

ISBS: THE EVOLUTION OF A REVOLUTION

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PROLOGUE:

The idea of an organization dedicated to the advancement of sports biomechanics germinated during the Montreal Olympic Games in 1976, where the Olympic Biomechanics Cinematography research team, led by Professor Juris Terauds, discussed the issue at length. At the University of Alberta in the fall of 1977 Terauds continued to explore the idea through a long series of philosophical conversations with Geoff Dyson. These discussions explored a variety of topics, including the value of biomechanics in sports, the nature of biomechanics research, and ways in which coaches could be brought “out of the dark ages” and into the starting blocks with scientifically based information.

An informal meeting was held in conjunction with the Clinic for High Speed Biomechanics Cinematography in Edmonton, Canada during the International Congress of Sports Sciences in July 1978. Participants expressed a strong sentiment supporting an international society of sports biomechanics. It was not, however, until the following month, at the Commonwealth Games, that the 29 members of the biomechanics cinematography research team addressed the problems of forming and implementing an international society focusing on sports biomechanics.

Juris Terauds obtained a two-year sabbatical leave from the University of Alberta for the period 1979 to 1981. He used this time to promote the idea of an international society with biomechanics enthusiasts from around the world. This was no trivial task in an era when the dominant technologies were typewriters, snail mail and non-cell telephones. Nonetheless, he was able to consult with a substantial group of sports scientists. It is interesting that in spite of the relative difficulty of communication, 17 of 40 contributors he contacted were not residents of the U.S.A. Those who made significant contributions are listed in Appendix A.

IN THE BEGINNING....:

In August 1981, the Second International Symposium of Biomechanics Cinematography and High Speed Photography was held in conjunction with the 25th Annual Technical Symposium of the International Society for Optical Engineering at the Town & Country Hotel in San Diego, California. The symposium focused on the “...technological explosion creating new horizons for imagination, creativity and productivity” created by the advent of biomechanics cinematography and high-speed photography. In his program description, the chairman, Juris Terauds, stated, “I can only hope that this (the symposium) will again serve to bridge some gaps among disciplines, among technologies, and between researchers and practitioners.” This theme, “bridging the gap,” was to become one of the basic tenets and focuses of the new sports biomechanics society.

The symposium lecturers featured a number of luminaries from industry as well as academia who had expertise in high-speed cinematography and photography. The industry contingent included Harold E. Edgerton (“Papa Flash”) from the Massachusetts Institute of Technology who pioneered strobe photography as a high-speed tool for stopping action, William Hyzer (“Mr. Photoinstrumentation”) who was best known for his periodical column “Scientific Instrumentation” and his work in photo analysis and high-speed photography, and George Silverberg from the Naval Weapons Center, China Lake, California who astounded the audience with his introduction of a shuttered video camera capable of shutter speeds of 1/1000 second. Sports biomechanists John Cooper, Indiana University; Stanley Plagenhoef, University of Massachusetts; Marlene Adrian, Washington State Univ.; Anne E. Atwater, Univ. of Arizona; and Juris Terauds, Univ. of Alberta, represented the academic world.

The seminal event that led to the formation of the International Society of Biomechanics in Sports, however, was held on Thursday August 27, 1981 at 10:00 a.m. The overcast had receded, and it was a typical pleasant summer day in San Diego as the group assembled in

a wooden frame building adjacent to a small fountain on the hotel grounds. Juris Terauds had asked those interested in the formation of a sports biomechanics society to extend their stay by one day to attend the meeting. Others who participated in this significant meeting included: Marlene Adrian, Jim Crakes, Hans Gros, Anne Klinger, Iraklis Kollias, John Kuntz, John Ostarello, Stan Plangenhoef, and Jim Walton. Juris Terauds presided and Jim Crakes acted as recorder. There was a good deal of discussion about the viability of an international organization. Questions about the number of practitioners from around the world who were available to support an international organization and the problems of holding meetings in the era of the “Iron Curtain” and the “Cold War” were discussed. In the end, Juris Terauds’ conviction that there was a need for an organization and that the only test of viability was to create the society and test the waters won the day. Although there were doubters, the vast majority voted to immediately create the International Society of Biomechanics in Sports.

Terauds had prepared a general statement of purpose and a proposed structure for the new society that was adopted by the group almost unmodified. He had recognized, and convinced others, that although the discipline of biomechanics was growing rapidly, the emphasis was moving away from sport. Ostarello pointed out that sport and games have universal appeal and have been a prominent theme in all known cultures in the history of the world, thus supporting the notion that the study of sports was in and of itself a worthwhile endeavor. Consequently, the group adopted as the main mission of the Society the study of SPORTS biomechanics. The purposes that were adopted included the dissemination of information, the promotion of research, “bridging the gap” between researcher and practitioner, encouraging research in sports facilities, equipment and safety, encouraging research at the novice and disabled skill levels, and providing teachers, coaches, athletes, trainers, and other practitioners with scientific information about sports biomechanics. This was a formidable agenda, particularly for a fledging organization, but the group, with the leadership of Juris Terauds, proceeded to take the first step.

A name was selected, International Society of Biomechanics in Sports (ISBS), and a set of Pro Tempore officers was elected to allow the Society to move to the next step. Those serving were:

Juris Terauds	President
Marlene Adrian	Vice-President
David Kelley	Vice-President
Mitsumasa Miyashita	Vice-President
Jim Crakes	Executive Secretary

The first major activity, with a promise of support from the meeting attendees, was the establishment of a meeting place and date for the First International Symposium of Biomechanics in Sports. Jim Crakes offered the facilities of Point Loma College in San Diego, California. The meeting time was set for June 1982, and the Society was on track to accomplishing its mission.

