Ext. Fixation-growth plate; Int. Fixation; Orthopaedics-spine; Orthopaedics-spine, shoulder; Sport; Muscle: heart

Precourse (Sept. 11): Strategies for the Development of Compatible Implants, and Mathematical Modelling of Biological Processes; Techniques, Validity and Value

Keynote Speakers:

M.A.R. Freeman - The Contribution of Biomechanics to Orthopaedic Surgery
I. Kenwright - Experimental Support for Orthopaedic Management
L. Kneis - The Effects of Weightlessness on Bone - The Soviet Experience
C. Lee - Strategies for Fixation of Total Joint Replacements with and without Cement
I.M.V. Rayner - Form and Function in Vertebrate Flight Morphology
Prof. Carpentier - The Significance of Turbulence in Cardio-Vascular Function
G.J. van Ingen-Schenau - Mechanical and Energetic Aspects of the Generation of Propulsion in Endurance Sports
G. Goldspink - Functional Adaptation in Muscles: the Cellular Basis for Training

Sponsors: Zimmer International Limited, Johnson & Johnson Orthopaedics Limited

Trade Participants: Penny & Giles Blackwood Limited; Kistler Instruments Limited; Oxford Metrics Limited; Planer Industrial; Dartec Limited; Infotronic

Other Conference Highlights: Welcoming reception; Awards banquet; City tour of Bristol; Accompanying persons programme; ESB Awards Paper; Best Poster Award; Butterworth Award in Clinical Biomechanics (£100); Afternoon tea

Exercise/Sport Interorganizational Liaison Meeting To Be Held in September

The American Alliance for Health, Physical Education, Recreation and Dance and the National Association for Physical Education in Higher Education are providing support for a meeting to be held September 16-17 in Washington D.C. to continue to explore ways that exercise/sport organizations can work more closely together. This meeting is a follow-up to the first meeting held last September in Ft. Worth and attended by representatives from sixteen different organizations.

One of the ideas to be discussed at the meeting is that exercise/sport groups together might develop a statement and rationale of major research directions that need attention in the next decade, and then take this around to various agencies to seek major funding. The interorganizational liaison group would play the major role in securing the overall fund, and it might play a continuing role in establishing and implementing a mechanism for evaluation of grant proposals. One intention of such a cooperative effort would be to demonstrate the multidisciplinary thrusts of overall exercise/sport research efforts in hopes that this might provide a more solid base for obtaining a major, sustained source of funding.

The September meeting is being organized by Janet C. Harris of the University of North Carolina at Greensboro and B. Don Franks of Louisiana State University. Attendees to the first meeting included representatives from the American Academy of Physical Education, the American Alliance for Health, Physical Education, Recreation, and Dance, the National Association for Physical Education in Higher Education, the National Association for Sport and Physical Education, the International Society of Biomechanics, the International Society of Biomechanics in Sports, the American College of Sports Medicine, the Association for the Advancement of Applied Sport Psychology, the North American Society for Psychology of Sport and Physical Activity, the North American Society for the Sociology of Sport, The Association for the Study of Play, the Sport Literature Association, the Philosophic Society for the Study of Sport, the North American Society for Sport Management, and the Research Consortium, AAHPERD.

Swimming Flume At USOTC

Swimmers finally get their chance to experience the futility of "treadmill" exercise with the completion of a swimming flume at the United States Olympic Training Center in Colorado Springs. This is the first aquatic flume in the United States, and was funded by a grant to the U.S. Swimming Federation from the Olympic Foundation. The flume will enable scientists to study physiological and biomechanical aspects of swimming performance, and according to John Troup, Ph.D., Director of Sports Medicine and Science for U.S. Swimming, it will be the most technologically advanced flume in the world. Along with superior viewing capabilities, biomechanical capabilities, and water flow characteristics, the flume includes a hyperbaric chamber which will allow sports scientists to simulate altitudes of up to 13,500 feet to study effect of high altitude on athletic performance. The flume will also house state-of-the-art aquatic, physiological, and blood chemistry laboratories.

ASB Elections

Every member should have received a ballot for the election for President (for 1989-1990) and program chairperson for the annual meeting next fall. Ballots must be in to Bruce Martin, ASB Secretary, by September 15, so if you haven't taken the opportunity to vote, do so soon. Following is a summary of the candidates and their backgrounds:

Program Chairperson

Edmund Y.-S. Chao (Health Sciences)

Dr. Chao was educated at the National Taiwan University (B.S. in engineering), and at the University of Iowa (Ph.D. in applied mechanics, 1971). He is currently Professor of Bioengineering and Director of the Orthopaedic Biomechanics Laboratory at the Mayo Clinic. His principal field of interest is the biomechanics of orthopaedic prostheses and fixation devices. He is an Associate Editor of the Journal of Bone and Joint Surgery, and on the Advisory Editorial Board of the Journal of Clinical Materials.

Murali P. Kadaba (Engineering and Applied Physics)

Dr. Kadaba was educated at Bangalore University in India (B.S. in mechanical engineering), at the University of Cincinnati (M.S. in aerospace engineering), and at the University of Kentucky (Ph.D. in biomedical engineering, 1978). He is currently an Associate Research Scientist in Orthopaedic Surgery at Columbia University and Chief of the Patient Evaluation Unit at the Helen Hayes Hospital Orthopaedic Engineering and Research Center in New York. He is also Adjunct Associate Professor of Biomedical Engineering at Rensselaer Polytechnic Institute. His principal research interests are biomechanics, kinesiology, and gait analysis.