The first scientific committee was formed shortly after the meeting and included Marlene Adrian, Anne Atwater, Wolfgang Bauman, John Cooper, Peter Francis, David Kelley, Ellen Kreighbaum, Mitsumasa Miyashita, Stan Plagenhoef, Juris Terauds, and Vadimir Zatsiorsky. A group of 21 formed the first Board of Directors (Appendix B). This group was selected from those biomechanists who represented the widest possible geographic area and who expressed a primary interest in sports. The founders felt that, in order to promote the international aims of the society, it was necessary to have directors from various countries who would actively endorse and encourage sports biomechanics and ISBS. Regardless of their home country, directors also needed to be passionate about the field. There was an almost innate understanding that the worth of an individual was in the value of their contributions. With this guiding principle, it is not surprising that almost 30% of the first Board of Directors and 20% of the Executive were women, and this was accomplished in an

era in which it was not particularly fashionable for women to be working in sports biomechanics.

EARLY SYMPOSIA:

San Diego-1982. The first major test for the new organization was the proposed international symposium. A failure at this point could have been catastrophic. There were many, especially those in biomechanics but without a primary focus in sports, who felt that the new group would not survive. It was essential to have a successful meeting in order to prove that there was sufficient interest in sports biomechanics, to generate momentum to move forward, and to gain support from those sitting in the wings trying to decide if the new organization was worth their effort.

Fortunately, Juris Terauds, with the help of Jim Crakes, executive director of the organizing committee, brought together the ingredients necessary for a successful conference at Point Loma College in San Diego, California on June 20-25, 1982. One of the ingredients for success was money. It always is. The conference organizers are usually required to assure that reserved accommodations will be utilized and that people are available to provide food and other services. Who was going to provide the upfront money? The answer was Juris Terauds. Through his private Research Center for Sports he guaranteed the money. He also convinced Instrumentation Marketing Corporation and Photosonics, Inc. to lend their monetary support. Incredibly, he was also able to persuade 9 companies to exhibit their wares.

By any measure the conference was an unqualified success. Attendees shared rooms in the college residence halls. New friendships were fostered and discussions on sports and biomechanics took place into the early hours of the morning. Meals were eaten in the college dining commons providing more opportunities for the exchange of ideas. There were over 135 participants, and 41 papers were presented. The venue provided for only one paper to be presented at a time, so the group was essentially together for five days – presenting, listening, eating, and socializing. It was truly uplifting, and the beautiful San Diego weather did nothing to diminish the experience. The participants left on a high note, excited about the experience and anticipating the next gathering.

Two meetings of the Board of Directors and one general meeting were held during the conference. A number of significant and enduring ideas emerged from these meetings. First was the idea that the Society publishes a periodical called the “Journal of Biomechanics in Sports”. This was a lofty goal that took over two decades to accomplish but finally saw fruition in 2002.

The second idea was to sponsor annual symposia. The first meeting was not yet completed when the directors voted 11-0 to support this goal. A euphoric mood that only an Olympic gold medal could match enveloped the conference. The symposium was a success and no goals were too high though much discussion preceded this vote. Ostarello, in particular, questioned the ability of the organization to successfully promote a conference every year. Could the Society find enough venues with willing sponsors? Would there be enough participants after the initial interest diminished? Would one year be too little time for researchers to produce papers for the conference? Other organizations held annual meetings, but their memberships were larger and well established. How could ISBS meet their international mandate? International travel was costly. It was difficult, if not impossible, for researchers to leave the eastern bloc even for scientific meetings. Even in the U.S.A. money for travel in educational institutions was minimal or non-existent. How were these questions answered? Terauds assured the group that these problems would be overcome. The important thing was to have a meeting each year. If only a small number of participants appeared, so be it. It was imperative to get people together to exchange information about sports biomechanics and to instill in them the idea that there was something important happening every year in the world of sports biomechanics. Besides, how could the Society predict the outcome without performing the experiment? The solution was to try and then analyze the results. Juris Terauds' view prevailed and of course the experiment produced

positive results. Through the year 2008, ISBS has had 26 successful meetings (Appendix C), with only one meeting, in China, being cancelled due to health risks.

The third idea was in the appointment of four individuals to investigate sites for future meetings. The U.S. Olympic Training Center and two universities were considered. The other site that was explored was Mainland China. Incredible as it may seem, the Society had thoughts of hosting a meeting in Mainland China before anywhere in Europe, though it took 21 years before a symposium was held in Beijing.

The fourth idea was acknowledgement of a need for a constitution. Katherine Barthels and Marlene Adrian tackled the task of producing a draft document in one year.

The fifth idea was creating a logo. Yes, the logo issue began on day one. Betty Atwater was given the responsibility of developing a logo for the Society, however, it wasn't until Hans Gros pursued the matter that a logo was finally produced in 1989.

Colorado Springs-1984. The United States Olympic Committee Sports Medicine Council and ISBS sponsored the Second International Symposium on Biomechanics in Sports. It was held at The Antlers Hotel in Colorado Springs, Colorado from January 8-14, 1984 – the only winter symposium in ISBS history. The second meeting took place 18 months after the first meeting in order to take advantage of the support and facilities offered through the U.S. Olympic Committee that also hosted the activities of two other sports and kinesiology related groups. This conference had broad appeal because of the sponsor and the number of groups involved.

The minutes of the Board of Directors reveal the Society discussed the possible endorsement of the new “International Journal of Sport Biomechanics” to be published by Human Kinetics. An association with the new journal would provide a quick and much less expensive route for ISBS sponsored publications when compared with a journal sponsored solely by the Society. Publication of a newsletter was also voted upon, with Marlene Adrian appointed as editor and Kathy Barthels and Ralph Mann as associate editors.

At the time, the dominant biomechanics group on the international scene was the International Society of Biomechanics (ISB). The formation of ISBS came about because practitioners whose emphasis was on sports biomechanics saw a diminishing role of sports in ISB conferences and publications. When ISBS was formed there was considerable interest and skepticism from the ISB leadership. ISB viewed the fledgling organization as a potential threat to its leadership and as a negative influence on the size of its membership. Consequently, a certain amount of friction was produced between the two organizations. Even issues such as the name of the new organization became somewhat contentious. Assertions that people would confuse ISBS and ISB seem silly in retrospect. It was like stating that beer drinkers would have difficulty in distinguishing between Bud and Bud Lite. At the Colorado Springs meeting, a panel discussion was placed on the meeting schedule to discuss “Sports Biomechanics at the International Level.” Juris Terauds and Marlene Adrian represented ISBS and Richard Nelson and James Hay represented ISB. At the ISBS meeting the following day, “the Board approved the formation of a President’s Commission to seek peace, cooperation, and coordination with ISB.” John Cooper, Marlene Adrian, Larry Holt, and Dave Kelley were appointed. It was proposed that a letter be sent to the president of ISB “offering information and an olive branch,” but it was also agreed that the “concept of the internationality of ISBS was not negotiable.” The new organization was flexing its muscles. It meant to be independent and free to pursue its mandate of sports biomechanics without outside interference.

In the months following the Second Symposium, a constitution, produced from the work of Adrian and Barthels was distributed and accepted by the Board of Directors. This constitution contained some elements that are common with the present document, for example there were five vice-presidents with similar duties, but it was rather loosely structured in many respects. For example, the number of members on the Board of Directors was not specified. The number could be large or small depending upon the needs of the Society. Reasons for being on the Board included, “possessing special expertise in research techniques or expertise in a sport, chairing of a committee, representing an

organization or country, and/or other functions that may be assigned from time to time by the president or the executive committee.” The number of Directors tended to be large. There were several reasons for this. The Board recognized that not all members would be able to attend all meetings and that there needed to be a sufficient number present in order to conduct business. Many members outside the U.S.A. could not receive travel permits or financial assistance unless it could be shown that they had a particularly important position with the Society. The needs of the Society and its members were not yet known so flexibility seemed to be an advantage.

Another significant aspect of the constitution was the fixing of a membership fee and the inclusion of a Treasurer in the organization. The annual membership fee was set at \$10 for researchers and coaches and \$3.00 for students. Even in 1984 this was a modest sum. However, one of the aims of the Society was to keep the price low so that cost would not be a factor especially in the currencies of other countries that did not then enjoy a weakening dollar.

Up until this time, there was no treasurer; there was no need for one. During its birth and infancy, ISBS had no financial resources to fund its operations. There were no membership dues, but money for mailing, paper, newsletters, proceedings, and telephone calls needed to come from somewhere. This financial predicament was overcome through the generosity of the Research Center for Sport that acted as patron and treasurer. Juris Terauds was the founder and president of the Research Center for Sports so he used his own money to make ISBS viable. There is no doubt that this one man had the vision, the commitment, and the drive to allow ISBS to survive and flourish.

By the end of 1984 a new Board of Directors was installed. This group now consisted of 27 members representing 8 countries. The Board of Directors elected the first Executive of ISBS. It consisted of:

Juris Terauds	President
Marlene Adrian	Vice-President
John Cooper	Vice-President for Public Relations
Wolfgang Bauman	Vice-President for Membership
Jim Crakes	Executive Secretary
John Ostarello	Treasurer

Greeley, Colorado-1985. Jerry Barham hosted the Third Symposium at Northern Colorado University in Greeley, Colorado in June 1985. Approximately 100 individuals including representatives from North America, Europe, Asia, and Africa attended. Juris Terauds presented a lecture in honor of the recently deceased Geoffrey Dyson who was known for his work in making coaching a science and in particular for his book, “The Mechanics of Athletics.” The Board approved the creation of an annual Geoffrey Dyson Memorial Lecture. This conference was distinguished not only because of the quality of the papers, but also because it was the least expensive of all conferences-ever. Accommodations in university apartments were \$8.00 per person double, and \$12.00 for a single. All meals were in the university cafeteria so there was ample time for social interaction. This was also the first conference in which several participants brought their wives and children. The “family” atmosphere caught on and was extended to include all members of ISBS as part of the family. To this day, the “family” is part of the ISBS heritage.

In August of 1985, Juris Terauds relinquished his position as President of ISBS to the president-elect Marlene Adrian. Terauds felt that the Society had now established a strong foundation and could continue without his financial support and leadership. It was time for others to demonstrate the commitment necessary to have a successful organization. He left with 29 countries represented and almost 400 members.

Halifax, Canada-1986. In 1986, the Society made the first attempt to go truly international when Larry Holt hosted the symposium at Dalhousie University in Halifax, Nova Scotia, Canada. That wasn’t too far from the U.S.A. border, but it was a start. The family theme

was reinforced as a number of wives and children participated in the conference's family oriented social activities. Help in organizing the conference also became an international and family event as John Ostarello and family prepared brochures and licked envelopes on one side of the continent in California while Alice Holt and family organized the beach parties, hikes and sightseeing on the other side of the continent in Halifax.

Athens, Greece-1987. ISBS made a truly big leap when the symposium left the North American shoreline in 1987 for sunny Athens with Eleftherios Tsarouchas hosting. This was the site of the 1st Geoffrey Dyson Memorial Lecture given by Gerhardt Hochmuth (Leipzig, GDR). David Waddell began a review of the ISBS Constitution to determine how it could be modified to better reflect the mission and goals of the Society. Extensive discussions ensued and Waddell, along with Barbara Gowitzke, were assigned the task of preparing a working copy for the Bozeman, Montana conference.

The possibility of having a conference in South Korea was first mentioned in Athens when Inseong Hwang offered to host the conference in conjunction with the Olympic Scientific Congress in 1988. It took 20 years to get to Seoul, but the wait was definitely worthwhile. The Athens conference was notable for one more thing. It introduced biomechanists to ouzo as a performance enhancer.