President

Roger M. Enoka (Exercise and Sport Science)

Dr. Enoka was educated at the University of Otago in New Zealand (Physical Education) and at the University of Washington (Biomechanics of Human Movement and Kinesiology), where he received his doctorate in 1981. He is presently an Associate Professor in the Department of Exercise and Sport Sciences at the University of Arizona. His principal fields of interest are the biomechanics of human movement, kinesiology, and motor control. He has served as Meeting Chairperson for the 1984 ASB Meeting and as the ASB Membership Chairperson from 1985-1988. He is an Associate Editor of Medicine and Science in Sports and Exercise, an Associate of Behavioral and Brain Sciences, and is on the Editorial Board of Experimental Neurology.

George T. Rab (Health Sciences)

Dr. Rab was educated at Northwestern University, where he received his B.S. (medicine) in 1968 and his M.D. in 1970. He completed a residency in orthopaedic surgery (Mayo Clinic, 1975) with special training in pediatric orthopaedics, and served in the U.S. Army Medical Corps. He is presently an Associate Professor in the Department of Orthopaedic Surgery, and a member of the Biomedical Engineering Graduate Group at the University of California at Davis. His principal fields of interest are joint biomechanics and gait analysis. He is an Editorial Consultant for the Journal of Biomechanics, a member of the Committee on Computer Applications for the Pediatric Orthopaedic Society of North America, and

Coming Events

Sept. 9-15, 1988.

Seoul Olympic Scientific congress. New Horizons of Human Movement: Issues and Implications for Development, Performance and Health. (c/o 1988 Seoul Olympic Scientific Congress Organizing Committee, RM 203, Dankook Bldg, n°97, Nonhyun-dongm Kangnamku, Seoul 135 Korea. Tel.: (02) 542-8886, 546-8837/8, Telex: DK Univ K 227741, Bumju K 22962. Fax: (02) 546-0356.

Sept. 11-14, 1988

Bristol. European Society of Mechanics Meeting. (c/o Secrétariat: Dr. A.E. Goodship School of Veterinary Science Park Row - Bristol - BS1 5 LS UK).

Sept. 20-22, 1988

"Progress in Bioengineering. Artificial organs, delivery of rehabilitation, orthopaedic biomechanics, prosthetics and orthotics, technological advances". Glasgow, Scotland
(c/o Bioengineering Unit, Wolfson Centre, University of Strathclyde, Glasgow, Scotland. Tel. 041-552-4400 ext. 3029. Telex: 77472 (UNSLIB G). Fax: PICCHI-CERT-B.P. 4025 31055 Toulouse Cedex)

Oct. 18-19, 1988

"Biomat 88". Hybrid artificial organs. Concepts and development, Bordeaux, France. (c/o Mrs. Rouais, Biomat88 - INSERM U 306 - Université de Bordeaux II, 146, rue Léo-Saignat, 33076 Bordeaux Cedex. Tel. 56 93 12 72. Telex 550 491 F.

November 1-2, 1988

IEEE Workshop on Intelligent Robots and Systems, Tokyo (c/o Prof. Toshio Fukuda (Robotic Society of Japan). The Science University of Tokyo, Dept. of Mechanical Engineering, 1-3 Kagura-zaka, Shinjuku, Tokyo 162, JAPAN. Telephone (03) 260-4271 ext. 352.

June 26-30, 1989

XII International Congress of Biomechanics. Los Angeles. (c/o XII Intern. Congress of Biomechanics, UCLA Dept. of Kinesiology, 2854 Slichter Hall, Los Angeles, CA 90024-1568, USA. Tel.: (213)825-3910 or 825-5376.

June 29-July 3, 1989

Maccabiah-Wingate International Congress on Sport Sciences and Coaching. Israel. (c/o International Congress Secretariat, Wingate Institute for Physical Education & Sport, Wingate Post 42902, Israel.

July 3-7, 1989

"Stride into the 1990's - With Sport Technology and Technique" VII International Society of Biomechanics in Sports, Melbourne Australia. (c/o VII I.S.B.S. - Symposium, Footscray Institute of Technology, Dept. of Physical Education and Recreation, P.O. Box 64, Ballarat Road, Footscray, Victoria, Australia, 3011.

August 28-September 1, 1989

Paavo Nurmi Congress, Advanced European Course in Sports Medicine, Turku, Finland (c/o Congresspoint LTD, Tähtitornink. 5 G SF-20700 Turku, Finland.

September 11-15, 1989

VIIIth FINA World Medical Congress on Aquatic Sports, London Hospital, London, England. (c/o Conference Services Limited, Aldine House, 9-15 Aldine Street, London W12 8AW, England. Telephone 44-1-740-8121; Telex 916024 CONFER G).

October 29-November 2, 1989

First IOC World Congress on Sport Sciences. Broadmoor Hotel, Colorado Springs, CO. (c/o USOC Department of Library and Education Services, 1750 East Boulder Street, Colorado Springs, CO 80909. (719) 578-4575)