Bozeman, Montana-1988. Following Athens, in 1988, Ellen Kreighbaum arranged a western themed conference in Bozeman, Montana, U.S.A. Dress was cowboy casual but getting there was anything but casual. One person who made the trek, without the benefit of horse and cowboy boots, was Lu Deming from the China National Research Institute of Sports Science. It was amazing that Lu, who did not speak English, was able to make his way to this geographically challenged location. However his participation in this conference was important for it laid the foundation for the long sought ISBS dream of a meeting on Mainland China. After the bird flu scare in 2003 forced the only symposium cancellation, the vision of the founders was finally fulfilled with the memorable Beijing meeting hosted by Qing Wang in 2005.

Footscray, Victoria, Australia-1989. The Society took a "Stride into the 1990's" with a "down under" conference hosted by Bill Morrison. It was the first effort to hold a meeting in the southern hemisphere, and the attendees found it intellectually and socially rewarding. A minor crisis developed before the conference when some ISBS members questioned whether it was appropriate to have Australian beer companies as sponsors of the symposium. Since international conferences have social as well as educational value and since beer is an integral part of the social structure in Australia and has many of the qualities of Gatorade in recovering from aerobic exercise, the beer was stayed.

Prague, Czechoslovakia-1990. Politics entered the fray and affected the 1990 Prague conference. Petr Susanka had organized the conference with a Communist government in place. However in November-December 1989 the non-violent "Velvet Revolution" took place and the Communist government was overthrown. After the change in government, Susanka no longer had university support for the conference so he tried to run the meeting independently, and lost money. Who would have thought that anyone would be unhappy to see a Communist government collapse?

PUBLICATIONS:

Before the advent of robust electronic methods of communication, newsletters printed on paper and distributed via snail mail, were the only method of communicating with the members. Over the years, ISBS was fortunate to have a series of devoted hard working editors (Appendix D). The ISBS newsletter was first published in March of 1984. It was initially financed by the Research Center for Sports. The diagram on the cover was of two fencers, but this was not too much of a surprise since the editor, Marlene Adrian, was a world-class fencer. With minimum resources, Hans Gros took over as editor in 1986 and

continued until 1990. Hans collected information, organized, and produced the contents in Stuttgart, Germany. The pages were then sent 9300 km via snail mail to John Ostarello in the San Francisco Bay Area where he created an updated cover, printed and assembled the booklet, and mailed it to members. The Society now relied on university resources for its distribution while production costs were absorbed by ISBS. The first edition under Gros took on a new look as he used the latest technology in its production and revealed his subtle humor as he apologized for the “assumed” increase in typographical and grammatical errors since he was a “non-native speaker editing, in some cases, contributions of other non-native speakers.”

The newsletter was published in paper form from March 1981 to November 2001. No newsletter was published in 1990 after Gros moved to another leadership position in the Society. In 1991, Bill Morrison took over the publication of the newsletter in addition to his primary responsibility as ISBS President. He was cognizant of the need to maintain contact with the members and made considerable efforts to produce and distribute a newsletter from “down under.” Julie Steele assumed the editorship as part of her responsibilities as the V.P. for Publications and continued to “stamp and lick over 500 envelopes twice per year.” The task of producing and distributing the newsletter was becoming more onerous, but the good news was that the Society was growing.

Hans Gros was elected V.P. for Publications in 2000 and once again took the opportunity to not only produce newsletters, but also to foster and enhance communications between members. Newsletter production and distribution costs had now risen to almost US\$2.00 per copy and Gros realized that this was not sustainable, so one of his first acts was to put the newsletter on the ISBS web site, which he hosted, and make it available either in paper or electronic form as a transition to a purely electronic newsletter.

The newsletter became available in electronic form only in 2002 when costs per copy rose to US\$4.00. Color was first used, appropriately enough, in a bar graph depicting the number of hits on the Coach's Information Service site. Subsequently, in the winter of 2004, and concurrent with the acceptance and wide distribution of digital cameras, full color pictures were utilized.

Young-Hoo Kwon established a new record for fortitude and consecutive years as newsletter editor. He served from 2002 to 2007, until he was chosen to be the third editor of the ISBS journal, *Sports Biomechanics*. Fortunately, the organized and detail oriented Duane Knudson was able to assume the editorship mid-term and not miss a beat.

The newsletter reached its nadir in 2003. The Beijing meeting was cancelled and so was the newsletter. It was almost as if ISBS as an organization had vanished. The lack of interest due to the canceling of the symposium supports the position of those members who favor annual conferences over those who would prefer to have meetings every other year. This one data point suggests that the vitality of an organization is fragile. One year has the potential to produce great change.

In 1990 ISBS entered into an agreement with Human Kinetics Publishers to jointly sponsor the *International Journal of Sports Biomechanics*. Part of the agreement granted ISBS two new editor positions on the IJSB editorial board. This agreement provided a vehicle for the Society to have influence in a journal that would further the cause of sports biomechanics. Unfortunately, this arrangement was not as satisfactory as the members had imagined. When Human Kinetics changed the name of the journal to the *International Journal of Applied Biomechanics* in order to increase subscriptions, it doomed the Society's involvement. It wasn't until the Hong Kong meeting in 2000 that the members voted to pursue an independent journal owned by ISBS.

The first edition of *Sports Biomechanics* appeared in 2001. Ross Sanders was the original editor until the reins were passed to Roger Bartlett in October of 2003. Roger possessed a wealth of editorial experience obtained from his previous position as editor of the journal “*Sport Science*.” His first goal as editor was to improve the recognition of the journal. Within two years he had the journal recognized by Thompson Scientific Science Citation Index Expanded thus raising the stature of the journal significantly. When University of Edinburgh Press reported that the journal was not a profitable venture for them, Roger found a better

arrangement for ISBS. He solicited Taylor and Francis Group, London to not only take over the journal, but to agree to pay the Society 10000 pounds for the rights to produce the journal. In addition the publisher agreed to provide up to 500 free subscriptions per year for 10 years and to support an online version. The financial arrangement provided ISBS with a monetary cushion and a source of seed money to establish new initiatives. Roger withdrew as editor in 2007 although there are rumors that he should be retained as the official ISBS financial advisor.

When Bartlett resigned as editor to pursue other interests, a search was immediately begun to find a qualified new editor. Young-Hoo Kwon who, in his position as Vice President of Publications, had demonstrated his ability to edit and produce the newsletter over a sustained period was selected. His first undertaking was the development of an online process for review of papers submitted to the journal. This will simplify the submission process for authors and reviewers.

LOGO:

The desire for a logo to represent the organization was expressed at the first symposium. It was not until 1986, with the impetus of Hans Gros, that serious efforts were made to design and select one. The unofficial logo was a modified version (to accommodate the sensitivities of the American culture) of Leonardo Da Vinci's Vitruvian Man, and it was used in early programs and letterhead. Gros proposed a contest to select an official logo to "symbolize the basic philosophy of ISBS", and with the help of Eleftherios Tsarouchas offered a prize of free registration, room and board, and access to all social events for the winner. Six entries were received, but when the Board of Directors, who were to decide the winner, met in Greece it was decided that although "many of the entries have merit and could be adopted as a logo for ISBS", no single design found unconditional approval.

The contest was extended another year and then again. Nine entries were finally compiled and submitted to a mail vote of the membership in the summer of 1989. Ellen Kreighbaum's design, which she had utilized in advertising the Bozeman conference, was selected as the winner and awarded a prize of US\$200. The logo was first used on the newsletter of winter 1989. The current logo was approved by "a large majority" of the voting members and has since been used on all Society awards, letterhead, advertising, pins, and publications.

After almost 20 years, the logo debate re-emerged at the Salzburg meeting in 2006. A proposal to alter the logo was submitted at the general meeting, but met unexpectedly fierce opposition. Questions abound about the loss of history, heritage, and identity that would occur if a new logo were adopted.

MONEY-MONEY-MONEY:

John Ostarello was the first Treasurer of the Society. The Research Center for Sports left the Society in an excellent financial position, but lack of patronage left the Treasurer with a zero balance. The "international" flavor of the Society became very evident as Ostarello struggled to cash checks in different currencies and learned the economic realities of the banking industry. The dues were low – only US\$10.00. Banks, however, charged a fee for overseas checks that sometimes exceeded the cost of the dues. It became more profitable for the Society to waive the dues for biomechanists who lived in countries behind the "Iron Curtain." The Society has come a long way from "soft currency" to the mighty Euro.

Spiros Prassas did a turn as Treasurer before the office was moved to Europe when Manfred Vieten took over in 1997. Manfred attempted to make it easy to pay dues by collecting in US dollars and Euros. Using his technical abilities and inclination toward the easy life, he introduced a secure web site to automate the ISBS membership database by using online registration and developed an electronic payment system.

Giannis Giakes served as Treasurer from 2001 to 2005. He initiated ISBS email lists to communicate with the members. His biggest contribution, however, was his insight into the relative values of the dollar and the Euro. So even before the steep decline of the dollar, he proposed switching ISBS funds into Euros and accepting only Euros for transactions.

Manfred Vieten became Treasurer again in July 2006. In addition to minding the money Manfred continued to consider ways to move ISBS forward. He proposed an on-line review process for article submission that would standardize and simplify the task for reviewers. His most exciting idea, however, was the creation of an on-line archive of ISBS Proceedings that would be searchable in various ways so that it would be an excellent resource for researchers. The ISBS Archive is structured as an open access journal that provides access to full papers free of charge. As with most proposals, if the project is to be brought to fruition the person who proposed it must be ready to do the work. Manfred had already laid the groundwork for the site at the University of Konstanz, and with a stipend from the Society he began the work intensive task of scanning materials. The project is well underway at this time.

The idea to seek sponsors to offset the cost of operations and to permit the Society to expand its work has been proposed many times since the inception of ISBS. The Society benefited greatly recently due to the efforts of the Vice-President of Public Relations, Angus Burnett, with assistance from then president Hermann Schwameder. He broke the sponsorship barrier by devising a tiered sponsorship scheme, Gold-Silver-Bronze, and vigorously pursuing potential corporate supporters. For the first time in the history of ISBS, in 2006, he attracted three sponsors: Gold: Novel – Visol and Silver: Contemplas.

TECHNOLOGY:

In the December 1986 newsletter, Hans Gros wrote a short article about using BITNET and EARN to connect to international computer networks such as ARPANET, CSNET or JANET to link academic institutions and facilitate the exchange of information. He invited ISBS members to sign on. The article stimulated so much interest worldwide that by May 1987 he had received only two communications from colleagues at the University of Alberta. Of course, in recent years everyone has received more than two communications from colleagues via electronic mail, and the World Wide Web has come to dominate our professional and social lives. Hans and Manfred Vieten were the driving forces in developing and maintaining the ISBS web site.

ACCELERATED GROWTH AND VISION:

By and large, ISBS presidents (Appendix E) have been passionate about their role and their dedication to furthering the mission of the Society. Some realized that in order to push their ideas forward that they were going to have to do most of the work – and they did. ISBS has been fortunate that the elected leaders, despite occasional differences in style, have all had the vision of moving the Society forward. At times this forward movement was almost imperceptible due to constraints of money, communications, or the magnitude of the personal responsibilities of the participants. At other times, however, the Society made some giant leaps due to the perseverance and determination of the presidents and the officers.

Such an epoch appears to have begun in full force with the election of Renato Rodano in 1996. Rodano was a long time member and had held several officer positions. He worked diligently, particularly as president, to raise the profile of ISBS not only in the biomechanics community, but also with other international societies and sports governing bodies. He felt that the Society should interact with these groups in order to be better able to bring sports biomechanics to the practitioners. He also contributed significantly to the preliminary work necessary to support the eventual publication of the ISBS journal.

Hans Gros followed Rodano as president. As a founding member of ISBS and the holder of many different positions within the Society, Hans had a wealth of experience with the organization. He cared about the Society in the way that parents care about their children. He moved it forward technically and philosophically with his usual hands-on efforts. He recognized that it takes time and effort and cajoling and leading to “bridge the gap” and he gave his energies unselfishly. His emphasis on “doing” is probably best reflected in the Chinese saying he quoted, “The man who moved the mountain was the very one that started carrying away the first stone.”

In 1999, Ross Sanders took over the presidency and the Society embarked upon one of its most productive periods. His presidency was characterized by high energy as he produced a record number of email exchanges with officers, directors, and members in an attempt to move the Society at a faster pace. Much as a shark must keep moving to survive, Ross was driven to constantly move his vision forward. He envisioned that coaches and sports persons worldwide would view ISBS as the premier source of information on sports technique and injury prevention. His no nonsense 'get it done' attitude brought to fruition the Coaches Information Service. He was able to engage the services of the University of Edinburgh to support his ISBS project to effectively disseminate scientific information to sports practitioners. Many ISBS members were stimulated to make contributions to the project. The viability of CIS was demonstrated by the remarkable growth of the Service that registered close to 7000 hits per month in the first year of operation.

Ross proposed and then produced the ISBS sponsored journal "Sports Biomechanics." He became the first editor and negotiated to publish the journal in a joint effort through the University of Edinburgh Press. Through sheer will and perseverance Ross introduced the first edition of the journal in time for the 2001 symposium in San Francisco thus finally attaining the founder's dream of an independent journal dedicated to sports biomechanics. With CIS and Sports Biomechanics well established, Ross has embarked on a new venture for online courses in coaching science.

CONSTITUTIONS:

As mentioned previously, the first constitution was drafted by Cathy Barthels and Marlene Adrian and adopted by the Society in March 1984. Efforts to modify the constitution began almost immediately. In 1986, David Waddell, whose extensive background in constitutional matters and experience with the administration of international organizations, was assigned the task of refining the constitution. That process began in earnest in Greece 1987 and resulted in the acceptance by the Directors of a new constitution in 1988. There were two notable aspects of this new constitution. First, Section 1.4.0 Annual Dues stated, "ISBS may allow members of countries with soft currency to pay ISBS dues in their currency. The money will be held in such a situation in bank accounts in the respective countries and will be used for ISBS business in those countries." It is rumored that there is currently a movement to grant similar benefits to countries that do not use the Euro or British pound as a medium of exchange. The second interesting factoid was that in order to facilitate "bridging the gap" between specific biomechanical knowledge and the practitioners, Sports Coordinators for each sport were elected for four-year terms.

Waddell had long espoused the merits of providing, within the constitution, a provision for Honorary Officers and Patrons. He felt that it was beneficial to the Society to recognize individuals who by virtue of their unique or high position could lend their names to the activities of the Society. The first use of this provision occurred in Hong Kong 2000. Renato Rodano, Vice President of Public Relations, facilitated the appointment of Mme. Lu Shengrong, President of the International Badminton Federation to the position of Honorary Vice President. Rodano also supported Youlian Hong's nominations for Congress Patrons for two members of the Chinese University of Hong Kong - Prof. Arthur K.C. Li, Vice Chancellor, and Prof. Ping Chung Leung, Head of the New Asia College.

In 2004 President Bruce Elliot initiated a review of the constitution in order to make the document more fluent and to reflect the views of current members. As a pragmatic thinker, he was particularly interested in increasing membership and examining the roles of individual Board members with the intent of increasing participation in the administration of ISBS.

Hermann Schwameder succeeded Elliott as President in 2005. He launched discussion regarding the size and structure of the Board and was interested in creating a stronger link between Board members and specific tasks. A new constitution was readied under Schwameder's presidency and is currently awaiting ratification.

Constitutional issues appear never to cease. This is a good thing; it demonstrates that members of the Society can openly question and evaluate the direction in which the Society

is moving. Youlian Hong, President from 2007 to 2009, found himself with issues about ratification of the constitution and the proper course to follow. His presidency is marked by an effort to operate in a manner that is completely transparent to the members. ISBS is, after all, an organization about the members and not solely the domain of the Executive or Board of Directors.

AWARDS:

The first constitution of 1984 provided for a Vice President for Publications and Awards. Interestingly, the refined proposed constitution of 1986 had no such provision, but it did establish an awards committee to be appointed by the President. Barbara Gowitzke served as chair of the awards committee and became the first Vice President of Awards in 1992 when the constitution was modified to provide such a position. Barbara had been an ISBS member since 1984 and vigorously supported the awards program for the entire time of her membership. She continued to serve on the awards committee as Blaine Hosizaki and Eugene Brown, were sequentially elected to the Vice President of Awards position. Gowitzke returned as Vice President of Awards in 2000 and continued in that position for another five years until 2005 when Richard Smith was elected.

Barbara recognized the benefits to the Society of having sophisticated awards and a system to identify recipients. She felt the awards should recognize individual achievements and bring prestige to the Society. Consequently, one of her accomplishments was to assist with the design and secure a source for producing the plaques for each award category.

During his term, Eugene Brown, with monetary support provided by Youlian Hong, produced a lapel pin with the ISBS logo that was distributed to all members at the Hong Kong conference in 2000. The idea to design a pin and provide it to the members originated at the Ames, Iowa meeting in 1991. The pin was another example of the ISBS incubation period that seems to be required for an idea to germinate. Brown encouraged the display of the pin by all members at conferences by levying a small monetary penalty on those caught without one. This was received in good humor by the conferees as a socializing event that had them talking and reminding one another to wear the pin at the various conference activities.

Stuart Miller became the Vice President of Awards in 2001 and held the position for four years. Miller's tenure was marked by high energy particularly with respect to the New Investigator Awards where he initiated a comprehensive review and evaluation process to give candidates the best possible opportunity to demonstrate their abilities.

In 1987 the first proposal to encourage young researchers was presented to the Board of Directors by Petr Susanka. The Young Investigator Award was to be given for original research theses at the master's degree, or equivalent, level. Ph.D. theses were not eligible. Three winners were to be awarded the equivalent of approximately US\$600 per person. This was a substantial sum of money in 1987 - certainly enough to travel to the ISBS symposium.

The name of the award was changed in 1995 to the New Investigator Award. Guidelines for the new award were written and promulgated by the then Vice President of Awards Eugene Brown and formally accepted in Madeira, Portugal, 1996.

Money from corporate sponsors and the participation of the organizers of the Salzburg, Austria 2006 symposium made it possible for Vice President of Awards Richard Smith to offer monetary awards for the New Investigators. A record number of applicants (49) vied for the awards. A prize pool of 1000 euros was offered for oral presentations and 500 euros for poster presentations.

2006 also brought a name change to the awards format. The passing of Hans Gros brought a call to memorialize his service and devotion to ISBS by changing the name of the award to the Hans Gros New Investigator Award.

RESEARCH:

It is readily apparent that without an ISBS research function there would be nothing with which to "bridge the gap." It is to the credit of the Society that the members were willing to use their own money to support this function when other sources of funding were unavailable.

Bruce Mason was elected as the first Vice President of Research in 1988. Larry Noble who worked devotedly at the position for the next eight years followed him in 1992. Under Noble, the Society members engaged in a series of research initiatives from 1994 through 2000. Richard Smith took the reins from Noble in 2000. He was subsequently succeeded by the ever energetic, “get the job done”, Ross Sanders who continued in the position until 2008.

SECRETARY GENERALS:

The work of the Secretary General is often unheralded because it is perceived as merely recording the minutes of the Board and Annual General Meeting, but as those who have held the office can attest the position functions as much more than a scribe. In addition to elections, with their myriad problems, that must be conducted each year, the Secretary General is involved in “bridging the gap” with the Executive and Board as well as the general membership. The number of communications and interactions no doubt exceeds that of the President as members, rightfully, use the office as their first line of contact with the Society. There is no consolidated record of the people who have served in this position, so in order to recognize them, they are listed in Appendix F.

LIFE MEMBERS:

This category of membership is reserved for members who have made outstanding contributions to the Society. These people are selected by the Awards Committee and ratified by the Board of Directors. They are recognized because their contributions have been meaningful to the advancement of the Society and sustained over long periods of time. It is not generally known, however, that many of these members readily supported the Society in its early days when the viability of the Society was still tenuous. They believed fervently in the ISBS mission and assumed a degree of risk to their careers when they received negative pressure from the biomechanics world.

Nine members hold the title of Life Member.

Juris Terauds	U.S.A.	1989	Hans Gros	Germany	2001
John Ostarello	U.S.A.	1997	Barbara Gowitzke	Canada	2002
David Kelley	U.S.A.	1997	Pekka Luhtanen	Finland	2004
David Waddell	U.S.A.	1997	Ross Sanders	UK	2005
Ellen Kreighbaum	U.S.A.	1998			

EPILOGUE:

ISBS is officially 28 years old this year. The meeting in Seoul, Korea is recorded as the 26th meeting. However, due to the cancellation of the 21st meeting in China, this is really the 25th meeting. Confused? You need not worry. The Society has done a number of revolutionary, if not confusing, things over the years. The critical point is that ISBS has survived and, with the assistance of biomechanists around the world, has thrived.

From the beginning, ISBS has provided a medium for congenial and productive exchange of ideas. Early on, Hans Gros noted that he felt comfortable presenting his work at the symposium. He said that he didn't have to worry about his ideas being exploited in a non-professional manner, a feeling that continues to resonate with the membership.

At every meeting new attendees comment that ISBS is an extremely friendly group. These people feel welcomed, and they feel at ease in discussing their ideas. But ISBS has demonstrated that its members are more than just friendly. How many other organizations would have recognized that eastern bloc countries had problems with their soft currency and then took measures to assist them? ISBS did. How many organizations are committing their money and resources to help those young scientists who are interested, but lack the money to attend conferences? ISBS does.

ISBS is about people. While the Executive and Board of Directors are essential to the operation of ISBS, it is the members who make the Society. One can attend other meetings where thousands of people are present and only speak to a few, or go to an ISBS meeting where there are a few hundred attendees and easily speak to fifty or more. In a world of instant messaging, voice mails, emails and distance learning, ISBS conferences provide a

rare opportunity to meet real people and share ideas in real time. There is no doubt that ISBS meetings today are very different than those 28 years ago, but the revolutionary concepts promulgated by ISBS are still very much in vogue.

APPENDICES:

Appendix A

Significant Contributors to Formation of ISBS-1979-1981

Adrian, Marlene	U.S.A.	Gowitzke, Barbara	Canada
Ariel, Gideon	U.S.A.	Gregor, Robert	U.S.A.
Barham, Jerry	U.S.A.	Gros, Hans	Germany
Barthells, Katherine	U.S.A.	Holt, Larry	U.S.A.
Bates, Barry	U.S.A.	Hudson, Jackie	U.S.A.
Baudin, Pierre	Canada	Kelley, David	U.S.A.
Bauer, Anthony	Australia	Kreighbaum, Ellen	U.S.A.
Bauman, Wolfgang	Germany	Kuntz, John	Canada
Bedingfield, Wendy	Canada	Marino, Wayne	Canada
Bober, Tadeusz	Poland	Marshall, Bob	New Zealand
Bridges, Glen	U.S.A.	Miller, Doris	U.S.A.
Cheetham, Phillip	Australia	Miyashita, Mitsumasa	Japan
Cooper, John	U.S.A.	Ostarello, John	U.S.A.
Crakes, Jim	U.S.A.	Payne, Howard	UK
Cryer, Walt	U.S.A.	Plagenfoef, Stan	U.S.A.
Dales, George	U.S.A.	Ramey, Melvin	U.S.A.
Daniels, Dayna	U.S.A.	Rodano, Renato	Italy
Dillman, Charles	U.S.A.	Terauds, Juris	U.S.A.
Dyson, Geoff	UK	Therrien, Rene	Canada
Francis, Peter	U.S.A.	Zatsiorsky, Vladimir	USSR
Freeborg, Richard	U.S.A.		

Appendix B

First ISBS Board of Directors-1981

Adrian, Marlene	U.S.A.	Kelley, David	U.S.A.
Atwater, Anne	U.S.A.	Klinger, Anne	U.S.A.
Barham, Jerry	U.S.A.	Kreighbaum, Ellen	U.S.A.
Barthells, Katherine	U.S.A.	Mann, Ralph	U.S.A.
Bates, Barry	U.S.A.	Miyashita, Mitsumasa	Japan
Cooper, John	U.S.A.	Muraki, Tukito	Japan
Crakes, Jim	U.S.A.	Ostarello, John	U.S.A.
Dillman, Charles	U.S.A.	Plagenfhoef, Stan	U.S.A.
Francis, Peter	U.S.A.	Terauds, Juris	U.S.A.
Gros, Hans	Germany	Zatsiorsky, Vladimir	USSR
Holt, Larry	U.S.A.		

Appendix C

Conferences and Hosts

1982	I	San Diego, California, U.S.A.	Jim Crakes
1984	II	Colorado Springs, Colorado, U.S.A.	United States Olympic Committee
1985	III	Greeley, Colorado, U.S.	Jerry Barham
1986	IV	Halifax, Nova Scotia, Canada	Larry Holt
1987	V	Athens, Greece	Eleftherios Tsarouchas
1988	VI	Bozeman, Montana, U.S.A.	Ellen Kreighbaum
1989	VII	Footscray, Victoria, Australia	Bill Morrison

1990	VIII	Prague, Czechoslovakia	Petr Susanka
1991	IX	Ames, Iowa, U.S.A.	Cynthia Tant
1992	X	Milan, Italy	Renato Rodano
1993	XI	Amherst, Massachusetts, U.S.A.	Joe Hamill
1994	XII	Budapest, Hungary	Aniko Barabas
1995	XIII	Thunder Bay, Canada	Tony Bauer
1996	XIV	Funchal, Madeira, Portugal	Joao Abrantes
1997	XV	Denton, Texas, U.S.A.	Jerry Wilkerson
1998	XVI	Konstanz, Germany	Manfred Vieten
1999	XVII	Perth, Australia	Ross Sanders
2000	XVIII	Hong Kong, China	Youlian Hong
2001	XIX	San Francisco, California, U.S.A.	John Blackwell
2002	XX	Caceres, Spain	Kostas Gianikellis
2003	XXI	Cancelled	
2004	XXII	Ottawa, Canada	Mario Lamontague
2005	XXIII	Beijing, China	Quing Wang
2006	XXIV	Salzburg, Austria	Hermann Schwameder
2007	XXV	Ouro Preto, Brazil	Hans-Joachim Menzel
2008	XXVI	Seoul, South Korea	In-Sik Shin

Appendix D

Newsletter Editors

Marlene Adrian, U.S.A.	1984-1985
Kathy Barthels, U.S.A.	1985
Hans Gros, Germany	1986-1989
Bill Morrison, Australia	1990-1991
Jerry Wilkerson, U.S.A.	1992-1994
Gary Moran, U.S.A.	1995
Julie Steele, Australia	1996-2000
Hans Gros, Germany	2000-2002
Young-Hoo Kwon, U.S.A.	2002-2007
Duane Knudsen, U.S.A.	2007-

Appendix E

ISBS Presidents

Juris Terauds	U.S.A.	July 1981 - July 1985
Marlene Adrian	U.S.A.	Aug 1985 - June 1986
Larry Holt	Canada	July 1986 - June 1988
Ellen Kreighbaum	U.S.A.	July 1988 - June 1990
Bill Morrison	Australia	July 1990 - June 1992
Lela Stoner	U.S.A.	July 1992 - June 1994
Renato Rodano	Italy	July 1994 - June 1996
Hans Gros	Germany	July 1996 - June 1998
Ross Sanders	Australia	July 1998 - June 2000
Eugene Brown	U.S.A.	July 2000 - June 2002
Bruce Elliott	Australia	July 2002 - June 2005*
Hermann Schwameder	Germany	July 2005 - June 2007
Youlian Hong	China	July 2007 - June 2009

*Served a 3-year term due to cancellation of 2003 symposium.

Appendix F

Secretary Generals

Jim Crakes	U.S.A.	1981-1985
Gail Evans	U.S.A.	1985-1986
Jackie Hudson	U.S.A.	1986-1990
Eugene Brown	U.S.A.	1990-1992
Cynthia Tant	U.S.A.	1992-1997
Stuart Miller	UK	1997-2001
John Blackwell	U.S.A.	2001-2005
Drew Harrison	UK	2005-2007
John Ostarello	U.S.A.	2007-